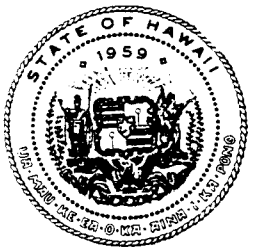
A Report to the 1993 Legislature

GEOTHERMAL AND CABLE DEVELOPMENT PERMITTING



Prepared by the

Department of Land and Natural Resources
State of Hawaii

in response to

Section 196D-11, Hawaii Revised Statutes

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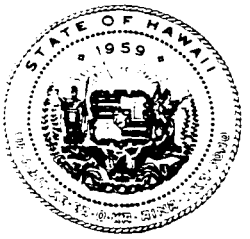
Honolulu, Hawaii
December 1992



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Geothermal and Cable System Development Permitting

State of Hawaii

INTRODUCTION

Pursuant to Chapter 196D, Hawaii Revised Statutes, the Department of Land and Natural Resources has established a consolidated permit application and review process.

Recognizing that there has been no application for any large-scale geothermal/inter-island transmission cable project for the State of Hawaii, department resources and staff efforts have been appropriately utilized and actively involved in the monitoring and regulation of existing projects currently permitted to explore, develop and generate geothermal electricity exclusively for the Island of Hawaii.

Although these efforts relative to geothermal development activity on the Big Island did not involve any aspect of inter-island cable transmission, the department's activities have been consistent with the objectives and purpose of Chapter 196D, HRS. The allocation of program resources and duties performed by staff have been invaluable in providing support to the monitoring and regulatory functions of other State and County agencies and the geothermal resource management responsibilities of the department.

STATE ADMINISTRATION'S POLICY AND PRIORITIES ON GEOTHERMAL DEVELOPMENT

From 1987 through early 1990, the State of Hawaii actively supported a 500 MW geothermal/inter-island cable project. However, since January 1990, the State's focus has been on commercial geothermal development to first serve the energy needs of the Island of Hawaii. Any future support of a geothermal/cable project would be dependent upon our experience with the smaller scale projects that satisfy the energy needs of the Big Island, and the acceptable resolution of geothermal resource availability and social, economic and environmental concerns.

As of 1992, the State has further refocussed its support and has adopted the following Geothermal Energy Policy:

> "The State of Hawaii currently supports geothermal energy as a potential energy source exclusively for the Island of Hawaii. Therefore, the State supports the efforts of Puna Geothermal Venture to explore, develop and generate geothermal electricity in a safe and environmentally acceptable manner limited for use to the Big Island.

The State of Hawaii currently is not taking any action to support a large-scale geothermal and undersea cable transmission project to export electrical energy to the other islands, and is not aware of any present efforts, public or private, to undertake such a project.

The Federal government has been mandated by the Federal Court to prepare an EIS for a conceptual "Hawaii Geothermal Project" consisting of a large-scale (i.e., 500 megawatts) development of geothermal power on the Island of Hawaii for transmission to Oahu and one or more of the other islands in the State.

While the State will continue to provide information and cooperate with the Federal government in the preparation of the EIS, the State's position is that there is no such project under consideration at the present time."

This policy limits the State's support for geothermal development to currently permitted projects on the Big Island and establishes that the State is no longer pursuing a large-scale geothermal/cable project for export of electrical energy to the other islands.

GEOTHERMAL/CABLE SYSTEM DEVELOPMENT STATUS

The State of Hawaii is not proposing a large-scale geothermal project for the export of electrical energy to the other islands; however, the Department of Land and Natural Resources (DLNR), together with the Department of Business, Economic Development and Tourism (DBEDT) as the lead agency for the State, is actively cooperating in the U.S. Department of Energy's (DOE) preparation of a Federal NEPA EIS for the Hawaii Geothermal Project (HGP).

In 1991, the U.S. District Court of Hawaii, based on a suit filed by several environmental groups, ruled that DOE must prepare a Federal EIS for a conceptual project identified as the Hawaii Geothermal Project (HGP) before any further disbursement of Federal funds to the State.

In response to this decision, DOE is preparing an EIS for the HGP as defined by the U.S. District Court of Hawaii and the State's earlier proposals defined by the U.S. District Court of Hawaii and the State's earlier proposals to Congress related to a conceptual 500 MW geothermal/inter-island cable project.

As such, the department has given needed support and assistance towards this process and has provided DOE with information and documents relative to water resources, geology, historic sites, and aquatic/terrestrial resources.

A "Draft Implementation Plan for the Hawaii Geothermal Project EIS" was prepared by DOE dated October 20, 1992 and is attached as Appendix A. A final version of the Implementation Plan document will be available during the first quarter of 1993.

Although the State of Hawaii is participating in the EIS as a Cooperating Agency, together with the Counties of Maui and Hawaii and several other Federal agencies, the Federal EIS will be prepared exclusively to fulfill Federal EIS requirements and is not intended to satisfy State EIS requirements (Chapter 343, HRS). The State of Hawaii maintains its right to prepare a State EIS at the appropriate time.

CURRENT GEOTHERMAL DEVELOPMENT ACTIVITIES STATUS

True/Mid-Pacific Geothermal Venture

In connection with the recommendations of the Independent Technical Investigation of the Puna Geothermal Venture's (PGV) Unplanned Steam Release of June 12 and 13, 1991, and the recommendations of the State and County Geothermal Task Force's Geothermal Management Plan, True/Mid-Pacific Venture (True) also has been required to review its well completion program and emergency response plan to assure that these plans meet the same standards applicable to PGV. Pending review of the updated plans, True will continue to develop the resource.

Puna Geothermal Venture

The recommendations of the Independent Technical Investigation and the Geothermal Task Force have been carried out. A revised plan of operations, drilling programs, operating procedures, and drilling permits have been implemented by PGV. A flow test of well KS-8 indicated the presence of an excellent geothermal resource. During production of KS-8, amounts of up to 10 MW of electricity were delivered to HELCO. Because of concerns over the ultimate integrity of the well, however, KS-8 was abandoned in favor of new production wells to be drilled in the area. Well KS-4 has been completed as an injection well, and Well KS-9 is being drilled as a production well at this time. PGV anticipates commencing sale of electricity to Hawaii Electric Light Company in early 1993.

The University of Hawaii Scientific Observation Hole (SOH) Program

The SOH project proposed to drill up to (6) exploratory test holes, approximately 4,000 to 6,000 feet in depth within designated GRS areas. Originally, (4) SOH's were planned for the Kilauea East Rift Zone and (2) for the Haleakala Southwest Rift Zone. To date, (3) SOH's on the Island of Hawaii have been completed.

No drilling has taken place in 1992, and currently, all drilling activities have been voluntarily suspended, and the Tonto drilling rig returned to the mainland.

Non-drilling testing and monitoring activities are being conducted for those wells already drilled. Additional water sampling, hydrogeologic, geochemical and seismic surveys, as well as injection/interference testing will be conducted as part of the continued SOH non-drilling program.

Monitoring

Regulatory agencies have made efforts this year to strengthen program reviews, on-site monitoring and long-term monitoring studies. Short term support for these efforts was made available by Governor Waihee to the Department of Health and to the Department of Land and Natural Resources, to increase personnel for these purposes. Long term support for these efforts must continue to be sought.

OTHER ACTIVITIES

Regional Environmental Meetings

In February and June 1992 the Department participated in informational meetings organized by the U. S. Department of the Interior on the status of geothermal development activities and other projects.

1992 Geothermal Resources Council Training

Various staff members of the Department attended three weeks of geothermal drilling school.

Research on Geothermal Resource Valuation

DOWALD staff attended a training session on geothermal resource valuation and prepared and presented briefings on this topic for affected agencies. Various methods for establishing a value for geothermal resources were presented in order to get feedback from the agencies to the Board of Land and Natural Resources (BLNR). A method will need to be selected by the BLNR in order to calculate royalties due to the State, Office of Hawaiian Affairs, and the County of Hawaii. It is anticipated that a method will be selected early in 1993.

Geothermal Technical Advisory Committee

The Geothermal Technical Advisory Committee (GEOTAC) completed an update of Report C-103 "Statewide Geothermal Resource Assessment" assessing Hawaii's potential geothermal resource areas. This update is attached as Appendix B.

Under the guidance of the GEOTAC committee several geothermal studies have been proposed and are in various stages of completion. A baseline study of subsidence in the Puna area was completed in April 1992, and the same month, a baseline hydrological study of the Puna area was begun. A study of core samples from the scientific observation holes is underway, and other studies have been proposed but not yet approved for funding.

A technical report was prepared for the Department of Business, Economic Development and Tourism entitled "Annual Report: Geothermal Resources Assessment" dated September 1992, and was presented to the GEOTAC for integration with the ongoing research activities of the respective committee members.

Newspaper File

DOWALD continues to maintain a chronological newspaper clippings file on geothermal activities in the State of Hawaii.

FUTURE PLANS FOR INTERAGENCY GROUP

To date no identifiable problems have arisen with regard to the consolidated permitting procedures. Accordingly, the Department recommends that no changes be made to either the consolidated permit application and review process or to the statute at this time.

1992 Statistics*

1. Assistance rendered to the public	8
2. Investigations undertaken	80
3. Meetings coordinated/attended	21
4. Special reports completed	6

*1 - access to files, photocopying documents
2 - looking up property locations within/without geothermal subzones and mining leases
3 - meetings regarding various aspects of geothermal activities
4 - in-house reports on various aspects of geothermal activities

Appendix A
"DRAFT IMPLEMENTATION PLAN for the HAWAII GEOTHERMAL PROJECT ENVIRONMENTAL IMPACT STATEMENT"

Draft Implementation Plan
for the
Hawaii Geothermal Project
Environmental Impact Statement

Prepared by
The United States Department of Energy
Conservation and Renewable Energy
Washington, D.C.

In Cooperation with
County of Hawaii
County of Maui
National Marine Fisheries Service
National Park Service
State of Hawaii
United States Army Corps of Engineers
United States Fish and Wildlife Service
United States Geological Survey

October 20, 1992

CONTENTS

Draft Implementation Plan for the Hawaii Geothermal Project Environmental Impact Statement

1. INTRODUCTION

The U.S. Department of Energy (DOE) is preparing an Environmental Impact Statement (EIS) that identifies and evaluates the environmental impacts associated with Phases 3 and 4 of the proposed Hawaii Geothermal Project (HGP), as defined by the State of Hawaii in its 1990 proposal to Congress (DBED 1990). The EIS is being prepared pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), as implemented by the President's Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and the DOE NEPA Implementing Procedures (10 CFR 1021), effective May 26, 1992. It will provide a basis for incorporating environmental factors into DOE's decision of whether to partially fund Phase 3 of the HGP. The EIS will not be used to grant permission for Phase 4 of the HGP. The funding of Phase 4 is currently uncertain and development activities could proceed independently of DOE's actions. The EIS will, however, provide a body of facts and analyses that may be used to support project and permitting actions associated with Phases 3 and 4 or other subsequent geothermal projects.

Originally, the State's proposal for the HGP (the location of the proposed project is shown in Figure 1.1) consisted of four phases: (1) exploration and testing of the geothermal resource beneath the slopes of the active Kilauea volcano on the Island of Hawaii (the Big Island), (2) demonstration of deep-water power cable technology in the Alenuihaha Channel between the Big Island and Maui, (3) verification and characterization of the geothermal resource on the Big Island, and (4) construction and operation of commercial geothermal power production facilities on the Big Island, with overland and submarine transmission of electricity from the Big Island to Oahu and possibly other islands (DBED 1990). From 1985 through 1989, the State had envisioned a large-scale 500-MW geothermal/inter-island submarine cable project (the HGP) as an alternative to the State's 90% dependence on imported oil for electricity generation. However, as of January 1990, the State of Hawaii has redefined its geothermal development goal to a planning level that seeks to have geothermal development first meet the energy requirements of the Island of Hawaii. This downsized project does not include an inter-island submarine cable system. If this goal is successful, only then would the State consider a large-scale geothermal and inter-island cable project.

DOE has previously prepared appropriate NEPA documentation for separate federal actions related to Phase 1 and 2 research projects, both of which have been completed. The EIS will assess the potential impacts of Phases 3 and 4, as well as reasonably foreseeable alternatives to the project, such as the use of biomass, coal, solar thermal and photovoltaic, wind energy (or some combination of these) and construction and operation of commercial geothermal power production facilities on the Big Island for exclusive use on the Big Island. In addition, the EIS will consider the reasonable alternatives among submarine cable technologies; geothermal extraction, production, and power generating technologies; pollution control technologies;

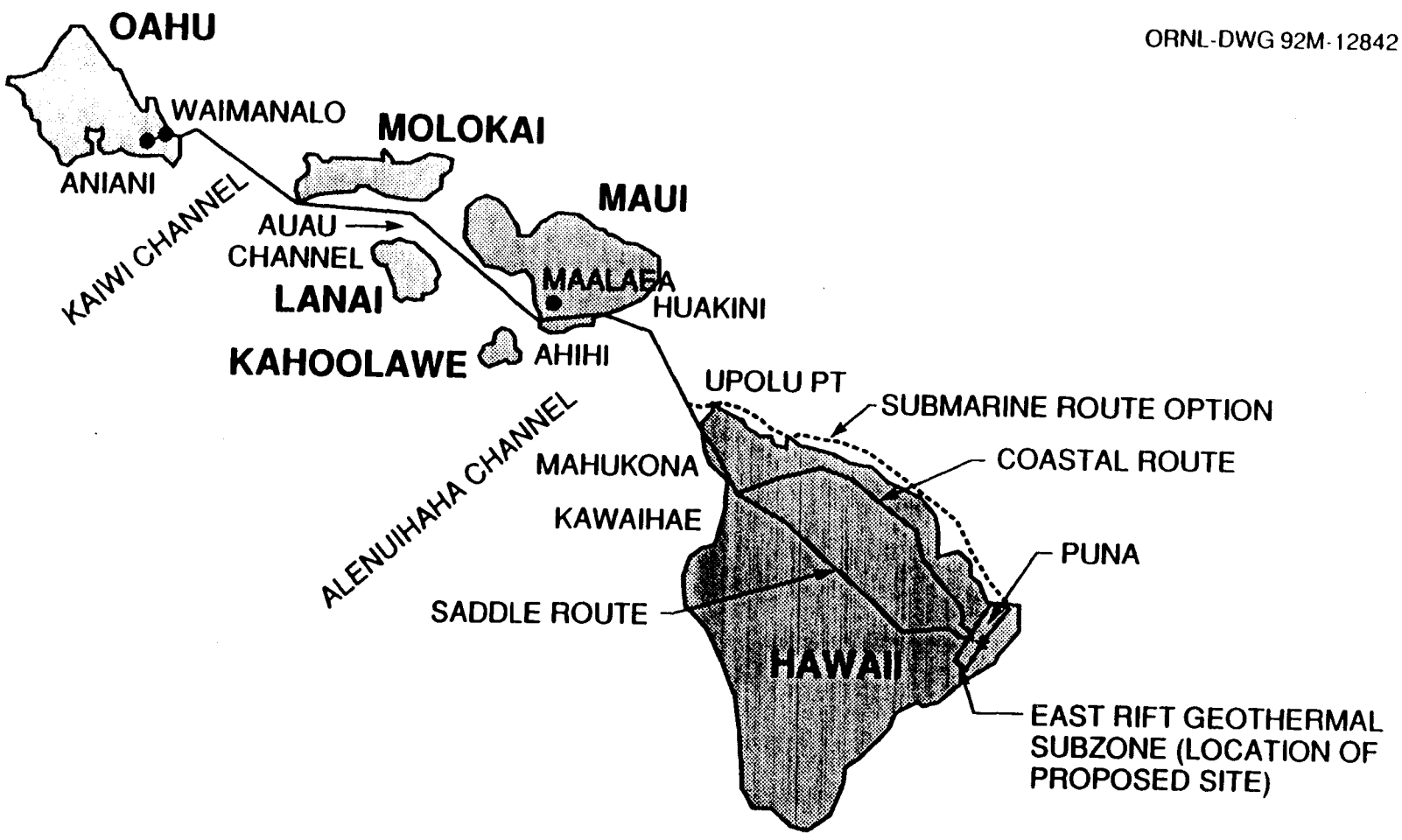

Figure 1.1. Proposed location of the Hawaii Geothermal Project and cable. *Source:* Hawaiian Electric Company, Inc., *Request for Proposal for the Geothermal/Inter-Island Transmission Project,* Hawaiian Electric Company, Inc., Honolulu, Hawaii, May 1989.

overland and submarine power transmission routes; sites reasonably suited to support project facilities in a safe and environmentally acceptable manner; and non-power generating alternatives, such as conservation and demand-side management.

1.1 PURPOSE OF THE EIS IMPLEMENTATION PLAN

DOE has prepared this draft Implementation Plan (IP) for two purposes: (1) to provide internal guidance for the EIS preparation, and (2) to record issues identified during the scoping process. To serve these purposes, this IP has been prepared in accordance with DOE NEPA Regulations (57 *Fed. Regist.* 15122, April 1992) (10 CFR 1021). The IP has been made available at this time to inform the public of DOE's approach in preparing the EIS and to document the results of the public scoping process. The IP is a "living document" in that it may be revised as needed throughout the preparation of the EIS to provide updated information regarding major changes in scope, methodology, or work plan. The draft IP will be given broad distribution by including individuals and organizations on a mailing list compiled by DOE to provide information about the preparation of the EIS. In addition, the draft IP will be placed in all DOE Reading Rooms (see Attachment 2 to Appendix A for a list of Reading Rooms).

Section 2 of this IP describes the treatment of alternatives. Section 3 discusses the scoping process, includes a discussion of the major issues identified through public scoping, and as appropriate states how these issues will be addressed in the EIS. Consultations with agencies, preparers of the EIS, significant EIS milestones, and related environmental documentation are described in Section 4. Section 5 contains references cited in preparing the IP. The seven appendices to this IP contain a summary of oral and written scoping comments, a summary of agency scoping comments, a preliminary outline for the EIS, a glossary of terms used in the IP, a list of acronyms and abbreviations, copies of the Advance Notice of Intent and Notice of Intent, and the contractor disclosure statements. A working draft IP was prepared by DOE and reviewed with cooperating agencies (see Section 1.5) in July and August 1992. Comments by these agencies (Appendix B) are addressed in this draft IP.

1.2 BACKGROUND OF HAWAII GEOTHERMAL PROJECT

1.2.1 Purpose and Need for HGP

The purpose of the HGP is to develop Hawaii's indigenous geothermal resource for the production of electricity. The State of Hawaii has declared in its 1990 proposal to Congress, its 1991 State Integrated Energy Plan and its 1991 State Functional Energy Plan that geothermal energy is needed to help reduce the State's heavy dependence on imported oil. Currently, the State of Hawaii uses petroleum for approximately 90% of its energy, the highest percentage usage of all 50 states.

1.2.2 Description of HGP Phases 1 and 2

The HGP is the culmination of research and development efforts begun in the mid-1970s to explore the feasibility of using Hawaii's indigenous geothermal resource for the production of electricity. Geothermal exploration began in Hawaii in 1972 with funding from the National Science Foundation (NSF). A high-potential geothermal resource site was identified on the east rift of the Kilauea volcano on the Big Island. Subsequent exploratory drilling (also funded by NSF) between December 1975 and April 1976 resulted in a productive geothermal well at a depth of approximately 6000 ft. In 1976, the Energy Research and Development Administration (ERDA), a

predecessor to DOE, funded the testing of the geothermal well, which was designated as the HGP-A well. In 1979, DOE funded the development of a 3-MW demonstration power plant at the HGP-A site. In 1986, the HGP-A facilities were transferred by DOE to the State of Hawaii to be used for further research. The State has referred to this early exploration and testing of the Big Island geothermal resource as Phase 1 of the HGP.

DOE also provided funds for the Hawaii Deep Water Cable Program (HDWC), which was initiated in 1981 and completed in 1991. The goal of the HDWC was to determine the technical and economic feasibility of constructing and operating a deep water submarine power transmission cable that would serve the Island of Oahu and would operate for a minimum of 30 years. This project demonstrated the feasibility of deploying and retrieving the deep water power transmission cable. The State of Hawaii referred to the HDWC as Phase 2 of the HGP.

Over an 11-year period, DOE has provided approximately $33 million for geothermal and deep water cable research in Hawaii, which is about 80% of the HGP cost-shared effort.

1.3 PROPOSED ACTION

In its 1990 proposal to Congress, the State of Hawaii requested additional federal funding for what is defined by the State as Phase 3 of the HGP: resource verification and characterization. In 1990, Congress appropriated $5 million (Pub. L. 101-514) for the State's use in Phase 3. Because Congress considered Phase 3 work to be research and not development or project construction, Congress indicated that this funding would not be considered a major federal action under NEPA which would typically require an EIS. However, because the project is highly visible, somewhat controversial, and involves a particularly sensitive environment in Hawaii, Congress directed in 1991 (House Resolution 1281) that ". . .the Secretary of Energy shall use such sums as are necessary from amounts previously provided to the State of Hawaii for geothermal resource verification and characterization to conduct the necessary environmental assessments and/or environmental impact statement (EIS) for the geothermal initiative to proceed." In addition, the U.S. District Court of Hawaii, in litigation filed by several environmental groups (Civil No. 90-00407, June 25, 1991), ruled that the federal government must prepare an EIS for Phases 3 and 4 of the HGP before any further disbursement of federal funds was made to the State for the HGP.

1.3.1 DOE Decision

The decision being considered by DOE in its Record of Decision is whether or not to partially fund Phase 3 of the HGP, as defined by the State in its 1990 proposal to Congress, using any funds remaining from the $5 million Congressional appropriation for Phase 3 after EIS expenditures. The funding for Phase 4 is currently uncertain.

The EIS will evaluate the activities to be conducted during both Phases 3 and 4 of the HGP as required by Congressional directive and U.S. District Court of Hawaii ruling. However, the DOE decision will be rendered only with regard to the disbursement of federal funds to the State to partially fund Phase 3 of the HGP.

1.3.2 Description of HGP Phases 3 and 4

The State of Hawaii considers the unknown extent of its geothermal resource as one of the primary obstacles to private investment and commercial development in geothermal energy production. State and private industry experts estimate that at least 25 commercial-scale exploratory wells would need to be drilled to verify the generating potential of the resource (these wells would

in turn be used in Phase 4). To that end, Phase 3 activities would include well drilling, logging of cores from holes, measuring temperatures, collecting and analyzing geothermal fluid samples, and making downhole geophysical and geochemical measurements. Information on the feasible locations for Phase 3 activity and details regarding the methods of analyses will be obtained from various sources including the U.S. Geological Survey (USGS), University of Hawaii, DOE, and developers.

Forecasts based on resource characterization to date indicate that between 10 and 20 separate geothermal power plants of 25 to 50 MW each could be developed. The actual number of plants would depend on the extent of the resource defined in Phase 3. Because the exact location of plants would not be known until Phase 3 was completed, the EIS will rely on best available data and information to encompass impacts at development sites. Further NEPA documentation may be required for specific projects and permits identified in the future. Based on the physical characteristics of the resource and contemporary geothermal energy development practice, the State estimated that about 125 production wells and 30 injection wells may be needed to produce 500 MW. The plants most likely would be connected by a network of roads, piping, and overland transmission lines. In addition, overland and underwater transmission lines (±300 kV) would be constructed to distribute power to Oahu and other islands (see Figure 1.1). Section 2.1.4 contains a description of the transmission cable system.

For purposes of the EIS analysis, a typical geothermal power plant may be briefly described as consisting of a moderate size (~30 MW) single-flash, condensing cycle turbine coupled to a generator. Geothermal steam would pass from the wellhead through a separator and a demister, then to the turbine. The system would allow complete bypass of the turbine directly to the condenser. A two-stage steam ejector would remove gases from the direct- contact type condenser. Non-condensable gases including hydrogen sulfide (H_2S) would be compressed, mixed with other spent geothermal fluids (brine and steam condensate), and then injected by surface pumps into the general vicinity of the geothermal reservoir. Steam condensate from the condenser would be cooled by a forced draft cooling tower. Power plant, transmission line, and submarine cable technologies will be further defined as the EIS progresses using information from various sources including the Hawaiian Electric Company (HECO), the State of Hawaii, USGS, the University of Hawaii, Puna Geothermal Venture, True Geothermal Energy Company, Mission Energy Company, Mid-Pacific Geothermal, Inc., Campbell Estate, and DOE. In addition, various development scenarios will be considered based on the extent of the resource and other factors. Because no specific plant design has been proposed for the HGP, a reasonable composite or typical design based on current information will be used to assess potential impacts.

According to the State of Hawaii (DBED 1988), the 500 MW of electrical power was expected to be delivered to the Island of Oahu. A recent evaluation of transmission losses associated with high voltage direct current (HVDC) delivery of 500 MW from the Big Island to Oahu indicates a gross electrical generating capacity requirement of 520 MW, or a 4% total HVDC transmission system loss including converter station losses (Bonnet 1992). HECO indicated that it was interested in purchasing up to 500 MW of geothermally generated power. The Maui Electric Company (MECO) also has indicated some interest in whether a tap for 50 MW from the project's transmission system is technically feasible (HECO 1989). Other configurations of the HGP including more or less power production are possible,

depending on the extent of the geothermal resource and other variables. For purposes of the EIS, the proposed project will be defined as the development of 520 MW gross capacity, with a net of 500 MW of power delivered to Oahu. Alternatives will consider variations that develop up to 520 MW of gross capacity, but not more. However, some alternatives that would develop less than 520 MW of gross capacity will be considered in the EIS, as well as transmission and delivery of some of the geothermal power to Maui and the Big Island.

In the 1990 proposal to Congress, the State projected that permitting and financing for Phases 3 and 4 would occur in 1991, and that 500 MW of power could be on-line by 2005. Compliance with State and federal legal and environmental requirements is likely to extend this schedule. As discussed above, the State has redefined its geothermal development goal from the four-phased, 500-MW inter-island project to first meet the energy requirements of the Big Island, thus initially excluding the inter-island submarine cable (see Section 1.).

1.4 RELATIONSHIP TO OTHER GEOTHERMAL DEVELOPMENT ACTIVITIES

As discussed earlier, geothermal power development activities have been underway along the east rift of the Kilauea volcano on the Big Island since the mid-1970s, with exploratory drilling having occurred as early as 1961. The earliest power-producing well was DOE's HGP-A, which operated in the 1980s (see Section 1.2.2). A number of other geothermal development activities have occurred since the 1970s, some of which are still active. These include developers such as the Puna Geothermal Venture, the True Geothermal Energy Company, Mid-Pacific Geothermal, Inc., and the State's Scientific Observation Hole research program. Non-federal environmental documentation was prepared for each of these activities (see Section 4.4). The HGP EIS will *not* reevaluate the environmental impacts of these activities. However, impacts of these other activities may contribute to cumulative impacts of the HGP. The CEQ NEPA regulations define cumulative impacts as those resulting from the incremental impact of an action when added to the impacts of other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes them. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Known impacts from other geothermal development on the Big Island will be factored into the HGP impacts analysis, as appropriate.

1.5 EIS COOPERATING AGENCIES

As part of the scoping process, DOE invited other agencies to participate in the EIS preparation as cooperating agencies. Cooperating agency roles and responsibilities in EIS preparation, as defined in the CEQ regulations (40 CFR 1501.6), can include participation in the scoping process, developing information, preparing environmental analyses, providing technical reviews, and/or lending staff support. The U.S. Army Corps of Engineers (COE), the U.S. Fish and Wildlife Service (FWS), USGS, the National Park Service (NPS), the National Marine Fisheries Service (NMFS), the State of Hawaii, the County of Maui, and the County of Hawaii have agreed to be cooperating agencies on the HGP EIS. Memoranda of Understanding have been signed by DOE and each cooperating agency. In addition, FWS, USGS and COE are being funded by DOE to conduct technical support studies to assist in preparation of the EIS.

Details of FWS, USGS, and COE technical support studies are currently under review; preliminary plans for the studies are

discussed in Sections 3.3.1, 3.3.3, and 3.3.4. In general, support from FWS will include a literature review, native forest bird survey, vegetation community survey, survey of threatened and endangered species, wetland and floodplain inventory, assessment of non-native species introduction at existing geothermal facilities, and an invertebrate survey. Support from USGS will include a literature review, geothermal fluid characterization, determination of background air quality, groundwater resource evaluation, volcanic and deformation hazard analyses, seismic hazard analysis, estimation of the potential for undersea slides and turbidity currents, and estimation of the potential for induced seismicity. COE will provide a literature review, a wetland map unit legend, and delineation of wetland types.

It is important to note that the proposed FWS, USGS, and COE technical studies are being supported by DOE to satisfy CEQ requirements (40 CFR 1502.22) regarding "incomplete or unavailable information." CEQ states that "If the incomplete information. . .is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." In addition, these studies are necessary to provide data and analyses sufficient for DOE to conduct effective consultations with agencies who have statutory and regulatory responsibilities (see Section 4.1, Tables 4.1 and 4.2). On the other hand, CEQ allows that if costs are prohibitive and/or the means to obtain information are unknown, an "agency shall include within the environmental impact statement: (1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community."

2. TREATMENT OF ALTERNATIVES

2.1 ALTERNATIVES WITHIN THE PROPOSED ACTION

2.1.1 Development Scenarios

Forecasts based on resource characterization indicate that from 10 to 20 separate geothermal power plants of from 25 to 50 MW each could be developed under the State's original 1990 HGP proposal. The actual number of plants would depend on the extent of the resource defined in Phase 3. Because the exact location of plants will not be known until Phase 3 is completed, the EIS will rely on best available data and information to encompass the possible impacts at the development sites. Various development scenarios will be prepared for the EIS using information that has been collected over the years on the geothermal potential of the Kilauea East Rift Zone (KERZ) and energy demand forecasts provided by HECO and other Hawaiian utilities.

2.1.2 Geothermal Technologies

Alternative geothermal technologies will be described and considered in the EIS. Based on the physical characteristics of the geothermal resource and contemporary geothermal energy development practice, the State previously estimated that about 125 production wells and 30 injection wells may be needed to produce the 500 MW (DBED 1992). For the EIS, reasonably foreseeable geothermal technology options will be

considered using best available information from geothermal developers, the State of Hawaii, and others. These options will include, but are not limited to, the use of conventional cooling towers using condensate as cooling water, reinjection of all fluids, and individual power generating units between 25 and 50 MW each.

2.1.3 Alternative Sites

In the State of Hawaii, the production of electricity from geothermal resources can occur only in geothermal resource subzones (GRSs). Alternative sites for geothermal development and construction of power plants and associated facilities will be considered within three State-established GRSs of the KERZ on the Big Island. These include the Kilauea Middle East Rift Subzone, Kilauea Lower East Rift Subzone (Kamaili section), and Kilauea Lower East Rift Subzone (Kapaho section). One GRS on Maui will not be considered because it is not expected to be economical for power generation and therefore is not comparable to the GRSs on the Big Island. Alternative sites will be chosen based on the best available information on the potential commercial development of these GRSs for near-term geothermal development.

2.1.4 Alternative Cable and Transmission Line Routes and Technologies

The EIS will define potential alternative overland transmission routes based on route configurations in HECO (1989) (Figure 1.1) and future discussions with Hawaii State and County governments and utilities. The EIS will also address alternative transmission technologies as they are identified. The EIS will compare the impacts of direct current (DC) vs alternating current (AC) transmission based on existing literature and experience in other locations.

The EIS will also address various alternatives related to different submarine cable routes and different submarine cable technologies. Various cable routes, based on prior HDWC studies and on-going consideration, will be evaluated in the EIS with regard to competing uses along the route and their impacts to marine species, economics, maritime safety, and Native Hawaiian concerns, in addition to consideration of extreme event occurrences. The EIS will consider alternative cable materials and different transmission systems. The potential impacts of alternative land-sea transitions will be evaluated.

2.1.4.1 Cable Routes

A number of optional cable routes have been proposed and are described elsewhere (HDWC 1985a,b). The simplest route would proceed directly from Upolu Point (Big Island) across the Alenuihaha Channel, along the shore at Kipahulu (Maui), along the Maui coast through the channels between Maui and Kahoolawe (Alalakeiki Channel) and Maui and Lanai (the Auau Channel), and across the Kaiwi Channel to Oahu. Other variations include cable (1) ashore on Maui (see Figure 1.1) and (2) ashore on both Maui and Molokai. Differing sea-land transition points for the cable on the various islands will be considered. Another alternative to the previously considered routes was presented at the Maui scoping meeting (see Section 3 and Appendix A) and has been reiterated in a written scoping submittal. This alternative route would proceed from the Big Island to Lanai to Oahu, with possible spur lines to Maui and Molokai.

2.1.4.2 Cable Materials and Configurations

Many configurations for the submarine cable have been examined previously (HDWC 1985b,c) from primarily technical and cost bases, including paper-insulated, high-viscosity oil-impregnated, non-

pressurized cables, and low-viscosity, oil-impregnated, self-contained, oil-filled pressurized cables. Solid-dielectric cables present another option. Both aluminum and copper were examined as conductors, but only aluminum was found to be acceptable. Since those studies were performed, technologies have advanced and the bases for costing scenarios have changed. The EIS will review technology advances and review costing for the prior scenarios.

2.1.4.3 High Voltage DC vs High Voltage AC Transmission

Current plans for the submarine cable call for HVDC transmission. During scoping, several commenters suggested that if development is staged, then AC transmission over relatively short distances might be cost effective. This assumption will be examined and the relative environmental impacts of DC vs AC transmission will be discussed based on available literature and experience in other locations.

2.1.4.4 Land-Sea Transitions

Different land-sea transition configurations will be considered based on the need for oil pumping stations (to maintain pressure in the cables) and transformers. If a tap to the local system is required, a conversion station may also be necessary.

2.1.4.5 Multiple Uses of the Submarine Cable

Multiple uses of the submarine cable, once it is installed and operational, will be considered in the EIS. It has been suggested that the submarine cable could be used in a reverse mode to transport electrical power from Oahu to the other islands. For example, the EIS will consider the use of residual fuel oil to produce power on the island of Oahu for use there and for possible export to the other islands via the cable. Commenters have suggested that this alternative may be justified in light of potential liabilities from continued inter-island shipping of residual fuel oil.

2.2 ALTERNATIVES TO THE PROPOSED ACTION

Utilities in Hawaii are currently preparing Integrated Resource Plans (IRPs); therefore, supply and demand options cannot be evaluated on the basis of specific projects at specific sites. Rather, alternatives to the HGP need to be evaluated in the context of various energy scenarios for Hawaii's economy for the next 30 years (i.e., the life of the HGP project). For example, a no-action alternative implies an energy scenario in which the conventional resource options now used on the island, that is oil- and coal-fired power generation plants, would continue to play a dominant role. Conversely, an alternative action involving investments in renewable energy resources and energy conservation would shift the resource mix to lesser dependence on conventional supplies. Thus, to assess the possible environmental and economic impacts of the proposed supply and demand alternatives, it will be necessary to consider alternative energy scenarios for Hawaii.

2.2.1 No-action

The no-action alternative is defined as "business as usual," that is, continued reliance on the existing and planned generating mix of resources, which is predominantly oil-fired capacity with some coal-fired capacity and renewable energy sources. Under the no-action alternative, the energy need for Hawaii, Maui, Molokai, and Oahu would be achieved using supply or demand-side options on each island.

2.2.2 Alternative Supply-Demand Options

In addition to no-action, two supply and demand alternatives will be evaluated in the EIS. The first is the development of up to 500 MW of geothermal power for exclusive use on the Big Island, with no inter-island transmission cable. The State of Hawaii's preferred alternative is development of the geothermal resource to meet the projected needs of the Big Island, and submarine cable to export some level of power at a later date if the geothermal resource and project economics justify the cost of a cable. Although a definite geothermal development scenario has not yet been proposed, the EIS will examine an alternative geothermal generating capacity of 100 MW or more (up to 500 MW) for the Big Island only. The lesser amount represents the geothermal capacity that is currently licensed for development on the Big Island only.

The second supply-demand option would consist of conservation and demand-side management (DSM) alternatives and a mix of currently feasible renewable energy sources (e.g., biomass, solar thermal, wind, geothermal, and photovoltaics). DSM refers to the reduction of demand for energy through electrical load management, energy conservation, and improvements in energy utilization to reduce energy demand.

All alternative supply-demand options will be compared and assessed within the framework of IRP using available data and methods developed for the State utilities' IRP, currently in progress. Where possible, the supply-demand options will be characterized in terms of their relative cost, fiscal impacts, and contribution to the State's overall energy demand.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED CONSIDERATION

Although many alternatives were mentioned during the scoping process, only those alternatives deemed to be viable and reasonably foreseeable within the time frame of the proposed action (i.e., 30 years) will be considered. In general, the alternatives that will not be considered in the EIS were either anticipated to be not technically feasible within the project time frame [e.g., ocean thermal energy conversion, wave and tidal power, and hydrogen as a carrier fuel] or technically feasible but extremely unlikely because of legislative or other impediments. As an example of the latter, the construction of a nuclear power plant in Hawaii is unlikely because of a State constitutional requirement for a two-thirds vote in each house of the Legislature for such an action (Act XI, Section 8).

During scoping, commentors recommended that the EIS consider transportation alternatives that would reduce petroleum (oil) consumption. One of the State's primary reasons for encouraging the development of Hawaii's geothermal resource was to reduce the State's reliance on imported oil. The EIS *will* address the reduction of oil consumption that would result from the development of geothermal capacity and other alternatives (i.e., the amount of oil replaced by the proposed geothermal power generation and other alternatives as part of the energy supply-demand scenarios); but because various transportation alternatives would not directly affect power generating capacity in Hawaii, they will not be evaluated in the EIS.

In addition to alternative supply-demand options that will not be considered in the EIS, there also are some alternatives to geothermal development and transmission systems that are beyond the scope of the EIS. For example, the GRS on Maui will not be considered as feasible because current geothermal information indicates that it has direct heat application only and is not believed to be economic for electricity production and is therefore not comparable to the GRSs on the Big Island. The EIS will also not address underground

transmission lines as an alternative technology, because the cost of constructing and maintaining underground lines for the proposed project would be prohibitive.

3. THE SCOPING PROCESS AND RESULTS

CEQ regulations (40 CFR 1501.7) require " an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action." This process is termed "scoping" and usually has two phases. During the first phase, the lead agency conducts internal studies to define the proposed action, identify preliminary alternatives, and develop preliminary issue areas to be addressed in the EIS. The second phase involves participation by the public and other agencies. The objectives of public scoping are to notify interested persons, agencies, and other groups of the proposed action and alternatives; solicit their comments regarding environmental issues, alternatives to the proposed action, and other items of interest; and consider those comments in the preparation of the EIS.

CEQ regulations [40 CFR 1501.7(a)] require the lead agency to

- Invite the participation of affected federal, State, and local agencies; any affected Indian tribe; and other interested persons;
- Determine the scope and significance of issues to be analyzed in depth in the EIS;
- Identify and eliminate from detailed study the issues which are not significant or have been covered by previous environmental reviews, narrowing the discussion of these issues in the statement to a brief presentation of why they will not have a significant affect on the human environment, or providing a reference for their coverage elsewhere;
- Allocate assignments for preparation of the EIS among the lead and cooperating agencies, with the lead agency retaining responsibility for the EIS;
- Indicate any public environmental assessments and other EISs that are being or will be prepared which are related to but not part of the scope of the EIS under consideration;
- Identify other environmental review and consultation requirements so that other studies may be conducted concurrently and integrated with the EIS; and
- Indicate the relationship between the timing of environmental analyses and the planning and decision-making schedule.

The full range of potential impacts of the proposed project and alternatives that were identified during scoping will be addressed in the HGP EIS. Appendix A contains a summary of oral and written scoping comments received during the HGP EIS scoping period; it also summarizes a mass mailing concerning religious issues. Appendix B lists by agency the scoping comments received from federal, State, and County sources. Environmental resource areas and concerns identified during scoping that have the potential for impact include land use, air quality, water resources, ecological resources, geologic resources, noise, health and safety, socioeconomic issues, cultural resources, marine resources, and aesthetic resources. Further information on these and other topics is given in Section 3.3 A preliminary outline for the HGP EIS is presented in Appendix C.

3.1 NOTICE OF INTENT

In accordance with DOE NEPA Guidelines (52 *Fed. Regist.* 47664, Dec. 1987), which have since been replaced by the DOE NEPA Procedures (10 CFR 1021 effective May 26, 1992), DOE published an Advance Notice of Intent (ANOI) to prepare the HGP EIS in the

Federal Register (Vol. 56, No. 170, pp. 43585–87) on September 3, 1991. (The ANOI is reproduced in Appendix F.) The ANOI announced the initiation of planning and scoping of the HGP EIS and solicited public input regarding the scope and content of the EIS. In response to the ANOI, DOE received 55 comment letters on EIS-related topics, all of which have been considered in this IP (see Appendices A and B). These comments also assisted DOE in developing the Notice of Intent (NOI) and were the stimulus for a series of DOE information exchange meetings. In September, October, and November 1991, and in March and July 1992, DOE met with federal, State, and County agencies; environmental, civic, Native Hawaiian, and public interest groups; and utility and geothermal developers (see Table 3.1). On February 5, 1992, DOE extended an invitation to eight federal, State, and County agencies to become "cooperating agencies" in the preparation of the EIS. This invitation also solicited additional agency comments on the ANOI and the forthcoming NOI.

On February 14, 1992, DOE published an NOI in the *Federal Register* (Vol. 57, No. 31, pp. 5433–37) (reproduced in Appendix F) to announce its intent to prepare an EIS for Phases 3 and 4 of the HGP, as defined by the State in its 1989 proposal to Congress. For purposes of project description, the State's 1989 and 1990 proposals are almost identical. The NOI announced that ten public scoping meetings would be held in Hawaii from March 7 through March 16, 1992 (see Section 3.2). The NOI noted that written scoping comments, which were to be given equal weight with oral comments, would be received until April 15, 1992, for consideration in the IP (see Appendices D, F, G).

3.2 SCOPING MEETINGS

Beginning on March 7, 1992, DOE held afternoon and evening scoping meetings at each of five locations in Hawaii, as shown below.

Scoping Meeting Locations and Dates

Pahoa (Big Island)	March 7, 1992
Wailuku (Maui)	March 9, 1992
Kaunakakai (Molokai)	March 12, 1992
Honolulu (Oahu)	March 14, 1992
Kamuela/Waimea (Big Island)	March 16, 1992

The public scoping meetings were held in compliance with CEQ regulations (40 CFR 1501.7) and DOE NEPA Guidelines (10 CFR 1021) and in concert with DOE's policy to facilitate public involvement in the NEPA process. The purpose of these meetings was to assure adequate opportunity for public and government agency participation in developing the EIS scope by identifying the issues to be addressed, commenting on the proposed action, and suggesting alternatives to be analyzed. These scoping meetings were recorded and copies of the meeting transcripts are available at DOE Reading Rooms and other locations identified in the *Federal Register* notices (see Apprendix D). DOE has notified all interested parties by mail of the availability of the meeting transcripts. One hundred seventy individuals provided more than 700 oral comments during scoping meetings (see Figure 3.1). In addition, 230 individuals submitted written scoping comments and other materials to DOE during the scoping period (which originally had a deadline of April 15, 1992; DOE extended the deadline to provide commenters ample opportunity to provide written comments). The majority of the comments in these written submissions came from individuals; however, about 50 organizations, including environmental, public interest, and community groups, also participated by offering comments through representatives. About 1800 written scoping comments were received (see Figure 3.2).

TABLE 3.1.—*Information Exchange and Cooperating Agency Meetings*

	Information Exchange Meetings
October 1991	Puna Geothermal Ventures (included a site visit); Sierra Club Legal Defense Fund
November 1991	Blue Ocean Preservation Society; Campbell Estate; Coral Reef Foundation; Kaupo Ranch; Maui Tomorrow; Pele Defense Fund; Mayor's Energy Advisory Commission; Big Island Papaya Growers; Big Island Rainforest Action Group with Malu Aina; Citizens for Responsible Energy Development with Aloha Aina; Greenpeace Hawaii; Hawaii Island Geothermal Alliance; Kapoho Community Association; Lani Puna Gardens Association; Puna Community Council; West Hawaii Sierra Club; Native Hawaiian Legal Corporation; National Audubon Society; Natural Resources Defense Council; Oahu Rainforest Action Network; Rainforest Action Network; Sierra Club Legal Defense Fund; Hawaii utilities; Bishop Museum
March 1992	Native Hawaiian Organizations; Pele Defense Fund; Puna Geothermal Ventures (included a site visit); True Mid-Pacific (included a site visit)
July 1992	Pro-Geothermal Alliance; Hawaii Island Geothermal Alliance
	Cooperating Agency Meetings
September 1991	U.S. Department of the Interior (DOI); U.S. Geological Survey (USGS); U.S. Fish and Wildlife Service (FWS); National Park Service (NPS); U.S. Army Corps of Engineers (COE); National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA)
October 1991	Hawaii Department of Business, Economic Development, and Tourism; County of Hawaii; USGS; NPS; Hawaii Office of State Planning; Hawaii Department of Land and Natural Resources; Hawaii Department of Health; Hawaii Office of Environmental Quality Control; NMFS; FWS; COE; Hawaii Office of Hawaiian Affairs; Hawaii Office of State Planning
November 1991	County of Maui; County of Hawaii; NMFS; Office of Hawaiian Homelands; State Historic Preservation Officer; State Office of Consumer Advocacy
March 1992	County of Hawaii; USGS; DOI; EPA; County of Maui; Hawaii Department of Business, Economic Development, and Tourism; COE; NMFS; FWS
July 1992	Hawaii Department of Business, Economic Development, and Tourism; Hawaii Office of State Planning; Hawaii Department of Health; Hawaii Office of Hawaiian Affairs; Hawaii Department of Labor and Industrial Relations; Hawaii Department of Land and Natural Resources; Hawaii Department of Agriculture; EPA; USGS; Hawaii Department of Land and Natural Resources; COE; County of Hawaii; NPS; USGS; County of Maui; Hawaii Department of Business, Economic Development, and Tourism; NMFS; FWS; review of Working Draft Implementation Plan with cooperators

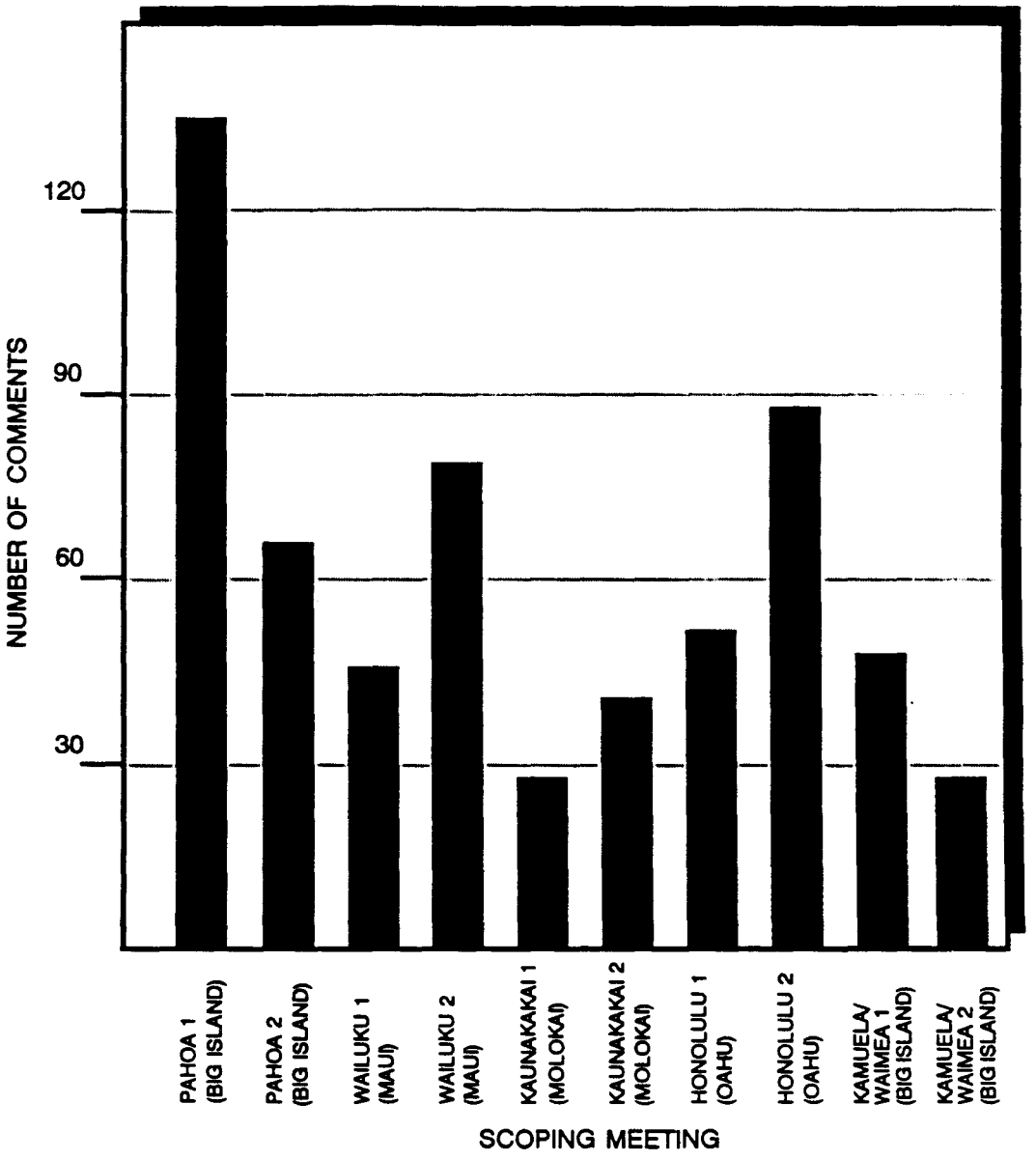

Figure 3.1 Number of oral scoping comments at the ten public scoping meetings for the HGP EIS. More than 700 comments were offered.

DOE also has prepared an extensive mailing list, copies of which are available in the Reading Rooms, identifying parties who are participating in the EIS preparation and who have submitted scoping comments.

3.3 RESULTS OF SCOPING

The following discussions summarize the comments made during the scoping process according to the topics or issues raised. The

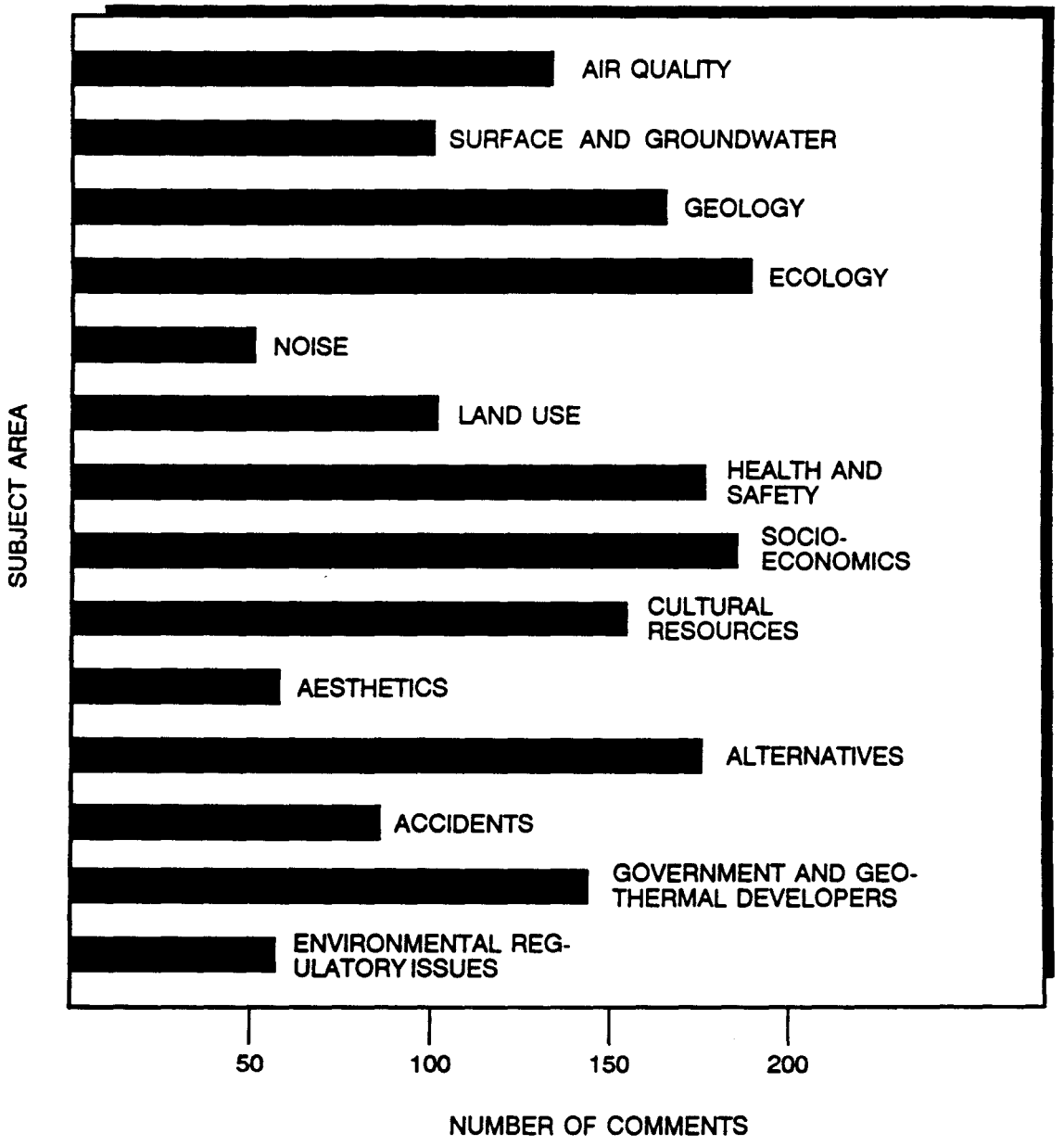

Figure 3.2 Number of oral and written scoping comments by subject area. About 1800 comments were received.

number of written and oral comments relating to each concern or issue is shown in Figure 3.2. For each general subheading, examples of comments from which each issue was derived are provided, followed by a discussion of how the EIS will address that issue. The discussion also identifies issues that DOE considers to be outside the EIS scope. Scoping comments are summarized in Appendix A.

3.3.1 Meteorology/Air Quality/HGP Emissions

Many commenters expressed concerns about atmospheric emissions from HGP, especially during an accident. Based on experience with geothermal development and accidents in Puna, commenters suggested a variety of environmental effects that may result from these operations. Of particular concern to the public were the emissions of H_2S and other airborne pollutants from geothermal well venting and their resultant effects on the health of nearby residents; several examples of ongoing effects were noted. Some commenters expressed the concern that such effects are poorly understood and frequently underestimated.

Issues that were identified in the scoping process include

- Effects on human health (see Section 3.3.7) of acute, cumulative, and chronic exposure to H_2S and other potential air pollutants (e.g., radon, heavy metals, and organic compounds);
- Nuisance effects of H_2S;
- Potential synergistic effects among atmospheric pollutants;
- Degradation of ambient air quality relative to ambient air quality standards [H_2S, sulfur dioxide, nitrogen oxides, carbon monoxide, ozone, lead, and suspended, inhalable particulate matter];
- Validity of existing data regarding H_2S exposure and the validity of using standards for healthy workers as opposed to standards for the general population;
- Sufficiency of air quality monitoring;
- Global issues (acid rain, global warming);
- Effects of certain meteorological conditions (e.g., air stagnation during both kona and trade wind regimes) on concentrations of pollutants that might affect human health (see Section 3.3.7);
- Thermal pollution from cooling towers; and
- Regional venting contributions due to well casing failures (i.e., corrosion induced).

To address these concerns, the EIS will discuss the existing meteorological and climatological conditions characteristic of the Big Island and other islands and the influence of these conditions on air quality. Meteorological conditions necessary for volcanic smog (vog) formation and air stagnation will be described.

The EIS description of ambient air quality will include emissions contributed by existing geothermal development; regional sources, such as the volcano; and other sources (e.g., agricultural). The USGS will provide data on volcanic contributions to ambient air quality. The State of Hawaii Department of Health (DOH), Clean Air Branch, will provide DOE with recent background ambient air monitoring data for criteria and non-criteria pollutants in the Puna District and will identify non-volcanic emissions sources. Ambient air quality specifically associated with vog will be addressed. Ongoing air quality monitoring (of existing conditions) and any additional or recommended monitoring of air pollutants will be discussed. Where applicable, the EIS will discuss mitigation measures that can be used to achieve the lowest possible emissions rate.

The EIS will identify criteria and non-criteria atmospheric pollutant sources from drilling, construction, and operation of the geothermal power plants as well as potential sources of pollutants that may occur during a facility accident. Additionally, pollutant sources during transmission line construction (primarily particulates) will be identified and quantified. Pollutant concentrations will be estimated using modeling codes approved by the U.S. Environmental Protection Agency (EPA). To assess impacts, background levels of air pollutant concentrations will be added to estimates of pollutant concentrations resulting from the proposed action, and the

results compared with the National Ambient Air Quality Standards (NAAQS), State of Hawaii standards [including the recently passed State of Hawaii standard for H_2S (DOH 1992)], and other applicable standards.

Prevention of significant deterioration (PSD) of air quality will also be addressed in the EIS. It is possible to conform to the NAAQS and still be in violation of the standards for PSD. The Hawaii Volcanoes National Park (HVNP) is designated a Class I PSD area. Class I areas are designated to severely restrict the degradation of air quality, and specific standards for certain pollutants (nitrogen oxides, sulfur dioxide, and airborne particulate matter) apply. The effects on the HVNP will be addressed in the EIS (see Table 4.1). Air-quality-related values such as visibility degradation and objectionable odors will also be addressed in the EIS. These values are of particular importance in national parks and other Class I areas. Consultation with NPS will occur regarding Class I air-quality- related issues (see Section 4.1.1 and Tables 4.1 and 4.2).

The EIS will address the impacts of H_2S and other toxic pollutant emissions during routine operations and during facility accidents. H_2S is among both the 189 hazardous air pollutants and 16 extremely hazardous pollutants listed in Title III, Section 301 (r)(3), of the Clean Air Act Amendments of 1990 (Pub. L. 101-549). The Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) recommended H_2S exposure limits (in addition to the new State H_2S ambient air quality rule) will be presented and discussed in the EIS. Because of the importance of H_2S emissions control, measures for pollution abatement and mitigation will be discussed. Any secondary impacts (e.g., waste disposal) resulting from pollution abatement will also be discussed.

Specific issues to be addressed include background ambient air quality, nonattainment (if applicable), hazardous air pollutants, meteorological conditions affecting air quality (e.g., stagnation), fugitive emissions from construction and operation, air quality monitoring, emergency response plans (see Section 3.3.7), and noise (see Section 3.3.5). Additionally the EIS will discuss, to the extent possible, emissions from routine operations that may affect global air quality concerns. These include atmospheric emissions of carbon dioxide, other greenhouse gases, and acid rain precursors.

3.3.2 Surface and Groundwater Resources

Commenters were concerned that well drilling, resource utilization, and well reinjection activities may affect the availability and use of water resources. Surface impoundments (appropriately lined and monitored) would contain mud, brine, and drilling fluids generated during plant construction, and geothermal fluids would be reinjected during normal operation. Residents in the Puna District were concerned about the effects of airborne emissions on the rain water catchment systems used as drinking water (potable) supplies. Airborne emissions may include hazardous and toxic substances (e.g, H_2S, radon, heavy metals, and organic compounds) whose presence could render water from catchment systems unfit for human consumption.

Commenters also noted the complex hydrogeology of the region and the importance of area aquifers and drinking water supplies.

Issues and requests include

- Leakage into aquifers due to production and/or injection well casing failures;
- Impacts of accidents, such as well blowouts;

- Thermal and chemical contamination caused by reinjection;
- Impacts to the quality of nearby potable water catchment systems and deep wells;
- Dewatering of and/or reduced yield from groundwater resources which could impact availability and use;
- Transport of contaminants from HGP-related wastes and effects of drilling effluent brine impoundments, both into underground sources of drinking water;
- Erosion control during construction and operation of HGP-related facilities;
- Management of point and nonpoint contamination sources;
- Groundwater monitoring system requirements, including parameters to be monitored (both water quality and elevation of the water table surface);
- Mitigation plan to halt emanating groundwater contamination and/or water table declination detected by groundwater monitoring system;
- Complete geothermal fluid characterization;
- Identification and mapping of nearby potable water wells that could be affected by HGP-related construction and operation;
- Spill prevention, containment, and mitigation methodology;
- Source of water for well drilling during construction and well quenching during plant operation; and
- Well casing and hydrologic monitoring plan for both production and reinjection wells.

There is an interrelationship between water resources and geologic resources. Issues related to geologic resources are discussed in Section 3.3.3. Springs and thermal springs are included in the definition of water resources as used in this section; wetlands and anchialine ponds are discussed in Section 3.3.4.

Water resources are also vital to subsistence and religious practices of Native Hawaiians; cultural uses of water resources are addressed in Section 3.3.9. Marine water quality issues are discussed in Section 3.3.4.

Studies will be undertaken to obtain environmental baseline information that is not available in the open literature. Cooperating agency involvement will include the State of Hawaii, USGS, and the County of Hawaii. A water resource inventory that will be provided by the USGS, with input from the State of Hawaii and County of Hawaii will be included in the EIS (see Section 4).

The State of Hawaii is considering the status of its water quality designation in the geothermal subzone beneath the District of Puna. All analyses of environmental impacts will be based on the water quality designation in effect at the time of writing of the EIS.

The uses and water quality of surface and groundwater resources in potential development areas and the effects of the HGP on these resources will be discussed in the EIS. Hydrogeological data for the HGP site, and vicinity and HGP source terms for potential effluents and contaminants, will be used to assess the potential for contaminant deposition and transport. Results of these analyses will factor into health and ecological assessments (discussed in Sections 3.3.7 and 3.3.4, respectively). State of Hawaii and EPA-approved underground injection regulations will be used as a basis for groundwater impact analysis. Although they are not presently applicable to catchment systems, Safe Drinking Water Act (Public Law 93-523, December 1974) standards will be the criteria used to gauge the significance of: impacts of atmospheric pollutant deposition in catchment systems. Permits issued by the State of Hawaii, as well as written agreements between the State of Hawaii, EPA, and current geothermal developers, will be used to assess

reduced yield from groundwater supplies (see Section 4.1 and Tables 4.1 and 4.2).

The water resources impact analysis will described (1) impacts that occur during normal plant operation, (2) impacts from accidents that are mitigated by safety systems such as shut-off valves, and (3) impacts from severe accidents that could overwhelm safety features designed into the plants (see Section 3.3.12).

3.3.3 Geologic Issues

The location of geothermal facilities on the site of an active volcano concerned many commenters. They indicated that the potential for seismic disturbances and lava flows at the geothermal facilities increased the risk of accidents and created conditions that cannot be addressed by the current state of technology. A geologically active and complex region, they said, is not suitable for industrial facilities. Geologic complexities and the potential for resource depletion were also of concern to Native Hawaiians, some of whom equate the geothermal resource with the volcano goddess, Pele. (Native Hawaiian religious concerns are addressed in Section 3.3.9. A mass mailing on the subject is addressed in Appendix A.) The rugged and unstable terrain of the marine environment in which the undersea cable would be placed also was noted as an issue.

The principal issues identified in the scoping process were

- Normal operations-driven impacts related to withdrawal and reinjection of geothermal fluids, including induced seismicity, induced subsidence, impacts to groundwater quality and use (see Section 3.3.2), and geothermal resource depletion;
- Accident-driven and natural geologic hazards impacts (see Sections 3.3.12.2 and 3.3.4.3), including impacts to land-based facilities (earthquakes, volcanic activity, uplift, subsidence, and slides) and impacts to cable routes and shoreline facilities (earthquakes, volcanic activity, uplift, subsidence, slides, turbidity currents, wave action, storm surge, and tsunamis);
- Erosion and contamination of soils (see Sections 3.3.4.3 and 3.3.6) due to construction and the routine use of herbicides during operations, and because of accidental spills (human error or natural hazard); and
- Comparison of the proposed HGP site with other geothermal development sites (e.g., in Iceland).

Geologic issues concerning both the HGP and the transmission/cable system, will be treated in the EIS. The volcanically and seismically active nature of the proposed development area raises a number of geologic issues that require an objective evaluation. Data from site studies and available literature will provide a basis for assessing several geologic issues such as subsidence and withdrawal/reinjection effects. The geologic suitability of the site for HGP facilities also will be assessed.

Geological literature on the Hawaiian Islands is extensive. The USGS will assist DOE in collecting and evaluating existing literature. The USGS also will assist DOE in analyzing geologic hazards such as volcanic activity (eruptions, including tephra falls, and lava flows), seismicity (including ground motion, liquefaction, induced landslides, and surface rupture), and natural surface uplift and subsidence in both terrestrial and marine environments. In addition, the USGS will assist in analyzing geologic natural hazards which are peculiar to the marine and/or shoreline environments (turbidity currents, undersea landslides, tsunamis, and hurricane storm surge). The USGS also will assist DOE's analysis of the natural impact of Kilauea's activity on air quality in the Puna District. Also, the USGS will help DOE analyze induced seismicity and

subsidence from routine withdrawal and reinjection of geothermal fluids during power plant operations. Finally, the USGS will assist DOE with groundwater resources characterization and geothermal fluid chemical characterization.

The HGP EIS will examine the potential for damage to geothermal facilities by fresh lava flows as well as effects of earthquake-induced phenomena such as excessive ground motion, surface rupture, liquefaction, and landslides. Environmental impacts of accidental release of geothermal fluids will be assessed (see Section 3.3.2). The effects of prolonged withdrawal and reinjection of geothermal fluids during plant operations also will be analyzed (see Section 3.3.2). If possible, reservoir engineering characteristics will be used to predict the nature of induced seismicity, subsidence, and geothermal reservoir depletion (the latter is addressed in Section 3.3.2). These analyses will depend on the availability and appropriateness of existing models. Analysis of routine operational impacts will be based on the assumption that automatic shut-off valves and blowout preventers function as intended and that other reasonable safety features (such as flexible joints between steam gathering lines on the surface and well heads) are included. Accident-driven impacts are discussed in Section 3.3.12.

Soils in the Puna District and on transmission line rights-of-way will be described from existing U.S. Soil Conservation Service (SCS) or equivalent surveys. Construction, operational, and accident-related impacts (erosion and contamination) to these soils will be assessed (see Section 3.3.6 and 3.3.4.3). Contamination from accidents and routine spraying (herbicides) of access roads, pipelines, plants, and transmission lines will be addressed. The SCS will be consulted (see Table 4.1).

Well completion designs and erosion and sedimentation control plans (ESCPs) will be assessed for compliance with existing State regulations. In addition to the USGS, this assessment will require consultation with the Hawaii Department of Land and Natural Resources, the Division of Water Resources Management, and DOH. County governments will be consulted with respect to ESCPs. Effective monitoring of construction- and operation-related erosion and sedimentation is a regulatory requirement of an ESCP. In addition, NPS will be consulted during EIS preparation regarding volcanic eruption mitigation measures (see Tables 4.1 and 4.2).

3.3.4 Ecological Resources

A recurring concern expressed by commenters was the effect of HGP, transmission corridors, and cable construction on ecological resources. A number of commenters cited the uniqueness and value of the Wao Kele O Puna rain forest as an overriding concern. Other commenters identified specific concerns related to effects of the submarine cable in the coastal zone and marine environment.

Ecological resources on the Big Island, along marine cable routes, and at cable landing sites on other islands will be described in the EIS, and the impacts of HGP development, construction, and operation on the resources, including wetlands, floodplains, coastal zones, the marine environment, and species and areas of special concern, will be assessed. Assessment will draw upon existing literature and studies conducted by FWS and COE, including comprehensive surveys of biota (e.g., forest birds, threatened and endangered species, invertebrates, and vegetation), a Hoary bat survey, a native rain forest ecosystem analysis, and wetland delineations. The need for additional data collection is currently being evaluated in consultation with DOE, FWS, COE, and others. The NMFS, National Oceanic and Atmospheric Administration (NOAA), and other appropriate experts will be consulted

for information on marine resources. Any deficiencies in the information base required to prepare the EIS will be noted and supplemented if judged appropriate. Depending on the results of the assessment and the relationship to proposed alternatives, appropriate mitigation action plans will be developed in the preparation of the EIS.

Principal ecological issues for terrestrial, aquatic, and marine resources are listed below; there were several issues common to all ecological areas while others were specific to one or more resource areas. Issues identified during scoping include

General

- Impacts from construction of power production facilities, submarine cable system, and transmission corridors;
- Effects of atmospheric emissions, liquid effluents, waste disposal and impoundments, and noise; and
- Impacts on endemic, threatened and endangered, and sensitive species.

Terrestrial

- Deforestation and loss of biodiversity;
- Impacts of HGP and transmission line right-of-way on habitat;
- Perceived impacts of electromagnetic field (EMF) on fauna along land and sea transmission corridors;
- Impact of corridor construction on fauna and flora, including sensitive plants, threatened and endangered species, and protected habitat;
- Effects of emissions and effluents on agricultural crops, livestock, and pets;
- Loss or disturbance of wetlands;
- Impacts on cave ecosystems and invertebrates; and
- Impacts of chemical (e.g., herbicide) control of non-native plants.

Aquatic

- Impacts on anchialine ponds as a result of erosion and changes in groundwater hydrology and thermal contamination from reinjection of geothermal fluids (see Section 3.3.9);
- Impacts on populations of endemic, sensitive, threatened and endangered species and on protected habitat;
- Impacts of construction and maintenance of the transmission line right-of-ways on aquatic habitat;
- Impacts on aquatic systems from potential water quality alterations (e.g., from runoff, effluents, altered flows and quality of streams, springs, and hot springs); and
- Impacts from the use of herbicides to control non-native plant species and for transmission line right-of-way maintenance.

Marine

- Impacts of cable installation and operation (especially EMF effects) on marine species, including Hawaiian monk seals, precious corals, humpback whales, rays, skates, sharks, sea turtles, endemic, threatened and endangered, and sensitive species;
- Competing use of the undersea transmission cable with coastal zone use for marine emanations and cultural resources (see Section 3.3.9), recreational uses (see Section 3.3.8), and commercial, recreational, and subsistence fishing, shipping, etc.;
- Competing use of the transmission cable with marine coastal zones and channels for communications and military cables used for national defense;
- Impacts on marine biota due to noise; water quality degradation from runoff, effluents, and oil spills; and perturbations resulting from cable construction and maintenance;
- Impacts of construction, operation, and maintenance of production sites, cable landings, and transmission routes on the marine environment (e.g., fish ponds, coastal zone, reefs, and deep water); and

- Potential to cause ciguatera (fish poisoning) as a result of cable construction, deployment, and maintenance in coastal reef areas.

3.3.4.1 Terrestrial Resources

Commenters asked that comprehensive surveys of rain forest species be completed and the results evaluated. Moreover, they thought that the EIS should fully investigate the potential short- and long-term impacts of the HGP to pristine environments, such as the rain forest in Hawaii, the southeast coast and Hana districts of Maui, much of Molokai, the marine environment (see Section 3.3.4.3), and other locations potentially affected by HGP.

The impacts on terrestrial ecosystems will be addressed in the EIS with particular emphasis on the rain forest, wetlands, cave ecosystems (e.g., lava tubes), vegetation, birds, threatened and endangered species, invertebrates, and ethnobotanical and medicinal species. These resources are extremely important to Native Hawaiians, whose culture and religion are closely tied to natural resources, (see Section 3.3.9). Potential impacts of invasion of non-native species as a result of HGP and power transmission corridors will be evaluated; and the impacts to terrestrial ecosystems as the result of controlling non-native plant species with herbicides within the project area will be considered. Associated risks of chemical vegetation control (i.e., the use of herbicides) on humans is considered in Section 3.3.7.

A Geographic Information System (GIS) data base for the project will be built from existing data bases and results from studies to be conducted by the FWS (e.g., vegetation community, native bird, threatened and endangered species, and invertebrate surveys) and the COE (e.g., wetlands). The GIS will be used to integrate the ecological resource data and analyze potential impacts on terrestrial ecosystems and ecosystem components. Analyses include (1) fragmentation of the rain forest from natural occurrences (e.g., lava flows) and artificial occurrences (e.g., road building associated with HGP development); (2) non-native species invasion into disturbed and natural areas; (3) potential for the project to contribute to loss of native fauna and flora, including impacts from erosion as a result of construction and maintenance operations; (4) land area impact of (a) well pad size and number resulting from initial development and from expansion as the geothermal resource is depleted and (b) road length; (5) alternative locations of well pads and roads to minimize ecological disturbances; (6) interrelationships among biota, lava flows, and vegetation regeneration; and (7) effects of transmission line EMF on terrestrial fauna; and (8) other issues identified as appropriate during data collection.

The extent and type of wetlands within all land areas potentially involved in the geothermal resource area and along transmission corridors will be delineated and significance ascribed by COE. The EPA will also be consulted concerning wetlands (see Section 4.1). The COE will use the 1987 COE Wetland Delineation Manual to delineate wetlands. Wetlands maps and supporting data will be provided to DOE for the purpose of performing wetlands assessments based on the practicable alternatives analysis in accordance with Clean Water Act [Section 404(b)(1)] guidelines for dredging and filling. When wetlands are identified, a detailed assessment of the potential impacts on the wetland ecosystem will be made and approaches for minimizing or avoiding wetland involvement will be discussed. The assessment will include potential impacts on wetland functions, including water quality, hydrology, vegetation composition and structure, habitat for threatened and endangered species, and biological diversity.

The potential for impacts of HGP on threatened and endangered species and wetlands (see above) are required analyses in the EIS. During the EIS preparation the FWS, as well as the State Department of Natural Resources, will be contacted for information and consultation under Section 7 of the Endangered Species Act (see Section 4.1).

3.3.4.2 Aquatic Resources

Commenters identified several issues related to aquatic resources that will be addressed in the EIS. Results of existing studies and those conducted in support of the EIS will be incorporated into the EIS.

Land-based freshwater and brackish-water ecosystems, including streams, springs, and anchialine ponds, and their associated fauna and flora will be identified for all development areas, and potential impacts of the proposed development and alternatives will be addressed in the EIS. The potential impacts to aquatic ecosystems from groundwater quality alteration due to reinjection of geothermal fluids and potential changes in surface water quality will be addressed. Existing information, including that from the FWS and NMFS and from studies conducted in support of the EIS, will be used to determine the impacts of the proposed development on land-based aquatic resources. Wetlands will be addressed primarily as part of the terrestrial resources (see Section 3.3.4.1); however, linkages between wetlands and aquatic ecosystems will be addressed in the aquatic resources sections of the EIS.

The potential for impacts to threatened and endangered species in land-based aquatic ecosystems will be addressed using existing information and FWS survey information. During the EIS preparation, the FWS, the NMFS, the State Department of Natural Resources, and other knowledgeable experts will be contacted for information; and consultation as required under Section 7 of the Endangered Species Act will be conducted. The results of these consultations will be included in the EIS (see Section 4 and Tables 4.1 and 4.2).

3.3.4.3 Marine Resources

Commenters identified a number of concerns relative to the marine environment that will be addressed in the EIS. Marine ecosystems, including benthic communities, reefs, coastal zones, and deep water, along the underwater transmission corridors will be identified and described. Impacts could occur in the coastal zone, reefs, benthic communities, or at sea. Species could be affected by siltation, increased turbidity, or water quality changes due to construction (including dredging and drilling), operation, deployment, or maintenance of the HDWC or oil spills. The mechanical operations of cable-related activities (dredging, blasting, cable laying, etc.) can also affect marine species. All these activities are associated with construction in coastal zones, and the impacts of such activities will be assessed (including consideration of competing uses such as shipping and fishing) based on comparable experiences in Hawaii and elsewhere, and by reference to the literature.

The particulate loading and visibility of marine waters may be affected by construction, dredging, drilling, or maintenance, and erosion due to HGP-related activities on land. Particulate matter may alter the dissolved oxygen content, nutrient content, and the concentration of organic carbon in the coastal zone. The impacts of particulate loading, increased turbidity and siltation due to these activities will be assessed based on the literature and prior experience with similar activities in Hawaii. Knowledge of currents and projected particulate loading will be used to predict the range of increased turbidity and siltation. Leakage from an oil-filled cable (as a result of natural events, accident, or sabotage) or oil spills from associated

shipping will be assessed in a similar manner. Species and regions that are particularly sensitive to petroleum products will be identified and the likelihood of contamination determined based on the physical oceanography of the region. Both the EPA and Coast Guard will be consulted.

The impacts to the marine environment from potential damage to and maintenance of the undersea transmission cable and alternatives to the cable, will be addressed (see Section 3.3.11.2.2). Scenarios in which an undersea cable may rupture or be severed and produce impacts as the result of strong ocean currents, submarine erosion by ocean currents, and submarine landslides generated by earthquakes will be addressed (see Section 3.3.12.2).

The potential for ciguatera as a result of disturbance of the marine environment during cable construction and maintenance, and measures to avoid, limit, and/or mitigate these impacts, will be addressed (see Section 3.3.7). Those impacts that could occur as the result of cable oil leakage and cable accidents will be addressed (see Section 3.3.12.2 and 3.3.7).

Impacts to commercial, recreational, and native subsistence fisheries and fish ponds in the coastal zone and along the transmission cable route as the result of construction and operation of the cable will be addressed (see also Section 3.3.9). Economic impacts associated with the undersea cable in terms of commercial, recreational, and subsistence fisheries, mariculture and fish ponds, use of recreational areas, and use of precious corals will be addressed, as well as those economic impacts associated the cable construction, maintenance, operation, and other related aspects of deployment, retrieval, and rehabilitation.

The potential for impacts to endemic, threatened and endangered, and other sensitive species in the marine environment, including Hawaiian monk seals, humpback whales, skates, rays, and sharks, will be determined. During the EIS preparation, the NMFS, the FWS, the NOAA Office of Marine Mammals, the State Department of Natural Resources, and other knowledgeable experts and agencies will be contacted for information and consultation as required under Sect. 7 of the Endangered Species Act and the Marine Mammals Protection Act (see Tables 4.1 and 4.2).

The EIS will include an evaluation of the potential biological effects on marine life as the result of EMF produced by the submarine cable. There is concern that EMF may affect humpback whales and other sensitive species that use naturally occurring EMFs for navigation. At least three possible cases will be evaluated for potential effects on marine species: (1) fields produced during normal operation of the cable system, including typical static magnetic and electric fields as well as induced fields that may occur during transients and line loading changes; (2) temporary events after damage to one or more of the cables with higher than normal current densities around the damaged cable; and (3) only one cable functioning with current return through the ocean. Impacts associated with staged development in which there could be AC transmission between the islands of Hawaii and Maui will be addressed in the EIS as part of the discussion of alternatives to the proposed action.

Certain marine animals (e.g., sharks, rays, and skates) have specific sensory organs that detect extremely weak electric or magnetic fields which aid in navigation and foraging. Effects on behavior patterns, including potential attraction, may occur as the result of transmission line fields such as would be associated with the proposed undersea cable. The available knowledge regarding the effects of these fields on sensitive marine life will be reviewed and pertinent information will be obtained from other cable transmission studies to address the potential impacts associated with this issue. This information, along with the calculations of the fields produced by the

proposed undersea cables, will be used in the EIS to predict potential impacts on sensitive marine life.

The EIS will include an evaluation of the potential effects of noise during cable route construction and maintenance on sensitive marine biota. For example, effects of noise on breeding, calving, and migration of humpback whales will be assessed.

3.3.5 Noise

Some commenters pointed out that well drilling and venting from HGP development and operations will create noise. Well drilling and venting from current local geothermal developments were often cited as activities that produce intense noise. Noise is also associated with transmission lines, especially in moist conditions. Quiet conditions (with respect to human-produced sources) currently prevail in the area where noise impacts resulting from the proposed activity are expected.

Noise issues that were identified in the scoping process include:

- Occupational and public health impacts of noise from drilling, construction, and (unannounced) venting operations, and possible associated exceedances of OSHA/NIOSH standards;
- Effects on terrestrial and marine fauna;
- Psychological stress, fear, loss of sleep related to noise;
- Noise associated with construction and maintenance of transmission lines; and
- Noise associated with high tension transmission lines, especially the crackling noise produced by the lines during inclement weather or during periods of high humidity.

This section of the EIS will use existing data provided by qualified professionals specializing in noise characterization to describe and assess noise impacts. Noise measurements will include ambient levels as well as noise resulting from existing geothermal activities (drilling and operating). Noise contours will be developed. The noise measurements will include peak levels and energy-averaged levels. Noise from both normal operation (including transients) and upset conditions will be described.

The EIS will assess and evaluate potential impacts of noise to the affected residential population and to terrestrial and marine species; and adaptation by these species to noise will be discussed.

The EIS will also examine the potential for noise-induced hearing loss associated with the HGP. The noise levels associated with hearing loss will be compared with expected noise contours from HGP operations. Compliance with applicable public and occupational standards and guidelines for noise, including psychological effects, will be addressed in the EIS. Noise-related annoyance to residents living near well-drilling, construction areas, or other geothermal activities will also be addressed. Noise associated with the use of aircraft for construction and maintenance of HGP facilities and along transmission lines will be assessed. Noise abatement and mitigation measures (e.g., rock mufflers) will also be addressed.

3.3.6 Land Use

Commenters raised a variety of land-use concerns, especially those pertaining to compatibility between residential use and the HGP. Specific issues that were identified in the scoping process include:

- Compatibility of HGP plants and transmission facilities and corridors with competing residential, commercial, agricultural, coastal, and military land uses, conservation lands, Native Hawaiian Homelands, and the HVNP and other land preserves;
- Compatibility of HGP plants and transmission facilities and corridors with

planned land uses in the areas listed above;
- Land use impacts of expanding geothermal development as the resource is depleted;
- Impacts on unique land resources, such as the Wao Kele O Puna rain forest;
- Changes in traditional land ownership and land-use patterns as a result of HGP; and
- Impacts on coastal zone land uses including mariculture, recreational and subsistence fishing, and other commercial, recreational, and cultural uses of coastal areas.

Land-use issues will be addressed in several sections of the EIS. Land use as it relates to agricultural and ecological issues will be discussed in the EIS sections on terrestrial ecology. Land-use issues related to Native Hawaiian interests and culture will be discussed separately (see Section 3.3.9), and land-use issues related to economics will be discussed in the socioeconomics sections of the EIS (see Section 3.3.8). To assess potential land use-impacts, the EIS will estimate the total land area that would be required for the HGP plants and transmission facilities and corridors, identify existing and planned land uses in the proposed vicinity of HGP plants and transmission facilities and corridors, and determine if the construction and operation of the HGP would be compatible with those land uses. Agencies that will provide information about existing and planned land uses include the Counties of Hawaii and Maui, NPS, COE, and the State of Hawaii (e.g., the Department of Land and Natural Resources and the Office of State Planning). In particular, County Community Development Plans for affected Counties and the State's statutes regarding the designation and regulation of GRS (Sections 205-5.1 and 205-5.2 HRS) will be consulted (see Table 4.1).

3.3.7 Health and Safety

Participants in scoping expressed concern about health risks to workers and the public from routine operations and accidents.

Issues that were identified in the scoping process include

- Acute and chronic health and safety impacts of routine emissions (via air and water pathways);
- HGP accidents—effects on human health (see Section 3.3.12.2);
- Cable accidents (see Section 3.3.12.2);
- Effects of uncontrolled, unabated well venting and blowouts;
- Occupational safety;
- EMF effects;
- Psychological effects of construction, operation, and potential accidents;
- Effects of hazardous materials and wastes, including the use of herbicides to control non-native plant species and for transmission line right-of-way maintenance;
- Health impacts of herbicide use in the rain forest and along transmission lines, including potential impacts to plants used for medicinal purposes (see Section 3.3.9);
- Synergistic effects on sensitive individuals;
- Cumulative effects of planned full-scale development;
- Ciguatera associated with cable construction in the near-shore environment;
- Threats of civil disorder associated with the potential for accidents; and
- Fire hazards in dry areas due to transmission lines.

The EIS will address health and safety issues as they relate to both operations and accident conditions, including uncontrolled and/or unabated venting. The analyses will be based on the 500-MW development

scenario. Although effects of this larger development will have a cumulative nature, the basic methods for addressing different situations are similar. For public exposures, the first step is to identify the materials that will be emitted to air or water. These would include H_2S, radon, heavy metals, and organic compounds emitted to the air (see Section 3.3.1) or deposited in water; in addition, because of their potentially widespread use, herbicides will be examined as a source of public exposure. The next steps are to consider the various transport pathways, such as inhalation, food, and drinking water, and then calculate intake either on a continuous basis or under accident (episodic) conditions. These intakes then are converted to health effects via dose-response relationships, or compared with allowable intakes or other indices (e.g., State ambient air quality standards for H_2S). In addition, potential occupational exposures will be evaluated, to the extent possible, with respect to OSHA and NIOSH regulations. Certain operations that disrupt the near-shore marine environment can result in ciguatera. This, in turn, can be directly harmful to people who consume toxic fish, or indirectly harmful in depriving individuals of a source of food. The extent to which these effects may be harmful and/or mitigated will be discussed.

Of special concern are hazardous materials, including waste, which maybe present at geothermal sites. To the extent possible, these will be listed along with applicable regulations. Drilling muds and waste ponds represent a source of possibly toxic materials and they may pose a special waste disposal challenge. To the extent possible, the contents of such muds and ponds will be characterized so that any potential health effects issues can be quantified and future waste disposal requirements can be identified. The effects of herbicide, which would be used to control non-native plant species in the geothermal development subzone and vegetation along the transmission corridor, on human health will be addressed.

Public concern over the possible health effects of EMFs associated with power generation and transmission has increased sharply in recent years. The EIS will include an evaluation of EMFs near the power generation facilities, along the transmission line right-of-ways, at the conversion stations, and at ocean entry and exit points. Consideration of possible EMF impacts in the marine environment is discussed in Section 3.3.4.3. Because economics or emergency situations may dictate the need for single-cable operation, safety issues associated with ocean return currents during single cable operation will also be evaluated as appropriate. In addition, a section will be prepared that summarizes the most recent scientific understanding of the possible long-term effects on humans. Consideration of possible impacts on marine life is discussed in Section 3.3.4.3.

Accidents, which could result from natural phenomena or from a variety of human factors including operator error, and choices of materials and designs, will be assessed in the EIS. Human health effects of accidents will be assessed in the health and safety sections of the EIS. Other impacts of accidents will be assessed where appropriate in the EIS (see Section 3.3.12).

The EIS will include a qualitative discussion of potential psychological effects and their manifestations (e.g., fear, sleep deprivation, people moving out of their residences due to geothermal activities) resulting from factors related to the construction and operation of geothermal facilities (e.g., noise, odor, night lights). Comments received from residents in the Puna District indicated a concern for their general health, with some commenters referring to a general "malaise" associated with living near the existing geothermal development. The EIS will review the literature on identified emissions and sources for potential contributions to "malaise."

The EIS will address emergency preparedness needs both on the HGP site and in the Puna District that may arise from the proposed project and will discuss alternative mitigation measures that could be incorporated as remedial actions. The EIS will examine whether the proposed and alternative actions would increase the risk of lethality or lead to potential for harm to resident populations, and assess the adequacy of the existing resources within the community available to respond to those consequences. The potential problems of uncontrolled venting will be addressed, especially for areas where single routes exist for emergency evacuation of residents affected by possible H_2S emissions. The EIS will discuss mitigative measures that may be needed to ensure citizens' health and safety, such as monitoring stations within the community, early warning or call-down systems for more sensitive populations (e.g., the elderly, infirm, or the very young), evacuation via helicopter in remote locations, and the use of outside agencies to ensure compliance from geothermal developers on coordinating efforts with local officials for adequate warning systems. The EIS will address the current problem of communicating warnings in remote areas to potentially affected residents. Emergency preparedness will be discussed in light of the existing DOH H_2S standards, the Federal Emergency Management Agency's *Guide for Development of State and Local Emergency Operations Plans* (1985) and the supplement to that document, *Guide for the Review of State and Local Emergency Plans* (1988), the requirements of Title III of the Superfund Amendments and Reauthorization Act (1986) mandating public disclosure of chemical release information and the development of emergency response plans (see Table 4.1).

3.3.8 Socioeconomics

Socioeconomic concerns were expressed by many commenters. Scoping participants noted that the potential social and economic costs and benefits of HGP are complex and need to be evaluated in detail. Socioeconomic concerns ranged from the local effects of HGP (e.g., effects on property values) to more general concerns (e.g., economic effects on Hawaiian tourism and industry). Specific issues that were identified in the scoping process include

- The need for an accurate estimate of the total cost of the HGP to consumers, rate payers, taxpayers, and utilities from inception to decommissioning and rehabilitation. Total costs should include the costs of construction, operation, impact mitigation, environmental monitoring and enforcement, decommissioning, rehabilitation, and the cost of drilling additional wells because of resource depletion;
- The impacts of further industrialization (especially heavy industry) as a result of increased power availability, particularly in terms of a proposed commercial rocket launching facility and a proposed manganese nodule refining facility on the Big Island [see, for example, DOI (1990)];
- Effects on property values near HGP facilities and along the transmission line corridor;
- Effects on electric rates (because of HGP's cost and perceived reliability) in comparison to the no-action alternative and to conservation and DSM for the same amount of power;
- Increasing tourist developments and economic dependence on tourism;
- Impacts of the HGP on life styles and quality of life of the general population, including Native Hawaiians (see Section 3.3.9);

- The cost to consumers, rate payers, taxpayers, and utilities of providing backup utility capacity for the HGP because of the project's perceived reliability;
- The total cost to consumers, rate payers, taxpayers, and utilities of property destruction (e.g., because of HGP-related corrosion), property condemnation, relocation, and/or financial reimbursement to nearby residents and businesses due to liability-related issues;
- Economic impacts on terrestrial land uses, including agriculture, recreation, and tourism;
- Economic impacts on the marine environment, including commercial, recreational, and subsistence fishing, mariculture, tourism, and recreation;
- Economic effects of the HGP's visual impacts (e.g., the impact of night lighting on the Mauna Kea observatories);
- The total cost to consumers, rate payers, taxpayers, and utilities of precluding other energy options because of investment in the HGP.

The EIS will assess several of these and other potential socioeconomic issues, including (1) HGP employment-related population changes and subsequent impacts to employment, housing, public services, land use, transportation, and recreation and tourism and (2) the possibility of the HGP providing power for increased urbanization, industrialization, and tourism and subsequent impacts on population distribution and employment.

The EIS will assess socioeconomic impacts by examining the impacts of constructing and operating existing geothermal projects, submarine cables, and transmission facilities, as well as other large energy-related facilities, and projecting the HGP's impacts based on experiences in other parts of the world. The socioeconomic impact assessment will rely heavily on data from County planning agencies, the State of Hawaii (including the State's *Energy Functional Plan*) (see Section 4 and Tables 4.1 and 4.2), and geothermal developers.

Some concerns raised by commenters are beyond the scope of the EIS. Issues that will not be addressed in the socioeconomic impact assessment include costs to the State for promoting HGP, the costs of HGP-related litigation, and the political and social conflict generated by the HGP.

3.3.9 Cultural Resources/Native Hawaiian Concerns

Many speakers at the public meetings requested that the EIS consider the Native Hawaiians and their rights, religion, and culture. Many people expressed the belief that HGP would desecrate the volcano goddess Pele, and requested that the EIS examine potential impacts of the HGP on Native Hawaiian lifestyles and cultural and religious practices. A mass mailing concerning this issue is discussed in Appendix A.

Issues identified during scoping include:

- Potential desecration of Pele, the volcano-nature goddess, and impaired ability to observe Native Hawaiian religious practices associated with Pele; interrupted generational continuity in the training of young persons in traditional religious and cultural practices;
- Loss or desecration of religiously, spiritually, culturally, and socially unique habitats, land forms, resources (e.g., archaeological sites and artifacts; atmospheric signs such as rainbows), and species (see Section 3.3.4);
- Impediments to religious and other cultural uses of surface and subsurface waters located near the geothermal resource (see Section 3.3.2);
- Compliance with the American Indian Religious Freedom Act, the National

Historic Preservation Act of 1966, and other pertinent State and federal legislation (see Tables 4.1 and 4.2);
- Confidentiality of Native Hawaiian practices and religiously significant sites, including heiau (sacred sites) and burial sites in caves, cliffs, lava tubes; concern for potential desecration of sites;
- Reduced access to traditional coastal trails, healing places, and areas important for subsistence gathering, maricultural development, and medicinal use of plants; loss of ability to exercise gathering, fishing, and water rights;
- Reduced contact with and access to marine resources: sanctuaries (coastal caves and heiau), spiritual emanations or hoailona (natural signs) such as waves, subsistence fishing from reefs and nearshore fishing grounds, gathering of limu (seaweed) (see Section 3.3.4.3);
- Reduced contact with fish, birds, and other wildlife identified as 'aumakua (deified ancestors); loss of traditions rooted in aloha 'aina (respect and love for the land);
- Precluded use of Native Hawaiian Homelands and ceded lands; loss of access to or delayed homesteading of such lands (see Section 3.3.6);
- Alteration of the traditional rural physical setting and landscape;
- Effects of HGP on the integrity of archaeological resources; potential for increased unauthorized access to archaeological sites and areas important to traditional culture, which could lead to their alteration or destruction;
- Potential for damage from submarine cables to submerged archaeological remains such as nearshore underwater fishing sites;
- Loss of racial identity;
- Effects on subsistence life styles, including degradation of fishponds Impact on State constitutional Native Hawaiian legal rights and Common Law rights of 1892;
- Impact on Native Hawaiian family and community life;
- Impact on intergenerational linkages to ancestral lands and cultural/historic sites; and
- Impact on quality of life, changes in mental/cultural health, and impact on Native Hawaiian identity and pride.

Additional comments made by Native Hawaiians suggest that not all Native Hawaiians agree on how these issues should be characterized. For instance, some Native Hawaiians distinguish between worshipping and respecting Pele. They advocate wise use of and protection of natural resources but do not view HGP as an agent of potential religious desecration.

To assess specific cultural resources and Native Hawaiian concerns, the EIS will employ professional archaeologists to generate predictive models and conduct archaeological surveys in two of the main project areas, the GRSs in the Puna District, Hawaii, and the south shore of Maui. The State Historic Preservation Division has identified these areas as being likely to contain previously unidentified cultural resources. Additional reconnaissance and inventory surveys will still be required on affected islands, of Puna GRSs, transmission line corridors and access roads, and land-sea transition points along submarine cable routes. Marine archaeological surveys may be required off the coast of Maui in areas where nearshore underwater fishing sites are suspected. These surveys will be undertaken when and if the proposed project or subsequent projects reach more precise levels of definition than are currently available and would not be done for the EIS.

In addition, the EIS will utilize a Native Hawaiian cultural resource survey which will involve archival research and ethnographic and ethnohistorical description and analysis of those aspects of Native Hawaiian culture covered by this project. Information from

these sources is essential in evaluating and describing various claims that sites within the project area are important for the perpetuation of particular traditional practices and will be necessary for predicting the probable distribution of historic sites in the various areas of potential impact. Where appropriate, the EIS will also address impacts to cultural resources not specifically identified as Native Hawaiian. The Hawaii State Historic Preservation Officer, the Office of Hawaiian Affairs, the Office of Hawaiian Home Lands, NPS, and the President's Advisory Council on Historic Preservation will be consulted as important sources of information and guidance in undertaking the required studies. These archaeological and cultural resource surveys will provide the basis for compliance with pertinent federal legislation, including the National Historic Preservation Act of 1966 (as amended), Sections 106 and 110; the American Indian Religious Freedom Act of 1978 (amendments proposed); and the Native American Graves Protection and Repatriation Act of 1990. If the project would require placement of dredged or fill materials, DOE must also initiate Section 106 coordination with the Archaeological and Historic Preservation Act of 1974. Pertinent State legislation includes Hawaii State Constitution, Article 12, Section 7; Hawaii Revised Statutes, Chapter 6E; and State Act 306 concerning religious and cultural rights, historic preservation, and protection of burial sites, respectively (see Tables 4.1 and 4.2).

Some aspects of Native Hawaiian issues are beyond the scope of the EIS; these include, for example, the potential loss of racial identity. Other issues will be addressed only to the extent that they relate clearly to impacts generated by HGP. For example, a compilation of litigation involving Native Hawaiian claims aside from those directly related to HGP is beyond the scope of the EIS. However, DOE intends to consult and cooperate with Native Hawaiians through mutually recognized expert consultants and Native Hawaiian organizations that represent various Native Hawaiian viewpoints and concerns, including but not limited to Hui Malama I Na Kupuna O'Hawaii Nei. DOE also intends to consult with the Office of Hawaiian Affairs, an agency in Hawaii charged with representing Native Hawaiian interests and managing ceded lands. By establishing these contacts, DOE seeks to ensure that the EIS accurately reflects to the extent practicable the concerns and issues that Native Hawaiians regard as significant. In addition, DOE will promote wherever possible community access to the results of cultural studies. To the extent possible, consultations on these surveys will extend directly to affected Native Hawaiian communities.

3.3.10 Aesthetic Resources

Commenters stated that the EIS should address the aesthetic impacts of HGP on all islands, including impacts to natural and agricultural landscapes, beaches, and recreation areas. Specific issues that were identified in the scoping process include:

- Visual impacts of clearing land in the Wao Kele O Puna rain forest;
- Visual impacts of transmission lines, cable facilities, and increased erosion, particularly in established scenic areas, near park and reserve lands and near recreation areas;
- Visual impacts of an industrial facility in a residential and/or rural environment;
- Aesthetic impacts to the Puna District and along transmission line corridors because of HGP-related noise, odor, and night lighting, including potential nuisance impacts of noise (see Section 3.3.5);
- Proximity of HGP facilities to the HVNP in consideration of visual impacts (e.g., night lighting), Air-Quality-Related Values under the Clean Air Act, and

noise impacts on the Park's Wilderness Area; and
- Visual impacts on the marine environment (e.g., oil slicks, cable presence, and water clarity), including coastal areas.

The EIS will identify and describe important aesthetic resources in the vicinity of HGP plants and transmission facilities, and will assess the impacts of the proposed project on those resources. The assessment will involve an aesthetic resources survey and analysis conducted by local professional consultants specializing in landscape architecture and aesthetic impact analysis. These consultants will contact County planning agencies, the State of Hawaii, and citizen groups for information and assistance in preparing the aesthetic resources survey and analysis. DOE will consult with NPS planners and managers in Hawaii with regard to the potential for aesthetic impacts in protected areas within the HVNP (see Section 4). Aesthetic impacts associated with construction in the marine environment as it affects water quality and marine biota are addressed in Section 3.3.4.3.

3.3.11 Alternatives

Commenters suggested that the following issues related to alternatives to the proposed HGP be addressed in the EIS.

- The State of Hawaii's preferred alternative of geothermal for the Big Island only initially should be considered;
- Commenters requested an examination of conservation and DSM and renewable energy sources (biomass, solar thermal, wind, etc.) as alternatives to the proposed action;
- Concern was raised that if the purpose of the HGP is to reduce the need for imported oil in the transportation sector, then the use of oil in the transportation sector should be examined;
- Environmental and economic impacts of geothermal power compared with the impacts of other reasonably foreseeable alternatives, including renewable energy sources and coal;
- All alternative strategies should be analyzed in an IRP context, and externalities should be identified and quantified where possible;
- Commenters noted that if a geothermal resource of 500 MW exists on the Big Island, then its full development with or without a submarine cable is a reasonably foreseeable consequence, the impacts of which should be assessed;
- Effects of increased industrialization of the Big Island as the results of any alternative should be considered;
- Alternative power generating strategies need to be characterized for each island where geothermal-derived energy is being planned to be delivered;
- Use of coal-fired power generation as an alternative should include an assessment of the potential environmental impacts (air quality and solid wastes);
- Concern was raised that proposed coal-burning facilities in Hawaii might use coal mined in a rain forest of another country;
- Use of petroleum byproducts (residual oil from petroleum processing for transportation fuels) should be considered for power production on the Island of Oahu for use there and possible export to the other islands;
- Impact assessment of alternatives needs to address fiscal impacts, population distribution, contribution to energy demand, and reliability of resource;
- Alternative cable (overland and submarine) routes and technologies should be evaluated in the EIS;
- Various HGP designs and configurations, including alternative facility locations should be considered and should be sited away from residential areas; and

- Off-grid electric power systems (e.g., solar hot water, synthetic natural gas/propane for cooking, wind, etc.) should be considered where possible in assessment of alternatives.

From 1985 through 1989, the State had envisioned a large-scale, 500-MW geothermal/inter-island submarine cable project (the HGP) as an alternative to the State's 90% dependence on imported oil for electricity generation. However, as of January 1990, the State has redefined its geothermal goal to a planning level that seeks to have geothermal development first meet the requirements of the people of the Island of Hawaii. This downsized project does not include an inter-island submarine cable system. If this goal is successful, only then would the State consider a large-scale geothermal and inter-island cable project.

Alternatives to the proposed DOE action (partially funding Phase 3) and reasonably foreseeable actions by others (such as Phase 4, the proposed construction and operation of HGP) will be addressed in the EIS. These alternatives will include the no-action alternative of not partially funding Phase 3. In addition, reasonable alternatives within the proposed HGP, both supply and non-supply, as well as design and location alternatives will be considered. The criteria for evaluating alternatives will include and consider the energy objectives and policies cited in 226-18, HRS, of the Hawaii State Plan.

The HGP will be evaluated to determine which alternatives have the potential to achieve similar objectives. The main emphasis will be in determining the proposed HGP's contribution to meeting power generation needs and Hawaii's energy policy goal of reducing reliance on imported oil. This determination will be based in part on projections of electric generation requirements and plans to meet these requirements. Transportation actions that would potentially reduce dependence on oil will not be considered as alternatives to the proposed action. Although these actions have been mentioned during scoping meetings as possible alternatives because they could potentially accomplish one of the proposed action's primary objectives, that is reduce Hawaii's dependence on imported oil, they do not achieve the crucial HGP objective of supplying electric power. Therefore, this alternative is not considered comparable to the proposed action. The EIS will consider, however, the amount of oil displaced by the use of up to 500 MW of geothermal energy and other supply-demand alternatives.

Alternatives that will be considered include: alternative geothermal technologies, sites, and capacities; alternative supply-demand options, such as no-action, geothermal on the Big Island only, and conservation and DSM plus renewable energy supply sources; alternatives associated with the overland transmission routes; and alternative submarine cable routes and technologies. Alternatives to the proposed submarine cable system will include: various cable routes and cable materials, such as solid dielectric or oil-filled submarine cables, operation at either HVAC or HVDC, and alternative methods of land-sea transition. Each of these alternatives will be evaluated based on their economic and technical viability. The potential environmental and economic impacts for each energy supply-demand option will be identified, examined, and compared to the impacts of the proposed action.

3.3.11.1 Alternatives Within the Proposed Action

3.3.11.1.1 Development Scenarios

During scoping, several commenters questioned the need for power-generating capacity where geothermal-derived energy was being planned to be delivered. Because the geothermal resource is not yet

commercially defined, various geothermal development scenarios will be proposed using available information on (1) the geothermal resource potential that may be commercially available and (2) the energy demand forecasts provided by HECO and other Hawaiian utilities. These scenarios will allow for a staged development of geothermal resources to meet the energy demands projected by the utilities.

3.3.11.1.2 Geothermal Technologies

Alternatives to the proposed 500-MW HGP will include various power-generating strategies and power-generating technologies (e.g., total reinjection and in situ heat exchange). Technology alternatives will be selected from the best available information from the State of Hawaii, geothermal developers, utilities, and other experience with geothermal development.

3.3.11.1.3 Alternative Sites

In response to scoping comments about the location of geothermal facilities, alternative sites will also be considered in the EIS. Because the basis for site selection will be the availability of adequate geothermal resources, the EIS will rely on best available information regarding the development potential of the KERZ. Geothermal development on Maui will not be included because the resource is not expected to be economical for power generation.

3.3.11.1.4 Overland Transmission Routes

The scoping process identified the need to consider alternative overland transmission routes and technologies. Potential overland routes, based on configurations described previously in HECO (1989) and discussions with the State and County of Hawaii, will be defined and will be discussed in the EIS in terms of impacts to land use, ecological resources, health and safety, socioeconomics, cultural resources and Native Hawaiian concerns, and aesthetics. The EIS will not, however, consider underground transmission systems because the costs of such would be prohibitive.

3.3.11.1.5 Submarine Cable Routes and Technologies

The concerns identified as environmental (see Section 3.3.4.3), socioeconomic and recreational (see Section 3.3.8), and cultural (see Section 3.3.9) regarding the marine environment will be addressed for each of the alternative cable scenarios.

Cable Routes. The preferred route is at present only roughly defined. Therefore factors relating to competing uses, impacts to water quality and marine ecology (particularly to threatened and endangered species), economics, impacts to cultural heritage, and risks of credible accidents (see Section 3.3.12.2) will be important in defining the preferred routes and viable alternatives.

Alternative cable materials and configurations. When the HDWC program analyzed the many possible configurations, an oil-filled cable was considered technically and economically the preferred alternative. Those cables that were found to be technically feasible (HDWC 1985a) will be reexamined from an environmental perspective, as will solid dielectric cables, if they are demonstrated to be reasonable from a technical and cost basis.

HVDC vs HVAC transmission. The preferred technological alternative for the submarine cable is HVDC. If HVAC is found to have sufficient technological merit that it can be considered a reasonably foreseeable alternative, then its potential environmental impacts will be considered. Of particular concern is the EMF associated with AC, which is considerably greater than that observed for the same power rating with DC current.

Land-sea transitions. Only the potential impacts of alternatives of pumping station/no pumping station and conversion station/no conversion station (if there will be taps for the local system) will be considered. An examination of alternative refinements is not reasonable in the EIS because of insufficient details of proposed pumping or conversion stations.

3.11.2 Alternatives to the Proposed Action

3.11.2.1 No-Action

The no-action alternative is defined as Hawaii's continued reliance on the existing and planned power generating mix, which is predominantly oil-fired capacity with some coal-based capacity and renewable energy sources. Using the energy demand scenarios developed by the Hawaiian utilities, the EIS will examine the technical, economic, and reliability aspects of this "business as usual" alternative as well as the potential environmental impacts.

3.3.11.2.2 Alternative Supply-Demand Options

In addition to the no-action alternative, a second supply-demand option, reasonable increments of up to 500 MW of geothermal energy, will be considered for use on the Big Island only (no submarine cable). This alternative could be considered until it is proven that the geothermal resource would sustain export of 500 MW, and that the environmental and economic impacts of the transmission line are acceptable. By examining this alternative, the EIS will address the scoping concern that if a resource of 500 MW exists on the Island of Hawaii, then its development is a reasonably foreseeable consequence. The definition of this alternative will consider utility plans, and/or the projected needs for generating power on the Big Island. A third alternative would include conservation and DSM plus a mix of renewable supply alternatives, such as biomass, solar, photovoltaic, small-scale hydroelectric, and wind . These supply-demand options will be examined on an island-by-island basis in the framework of IRP. All supply-demand alternatives will be analyzed in the EIS using IRP methods available from Hawaiian utilities as well as from other sources. The extent of the EIS analysis will depend on the availability of credible data from the Hawaiian utilities and from the individual alternative assessments.

The energy supply-demand alternatives will be evaluated by first screening them for technical feasibility (i.e., Does the resource exist and is it technically feasible to develop it in the same time-frame as the HGP?). If the alternative is technically feasible, its potential environmental impacts and economic costs will be evaluated.

The basis of the economic evaluation will be a comparison of the discounted valued of the life-cycle costs of geothermal energy to a configuration of alternatives that would provide equivalent power and generation (or an equivalent increase in energy efficiency and DSM) over the assumed lifetime of the geothermal resource. Cost estimates of alternatives will be based on the best available information with special consideration of cost factors affecting Hawaii.

Reasonable energy alternatives and strategies including conservation/DSM, off-grid electric power systems where possible, renewable energy sources, and alternative geothermal power generating plants will be compared using an IRP framework. This assessment will be conducted using available data and studies from the State, local utilities, and others, and will be coordinated, where possible, with Hawaii's IRP process that is currently under way.

Uncertainty about capital costs, energy costs, economic risks, and environmental factors will be incorporated through sensitivity analyses. Alternatives to the HGP will be evaluated through the simulation of

alternative resource plans using utility planning models. The effect of alternatives on Hawaii's dependence on imported oil will also be explicitly examined where possible. This examination will focus on the displacement of imported petroleum for electric power generation, the use of petroleum processing residuals for power production, and the manner in which reductions in the use of oil for electricity production would affect Hawaii's dependence on petroleum imports. The need for power production facilities will also be evaluated. The effect on environmental resources that are being considered for the proposed action will be considered for viable alternatives.

3.3.12 Credible Accidents

3.3.12.1 Proposed Geothermal, Geothermal Alternatives, and Overland Transmission Routes

As discussed in Section 3.3.7, commenters expressed concerns about accidents during construction and operation of the HGP plants and transmission facilities. Accidents could result from natural phenomena, such as seismic or volcanic activity, hurricanes, or tsunamis, or from human factors, including operator error or flawed plant design and construction. Specific concerns identified during scoping included:

- Health and safety impacts to workers and the public from accidental releases of H_2S, radon, heavy metals, and organic compounds emitted into the air, surface water, and groundwater (see Section 3.3.7);
- Accidents involving the HGP plants and transmission facilities resulting from volcanic and/or seismic activity;
- Impacts to terrestrial and aquatic ecological resources resulting from accidental releases of hazardous materials into the air and water;
- Economic impacts of accidents at the plants or along the transmission corridor (e.g., additional project costs for evacuating residents, replacing project facilities, providing reimbursement for damages); and
- Impacts to Native Hawaiian cultural practices resulting from accidental releases of hazardous materials into the air and water.

As indicated by these examples, concerns over the potential impacts of accidents have been raised in connection with almost every resource area to be addressed in the HGP EIS. Therefore, most resource areas (meteorology/air quality, surface and groundwater resources, geological resources, ecological resources, health and safety, emergency preparedness, socioeconomics, and cultural resources) will include a discussion of the potential impacts of accidents. However, the primary discussion of impacts related to accidents during HGP construction and operation will be in the credible accidents section of the EIS.

In addressing accidents, the EIS will use a deterministic approach that will assess the consequences of potential accidents. Because the area in the vicinity of the proposed HGP is very active geologically, the EIS will assume that important accident initiators are earthquakes and volcanic eruptions. The analysis will further assume that these natural phenomena cause an accident in which (1) the HGP's pipeline/well head connections and automatic shut-off valves fail, leading to uncontrolled venting of geothermal fluid or (2) a blow-out preventer on an HGP well fails, leading to uncontrolled venting of geothermal fluid. For each scenario, the quantities and effects of the primary materials released—H_2S, radon, and toxic heavy metals—will be compared with the quantities and effects of the same materials released through the

earth's natural venting process. Hurricanes and tsunamis also pose a threat to transmission/conversion facilities near coastal areas. Loss of load could result in a period of venting, which may be uncontrolled for some period of time. To the extent that data are available from cooperating agencies, the EIS will quantify the probabilities of such accidents; when such data are lacking, the EIS will bound the potential impacts of accidents using a reasonable worst-case scenario.

3.3.12.2 Submarine Cable and Alternatives

Commenters raised concerns about

- Numerous hazards on land, in the coastal zone, and at sea with respect to fabrication, transportation, construction, deployment, maintenance, or retrieval operations for the submarine cable;
- Cable reliability of extreme events, such as tsunamis, hurricanes, and debris flows or turbidity currents;
- Potential of cable break due to mechanical impact (anchor dragging, shark bite, etc.); and
- Possible hazards to human health if the EMF from cable attracts sharks (see also Section 3.3.4.3).

Construction and operation in and near the marine environment involve numerous hazards on land, in the coastal zone, and at sea with respect to fabrication, transportation, construction, deployment, maintenance, and retrieval operations. The EIS will address operations in normal sea state and under extreme conditions. The impacts of a cable failure that impact primarily terrestrial systems, such as the community at a geothermal plant site or those relying on the power in Oahu, will be discussed (see also Section 3.3.4.1). The USGS and the U.S. Coast Guard will be consulted about the potential for accidents involving the submarine cable system (see Tables 4.1 and 4.2).

Commenters asked about the ability of the submarine cable system to withstand being hit by anchors, shark bites, or purposeful sabotage. The EIS will examine those concerns using information in the available literature and experiences elsewhere.

Commenters were also concerned that the EMF from the cable would attract sharks. Various experts on sharks will be consulted and the literature will be carefully reviewed to determine whether attraction of sharks is a significant possibility. Shark attraction will be addressed to the extent available information permits.

3.3.13 Federal, State, and Local Government and Geothermal Developers

During the public scoping process, some participants questioned the credibility and neutrality of certain organizations involved in the development of the HGP. This questioning extended to environmental and engineering consultants affiliated with geothermal developers. The public requested that DOE carefully consider the qualifications and integrity of potential subcontractors for environmental support studies associated with the HGP EIS. Specific issues that were identified in the scoping process include:

- Lack of governmental concern for citizens' rights, health, and welfare;
- Denial of due process in HGP-related litigation;
- Dismissal of public concerns by government officials;
- Collaboration between government and geothermal developers;
- Powerlessness of citizens to influence government decisions on HGP; and
- Competence of government employees and geothermal developers.

These concerns are not within the scope of the EIS; however, DOE recognizes the importance of independent oversight and public involvement in activities to build confidence and trust and will continue to make information available to the public and respond to public comments.

As noted in Section 3.2, DOE held ten public scoping meetings (two a day at five locations) and provided a public comment period to accept written comments. Transcripts from these meetings were placed in the HGP EIS reading rooms for public review. In addition, information exchange meetings and meetings with Native Hawaiians were held (see Table 3.1 and Figure 3.1). This draft IP is being made available for public review and comment. Also, an interactive workshop was held to receive comments and suggestions on the working draft IP from all cooperating agencies. To encourage public involvement, *Federal Register* notices, press releases, and local advertisements have been used to publicize activities. DOE will continue to publicize public participation opportunities. In addition, the Draft EIS will be the subject of public hearings prior to issuance of the Final EIS and ROD.

3.3.14 Environmental Compliance Regulatory Issues

Commenters thought that the EIS should include a review of all applicable federal, State, and County rules, regulations, and statutes, including NEPA, OSHA requirements, the National Historic Preservation Act, the American Indian Religious Freedom Act, the Endangered Species Act (including Section 7 consultation), and the Public Utilities Regulatory Policy Act, and other (see Tables 4.1 and 4.2). Commenters also thought that the EIS should include a review of regulatory issues in light of the major changes that have occurred during the course of the HGP.

Issues that were identified in the scoping process include:

- Federal, State, and County permit compliance;
- Effect of past and current litigation on geothermal development;
- Apparent violations of environmental laws by geothermal developers;
- Inadequate monitoring for compliance with emissions standards; and
- Role of State and County enforcement agencies.

The HGP will be required to comply with all relevant federal, State, and County regulations and legislation. The EIS will list and describe the federal, State, and County laws and acts that pertain to HGP, and will assess HGP impacts against the standards associated with those laws. For example, NAAQS and State of Hawaii air quality standards for H_2S will be used in the EIS assessment of HGP air quality impacts. In addition, Mitigation Action Plans, completed in conjunction with the EIS and its Record of Decision, will explain how measures designed to mitigate impacts will be planned and implemented. These Mitigation Action Plans are required by DOE NEPA Implementing Procedures (10 CFR 1021).

4. HGP EIS WORK PLAN

4.1 AGENCY CONSULTATIONS

A partial list of agencies expected to be contacted during EIS preparation is given by subject area and agency in Tables 4.1 and 4.2. This list will be revised and expanded as necessary based on recommendations made by various agencies. Appendix B summarizes the comments provided by federal, State, and County agencies in response to (1) the ANOI; (2) the NOI; (3) invitations to act as cooperating agencies; and (4) the working draft IP for the HGP EIS.

TABLE 4.1.—*Agency Consultations*

Subject Area	Legislation	Agency
Endangered species	Endangered Species Act of 1973, as amended; state laws	U.S. Fish and Wildlife Service, National Marine Fisheries Service, State agencies
Migratory birds	Migratory Bird Treaty Act	U.S. Fish and Wildlife Service
Archaeological, historical, and cultural resource preservation	*Federal:* National Historic Preservation Act of 1966; Archaeological Resources Protection Act; American Indian Religious Freedom Act; and Native American Graves Protection and Repatriation Act; *State:* Hawai'i State Constitution, Article 12, Section 7; Hawai'ian Historic Preservation Law [Haw. Rev. Stat. 6E-1 (1985)]; Hawai'ian Burial Law [Act 306 (Session Laws 1990)]; *County:* Ordinance No. 1941: "A Bill For An Ordinance Establishing A New Chapter In Title 2 Of The Maui County Code Creating A Cultural Resources Commission; Maui County Code, Title 2: "Administration and Personnel," Chapter 2.88, "Cultural Resources Commission"	State Historic Preservation Office, President's Advisory Council on Historic Preservation, Native Hawaiian Groups, Office of Hawaiian Affairs, Maui County Cultural Resources Commission, State Department of Hawaiian Home Lands
Discharge of pollutants to water	Clean Water Act; Safe Drinking Water Act	U.S. Environmental Protection Agency, National Marine Fisheries Service, State agencies
Work in navigable waters of the United States	Section 404 of Clean Water Act; Rivers and Harbors Act	Corps of Engineers, National Marine Fisheries Service

TABLE 4.1.—*Agency Consultations*
(continued)

Subject Area	Legislation	Agency
Prime and unique farmlands	Farmland Protection Policy Act of 1981	Soil Conservation Service
Floodplains	Executive Order 11988; Fish and Wildlife Coordination Act	Corps of Engineers, U.S. Fish and Wildlife Service, State agencies
Wetlands	Executive Order 11990; Fish and Wildlife Coordination Act; Section 404 of Clean Water Act	Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, State agencies, U.S. Environmental Protection Agency
Water body alteration	Fish and Wildlife Coordination Act	U.S. Fish and Wildlife Service, National Marine Fisheries Service ,State agencies
River status	Wild and Scenic Rivers Act; Anadromous Fish Conservation Act; Hanford Reach Study Act	U.S. Department of the Interior
Air pollution	Clean Air Act	U.S. Environmental Protection Agency, State and local agencies
Water use and availability	Water Resources Planning Act of 1965; Safe Drinking Water Act; Primary and Secondary Drinking Water Standards; others	U.S. Environmental Protection Agency, Office of Water Policy, State agencies

TABLE 4.1.—*Agency Consultations*
(continued)

Subject Area	Legislation	Agency
Noise	Noise Pollution and Abatement Act of 1970; Noise Control Act of 1972	U.S. Environmental Protection Agency, State agencies
Siting and planning	State and County legislation	State and County agencies
Waste management and transportation	Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments of 1984; Comprehensive Environmental Response, Compensation and Liability Act; Emergency Planning and Community Right to Know Act	U.S. Environmental Protection Agency, U.S. Department of Transportation, State agencies
Coastal zones	Coastal Zone Management Act; State and County legislation	Office of State Planning, County Planning Department

TABLE 4.2.—*Government Agency Permit Consultation List*

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
	State of Hawaii Department of Land and Natural Resources	
DLNR 1	Ocean Waters Construction Permit	NOAA 1, CG 1, CG 2
DLNR 4	Forest Reserve Special Use Permit	
DLNR 5	Forest Reserve Access Permit	
DLNR 6	Entrance to Wildlife Sanctuary	
DLNR 7	Transporting Permit	
DLNR 8	Permit to Enter Closed Watershed	
DLNR 9	Natural Area Reserve Special Use Permit	
DLNR 10	Historic Preservation Review	COE 1, COE 5
DLNR 11	Use of State Land Including Submerged State Lands	NOAA 1, CG 1, CG 2
DLNR 12	Conservation District Use Application	
DLNR 13	Water Use Permit Within Water Management Areas	
DLNR 14	Stream Channel Alteration Permit	
DLNR 15	Stream Diversion Works Construction or Alteration Permit	
DLNR 16	Well Construction or Pump Installation Permit	
DLNR 17	Geothermal Resource Mining Lease	

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
DLNR 18	Dams and Reservoirs Construction Approval	COE 2
DLNR 19	Geothermal Exploration Permit	
DLNR 20	Geothermal Resource Subzone Designation	
DLNR 21	Geothermal Plan of Operations	
DLNR 22	Geothermal Well Drilling or Modification Permit	
	State of Hawaii Department of Health	
DOH 1	Notification of Hazardous Waste Activity	EPA 1
DOH 2	Hazardous Waste Treatment, Storage and Disposal (TSD) Permit	EPA 1
DOH 3	Underground Storage Tank (UST)	
DOH 4	Underground Injection Control (UIC) Permit	EPA 3
DOH 5	Water Quality Certification (WQC) Army Corps of Engineers Section 401 Permit	
DOH 6	Authority to Construct (ATC) a Potential Air Pollution Source	
DOH 7	Permit to Operate (PTO) a Potential Air Pollution Source	
DOH 8	Prevention of Significant Deterioration (PSD)	

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
DOH 9	Community Noise Permit for Construction Activities	
	State of Hawaii Department of Business, Economic Development and Tourism	
DBEDT 1	District Boundary Amendment	
DBEDT 2	Land Use Commission Special Use Permit	
	State of Hawaii Office of State Planning	
OSP 1	Federal Consistency With the Hawaii Coastal Zone Management Program	COE 5
	State of Hawaii Department of Transportation	
DOT 1	Permit to Perform Work on State Highways	FHA 1
	Hawaii County	
HC 1	Geothermal Resource Permit (GRC)	
HC 2	Special Management Area (SMA)	
HC 3	Shoreline Setback Variance (SSV)	
HC 4	Special Permits	
HC 5	Use Permits	
HC 6	Subdivision of Land	
HC 7	Plan Approval	

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
HC 8	Grubbing, Grading, Excavation and Stockpiling Permits	
HC 9	Excavation of Public Highways	
HC 10	Installation of Utilities Within Federal and Secondary County Highways	
HC 11	National Flood Insurance	
HC 12	Building Permits	
HC 13	Outdoor Lighting Permit	
HC 14	Electrical and Plumbing Permits	
HC 15	Sign Permit	
HC 16	Building Plan Approval	
	Maui County	
MC 1	Department of Public Works Construction Permits	
MC 3	Land Use Commission Special Use Permit	DBEDT 2
MC 5	Shoreline Setback Variance	
MC 6	Special Management Area Use Permits	
	City and County of Honolulu	
CCH 1	Conditional Use Permit-Type 1	

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
CCH 2	Special Management Area Use Permit (SMP)	
CCH 3	Shoreline Setback Variance	
	U.S. Navy	
NAV 1	Notification Regarding Surface and Subsurface Plans	
	U.S. Army Corps of Engineers	
COE 1	Permits Under Sections 9 and 10 of the Rivers and Harbors Act of 1899 for Structures or Works in or Affecting Navigable Waters of the United States	NMFS 2
COE 2	Permits Under Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 for Ocean Dumping of Dredged Material	FWS 1, NMFS 7, EPA 4
COE 3, 4, and 5	COE 3: Permits Under Sections 404 of the Federal Water Pollution Control Act of 1972 and Amendments for Discharges or Dredged or Fill Material into Waters of the United States; COE 4: Water Quality Certification from the State of Hawaii Department of Health; COE 5: Coastal Zone Management Consistency Certification from the State of Hawaii The Corps permit may also involve endangered species and historic sites.	EPA 1, FWS 2, NMFS 1

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
	National Oceanic & Atmospheric Administration	
NOAA 1	Notification to Charting and Geodetic Services	CG 1
	Department of Transportation, U.S. Coast Guard	
CG 1	Notification of Submerged Cable	NOAA 1
CG 2	Notification of Cable Laying Operations or Related Projects	
	U.S. Fish and Wildlife	
FWS 1	Endangered Species Act Activities Review	COE 2, NMFS 6
FWS 2	Clean Water Act Review	EPA 1, DOH 5, COE 3, NMFS 1
FWS 3	Rivers and Harbors Act Review	COE 1, NMFS 2
FWS 4	Fish and Wildlife Coordination Act Review	NMFS 9
	National Marine Fisheries Service	
NMFS 1	Clean Water Act Section 404 Permit Application Review	FWS 2, COE 3
NMFS 2	Rivers and Harbors Act of 1899 Section 10 Permit Application Review	COE 1

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
NMFS 3	Clean Water Act Section 401, Water Quality Certification Application Review	COE 4, FWS 2, EPA 1
NMFS 4	Federal Coastal Zone Management Consistency Determination Review	OSP 1, COE 5
NMFS 5	Marine Mammal Protection Act (MMPA) Exemption	
NMFS 6	The Endangered Species Act (ESA) Section 7, Consultation Process	FWS 1
NMFS 7	Marine Protection Research and Sanctuaries Act of 1972, Section 103 Permit Review	COE 2
NMFS 8	National Environmental Policy Act, EIS preparation and review	
NMFS 9	Fish and Wildlife Coordination Act	FWS 4
	U.S. Environmental Protection Agency	
EPA 1	Permits and Licenses Under Section 402 of the Federal Water Pollution Control Act of 1972 and Amendments	DOH 1, DOH 2, FWS 2, COE 3
EPA 2	Permits and Licenses Under the Clean Air Act	DOH 6, DOH 7
EPA 3	Underground Injection Control (UIC) Permit	DOH 6
EPA 4	Ocean dumping permits under Sect. 102(a) of the Marine Protection Research and Sanctuaries Act of 1972	COE 2

TABLE 4.2.—*Government Agency Permit Consultation List*
(continued)

Permit Abbreviation	Permit Title or Type	Cross-Reference to Related Permits/Permits Delegated to Other Agencies
	Federal Highway Administration	
FHA 1	Approval for Work to be Performed on Interstate Highway	DOT 1

4.1.1 Cooperating Agencies

As part of the scoping process, DOE selected other federal agencies, the State of Hawaii, and Counties in Hawaii to participate in EIS preparation as cooperating agencies. Cooperating agency roles and responsibilities in EIS preparation, as defined in CEQ Regulations (40 CFR 1501.6), can include participation in the scoping process, developing information, preparing environmental analyses, providing technical reviews, and/or lending staff support. The COE, FWS, USGS, NPS, NMFS, State of Hawaii, County of Maui, and County of Hawaii have agreed to be cooperating agencies on the HGP EIS. Memoranda of Understanding have been signed by DOE and each cooperating agency. In addition, FWS, USGS, and COE are being funded by DOE to conduct technical support studies to assist in the preparation of the EIS. Details of the cooperating agency technical support studies are currently under review, but preliminary plans for the studies are discussed in Sections 3.3.1, 3.3.3, and 3.3.4.

4.1.2 Other Federal Agencies and Non-Governmental Organizations

While preparing the HGP EIS, DOE will contact and conduct reviews with other federal agencies and Native Hawaiian organizations. In particular, EIS preparers will contact EPA, U.S. Navy, U.S. Coast Guard, SCS, Department of the Interior, and Department of Transportation.

4.2 PREPARERS OF THE EIS

Oak Ridge National Laboratory (ORNL) has been selected by DOE to assist in the preparation of the HGP EIS and to support all EIS procedural requirements. ORNL is assisted by Lawrence Berkeley Laboratory in the areas of alternatives and marine impacts, the University of Tennessee in the areas of cultural resources and socioeconomics, and by subcontractors having local expertise in specific areas as appropriate. Supporting documentation and data will be provided by federal, State, and County agencies (especially those identified as cooperating agencies) and others. DOE is responsible for the scope and content of the EIS and supporting documents. NEPA disclosure statements are on file at DOE's Office of Conservation and Renewable Energy, Washington, D.C. Copies of these statements are included in Appendix G.

4.3 SIGNIFICANT EIS MILESTONES

Significant milestones in the preparation of the HGP EIS are shown in Figure 4.1. At this IP stage, the milestones are tentative and subject to change as needed to ensure the preparation of a thorough EIS.

4.4 RELATED ENVIRONMENTAL DOCUMENTATION

Several federal and State environmental documents related to geothermal development in Hawaii will be reviewed and used as information sources during HGP EIS preparation. In terms of federal NEPA documents, EIS preparers will review the U.S. Energy Research and Development Administration's *Environmental Assessment of the Hawaii Geothermal Project Well Flow Test Program* (1976) and DOE's NEPA documentation for HGP-A, *Environmental Assessment, Hydrothermal Geothermal Subprogram, Hawaii Geothermal Research Station, Hawaii County, Hawaii* (1979).

EIS preparers will also review a number of environmental documents prepared by the State of Hawaii. Two early documents, prepared for the Hawaii Department of Planning and Economic Development in 1978, are the *Environmental Impact Statement for the Hawaii Geothermal Research Station Utilizing the HGP-A Well at Puna, Island of Hawaii* and the *Revised*

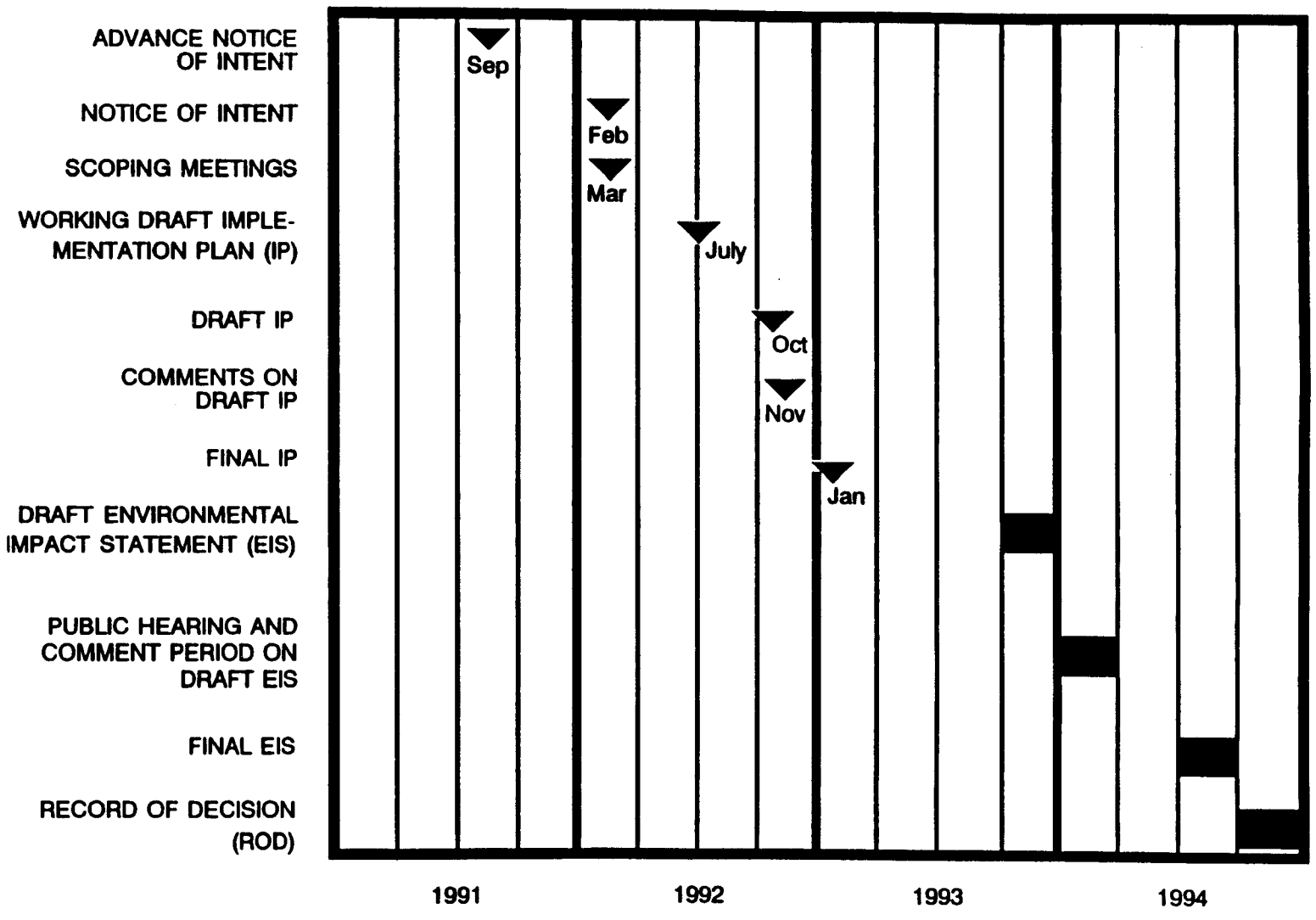

Figure 4.1. Significant HGP EIS milestones.

Environmental Impact Statement for Hawaii Geothermal Research Station, Island of Hawaii. DBED's more recent environmental documentation, *Environmental Assessment for the Hawaii Deep Water Cable Program* (1987) and *Environmental Review: 500 MWe Geothermal Development Within the Three Geothermal Resources Zones of the Kilauea East Rift Zone, Puna District, Island of Hawaii* (1989), will also be reviewed during EIS preparation. In addition, EIS preparers will review environmental documentation for other development proposals, including a commercial rocket launching facility (when the document becomes available) and a manganese nodule refining facility on the Big Island, *Final Environmental Impact Statement, Proposed Marine Mineral Lease Sale: Exclusive Economic Zone Adjacent to Hawaii and Johnston Island* (1990).

Several environmental documents related to private geothermal developments on the Big Island have been prepared to date, and some of them have served as State EISs. Those that will be reviewed during HGP EIS preparation include two prepared for True/Mid-Pacific Geothermal Venture: *Revised Environmental Impact Statement for the Kahauale'a Geothermal Project, District of Puna, Island of Hawaii, State of Hawaii* (1982) and *Final Supplemental Environmental Impact Statement to the Revised Environmental Impact Statement for the Kahauale'a Geothermal Project* (1986); and a State environmental document prepared for Thermal Power Company, a private geothermal development group, the 1987 *Environmental Impact Statement: Puna Geothermal Venture Project.*

5. REFERENCES

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HECO (Hawaiian Electric Company, Inc.) 1989, *Request for Proposal for the Geothermal/Inter-Island Transmission Project*, Hawaiian Electric Company, Inc., Honolulu, Hawaii, May.

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House Resolution 1281, Conference Report, the Dire Supplemental Appropriations Act, which became Public Law 102-27.

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Public Law 101-514, *Energy and Water Development Appropriations Act.*

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APPENDIX A

SUMMARY OF ORAL AND WRITTEN SCOPING COMMENTS

CONTENTS

1. INTRODUCTION

This appendix contains a summary of the oral and written comments received during the scoping process for the Hawaii Geothermal Project (HGP) Environmental Impact Statement (EIS). The summary provides an overview of the issues that have been suggested for inclusion in the HGP EIS, with equal consideration given to both oral and written comments.

Oral comments were presented during public scoping meetings. Written comments were solicited (1) at the public scoping meetings; (2) in the Advance Notice of Intent (56 *Fed. Regist.* No. 170, 43585–87) and Notice of Intent (57 *Fed. Regist.* No. 31, 5433–37) to prepare the HGP EIS; and (3) in project-related correspondence and meetings (e.g., cooperating agency meetings).

Listed in the table below are the ten public scoping meetings (one afternoon, one evening) that the Department of Energy (DOE) held at five locations in Hawaii. These meetings were held in compliance with Council on Environmental Quality regulations (40 CFR 1501.7) and DOE National Environmental Policy Act (NEPA) Guidelines (subsequently superseded by DOE regulations implementing NEPA (10 CFR 1021). Also, DOE policy is to facilitate opportunities for public involvement in the NEPA process. Accordingly, the purpose of these meetings was to ensure adequate opportunity for public and government agency participation in developing the EIS scope by identifying the issues to be addressed, commenting on the proposed action, and suggesting alternatives to be analyzed.

One hundred seventy individuals provided more than 700 comments during scoping meetings (see Figure A-1). In addition, 70 individuals submitted written materials and letters to DOE during the scoping period (before the April 15, 1992, deadline). The majority of comments came from individuals; but about 50 organizations (including environmental, public interest, and community groups) also participated by offering comments through representatives. Additionally, 242 people submitted a "clip and ship" coupon which states, "I support your efforts to evaluate the cultural and religious implications of geothermal development in Hawaii with your current EIS process. Please recognize that serious

HGP EIS public scoping meetings in Hawaii

Location	Date
Pahoa (Big Island)	March 7, 1992
Wailuku (Maui)	March 9, 1992
Kaunakakai (Molokai)	March 12, 1992
Honolulu (Oahu)	March 14, 1992
Kamuela/Waimea (Big Island)	March 16, 1992

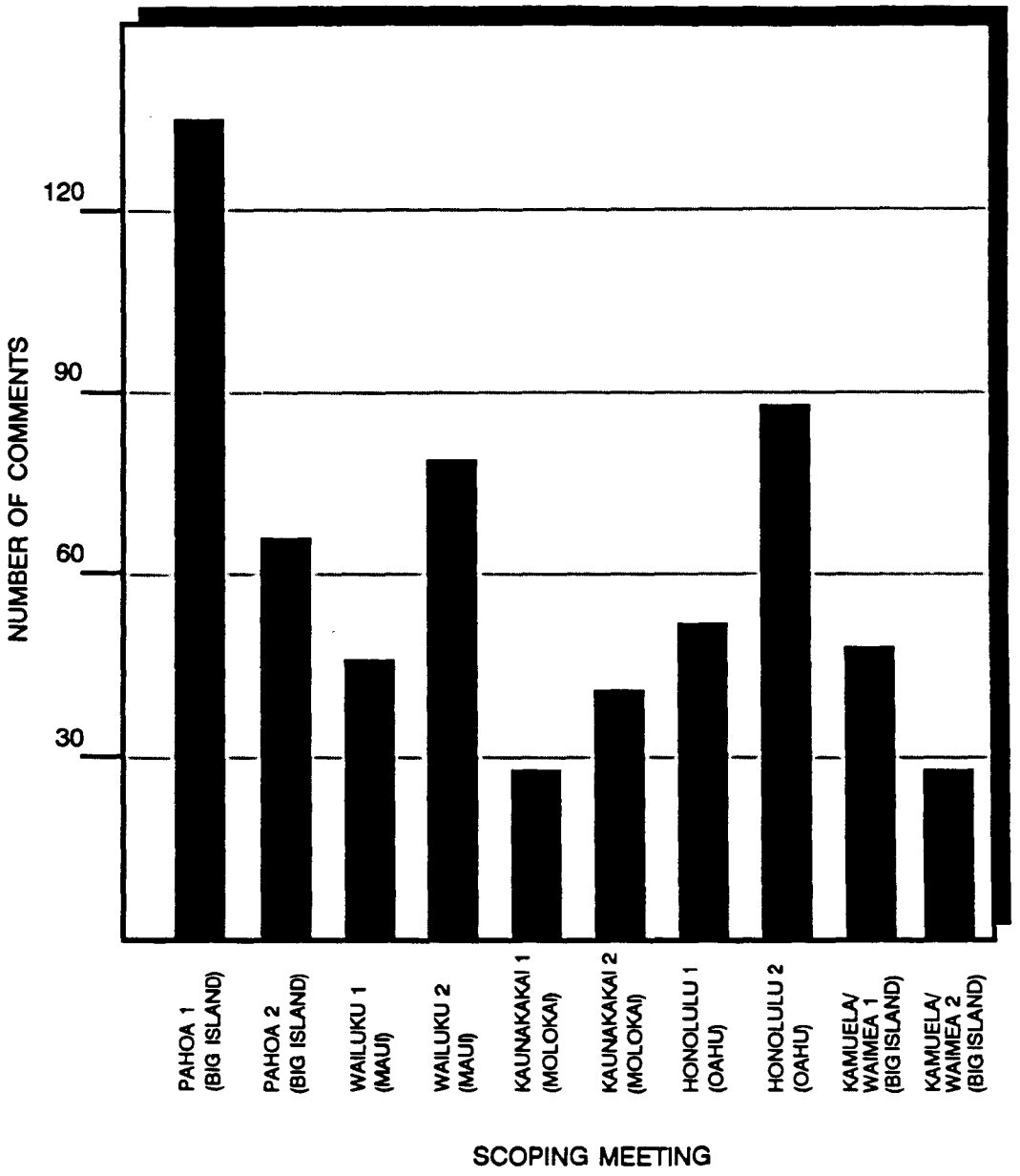


Figure A.1. Number of oral scoping comments at the ten public scoping meetings for the HGP EIS. More than 700 comments were offered.

consideration must be given to the alternatives to geothermal because the cultural impacts of this energy development cannot be mitigated. I expect your EIS to reflect this conclusion." An offer to be on DOE's HGP Mailing List was sent to commenters who signed these coupons. All scoping comments submitted by federal, State, and County agencies are summarized in Appendix B of this Implementation Plan, but the issues raised in those submissions are also included in this summary.

During the scoping meetings, a court recorder transcribed all oral comments; the transcripts may be reviewed at DOE Reading Rooms (see Attachment 1 to this appendix) and at locations identified in the *Federal Register* notices. The transcripts give the name of each speaker. Authors of written submissions are given alphabetically by individual and organization in Attachment 2 to this appendix.

Oral and written scoping comments were reviewed and analyzed. Issues raised by the commenters were categorized by subject area and counted (see Figure A-2).

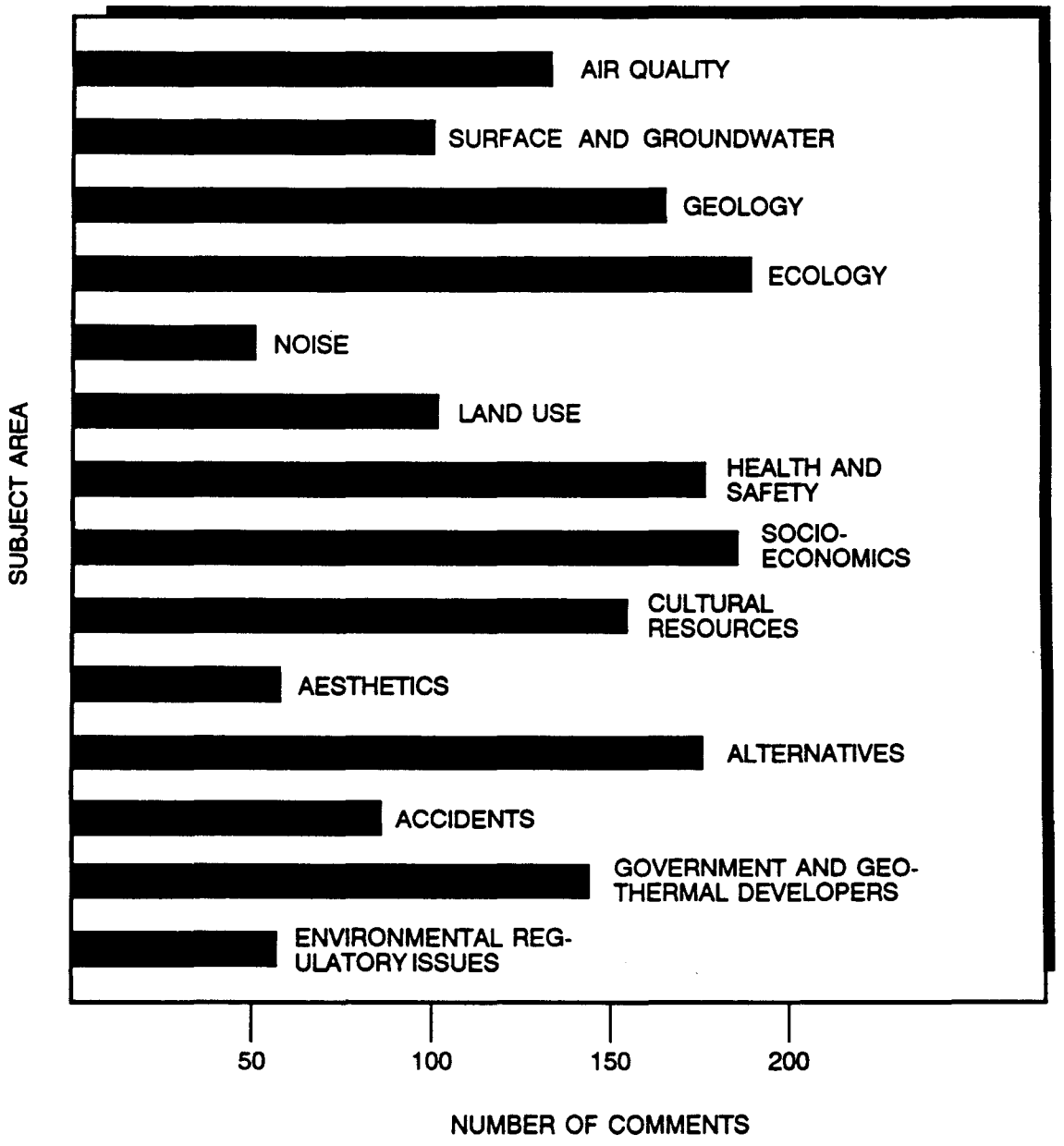


Figure A.2. Number of oral and written scoping comments by subject area. About 1800 comments were received.

2. COMMENT SUMMARIES

2.1 PURPOSE AND NEED FOR THE PROJECT

Several commenters suggested that the EIS state whether the HGP will achieve the goals of the State for the HGP: to alleviate Hawaii's dependence on imported fuels and to develop indigenous, cost-effective, renewable energy supply options for the State's future energy needs.

Commenters suggested that if additional energy or energy self-sufficiency were very important, then serious attempts at conservation would have been made and laws requiring solar hot-water heating on State buildings or new homes would be enacted.

In questioning the objectives of the HGP, commenters noted that planning for the development of 500 MW of geothermal power places substantial reliance on a single source of power with a high potential for failure either in the power supply or cable.

Many noted that the bulk of the crude oil used in Hawaii is used for transportation and that electricity is generated using the residuals. Therefore, unless the need for petroleum products for transportation were reduced, geothermal power would not in any meaningful way reduce the State's dependence on imported oil. If tourism is increased because of increased power availability, tourism's reliance on oil for transportation may increase Hawaii's dependency on oil.

2.2 GENERAL ISSUES REGARDING THE PROPOSED ACTION

2.2.1 Project Definition

Some commenters wanted a better definition of both phases of the HGP, believing that the EIS should clearly delineate the federal and State's participation in the HGP. It was noted that in order for 500 MW to reach Oahu, more power must be generated at the source. The proposed action should be defined from inception through decommissioning and rehabilitation, including locations of power plants, well-heads, transmission corridors, campsites, access roads, other infrastructure and aircraft used for surveillance. The number of wells for exploration, source, and reinjection should be estimated and the acreage required to support them for the lifetime of the plant. Estimates of the number of wells that need to be drilled to result in the requisite number for source and reinjection should be based on prior experience in Puna and around the world.

Because the wells for HGP are so close to sites of recent and on-going volcanic eruption, commenters also indicated that the EIS should discuss the idea that the infrastructure associated with the wells will be portable.

2.2.2 Mitigation Methods

Commenters requested that the proposed and alternative abatement and mitigation measures be described and their potential impacts identified and assessed, including best available control technologies, measures to prevent invasion of non-native species, reforestation techniques (i.e., reforest, restock with biota etc.), and disposal of hazardous waste. Backup measures should be included. The EIS should state how implementation of monitoring, mitigation, and enforcement measures identified by the document will be guaranteed.

2.2.3 Cumulative Impacts

The commenters were concerned about whether the impacts of prior and on-going geothermal development would be considered in the EIS. There was considerable skepticism about past and

present geothermal development and developers (suggesting that the many failures are due to improper operation). Others noted that geothermal energy has been successful elsewhere. Commenters mentioned the effects that have already occurred in the Puna district: health, effects, both physical and psychological (due to geothermal emissions and noise), and impacts to agriculture, livestock, and other plants, animals and birds both in and out of the Wao Kele O Puna rain forest. Some residents were forced to leave their homes during recent venting incidents. The presenters also noted increased depreciation of material and lowered property values and that community and individual rights have been violated.

Commenters felt that the EIS should assure that incidents, such as those that occurred at Puna Geothermal Ventures (PGV) in 1991, do not occur with the HGP noting that PGV is a small scale operation relative to HGP. This would require reviewing previous incidents and implementing the recommendations of the expert review team. The commenters expressed concern that, to date, geothermal developers have not provided citizens with accurate information concerning their operations and releases.

The presenters also noted that environmental examination of geothermal development to date has been segmented, inadequate, and performed using a very limited data base and perspective. Some prior environmental compliance documents did not address the reasonably foreseeable consequences of a successful project, were inadequate, and conditions for operation and mitigation were not followed.

2.2.4 Resource Surveys

A number of studies of the affected environment were suggested, including characterization of the affected environment (including socioeconomics), groundwater, the hydrology and geology of the Kilauea East Rift Zone, local meteorology, natural (ambient) emissions, and geothermal emissions, fluids, and solid wastes. Commenters indicated that surveys of the biota in the Kilauea East Rift Zone region and all the proposed overland and undersea transmission corridors should be carried out; archaeological sites on the southeastern coast of Maui should be analyzed.

2.3 POTENTIAL ENVIRONMENTAL ISSUES

Commenters thought the EIS should fully evaluate the short- and long-term environmental, social, and economic costs and benefits of the HGP (including wells, support structures, transmission lines/submarine cable, pumping stations, campsites, access roads, and aircraft used for maintenance reconnaissance), particularly to pristine environments, such as the Wao Kele O Puna rain forest, the southeast coast and Hana districts of Maui, much of Molokai, and the marine environment. Commenters asked that the EIS consider not only local impacts but also planetary or global considerations. The preparers of the EIS should consider the fact that the Hawaiian islands are finite, and consider, therefore, if the HGP is consistent with this limitation on growth.

Commenters expressed a general requirement to protect the land and its biota as a responsibility of those living on it. Commenters noted that when assessing the impacts of the HGP, there should be no artificial separation of humans from the environment.

DOE should perform the environmental studies necessary to provide the scientific data required to weigh the costs and benefits of the HGP and should make the information available to the public. However, the commenter noted that studies that would be intrusive should not be performed. Commenters indicated that the

EIS should clearly state information gaps and their significance. When measurements (for monitoring or other purposes) are taken, they should be performed by analysts with appropriate expertise and at appropriate locations.

A number of issues raised apply to many of the categories below. For example, commenters felt that the EIS should identify and assess (1) chronic effects of HGP-related high- and low-level emissions, effluents, noise, and night light on plants, animals, birds, and insects, in the wild, in the rain forest, on agricultural lands and on humans (see Health and Safety); (2) impacts of HGP on plants and animals used for medicinal and ritual purposes by Native Hawaiians (The EIS should also address the impacts of the loss of benefits of these plants.); and (3) impacts of the HGP on plants, animals, birds, and fish used for subsistence living. In addition, commenters indicated that the EIS should describe measures that would be used to assure that herbicides used to prevent invasion of non-native plant species will affect only target species. It should demonstrate that these mitigation measures will be carried out and how they will be enforced. Herbicides so used can impact terrestrial and aquatic biota within or outside the rain forest, including threatened and endangered species. They can enter the human food chain in drinking water, air or food.

Many of the presenters were concerned that acid rain or fog that may occur as a result of geothermal development, could impact air, water and soil quality, terrestrial and land-based aquatic ecosystems, and have significant socioeconomic effects. Additional concerns were that emissions would cause acid rain resulting in excessive corrosion of piping or building materials or that emissions would discolor or erode paint, etc.

Commenters asked that the EIS establish whether the clearing of land for HGP would exacerbate erosion affecting air and soil quality and terrestrial and aquatic land-based ecosystems. Increased erosion could cause increased siltation and turbidity potentially impacting the near-shore environment including fishponds and fisheries, reefs, and tourism (economic, cultural and archaeological concerns).

2.3.1 Air Quality

Several commenters recommended that the EIS characterize the emissions associated with the 500-MW development and identify the impacts of those emissions, including toxic releases, acid rain or fog, and thermal pollution, and particles from solid wastes. Certain atmospheric conditions were reported to exacerbate the effects of HGP-related emissions in Puna, and even degrade the air quality on Maui and Molokai. Geothermal emissions can affect the water quality in catchment systems, commonly used in Puna for drinking and bathing.

2.3.2 Surface and Groundwater Resources

Commenters recommended that the EIS characterize the effluents and the brine ponds associated with the 500 MW development. The EIS should report the impacts of leakage of source and injection wells into aquifers due to well failure (from seismic/volcanic events or corrosion), or leakage/overflow from the brine ponds. Commenters want the EIS to address impacts of the HGP on drinking water quality (particularly in water catchments), on surface or groundwaters, considering the effects of possible contact with HGP-related solid wastes, abatement technologies or their possible failures, and changing the water quality designation of aquifers in the geothermal subzone.

2.3.3 Geologic Issues

The commenters expressed concern that undertaking geothermal development in a seismically and volcanically active zone may exacerbate those activities and upset the hydrological balance as the development will be situated on a geological structure that contains numerous vertical dikes, faults, and horizontal shelves. The EIS should examine geothermal-associated subsidence.

Commenters also said that the EIS should discuss the reliability of the geothermal power generation facility and associated infrastructure, noting mistakes that had been made in the past. Those concerned about the reliability of the geothermal facilities mentioned the potential hazards of locating such plants (and transmission lines) in an active seismic/volcanic zone, of isolation from the base load (both at the facility and to the users), of irreparable wells, and of uncontrolled and unabated blowouts. They were concerned about the integrity of well-casings and the possibility that brine ponds might overflow during heavy rains or leak due to the corrosive nature, high temperature, and high pressure of the geothermal fluids. Others were concerned about availability of water for quenching.

Thus, commenters want the EIS to identify and assess potential impacts of failure modes. It should examine the unique geological system with which the HGP will interact, examining the potential for seismic/volcanic events interconnecting aquifers resulting in contamination.

Some commenters believe the EIS should identify and assess the impacts associated with the need for stand-by backup power for those using the geothermal power in order to maintain system reliability.

Other commenters were concerned that the magnitude of the resource in the Kilauea East Rift Zone has not been verified. The EIS should discuss the reliability and renewability of the resource. The EIS should investigate the effect of the need for expansion into additional land as the resource declines.

2.3.4 Ecological Resources

Many commenters asked that the EIS examine the project's impact on the unique ecosystems that make up Hawaii including plants, vertebrates, and invertebrates. Many of the concerns raised could be applied to several ecosystems: terrestrial, aquatic, or marine ecosystems and the threatened, endangered, and endemic species therein and on humans.

Terrestrial Resources

Several commenters recommended that the EIS should address the potential impacts of the HGP on unique species, for example insects, that live in lava tubes. Other commenters expressed particular concern for the rain forest. They felt that the EIS should identify and assess the impacts of the HGP (particularly in terms of species diversity and its ability to regenerate), including the effects of introduction of non-native species, extensive segmentation caused by building roads and clearing areas, and incursions of humans. Commenters also indicated that the EIS should study the impacts of destroying the unique and fragile habitat of the Wao Kele O Puna rain forest. It should note the interrelationship between the lava, the biota of the region, and the regeneration that occurs following an eruption.

Impacts to wetlands, cave ecosystems, birds, invertebrates, and ethnobotanical and medicinal species were also cited as concerns. The use of herbicides and invasion by non-native species were regarded as important issues.

One commenter was concerned that the construction of the HGP would start a series of complex changes in the lowland

rain forest ecosystem. He stated that the "long-term longitudinal study" necessary to understand this effect would be difficult to conduct for the EIS, making it equally difficult, if not impossible, to predict the consequences of those changes. Thus, the EIS should assess the risks of making a complex environmental decision without information regarding the impacts.

Some commenters were concerned about the potential impacts of the HGP on threatened, endangered, and endemic species, particularly in the rain forest of Puna and the dry forest on Maui. Species mentioned include ohia, happy-face spider, Hawaiian hawk, and hapu'u (tree fern). Commenters thought the EIS should consider that, because of the unusual geology in Hawaii (criss-crossing lava flows on all islands), very small areas of unique habitat exist that support the few remaining individuals of an endangered species that are evolving at different rates.

One commenter asked what happens if species become extinct as a result of HGP.

Aquatic Resources

Commenters identified several issues concerning aquatic resources in streams, springs, and anchialine ponds: land-based freshwater and brackish-water ecosystems, potential impacts from groundwater changes that result from reinjection, effects on aquatic flora and fauna as a result of any HGP-induced surface water changes. Potential impacts to threatened and endangered species were also mentioned several times.

Marine Resources

Commenters requested that the EIS investigate the impacts of the submarine cable installation and maintenance (increased turbidity, possible ciguatera, and increased noise levels), normal operation (electromagnetic fields, electrotaxis), and in failure modes (such as oil leakage) on the ocean and its resources including marine mammals, sea turtles, big game fish, dolphins, food stocks, sharks, rays, and skates; and on beaches, surfing locations, and reefs; and on ecology in the coastal zone.

Commenters noted that the EIS should investigate the impacts of the cable on humpback whale migration patterns, birth rate, and ability to navigate and locate and the potential impacts of nets (used to protect swimmers if the submarine cable attracts sharks) on humpback whales' birthing habits in shallow, protected waters. Commenters also asked that the EIS investigate the impacts the HGP would have on fisheries and consider the impacts of the cable (e.g., installation, operation, maintenance) on the reefs and fish ponds.

2.3.5 Noise

Commenters indicated that the EIS address the impacts of noise associated with geothermal development, including drilling, operations at and near the geothermal facility under normal operating conditions and with unscheduled venting. Impacts would also occur along transmission lines, at work camps or substations, and due to aircraft (doing maintenance reconnaissance). They noted that noise can cause ear damage and cause fear, loss of sleep, and psychological stress.

2.3.6 Land Use

Commenters recommended that the EIS consider the propriety of (1) geothermal development in the residential neighborhoods of Puna, noting that blowouts occur at most geothermal installations world-wide; (2) using Native Hawaiian homelands, ceded lands and conservation districts for the HGP, even though some of those lands are not currently being developed because they

have no supporting infrastructure; and (3) the land exchange in Puna [Campbell Estate for Wao Kele O Puna], and subsequent redesignation as a geothermal subzone, to determine whether it has benefitted Native Hawaiians. The commenter noted that there are already long waiting lists for resettlement of those lands and using some for the HGP may exacerbate the situation.

Commenters also requested that the EIS address the impacts of the HGP on water availability and water uses to determine if there is sufficient water within the Kilauea system to support the HGP and provide for other uses. In addition, fire hazards associated with the transmission line system exacerbated by drought conditions were mentioned. Commenters noted that the EIS should address the impacts of the absence of registration of geothermal wells as water wells, as some Native Hawaiians have claimed water use rights for the subsurface waters in the Puna district.

Several commenters asked that the EIS consider impacts of the HGP on aviation, communication, agriculture, and recreational uses, for example in the rain forest and on beaches. Further, the EIS should examine how the possibility of geothermal development has influenced land ownership and land-use decisions.

2.3.7 Health and Safety

Commenters indicated that the EIS should assess the health and safety impacts of the HGP and its components, failures, mitigation measures, and future uses.

Several commenters expressed concerns about the potential health effects of geothermal emissions (particularly H_2S and acid rain) and effluents, due to HGP-related changes in air, drinking water, and food quality. These effects can include eye, throat, and nose irritation, breathing trouble, coughing, wheezing, and lowered resistance to infection. Those presenting were concerned about the cumulative and synergistic effects of emissions, effluents, and brine ponds, on children and babies, those with respiratory ailments, the elderly, Native Hawaiians, and workers. The EIS should analyze the short- and long-term chronic and acute effects of geothermal emissions on public health and safety.

Some commenters indicated that the EIS should examine the health and safety impacts of the transmission line/underwater cable system (including transformers), particularly the effects of electromagnetic fields and stray voltage along the transmission line corridor, or ciguatera associated with cable construction in the near-shore environment.

The commenters recommended that the EIS address psychological impacts of the HGP and its associated development, including impacts of stress due to fear, unannounced venting, and sleep deprivation (due to noise, fear, frustration, and lack of trust) and the problem of the fears of geothermal development that exist in the surrounding communities due to the prior activities in the region. They asked what the psychological impacts are on a community experiencing controversy, lack of empowerment, and loss of due process. The EIS should consider psychological impacts on persons whose lifestyle had been disrupted (for example, children and Native Hawaiians) and cross-cultural psychological issues.

With respect to geothermal developments in residential areas, the commenters strongly urged that the EIS should develop a worst-case scenario for the full development and, noting that there is no adequate emergency response plan for the Puna District, develop one. Residents are concerned about impacts of isolation of the facility from the base load, which could result in unabated and/or uncontrolled venting. The transmission lines would parallel the Kea'au road, which is also the

evacuation route from Pahoa. If a seismic or volcanic event occurred along that road, the facility could be isolated from its base load and the community would be prevented from evacuating. They also mentioned inadequate communication systems.

Some commenters thought that the EIS should address the impacts of the violence that might occur should the HGP proceed.

With respect to the submarine cable, commenters asked that the EIS state what steps will be taken to protect the public and the cable if it attracts sharks, consider the implications of possible sabotage to the cable, and address the risks of accidents during maritime operations in the Alenuihaha Channel. They noted that the EIS should consider the civil defense issue of a major segment of power generation capacity being linked by such a transmission connection to its load.

Commenters indicated that the EIS should identify and assess the hazards of overland transmission lines, including the potential of increased fire danger and electrical hazards associated with high voltage lines. Some commenters noted that the EIS analysis should consider the fact that the HGP may cause increased population, which would (along with drought conditions which do occur on the Big Island) further exacerbate the problems mentioned above.

2.3.8 Socioeconomics

Many commenters expressed concern about the long- and short-term socioeconomic impacts of the HGP. Several commenters, for example, expressed economic concerns. They asked that the EIS delineate the costs (past, present, and future) of the entire HGP project to consumers, users and non-users, taxpayers, and utilities, from inception through decommissioning and rehabilitation, including all State and federal developmental and court costs, and costs for publicity, etc., drilling and wells, building new ships, harbors, and the cable, etc., mitigation, and rehabilitation, and monitoring and enforcement. It should examine the economic feasibility and cost-effectiveness of HGP. Commenters also requested that the EIS consider the cost of cable or facility failure once geothermal energy provides a significant proportion of Hawaii's energy needs, including the costs associated with a declining resource, of repair, and of development of backup capacity. Some commenters asked that the EIS identify who would be responsible for the consequences of lower property values or property condemnation.

Several commenters noted that the EIS should (1) address the economic impacts should the submarine cable affect fisheries (including fishponds), big game fish and food stocks, or tourism; (2) evaluate the impacts of the HGP (and the effects of its presence making large regions of the State less desirable for living) in terms of lower property values (including condemnation), increased cost of living, etc., loss of crops or livestock, increased depreciation (e.g., of fences, houses, and catchment systems) due to geothermal-related corrosion; (3) examine the economic impacts of geological risks and hazards, the impact of the indebtedness incurred; (4) consider impacts to businesses (including agriculture), such as job loss, business relocation, or loss of business; and (5) assess impacts to local economies.

Additionally, some commenters requested that the EIS identify who is liable—the federal government, the State, and/or privately-owned corporations—for all costs incurred and should mandate that conditions of permits should include future liability clauses. Commenters felt that the EIS should identify means to provide insurance for those whose property values (etc.) decline or are forced to move due to the HGP.

Some commenters asked that the EIS consider the impacts of diverting funds that could be spent on conservation technologies to the geothermal effort, and one commenter noted that investment in conservation has resulted in changing patterns of investment toward technologies that reduce the need for energy consumption. Investment in conservation technologies saves the costs of constructing and updating additional generation/transmission facilities.

Commenters further indicated that the EIS should state what the economic benefits of the HGP are, identify who receives them, and weigh the potential benefits of the HGP against the environmental costs. The commenters wanted to assure that consumers and tax payers receive some of the benefits. The presenters would like the EIS to address the concern that those who will bear the greatest cost in terms of health and safety, economics, cultural resources, and environmental losses, will not be the ones to benefit.

Life style issues were also raised by commenters. The EIS should address impacts of the HGP on the life styles of the general population, specifically on Native Hawaiians. They asked if the cable/transmission lines will affect, for instance, subsistence life styles, the ability to access beaches, and the lifestyles of those who prefer privacy, peace and quiet, or lower levels of population, technology, or development (e.g., off-grid living).

Commenters felt that the EIS should address the social effects of the HGP, or its failure, particularly on communities near the geothermal operations and along proposed cable routes, including the social consequences of increased cost of living due to HGP. It should identify and assess the socioeconomic costs due to a decline in resource after HGP has stimulated growth and evaluate the social costs of HGP-related civil disobedience. One commenter noted that Hawaii, which has largely service-related jobs has a low unemployment rate, whereas industrialized regions of the country are where the high unemployment occurs.

Several commenters indicated that the EIS should assess potential impacts to the many important, and often undocumented, archaeological and historical sites and regions, including the southeast coast of Maui, the south coast of Molokai, and North Kohala.

Commenters suggested that the EIS identify and assess the potential impacts of the future uses of geothermal energy on all islands affected: increased greater urbanization, growth, industrialization, and development that could include seabed mining and refining, construction of a space port, and increased tourism with associated golf courses and energy-intensive hotels. It should examine negative impacts on the infrastructure, overpopulation, crime, or social upheaval.

Some commenters were concerned that increased power availability could cause increased population and power consumption. They noted that increased tourism could result in increased use of fuels for transportation, thereby increasing Hawaii's dependence on oil.

It was noted that once the submarine cable is in place, other power generation facilities can use the cable as a conduit; in fact, laying of the cable could make construction of other energy-production facilities economically feasible.

2.3.9 Cultural Resources/Native Hawaiian Concerns

Many commenters thought that the EIS should respect Native Hawaiian race, rights, religion, history, language, and culture. Many expressed the belief that geothermal development would result in a desecration of Pele. They asked that the EIS examine potential impacts of the HGP on Native

Hawaiian culture and religious beliefs; the ability of Native Hawaiian practitioners to obtain herbs, animals, and birds necessary for medicinal and ritual practices; Hawaiian homelands or ceded lands (noting that Native Hawaiians have a right and spiritual need to be able to return to their homelands and live their chosen life style); Native Hawaiian subsistence hunting, fishing, and gathering; and the land, ocean, and natural phenomena considered sacred. They expressed concern that HGP construction will result in desecration of ancient or modern Hawaiian burials in lava tubes, heiau (sacred places or shrines), and other places sacred to Native Hawaiians. Many commenters asked that the EIS consider that for Native Hawaiians, the cultural impacts of the HGP could result in psychological stress, feeling of loss of self, and breakdown of the ohana (extended family).

Commenters further requested that the EIS address the anthropological impacts of the HGP. One commenter recommended that the study be designed by trained anthropologists, and should involve personal interviews with practitioners, Hawaiian kupuna (Native elders), and Hula dancers, in order to investigate the impact the HGP would have on cultural practices.

2.3.10 Aesthetic Resources

Commenters wanted the EIS to address the aesthetic impacts of HGP-related noise, visual disturbances and odors. Although noise is primarily a Health and Safety Issue, it is also an aesthetics issue as it is a nuisance, disrupting peace and quiet. Commenters want the EIS to address the impacts of chronic exposure to nuisance levels of noise associated with geothermal development, including drilling, operation and venting, and transmission lines.

Commenters expressed concern about the aesthetic costs of the HGP, (particularly the impacts of the overland transmission lines and clearing the Wao Kele O Puna rain forest) on all islands, including impacts to natural and agricultural landscapes, beaches and surfing spots. One commenter mentioned the problems of night-time lighting.

2.3.11 Alternatives

Many commenters stated that the EIS should identify and assess the relative merits and impacts of alternative energy supply options that are cost-effective, viable and safe, and could meet the goals of the State's stated purpose for the HGP. They asked that the EIS examine technical and economic feasibility/reliability and environmental impacts of such alternatives. These include "no action," fossil fuel options (coal gasification), conservation and renewables, and various geothermal options. Commenters indicated that alternatives should be considered within the framework of integrated resource planning and least-cost planning of supply- and demand-side energy options as this may provide a lower-cost energy supply than geothermal in terms of both economic and environmental cost. They noted that the State is initiating such a process (but it may not be completed within the proposed time frame of the EIS).

Commenters stated that the EIS should examine conservation and renewable energy-supply options, such as photovoltaics, solar thermal (particularly solar hot water heating), wind, ocean thermal energy conversion, biomass, demand-side options (conservation/energy efficiency, passive solar), off-grid options, and others. Many believe that alternative energy options can meet the needs of the State, if the alternative energy supply options could be helped by tax-incentives and low-cost loans. They noted that wind, solar and biomass are successful elsewhere and that most islands have excellent wind and solar resources.

With respect to geothermal alternatives, commenters wanted the EIS to assess a staged development of HGP so that experience is gained with the least capital costs, the possibility of closed-cycle geothermal using immediate reinjection, in-situ heat exchange, and geothermal development at locations other than the Kilauea East Rift Zone.

If a low level of geothermal development is successful, then greater development of up to, or even greater than 500 MW, becomes a reasonably foreseeable scenario. One comment noted that if geothermal development is successful at the 25 MW level, then it would not be economical or politically astute to limit development to that low level of development on the Big Island or (if sufficient resource is verified) to the Big Island. Several commenters wanted the EIS should look at the impacts of developing the full resource and all it potential uses.

Commenters asked that alternatives to transmission lines be considered including "no action," solid rather than oil-filled cables, high voltage AC transmissions vs high voltage DC transmission, and various cable/transmission line route (above ground vs buried, percentage of lines on land vs submarine). A number of alternative routes were suggested including an alternative to the route along the southeastern coast of Maui: North Kohala to Lanai with spur lines to Lahaina and Molokai and direct line from Lanai to Oahu; or routing the cable directly to Oahu, not landing on Maui. Several commenters further indicated that the EIS should consider the costs (including indirect costs, such as impacts to property values and aesthetic impacts) of above and underground transmission lines. This could be necessary on a district by district basis, given the variable geology of the state. Before development of the HGP and cable, a smaller demonstration should be conducted to determine whether power transmission to other islands is reasonable.

Commenters requested that the EIS examine reducing Hawaii's dependence on petroleum-based fuels for transportation (e.g., using fuel-efficient automobiles) in order to reduce Hawaii's dependence on imported oil. For this reason, commenters requested that the EIS examine the potential contributions of alternative transportation fuels, providing on-site or near-site employee housing, alternative methods for interisland travel. However, a commenter suggested that the EIS should examine the costs associated with supplying an "unneeded" mass transit system on Oahu to save energy.

Some commenters asked that the EIS identify and assess the impacts of fossil-fuel-fired operations, particularly the obtaining of foreign coal. The EIS should address the issue of fossil-fuel power generation adversely impacting air quality and potentially contributing to global climate change. The proposed coal-burning facilities may use coal derived from strip mining a rain forest in a third-world nation. The commenter implied that there are international implications of asking third-world nations to cease cutting their rain forests and then economically encouraging them to clear those forests.

2.3.12 Credible Accidents

Commenters expressed concerns about accidents during construction and operation of the HGP plant and transmission line. Accidents could result from natural phenomena, such as seismic or volcanic activity, or from human factors, including operator error or flawed plant design and construction. Specific concerns identified included health and safety impacts to workers and the public from accidental releases of H_2S, radon, heavy metals, and other gaseous and particulate emissions into the air, surface water, and groundwater, accidents involving the HGP plant and transmission facilities resulting from

volcanic and/or seismic activity, impacts to ecological resources as a result of accidental releases, economic impacts of accidents, and impacts of accidents on Native Hawaiian cultural practices.

2.3.13 Federal, State, and Local Government and Geothermal Developers

Many commenters expressed political concerns of one kind or another, noting their frustration with the political process. These comments related to a lack of concern by government, loss of due process because of government regulations and actions, loss of faith in government, lack of necessary expertise within government, and skepticism regarding motives and resolve of government. The commenters mentioned infringement on privacy due to the actions of geothermal developers' security personnel, insufficient public review, and inadequate distribution of information.

Commenters also questioned why the State does not wait until the IRP process is over to develop geothermal and why some solar installations are not already required.

Some commenters believe that state/federal governments should enforce the laws currently in existence (including permitting and monitoring requirements). They noted that the state has never set air quality standards for H_2S. They asked if regulations have been violated in the past, are they currently being violated and will they be in the future?

Some commenters additionally asked that the EIS consider the international implications of the messages conveyed by the United States to the international community, noting that U.S. actions, far more than words, help establish global policy. Thus, the EIS should address concerns about the example it sets for the global community when the United States permits cutting of the rain forest for the purpose of power generation (when it asks that other nations not cut theirs) and does not show respect for the cultural and ethnic resources of its citizens (i.e., Native Hawaiians).

2.3.14 Environmental Compliance Regulatory Issues

Commenters stated that the EIS should contain a review of all applicable rules, regulations and statutes, including NEPA, the National Historical Preservation Act, the Native American Religious Freedom Act, the Endangered Species Act, Section 7 consultation and the Public Utilities Regulatory Policy Act of 1978.

Commenters also requested that the EIS address the need for geothermal wells to be registered as water wells based on the definition of a water well in the State Water Code, and they noted that the EIS should examine the complex regulatory situation with respect to land use and geothermal subzone designation.

ATTACHMENT 1 — DOE Reading Rooms with Copies of the HGP EIS Public Scoping Meeting Transcripts

Hawaii

Hawaii Energy Extension Service
Hawaii Business Center
99 Aupuni Street, Room 214
Hilo, HI 96720
Contact: Andrea Beck
Telephone: (808) 933-4558
Fax: (808) 933-4602

Hilo Public Library
300 Waianuenue Avenue
Hilo, HI 96721-0647
Contact: Claudine Fujii
Telephone: (808) 935-5407
Fax: (808) 933-4658

Kailua-Kona Public Library
75-138 Hualalai Road
Kailua-Kona, HI 96740
Contact: Irene Horvath
Telephone: (808) 329-2196
Fax: (808) 326-4115

Mountain View Public and School Library
Highway 11
Mountain View, HI 96771
Contact: Evelyn Garbo
Telephone: (808) 968-6300
Fax: (808) 968-6056

Pahala Public and School Library
Pakalana Street
Pahala, HI 96777
Contact: Lisa Cabudol
Telephone: (808) 928-8032
Fax: (808) 928-6199

Pahoa Public and School Library
15-3038 Puna Road
Pahoa, HI 96778
Contact: Laura Ashton
Telephone: (808) 965-8574
Fax: (808) 965-7170

State of Hawaii
Department of Business, Economic
Development & Tourism
Hilo Office
99 Aupuni Street, Room 212
Hilo, HI 96720
Contact: Michelle Wong-Wilson
Telephone: (808) 933-4600
Fax: (808) 933-4602

Kauai

Kauai Office of Economic Development
4444 Rice Street, Room 230
Lihue, HI 96766
Contact: Glenn Sato
Telephone: (808) 245-7305
Fax: (808) 245-6479

Lihue Public Library
4391-A Rice Street
Lihue, HI 96766
Contact: Karen Ikemoto
Telephone: (808) 245-3617
Fax: (808) 246-0519

Maui

Hana Public and School Library
Hana Highway
Hana, HI 96713
Contact: Jeremy Kindred
Telephone: (808) 248-7714
Fax: (808) 248-7438

Kahului Public Library
90 School Street
Kahului, HI 96732
Contact: Lani Scott
Telephone: (808) 877-5048
Fax: (808) 871-9032

Maui Energy Extension Service
200 South High Street
Wailuku, HI 96793
Contact: Kalvin Kobayashi
Telephone: (808) 243-7832
Fax: (808) 243-7870

Molokai

Molokai Public Library
Ala Maloma Street
Kaunakakai, HI 96748
Contact: Sri Tencate
Telephone: (808) 553-5483
Fax: (808) 553-5958

Oahu

Hawaii State Library, Document Center
Unit, 634 Pensacola Street
Honolulu, HI 96814
Telephone: (808) 586-3535
Fax: (808) 586-3584

Kahuku Public and School Library
56490 Kam Highway
Kahuku, HI 96731
Contact: Jean Okimoto
Telephone: (808) 293-9275
Fax: (808) 293-5115

Pearl City Public Library
1138 Waimano Home Road
Pearl City, HI 96782
Contact: Marilyn Van Gieson
Telephone: (808) 455-4134
Fax: (808) 456-4407

State of Hawaii, Department of Business,
Economic Development & Tourism
Energy Division, Publications Section
335 Merchant Street, Room 110
Honolulu, HI 96813
Contact: Maurice Kaya
Telephone: (808) 547-3800
Fax: (808) 587-3820

State of Hawaii
Department of Business, Economic
Development & Tourism
Geothermal Office
Financial Plaza of the Pacific
130 Merchant Street, Suite 1060
Honolulu, HI 96813
Contact: Dean Nakano
Telephone: (808) 587-3812
Fax: (808) 587-3820

State of Hawaii
Department of Business, Economic
Development & Tourism
Information Office
220 South King Street, Suite 1100
Honolulu, HI 96813
Contact: Marsha Anderson
Telephone: (808) 586-2405 or 586-2406
Fax: (808) 586-2427

State of Hawaii
Department of Business, Economic
Development & Tourism, Library
220 South King Street, Fourth Floor
Honolulu, HI 96804
Contact: Anthony Oliver
Telephone: (808) 586-2425
Fax: (808) 586-2452

U.S. Department of Energy
Pacific Site Office
Prince Kuhio Building
Room 4322
300 Ala Moana Boulevard
Honolulu, HI 96813
Contact: Eilieen Yoshinaka
Telephone: (808) 541-2563
Fax: (808) 541-2562

Waimanalo Public and School Library
41-1320 Kalanianaole Highway
Waimanalo, HI 96795
Contact: Nina O'Donnell
Telephone: (808) 259-9925
Fax: (808) 259-8209

Mainland

U.S. Department of Energy
Freedom of Information Public
Reading Room, Room 1E 190
1000 Independence Avenue, SW
Washington, DC 20585
Contact: Ed McGinnis
Telephone: (202) 586-6020
Fax: (202) 586-0575

U.S. Department of Energy
San Francisco Field Office Public
Reading Room
1333 Broadway
Oakland, CA 94612
Contact: Estella Angel
Telephone: (510) 273-4428
Fax: (510) 273-6316

ATTACHMENT 2 — Individuals and Organizations That Submitted Written Scoping Comments

When submitting written comments, some commenters failed to sign their submissions or to include any indication of the source of information provided. An attempt has been made, however, to acknowledge receipt of all written comments and to accurately summarize those comments regardless of their source. In addition, although the scoping period began on September 3, 1991 (with the publication of the Advance Notice of Intent) and ended on April 15, 1992 (comment deadline given in the Notice of Intent), some submissions were received outside of this period. For the Implementation Plan, comments received as late as August 30, 1992, were considered as part of scoping.

Scoping comments from federal agencies, State of Hawaii agencies, and Hawaii Counties are summarized by agency in Appendix B.

A city and state is given for each commenter if known.

Individuals

Don Abdul, Hilo, HI
Matthew K. Adolpho, Ho'olehua, HI
Thomas Aitken, Pahoa, HI
William and Rose Atkins, Pahoa, HI
Mary Jo Bafile, Pahoa, HI
Bonnie P. Bator, Kurtistown, HI
Robert Bethea, Hilo, HI
D. Hunter Beyer, Volcano, HI
Ian Bowman, Honolulu, HI
Burton Brees, Pahoa, HI
John A. Broussard, Kawaihae, HI
Cindy Bryan, Pahoa, HI
Janie Bryan, Kaunakakai, HI
Suzanne Ely Byrne, Hilo, HI
David A. Caccia, Honokaa, HI
Eleanor J. Cate, Hilo, HI
Sharon A. Clark, Honolulu, HI
L.A. Collins, Pahoa, HI
Sidney William Cook, Kamuela, HI
Pam J. Cooper, Pahoa, HI
John E. Crawford, Carson City, NV
John M. Davis, Mountain View, HI
Steve and Diane Davis, Pahoa, HI
Carla Deicke, Honolulu, HI
Leana Dumag, Kaunakakai, HI
Kaleoaloha English, Kaunakakai, HI
Sahoni English, Kaunakakai, HI
R. Ann Ernst, Pahoa, HI
Eileen Fiorentino, Kurtistown, HI
Denise Fleming, Keaau, HI
Ole Fulks, Keaau, HI
Brent Gallagher, Kurtistown, HI
Henry Gluckstern, Maplewood, NJ
Dave Gomes, Hilo, HI
Maja B. Gossom, Pahoa, HI
Regina Gregory, Honolulu, HI
Mary Groode, Kihei, HI
Kamuela Hamakua, Kaunakakai, HI
Robert A. Hamburg, Honolulu, HI
Lisa Hamilton, Hana, HI
Eric Hill, Honolulu, HI
Katherine Holford, Santee, CA
Brad Houser, Kailua-Kona, HI
Francis Howarth, Honolulu, HI
Albert Ia-ea, Kaunakakai, HI
Robert Kai Irwin, Honolulu, HI
Robert Jacobson and Julie Hedgecock-Jacobson, Kurtistown, HI
Luana Jones, Pahoa, HI
Cynthia K. Kanoholani, Honolulu, HI
Mahealani Kawikuamookekuaokalani-henry Kekau
Andrew C. Kier, Pahoa, HI
Pat Kikukawa, Kaunakakai, HI
Rona Lee Kleiman, Pahoa, HI
Fred J. Koehenen, Hilo, HI

Steven Krawn, Pahoa, HI
Charles Lamoureux, Honolulu, HI
Anne Lee, Hilo, HI
Randy Lee, Pahoa, HI
Stephen Lewis, Pahoa, HI
Aileen Lum, Hilo, HI
Dan and Lydia Makuakane, Pahoa, HI
Malia
Kalai Malin, Kaunakakai, HI
Penny Rawlins-Martin, Kaunakakai, HI
Carl and Carlyle Meierdiercks, Pahoa, HI
William Merwin, Haiku, HI
Mildred Mims, Pepeekeo, HI
Peter R. Ministero, Pahoa, HI
Robert Mowris, Berkeley, CA
Kevin E. O'Connell, Pahoa, HI
Noreen Parks, Keaau, HI
Gregory Pommerenk, Pahoa, HI
Kilia Purdy, Kaunakakai, HI
Jan L. Reichelderfer, Kailua, HI
Clement Reyes Jr., Kaunakakai, HI
Hebert M. Ritke, Pahoa, HI
Henry Ross, Kapaau, HI
Terri Scott, Kurtistown, HI
Dennis Sevilla, Honomu, HI
Christiane Schafer, Ho'olehua, HI
Penny Shaver, Pahoa, HI
Joseph Shaver, Pahoa, HI
Stephanie Shelofsky, Pahoa, HI
Megan Simpson, Redway, CA
Rene Siracusa, Pahoa, HI
Dian Smith, Pahoa, HI
William D. Smith, Wailuku, HI
Jim Snyder, Hilo, HI
Sean Stehura, Keaau, HI
Elizabeth Ann Stone, Naalehu, HI
Alice Suncloud, Pahoa, HI
Sarah Sykes, Kaunakakai, HI
Dr. Donald Thomas, Volcano, HI
Kalai Ualin
Bettie Van Overbeke, Pahoa, HI
Mr. and Mrs. Arlan Vierra, Keaau, HI
Pat Wilde, APO Area Pacific
James V. Williamson, Kihei, HI
Janice Ola Wilson, Pahoa, HI

Organizations

Aina Realty, Pahoa, HI; Francois L'Orange
Archaeological Consultants of Hawaii, Inc., Haleiwa, HI
AT&T, Morristown, NJ; Eric S. Wagner
BHP Petroleum, Pacific Resources, Honolulu, HI
Big Island Papaya Growers Association, Pahoa, HI; Delan Perry
Big Island Rainforest Action Group, Pahoa, HI; Russel Ruderman
Blue Ocean Preservation Society, Haiku, HI; Carl Freedman
Campbell Estate, Honolulu, HI; Clint Churchill
Citizens Advocating Responsible Education, Honolulu, HI; Wally Bachman, Science Advisor
Citizens for Responsible Energy Development, Mountain View, HI; Earl Dunn
Darby & Associates, Kailua, HI; Ron Darby
ECO Productions, Honolulu, HI; Dr. Sheila Laffey
Environmental Hawaii, Kailua, HI; Patricia Tummons
FB&D Technologies, Inc., Houston, TX; Alan Parolini
GeothermEx. Inc., Richmond, CA; Subir K. Sanyal
Global Environmental, Sacramento, CA; James A. Roberts
Goddard and Goddard Engineering, Lucerne, CA; Wilson Goddard
Greenpeace Hawaii, Hilo, HI; Denver Leaman
Greenpeace and the Rainforest Action Network, Honolulu, HI; Annie Szvetecz
Hana Community Association, Hana, HI; Dawn Lono
Hawaii Community College, Hilo, HI; Fred D. Stone
Hawaii County Economic Opportunity Council, Hilo, HI; Max Goldberger
Hawaii County Energy Advisory Commission, Hilo, HI; Francis Pachecho

Hawaii-La'i'ei Kawaii Assoc., Ka'awala, HI; Jim Anthony
Hawaii Island Geothermal Alliance, Hilo, HI; June Curtiss, Randolph Ahuna
Hawaii Speleological Survey, Hilo, HI; William R. Halliday
Hawaiian Dredging & Construction Co., Honolulu, HI; Frank A. McHale
Hawaiian Electric Company, Inc., Honolulu, HI; Dan Williamson, George T. Iwahiro, Executive Director
International Longshoremen and Warehouse Workers, Local 142, Hilo, HI; Fred Gladones
Ka Lahui Hawaii O'ahu, Honolulu, HI; Ao'pohaku Rodenhurst
Kanoelehua Industrial Area Assoc., Hilo, HI; Randolph Ahuna
Kapoho Community Association, Pahoa, HI; Barbara Bell, Jane Hedtke, Jennifer Perry
Kipahulu Community Assoc., Hana, HI; Rich Von Wellsheim
Kohala Ranch Property Owners Assoc., Kawaihae, HI; Kelley Pomeroy
Kona Palisades Estate Community Association, Kailua-Kona, HI; Roy Mushrush
Lani Puna Gardens Assoc., Pahoa, HI; Aurora Martinovich
Los Alamos Science Student Program, Los Alamos, NM; Alverton A. Elliot
Malu Aina Center for Non-violent Education Action, Kurtistown, HI; Jim Albertini
Maui Tomorrow, Wailuku, HI; Anthony Ranken
Mid-Pacific Geothermal, Inc., Honolulu, HI; Rod Moss
Molokai Cares, Kaunakakai, HI; Lyn S. and William Bonk, Crystal Egusa
National Speleopogical Society, Huntsville, AL; John P. Scheltens
Native Hawaiian Advisory Council, Honolulu, HI; Elizabeth Pa-Martin
Native Hawaiian Legal Corporation, Honolulu, HI; Paul F.N. Lucas, Staff Attorney
Natural Resources Defense Council, Honolulu, HI; Clyde S. Murley
Nevada Division of Environmental Protection, Richard Reavis
Northwest Economic Associates, Vancouver, WA; Robert McKusick
Oceanic Cablevision, Honolulu, HI; Don E. Carroll
Orchidland Community Assoc., Keaau, HI; Sherri Moore
Pele Defense Fund, Volcano, HI; Ralph Palikapu Dedman, Emmett Aluli
Progressive Economic Alliance Cultivating Energy, Kula, HI; Paul J. von Hartmann
Puna Community Council, Keaau, HI; Ed Clark, William B. Snorgrass
Puna Geothermal Venture, Hilo, HI; Steve Morris, Maurice A. Richard
Puna Orchards, Inc., Pahoa, HI; Gary W. Barnett, V.P. & Manager
Puna Outdoor Circle, Pahoa, HI; Toby Hazel
R.A. Patterson & Associates, Kailua, HI; Ralph A. Patterson
Rainforest Action Network, Honolulu, HI; Annie Szvetecz
Sane Assessment of Geothermal Energy, Wailuku, HI; Stephen Moser
Sierra Club of Hawaii, Honolulu, HI; Scott Derrickson, Energy Affairs Advisor, Nelson Ho
Sierra Club Legal Defense Fund, Honolulu, HI; Paul P. Spaulding III
State Senator Andrew Levin; Honolulu, HI
State Senator Rich Reed; Honolulu, HI
State Senator Richard Matsuura; Hilo, HI
Stryker Werner Associates, Inc., Honolulu, HI; Karlton Tomomitsu
True Geothermal Energy Co., Honolulu, HI; Alan Kawada
University of Hawaii, Honolulu, HI; Hawaii Natural Energy Inst., Harry Olson, Don Thomas, Gary McMurtry
West Hawaii Sierra Club, Kailua-Kona, HI; Jay Hanson

Videos

Several videos were submitted by commenters. These are

"No on Geothermal - The People's Decision," Pan Productions, Maui Hawaii, 1990, submitted by Mary Groode. The video provides a general introduction to geothermal development in Hawaii; describes opposition to geothermal development; identifies opponents' major concerns (i.e., health effects and impacts to the rain forest).

"Pele's Appeal," "Bulldozers in Paradise," "Geothermal: A Risky Business," and "Heated Issue." These videos identify the major concerns of opponents to geothermal as being the destruction of the rain forest, potential health impacts to nearby residents, and the desecration of Pele; they also document opposition to geothermal development with footage of protest rallies and pickets.

MacNeil-Lehrer news hour report on HGP, broadcast January 14, 1992 on PBS.

APPENDIX B

SUMMARY OF FEDERAL, STATE, AND COUNTY AGENCY WRITTEN SCOPING COMMENTS

This appendix summarizes written scoping comments that were received from federal, State, and County agencies concerning the HGP EIS.

COUNTY AGENCIES

County of Hawaii

In a March 6, 1992 letter accepting cooperating agency status and in an August 3, 1992 review of the working draft Implementation Plan, the County of Hawaii requested that the following issues be considered in the EIS:

Socioeconomics. Impacts of industrialization of the Island of Hawaii (resulting from geothermal development and power availability) should be investigated in the EIS. An analysis of project costs should included consideration of relocating nearby residents and insurance costs during construction and operation. Utility rates with geothermal development should be compared to rates from alternatives.

Air Quality. The EIS should assess air quality effects of venting during power outages (grid failure) and consider problems associated with fixed monitoring systems.

Health and Safety. The EIS should consider effects from hydrogen sulfide and other pollutants at various concentrations and from possible synergistic effects of pollutants.

Ecological Resources. Impacts of emissions on species other than humans should be considered.

Water Resources. The "fate" (i.e., migration) of reinjected fluids and the impacts thereof should be examined in the EIS. Sources and amounts of well-quenching water should be identified.

Land Use. The EIS should assess impacts of incompatible land uses.

Policy. Federal liablilty in federally funded projects should be discussed.

Other. The EIS should investigate the interconnection of the Island grid and the interisland grid and discuss priorities under various load shedding scenarios.

County of Maui

In letters of October 1, 1991 and April 13, 1992 and in responses to the working draft Implementation Plan, the County of Maui requested that the EIS consider all potential impacts associated with the overland transmission corridor, including possible effects on land use, ecological resources, water resources, scenic resources, cultural and archaeological resources, health and safety particularly as related to the electromagnetic field, and economic issues, particularly effects on property values. If cable landing on Lanai is a reasonable alternative, the EIS should consider these issues as they relate to Lanai.

The EIS should consider the underwater cable's potential economic, cultural, archaeological, and ecological impacts on the reef and fishpond resources along the south shore of Molokai. Lastly, the EIS should reflect recommendations made in the community plans.

STATE AGENCIES

State of Hawaii

The State of Hawaii offered comments in response to the ANOI, the NOI, the invitation to become a cooperating agency, and in reviewing the working draft Implementation Plan. The communications are from the Office of State Planning, the Department of Business and Economic Development, the Office of Hawaiin Affairs, and the Division of Consumer Advocacy and are dated September 26 and September 30 of 1991; March 2, March 23, April 2, April 8, and July 24 of 1992.

Energy Policy. The state of Hawaii would like recognized in the EIS that its current plan to develop a smaller geothermal plant to

satisfy only the Island of Hawaii's power needs differs from the proposed action in the EIS. The EIS should address the state's goal of achieving dependable, efficient, and economic statewide energy system and reducing its dependency on oil.

Federal, state, and local governments and geothermal developers. The state recommends a discussion of the relationship between Phases 3 and 4 and existing geothermal projects be included in the EIS. The EIS should also include information about relations between the federal, state and local governments, developers, and citizens.

Land Use. The EIS should at least estimate the amount of land area that would be required for such a large operation. The discussion should indicate whether the total acreage needed will be concentrated in one central area or scattered throughout the Island of Hawaii. Also, a map should be included to show possible sites for power stations and the geothermal wellfields. Other concerns are the implications of land use after the plant is closed. The EIS should explain what will happen to the sites after the plants have surpassed their energy generating capacities and when that is likely to happen. The EIS should examine the compatability of geothermal development with existing and planned land uses.

Air Quality. The EIS should also discuss the effects of wellfield construction, well venting, accidents, smell of hydrogen sulfide and other gases. Although the volcano produces hydrogen sulfide and causes acid rain effects, hydrogen sulfide concentrations may be higher in localized areas near the plants. A monitoring and remediation program should be described. A map should also be included to indicate what areas and communities are likely to be impacted. People may be able to detect hydrogen sulfide levels below instrument detection.

Water Resources. The EIS should evaluate the effects of hydrogen sulfide and other airborne emissions, not just solid and liquid wastes as proposed in the prep notice, on groundwater and surface water (fresh and marine). Water catchment systems should also be considered a potentially affected resource and the effects of well venting and accidents on them should be determined. The nonpoint source pollution impacts on water quality should also be described. And the proposed monitoring and remediation program should be included and described.

Ecological Resources. The effects from the cable on all marine fauna (not just benthic) including Hawaiian monk seals need to be evaluated. There may be water column impacts, fisheries impacts, impacts on surf sites, swimming and boating. Reefs, beaches and other natural resources such as limu, may be affected. A monitoring program should be developed to evaluate effects on ecological resources on an ongoing basis throughout the duration of the project. Baseline studies and stress indicators should be identified for monitoring. The EIS should also include a description of the impacts on endemic flora and fauna. Acid rain effects on ecological resources should be considered.

Geological Resources. The EIS should evaluate shoreline and nearshore impacts from the cable, including shore erosion, interference with currents and sand transport, reefs and surf sites. Impacts from the long-term presence of the cable should be included and not be limited to placement and construction activities.

Noise. The EIS should evaluate long-term effects on flora and fauna and their habitat, as well as on nearby residential communities.

Health and Safety. The EIS should also include long-term health effects due to chronic exposure to noise, air pollution, water pollution, electromagnetic field and psychological stress incurred from evacuations and the threat of evacuations. The physical and psychological welfare of residents in nearby communities must be evaluated. Public health monitoring should be provided.

Socioeconomic. The effects of lifestyle changes and disruption need consideration. Frequent evacuations and the threat of

evacuations have socioeconomic impacts on neighboring communities. The EIS should also include a cost/benefit study which analyzes the likelihood of disruption or destruction of facilities by volcanic activity. Effects on utility and tax rates should be examined, as should impacts on farm employment resulting from loss of farm workers to industrial and tourism sectors.

Cultural Resources. A discussion of the impacts the project may have on the Native Hawaiian religion should be included.

Scenic and Visual Resources. The EIS should evaluate the appropriateness and compatibility of the plants, roads, transmission lines and cable with the surrounding environment. A view plane study may be helpful in illustrating the impacts on the scenic and visual resources of the area.

Alternatives. Clear definitions of alternatives should be provided in the EIS. Geothermal energy for the Big Island only should be one alternative. A thorough evaluation of all other available alternative energy technologies and their feasibilities should be done, including consideration of an aggressive conservation program. The EIS should examine impacts of alternative methods of disposing geothermal fluids, including reinjection, surface impoundment, and discharge to surface water bodies.

A summary of all new field studies conducted for the EIS and other studies contributing to the EIS, and a comprehensive review of the Phase 4 impacts at all of the possible sites should be included in the EIS. One state office said that too much of our natural environment, culture, and socioeconomic future may be sacrificed for the vague promise of energy self-sufficiency.

FEDERAL AGENCIES

National Marine Fisheries Service

In a March 6, 1992 letter and in comments on the working draft Implementation Plan, the National Marine Fisheries Service (NMFS) characterized issues related to the underwater cable as important and sensitive. Two specific issues were identified for consideration in the EIS: impacts of the electromagnetic field on marine biota and impacts from trenching and laying transmission lines on nearshore marine habitats, including coral reefs.

National Park Service

In letters of February 24, 1992 [Hawaii Volcanoes National Park (HVNP)], February 28, 1992 [Pacific Area Office (PAO)], April 14, 1992, and in Implementation Plan reviews of July 14, 1992 (HVNP) and July 17, 1992 (PAO), the National Park Service offered the following comments.

The EIS should address potential impacts to HVNP, a Prevention of Significant Deterioration (PSD) Class I area. The Park is concerned about the potential for air contamination which might affect native plants and animals or might adversely affect the health of visitors and employees. An unbiased analysis of point source emissions and an evaluation of impacts resulting from emissions of hydrogen sulfide and criteria and non-criteria air pollutants and particulate emissions should be conducted. Cumulative and long-term effects of emissions and electromagnetic fields should be considered.

The EIS should analyze potential loss of Air Quality Related Values (AQRV), including vista degradation, noise, and odors, which are important to the Park's mandate to manage the backcountry for wilderness values. Light contamination should be considered, as should cumulative impacts of noise (including that generated by scenic tour aircraft). Mitigation measures should be discussed.

The NPS expresses concern over the introduction of industrial land use in a region characterized by conservation, agricultural and rural land uses. The EIS should include

regional land use issues, including maintaining buffers around state and national protected areas.

Impacts to the threatened Newell's Shearwater, recently spotted near HVNP, from lights, noise, drill rigs, overhead wires, fences, and emissions should be considered.

The NPS reports that emergency remedies to thwart lava flow are not allowed in HVNP.

The NPS requests that energy conservation be considered as an alternative.

U.S. Army Corps of Engineers

In its August 26, 1992 review of the working draft Implementation Plan, the Corps noted that it has no plans to do any work on describing the rainforest and will not develop a GIS base for wetlands. In addition, the Corps raised the following points:

- COE will not consult with DOE, SCS, USGS, or FWS in the wetland delineation efforts and will not consult with those agencies regarding wetland significance or values. DOE will make a detailed assessment to satisfy 404(b)(1) guidelines for the discharge of dredged or fill material. DOE should also be aware that the 404(b)(1) sequence involves avoiding fill, minimizing fill, and mitigating for fill.
- DOE must initiate Section 106 Historic Coordination for any discharge of dredged or fill material, as well as for the geothermal development.
- In Table 4.2 of the Implementation Plan, EPA should be added to COE 2; and USFWS, NMFS, and ACHP should be added to COE 6. The Corps permit may also involve endangered species and historic sites.
- The EIS milestone schedule is very tight. Our experience indicates that 18 months from start of writing to decision point is very fast. COE may not be able to perform with any accuracy with this schedule.

U.S. Environmental Protection Agency

EPA responded on April 15, 1992 to the NOI with a three-page letter with nine pages of comments covering nearly the full range of technical issues expected to be addressed in the EIS. Generally, EPA's recommendations about the topics to be covered in the EIS are consistent with DOE's. EPA also raises several issues — primarily regarding procedures and alternatives — which relate to DOE policy. Additional comments were made in their August 18, 1992 review of the working draft Implementation Plan.

Policy

1. EPA requests that DOE publish a notice of a draft IP and solicit comments on the decisions DOE considers to be within the scope of the EIS. This procedure will provide a chance for public comment prior to the DEIS. EPA believes that DOE intends to use the IP process to make substantive decisions regarding preparation of the DEIS. Further, EPA states that making the final IP available in public reading rooms would eliminate any further public input into DOE decisions until the DEIS is published, scheduled for early 1993.
2. DOE should be ready to prepare a supplemental environmental document if the decision about specific plant locations is made after the EIS is completed and the decision makes substantial changes in the proposed action or if the decision is relevant to the environmental concerns of the action or its impacts. The EIS should acknowledge the need for environmental documents for specific plants and include plans to prepare them in the EIS.
3. An EIS completion date of "early 1993" should not be cast in concrete; doing so may preclude important studies. Time should be allowed for essential studies to go forward.

4. DOE should conduct scientifically credible studies in a realistic time frame.

Alternatives

1. Objectives for alternatives, as well as the proposed HGP, should be stated clearly and addressed (e.g., partial federal funding for phase 3, reducing reliance on imported oil and increasing the State's energy self-sufficiency, meeting the State's future energy needs). The need for the HGP must be explained — the rationale for the need for geothermal power vs. alternative sources of energy or conservation efforts. The need for 500 MW total or 100 MW on the Big Island should be verified.
2. The EIS should place as much emphasis on alternatives to geothermal development, such as conservation, wind or solar, as it does on the alternative ways to accomplish the geothermal development (e.g., sites and routes).
3. Alternatives should include alternative energy sources, conservation, and how actions other than federal funding would affect HGP development.
4. Consideration should be given to alternatives to geothermal (e.g., sites and routes) and alternative drilling and development alignments for geothermal to minimize environmental and health and safety impacts.
5. Whether oil imports will be reduced because of geothermal development should be ascertained.
6. Reinjection alternatives should be considered.
7. The EIS should address downscaled geothermal program combined with other energy sources, e.g., solar and wind.
8. The EIS should compare per-capita energy consumption in Hawaii relative to other areas and states.
9. The EIS should consider environmental hazards for each alternative energy source.
10. The EIS should discuss pollution prevention measures for geothermal well sites, alternatives to drilling, and development of geothermal resources.
11. The EIS should identify DOE's perception of federal government's role in geothermal development if DOE does "not partially fund" HGP.
12. The EIS alternatives should be distinctly defined to provide a clear basis for decision makers and the public to choose among options.

Cumulative Impacts

1. The EIS should consider cumulative impacts with respect to the past, present, and reasonably foreseeable future actions. Measures to eliminate, minimize, and/or mitigate adverse cumulative impacts should be considered.

Mitigation

1. The EIS should discuss all relevant and reasonable mitigation measures, even if they fall outside of the jurisdiction of the lead agency.

Air Quality

1. The EIS should consider background ambient air quality.
2. The EIS should address nonattainment of air-quality standards.
3. The EIS should consider the Clean Air Act as amended, which addresses the need to use the most recent and applicable data.
4. The EIS should characterize and quantify all expected air emissions including hazardous air pollutants.
5. The EIS should consider adverse meteorological conditions that could affect air quality.
6. The EIS should identify sources of fugitive emissions and identify mitigation measures to lessen fugitive emissions.

7. The EIS should consider air quality monitoring programs.
8. Mitigation for air quality should not be limited to episodes where standard are exceeded.

Water

1. Identify wetlands and describe the extent of impacts, adhering to the principals set forth in the Clean Water Act, Section 404.
2. Consider erosion potential and control measures.
3. Consider surface and groundwater monitoring programs and actions that should be taken if unacceptable conditions occur.
4. Address the detection of well casing leakage and tests to ensure well integrity.
5. Address thermal change and measures to prevent such impacts.
6. Consider water sources necessary to support drilling activities.
7. Consider water quality, geohydrology, and subsurface lithology.
   (a) For subsurface lithology, pay special attention to cinder beds, lava tubes, and fractures that would allow migration of geothermal brine from the surface into groundwater (interconnections between surface- and groundwater).
   (b) Consider the flow direction of groundwater.
   (c) Consider effects of reinjection on seismicity and groundwater flow.
8. Address impacts to the ocean.
9. Identify the constituents of the geothermal brine and chemical constituents of the spent geothermal brine.
10. Identify (on a map) wells within 1 mile of the outer boundary of the HGP area.
11. Work closely with EPA's Underground Injection Control program to identify and protect underground sources of drinking water.
12. Consider EPA's reinjection permit.

Ecological Resources

1. Discuss plans for pollution prevention, maintenance of biodiversity, and minimization of impacts to the environment, including methods of controlling invasion of alien species.
2. Instead of discussing impacts on individual species, discuss ecosystem-level impacts from deforestation and the loss of habitat and from construction and maintenance of the underwater cable. Also, consider impacts on the natural mosaic of the landscape, which is fundamental to the functions of the rainforest.
3. Quantify the amount of rainforest expected to be lost and characterize rain forest flora.
4. Describe land- and ocean-based resources that would be affected by the construction and maintenance of transmission lines and cables.
5. Discuss electromagnetic fields and the effects of these fields on land- and ocean-based fauna.
6. Identify threatened, endangered, and candidate plant and animal species affected by the proposed action and alternatives. Discuss impacts and mitigation.
7. Identify impacts to riparian and ocean habitats and describe management practices to eliminate or minimize these impacts.
8. Explore options to consolidate geothermal activities to minimize disruption to the rain forest and other sensitive ecosystems.
9. Consider "devegetation" areas of the tropical rain forest.
10. Provide for monitoring of erosion and sedimentation control to ensure adequacy of these activities.

Hazardous Materials and Wastes

1. Identify all hazardous materials expected to be used in geothermal development.
2. Identify appropriate permits.

3. Identify constituents in drilling muds and geothermal fluids.
4. Characterize the proposed project's anticipated waste stream.

Health and safety

1. Discuss relative risks and impacts of natural disasters on the operation, control, and transmission technology of the proposed HGP.
2. Identify measures to protect the health and safety of workers and the public from development, operations, and potential accidents.
3. Analyze all potential equipment failures that could result in steam or other emissions venting.
4. Identify and characterize all materials that could be released into the environment.
5. Discuss the human health impacts of electromagnetic fields.

Emergency Preparedness

1. Detail emergency planning and notification procedures in response to geothermal releases.
2. Consider "community right to know" provisions of SARA title III in emergency preparedness planning.

Noise

1. Noise should be assessed in the EIS.
2. Describe noise reduction measures during all stages of geothermal development and operation.

Socioeconomic Impacts

1. The following socioeconomic issues should be addressed: a) changes in employment and population and the resulting demand on housing and transportation; b) worker availability and potential places of residence; and c) indirect impacts on islands receiving geothermal energy.
2. Factor long-term costs of the project including replacement wells and additional wells.

Cultural Resources

1. Consider the National Historic Preservation Act of 1964, particularly compliance with Section 106.
2. EPA advises close cooperation with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation.
3. Consider the possibility of increased vandalism due to enhanced access into the proposed geothermal resource area and identify proposed measures to minimize such impacts.

Background/Information Resources

1. The U.S. Department of Interior Final EIS for Geothermal Leasing Program (1973) was identified as a resource that should be considered in preparing this EIS. This document addresses environmental impacts and mitigation measures.

Other

1. Provide maps and locations of production and injection wells, roads, piping, and power transmission lines, hazardous material storage areas, earthquake fault zones, and brine impoundments (also, identify the monitoring process).
2. Provide procedures for well-site location and construction, rehabilitation of land damaged by construction activities, plans to protect existing natural resources, and maintenance activities.
3. Identify measures to replace wells whose production has decreased.
4. Discuss what will be done with exploratory wells.

5. Explain relationships among federal, state, and local governments and private developers now and with the HGP.
6. Address impacts on speleology.

U.S. Fish and Wildlife Service

In an undated response to the NOI, and communication on February 27, 1992 and August 26, 1992, the U.S. Fish and Wildlife Service (USFWS) stated that the EIS should assess effects of fragmentation, predation and competition by exotic species to endangered and threatened species. Impacts of acute and chronic releases of H_2S and other pollutants on wildlife and vegatation should be assessed. USFWS recommends an ecosystem-level analysis to determine the effects on the integrity of the native rainforest. The EIS should determine effects of reinjection of geothermal fluids on groundwater flowing into anchialine pools along the Kapoho coastline.

The USFWS recommends the following specific studies to assess impacts: studies of the distribution and abundance of the hoary bat, native forest birds particularly the 'O'u, endangered and candidate plant species, and invertebrates, i.e. endemic land snails and insects that are the food base of native birds. A wetlands study and a post-project analysis of effects of the True/Mid Pacific geothermal facility are also recommended.

U.S. Geological Survey

The U.S. Geological Survey (USGS) provided the following comments in a March 1992 letter. On August 13, 1992 USGS reported no comment on the working draft Implementation Plan.

The EIS should examine allocation of groundwater resources and the effect of geothermal fluids and waste waters on aquifers.

The USGS recommends that eruption conditions be used as baseline data against which expected air emissions can be judged.

The USGS asserts that volcanic eruption frequency, lava flow, and airborne lava as well as deformation hazards from the movement of liquid magma present hazards for wells, pipelines, generating facilities, and transmission lines. The EIS must consider natural and induced seismic hazards. The USGS acknowledges that responsibility for induced seismic hazards is ambiguous.

The EIS should identify the most likely land source for future undersea slides. Economic impacts resulting from potential damage to the undersea transmission cable by rockslides, sand slides and turbidity-current deposits should be considered in the EIS.

The USGS also reviews ongoing research and existing documents and databases that are relevant to these issues.

U.S. Navy

The US Navy responded on May 1, 1992 to the NOI and expressed concerns about the submarine power transmission routes, electrical interferences emanating or caused by the cables, and any effects to shipboard operations.

APPENDIX C

PRELIMINARY OUTLINE FOR THE HAWAII GEOTHERMAL PROJECT ENVIRONMENTAL IMPACT STATEMENT

environment in Hawaii, Congress directed that "* * * the Secretary of Energy shall use such sums as are necessary from amounts previously provided to the State of Hawaii for geothermal resource verification and characterization to conduct the necessary environmental assessments and/or environmental impact statement (EIS) for the geothermal initiative to proceed." In addition to the Congressional directive, the U.S. District Court of Hawaii, in litigation filed by several environmental groups, ruled that the Federal government must prepare an EIS for Phases 3 and 4 of the HGP prior to any further disbursement of Federal funds to the State for the HGP.

An ANOI regarding preparation of the HGP EIS was issued in the Federal Register by DOE on September 3, 1991. It announced the initiation of planning and scoping of the HGP EIS and solicited public input regarding scope and content of the EIS. DOE received 55 comment letters on EIS-related topics, all of which will be considered during preparation of the IP for the EIS. In addition to the ANOI, DOE held informal information exchange meetings during September, October, and November 1991 with Federal, State and local agencies and officials and with public interest groups as well as utilities and geothermal developers.

Alternatives

DOE is requesting public comment on reasonable alternatives related to the HGP. The basic alternatives available to DOE are to partially fund or to not partially fund Phase 3, as defined by the State, with the funds remaining from the $5 million Congressional appropriation after EIS expenditures; not funding Phase 3 would be considered as the 'no-action' alternative. Under the 'no-action' alternative, DOE would not contribute funds to future State-planned geothermal development in Hawaii, but this would not preclude the State's continuation of the HGP.

Based on preliminary scoping, other alternatives related to project implementation include, but are not limited to: (1)Alternative sites for geothermal development and construction of power plants, including sites on Maui; (2) alternative routes for transmission lines on land and in the sea; (3) alternative geothermal power generating technologies; (4) alternative submarine cable technologies; (5) alternative power production technologies, such as coal, solar, wind, and biomass; (6) non-supply alternatives such as demand-side management and conservation; (7) integrated resource planning by Hawaiian utilities and the State, which would afford consideration of both supply-side and demand-side alternatives to meet long-term power generating needs; and (8) continued reliance on oil-fired power plants.

Potential Environmental Issues

Based on public comments on the Advance NOI and information exchange meetings held with the Federal, State, and local agencies, civic and environmental interest groups, and utilities and geothermal developers, DOE has identified an array of potential environmental issues associated with the HGP. This list will be modified based on further input received during the scoping process. The following list is not organized in order of relative importance, nor is there presently a commitment by DOE to address all these issues to the same level of detail in the HGP EIS. The future IP, prepared after scoping is completed, will categorize issues and describe those that are within the scope of analysis in the EIS.

Land Use

The compatibility of geothermal development with other current and planned land uses will be considered. Phases 3 and 4 of the HGP, as defined by the State, will require land for resource verification, power plant(s) and related support facilities, roads, transmission lines, waste disposal areas, etc. Potential impacts related to the Wao Kele O Puna rainforest, native Hawaiian homelands, residential areas, and any other unique land resources will also be considered.

Air Quality

The effect on air quality on the Big Island from atmospheric emissions from well drilling and testing, geothermal power plant operations, and construction associated with facilities, roads, and transmission lines will be considered. Air pollutants from geothermal power plant operation may include hydrogen sulfide, ammonia, methane, carbon dioxide, radon, arsenic, boron, mercury, benzene, and particulate matter. Receptors in the proximity of the proposed HGP include residential areas, agricultural crops, vegetation, and bird populations. The contribution of the HGP, if any, to the national and world-wide issues of global climate change and ozone depletion will be considered. The contribution, if any, of power plant emissions of hydrogen sulfide to acid precipitation will also be considered.

Water Resources

Effects on the quality, use, and availability of surface waters (marine and fresh) and groundwater from geothermal well drilling, disposal of liquid and solid wastes, construction of transmission lines, and installation of the submarine cable will be considered. Erosion and sedimentation, deposition of permitted air pollutants, permitted point and permissible non-point discharges from power plants and support facilities, radiological levels associated with brine impoundments, reinjection and/or impoundment of geothermal fluids/brine, all as a result of normal operation, will be considered. The EIS also will consider the risks of certain accidents associated with water resources, such as well blowouts, and with spills of hazardous or toxic materials.

Ecological Resources

The effect on habitats and indigenous species of atmospheric emissions, effluent discharges, waste disposal, electromagnetic fields, and noise associated with the HGP will be considered. Such habitats include the Wao Kele O Puna rainforest, wetlands, coral reefs, the marine water column, especially the benthic community, and the commercial fisheries in the Hawaiian Islands. Federal- and State-protected aquatic species include the humpback whale, which has seasonal calving grounds in Hawaii, the hawksbill and green sea turtles, and the Hawaiian monk seal. Numerous protected bird species and the protected hoary bat are found in the vicinity of planned development.

Geologic Issues

Hazards associated with development of the geothermal resource on the site of an active volcano will be considered. The effects of geothermal well drilling, production, and reinjection on regional seismicity and local subsidence will be examined. The effect of well development and construction on soils, agriculture, and paleontological resources in areas proposed for development will be considered. Geothermal fluid withdrawal, reinjection, and the potential for resource depletion will be examined. Underwater and oceanic geologic hazards, such as tsunamis and landslides, and their subsequent effects on cable reliability and function will also be considered.

Noise

Increased ambient sound levels may result from well drilling, construction

equipment and machinery operation, and well venting. The effects of such levels on residents in nearby developments will be considered, including any adverse effects on occupational and public health. The effect of elevated sound levels on wildlife reproductive capabilities and susceptibility to predation will be considered as well.

Health and Safety

Health and safety issues will be considered associated with the following: (1) Well blowout; (2) exposure to gaseous emissions from power plant operation, especially hydrogen sulfide and radon gases and trace elements/compounds, such as arsenic, boron, selenium, and benzene; (3) elevated ambient sound levels; and (4) evacuations of nearby residences because of well venting or hydrogen sulfide releases.

Socioeconomic Issues

Issues that will be considered include those associated with the effects of population growth stimulated by additional power production, such as effects on public services, education, taxes, property values, insurance rates, and the economy (in particular, tourism). Another issue is the cost of the HGP compared to other alternatives.

Cultural Resources

Construction on land and at sea and plant operations may affect historic, archeological, and cultural resources such as native Hawaiian religious practices and beliefs (e.g., worship of the goddess Pele), burial sites, subsistence hunting and gathering, ocean gathering and fishing rights, and homelands.

Visual Effects

Issues that will be considered include those related to clearing and development within a pristine environment, and the visual effects of industrial facilities, such as geothermal plants and transmission lines, which can, in turn, affect tourism, the economy, and native Hawaiian religious practices.

Scoping Meetings

DOE plans to conduct public scoping meetings to assist in identifying further potential environmental impacts associated with the HGP. The meeting schedule is as follows:

Hawaii–March 7, 1992, Pahoa High and Elementary School, 15–3038 Puna Road, Pahoa, Hawaii 96778, 2 p.m.-5:30 p.m. and 7 p.m.-10:30 p.m.

Maui–March 9, 1992, Maui County Council Chambers, 8th Floor, County Building, 200 S. High St., Wailuku, Hawaii 96793, 2 p.m.-5:30 p.m. and 7 p.m.-10:30 p.m.

Molokai–March 12, 1992, Mitchell Pauole Center, 90 Ainoa Street, Kaunakakai, Hawaii 96748, 2 p.m.-5:30 p.m. and 7 p.m.-10:30 p.m.

Oahu–March 14, 1992, Roosevelt High School, 1120 Nehoa St., Honolulu, Hawaii 96822, 2 p.m.-5:30 p.m. and 7 p.m.-10:30 p.m.

Hawaii–March 16, 1992, Hawaiian Homes Meeting Hall, P.O. Box 125, Kamuela (Waimea), Hawaii 96743, 2 p.m.-5:30 p.m. and 7 p.m.-10:30 p.m. Location: The 55 miles marker Mamalahoa Highway, east edge of Waimea.

These meetings are intended to afford the public an opportunity to offer suggestions as to the scope and content of the EIS. There will be afternoon and evening meetings at each location. Individuals may speak at any one of the meetings, and should note their preference for speaking at either the afternoon or evening session. Those who do not register in advance to speak may register at the public meeting, and they will be afforded an opportunity to speak after preregistered speakers as time allows. On-site registration will begin one hour before each meeting. Requests to speak at any of the meetings should be directed to:

Thelma Patton, Oak Ridge National Laboratory, P.O. Box 2008, Building 4500N, Oak Ridge, TN 37831–6200, Telephone: (615) 574–6096, Facsimile: (615) 574–5788

or, in Hawaii: U.S. Department of Energy, Pacific Site Office, Prince Kuhio Building, rm. 4322, 300 Ala Moana Blvd., Honolulu, HI 96813, Contact: Irene Asato, Telephone: (808) 541–2561, Fax: (808) 541–2562

and should be postmarked no later than March 2, 1992. Letters should be sent via air mail.

A presiding officer will be designated by DOE for the scoping meetings, which will not be conducted as evidentiary hearings, and there will be no questioning of the speakers. However, the presiding officer may ask for clarification of statements to ensure that the comments are fully understood. The presiding officer will establish the order of speakers, which most likely will be public officials first followed, in turn, by group representatives and individuals. The presiding officer will provide any additional procedures necessary for the conduct of the meetings. To ensure that all persons wishing to make a presentation are given the opportunity, a 5-minute limit will be enforced for each speaker, with the exception that public officials and representatives of groups will be allotted 10-minutes each. Speakers will be limited to one presentation at one of the five scoping meetings. Speakers who wish to provide further information for the record should submit such information to: Dr. Lloyd Lewis, CE–121, Office of Conservation and Renewable Energy, U.S. Department of Energy, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, Telephone: (202) 586–6283 and postmarked by April 15, 1992, to ensure consideration. Late comments will be considered to the extent practicable.

DOE reserves the right to change dates, times, locations of meetings, and the procedures for conducting the meetings, if necessary. Notification of changes will be announced in the local media.

DOE will prepare transcripts of all scoping meetings after their completion. The public may review transcripts and other HGP EIS references at the following locations:

Department of Business, Economic Development & Tourism, Library, 220 South King Street, Fourth Floor, Honolulu, Hawaii 96804, Contact: Anthony Oliver, Telephone: (808) 586–2425, Fax: (808) 586–2452.

Department of Business, Economic Development & Tourism, Hilo Office, Century Building, 80 Pauahi Street, room 207, Hilo, Hawaii 96720, Contact: Michelle Wong-Wilson, Telephone: (808) 933–4600, Fax: (808) 933–4602.

Department of Business, Economic Development & Tourism, Information Office, 220 South King Street, suite 1100, Honolulu, Hawaii 96813, Contact: Norman Reyes, Telephone: (808) 586–2405 or 586–2406, Fax: (808) 586–2427.

Department of Business, Economic Development & Tourism, Geothermal Office, Financial Plaza of the Pacific, 130 Merchant Street, suite 1060, Honolulu, Hawaii 96813, Contact: Maurice Kaya, Telephone: (808) 587–3812, Fax: (808) 587–3828.

Department of Business, Economic Development & Tourism, Energy Division, Publications Section, 335 Merchant Street, room 110, Honolulu, Hawaii 96813, Contact: Steven Kam, Telephone: (808) 548–4086 Fax: (808) 531–5242.

Hana Public and School Library, Hana Highway, Hana, Hawaii 96713, Contact: Jeremy Kindred, Telephone: (808) 248–7714, Fax: (808) 248–7456.

Hawaii State Library, Hawaii Document Center Unit, 894 Pensacola Street, Honolulu, Hawaii 96814, Telephone: (808) 586–3535, Fax: (808) 586–3584.

Hawaii Energy Extension Service, Hawaii Business Center, 99 Aupuni Street, room 214, Hilo, Hawaii 96720, Contact: Andrea Beck, Telephone: (808) 933–4558, Fax: (808) 933–4602.

Hilo Public Library, 300 Waianuenue Avenue, Hilo, Hawaii 96721–6847, Contact: Claudine

Fujii, Telephone: (808) 953-8407, Fax: (808) 933-4658.
Kahuku Public and School Library, 56490 Kam Highway, Kahuku, Hawaii 96731, Contact: Jean Okimoto, Telephone: (808) 293-8275, Fax: (808) 293-5115.
Kahului Public Library, 90 School Street, Kahului, Hawaii 96732, Contact: Lani Scott Telephone: (808) 877-5048, Fax: (808) 871-9032.
Kailua-Kona Public Library, 75-138 Hualalai Road, Kailua-Kona, Hawaii 96740, Contact: Irene Horvath, Telephone: (808) 329-2196, Fax: (808) 326-4115.
Kauai Office of Economic Development, 4444 Rice Street, room 230, Lihue, Hawaii 96766, Contact: Glenn Sato, Telephone: (808) 245-7305, Fax: (808) 245-6479.
Lihue Public Library, 4391-A Rice Street, Lihue, Hawaii 96766 Contact: Karen Ikemoto, Telephone: (808) 245-3617, Fax: (808) 246-0159.
Maui Energy Extension Service 200 South High Street, Wailuku, Hawaii 96793, Contact: Kalvin Kobayashi, Telephone: (808) 243-7832, Fax: (808) 243-7870.
Molokai Public Library, Ala Maloma Street, Kaunakakai, Hawaii 96748, Contact: Sri Tencate, Telephone: (808) 553-5483, Fax: (808) 553-5956.
Mountain View Public and School Library, Highway 11, Mountain View, Hawaii 96771, Contact: Evelyn Garbo, Telephone: (808) 968-6300 Fax: (808) 968-6058.
Pahala Public and School Library, Pakalana Street, Pahala, Hawaii 96777, Contact: Lisa Cabudol, Telephone: (808) 928-8032, Fax: (808) 928-6199.
Pahoa Public and School Library, 15-3098 Pana Road, Pahoa, Hawaii 96778, Contact: Laura Ashton, Telephone: (808) 965-8574, Fax: (808) 965-7170.
Pearl City Public Library, 1138 Waimano Home Road, Pearl City, Hawaii 96782, Contact: Marilyn Van Gieson, Telephone: (808) 455-4134, Fax: (808) 456-4407.
U.S. Department of Energy, Freedom of Information Public Reading Room, room 1E 190, 1000 Independence Ave., SW., Washington, DC 20585, Contact: Ms. Ed McGinnis, Telephone: (202) 586-6020, FTS: 896-6020.
U.S. Department of Energy, Pacific Site Office, Prince Kuhio Building, room 4322, 300 Ala Moana Blvd., Honolulu, Hawaii 96813 Contact: Eileen Yoshinaka, Telephone: (808) 541-2563, Fax: (808) 541-2562.
U.S. Department of Energy, San Francisco Field Office Public Reading Room, 1333 Broadway, Oakland, CA 94612, Contact: Ms. Estella Angel, Telephone: (510) 273-4428 FTS: 536-4428.
Waimanelo Public and School Library, 41-1320 Kalanianaole Highway, Waimanalo, Hawaii 96795, Contact: Nina O'Donnell Telephone: (808) 259-9925, Fax: (808) 259-8209.

Signed in Washington, DC, this 11th day of February, 1992, for the U.S. Department of Energy.

Paul L. Ziemer,

Assistant Secretary, Environment, Safety and Health.

[FR Doc. 92-3644 Filed 2-13-92; 8:45]

BILLING CODE 6450-01-M

Financial Assistance Award; Keystone Center

AGENCY: Department of Energy.

ACTION: Notice of unsolicited financial assistance award to the Keystone Center.

SUMMARY: The Department of Energy (DOE) announces that pursuant to 10 CFR 600.14(e)(1)(i), it is making a financial assistance award based on an unsolicited application under grant number DE-FG01-92PE79105. The grant is to determine the different positions of interest groups on key issues and to narrow the difference through dialogues. This effort will have a total estimated cost of $60,000 (cost sharing) to provided by DOE.

SCOPE: The grant will provide funding to the Keystone Center to select a working group of experts from affected constituents to discuss clarification and resolution of present uncertainties concerning Federal and State jurisdiction in the economic regulation of electric utilities and to address the subject of utility planning using least cost principles.

The project is meritorious because of its relevance to the accomplishment of an important public purpose—development of consensus on critical issues concerning the existing allocation of State/Federal regulatory authority to (1) govern evolving bulk power markets, and (2) provide the consumer with necessary energy services through utility planning based on least-cost dialogue that can be translated into legislation or regulatory policy.

ELIGIBILITY: Based on the evaluation of relevance to the accomplishment of a public purpose, it is determined that the proposal represents an innovative method and approach to determine the different positions of interest groups on key issues and to narrow the difference through dialogue. The proposed project represents a unique idea that would not be eligible for financial assistance under a recent, current, or planned solicitation.

FOR FURTHER INFORMATION CONTACT: Please write the U.S. Department of Energy, Office of Placement and Administration, ATTN: Mary Braxton, PR-321.1, 1000 Independence Ave. SW., Washington, DC 20585.

Jeffrey Rubenstein,

Director, Operations Division "A", Office of Placement and Administration.

[FR Doc. 92-3645 Filed 2-13-92; 8:45 am]

BILLING CODE 6450-01-M

Federal Energy Regulatory Commission

[Project Nos. 10944-002, 10962-001, 10963-001, 10964-001, 11127-001, 11172-001, 11173-001, 11198-001 Oregon]

Portland General Electric Co.; Surrender of Preliminary Permits

Dated: February 7, 1992

Take notice that Portland General Electronic Company, Permittee for the following projects has requested that its preliminary permits be terminated.

All projects would have been located within the Mount Hood National Forest, in Clackamas County, Oregon.

Project No.	Project name	Creek name	Issued	Expires
10944-002	Cripple Creek	Cripple Creek	10/29/90	9/30/93
10962-001	Timothy Lake	Anvil Creek, Stone Creek	01/28/91	12/31/93
10963-001	South Fork Cripple Creek	South Fork Cripple Creek	10/31/90	09/30/93
10964-001	Bull Creek	Bull Creek	10/30/90	09/30/93
11127-001	Cot Creek	Cot Creek	06/28/91	05/31/94
11172-001	Deer Creek	Deer Creek	01/22/92	12/31/94
11173-001	Dinner Creek	Dinner Creek	01/23/92	12/31/94
11198-001	Three Lynx Creek	Three Lynx Creek	01/23/92	12/31/94

The Permittee filed the request on January 21, 1992, and the preliminary permits shall remain in effect through the thirtieth day after issuance of this notice unless that day is a Saturday, Sunday or holiday as described in 18 CFR 385.2007, in which case the permit shall remain in effect through the first business day following that day. New applications involving these project sites, to the extent provided for under 18

APPENDIX G

CONTRACTOR DISCLOSURE STATEMENTS

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF ENVIRONMENTAL IMPACT STATEMENT FOR THE HAWAII GEOTHERMAL PROJECT

CEQ Regulations at 40 CFR 1506.5 (c), which have been adopted by the DOE (10 CFR 1021), require contractors who will prepare an EIS to execute a disclosure specifying that they have no financial or other interest in the outcome of the project. The term "financial interest or other interest in the outcome of the project" for purposes of this disclosure is defined in the March 23, 1981, guidance "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations", 46 FR 18026-18038 at Question 17a and b.

"Financial or other interest in the outcome of the project" includes "any financial benefit such as a promise of future construction or design work in the project, as well as indirect benefits the contractor is aware of (e.g., if the project would aid proposals sponsored by the firm's other clients)". 46 FR 18026-18038 at 18031.

In accordance with these requirements, Martin Marietta Energy Systems, Inc. (COMPANY NAME) hereby certifies as follows: check either (a) or (b),

(a) [X] Martin Marietta Corp. (COMPANY NAME) has no financial or other interest in the outcome of the Hawaii Geothermal Project.

(b) [ ] _____ (COMPANY NAME) has the following financial or other interest in the outcome of the Hawaii Geothermal Project and hereby agrees to divest itself of such interest prior to initiating any technical analyses in support of this Project.

Financial or Other Interests

1.

2.

3.

Certified by:

Gary J. Draper
SIGNATURE

Gary J. Draper
NAME

Manager, Contracts
TITLE

May 27, 1992
DATE

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF ENVIRONMENTAL IMPACT STATEMENT FOR THE HAWAII GEOTHERMAL PROJECT

CEQ Regulations at 40 CFR 1506.5 (c), which have been adopted by the DOE (10 CFR 1021), require contractors who will prepare an EIS to execute a disclosure specifying that they have no financial or other interest in the outcome of the project. The term "financial interest or other interest in the outcome of the project" for purposes of this disclosure is defined in the March 23, 1981, guidance "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations", 46 FR 18026-18038 at Question 17a and b.

"Financial or other interest in the outcome of the project" includes "any financial benefit such as a promise of future construction or design work in the project, as well as indirect benefits the contractor is aware of (e.g., if the project would aid proposals sponsored by the firm's other clients)". 46 FR 18026-18038 at 18031.

In accordance with these requirements, University of California, Lawrence Berkeley Lab. (COMPANY NAME) hereby certifies as follows: check either (a) or (b),

(a) [X] University of California Lawrence Berkeley Lab. (COMPANY NAME) has no financial or other interest in the outcome of the Hawaii Geothermal Project.

(b) [ ] _____ (COMPANY NAME) has the following financial or other interest in the outcome of the Hawaii Geothermal Project and hereby agrees to divest itself of such interest prior to initiating any technical analyses in support of this Project.

Financial or Other Interests

1.

2.

3.

Certified by:

SIGNATURE

Rick Inada
NAME

Acting Head, Office of Sponsored Research
TITLE

May 27, 1992
DATE

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF ENVIRONMENTAL IMPACT STATEMENT FOR THE HAWAII GEOTHERMAL PROJECT

CEQ Regulations at 40 CFR 1506.5 (c), which have been adopted by the DOE (10 CFR 1021), require contractors who will prepare an EIS to execute a disclosure specifying that they have no financial or other interest in the outcome of the project. The term "financial interest or other interest in the outcome of the project" for purposes of this disclosure is defined in the March 23, 1981, guidance "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations", 46 FR 18026-18038 at Question 17a and b.

"Financial or other interest in the outcome of the project" includes "any financial benefit such as a promise of future construction or design work in the project, as well as indirect benefits the contractor is aware of (e.g., if the project would aid proposals sponsored by the firm's other clients)". 46 FR 18026-18038 at 18031.

In accordance with these requirements, Energy, Environment + Resource Center, Univ of Tennessee (COMPANY NAME) hereby certifies as follows: check either (a) or (b).

(a) ☒ Energy, Environment + Resource Center (COMPANY NAME) has no financial or other interest in the outcome of the Hawaii Geothermal Project.

(b) ☐ _____ (COMPANY NAME) has the following financial or other interest in the outcome of the Hawaii Geothermal Project and hereby agrees to divest itself of such interest prior to initiating any technical analyses in support of this Project.

Financial or Other Interests

1.

2.

3.

Certified by:

_____
SIGNATURE

JACK BARKENBUS
NAME

Acting Director
Energy, Environment + Resource Center
TITLE

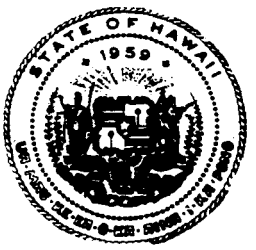
May 28, 1992
DATE

Appendix B
"STATEWIDE GEOTHERMAL RESOURCE ASSESSMENT
(Circular C-103 Update)"

STATEWIDE
GEOTHERMAL RESOURCE ASSESSMENT

Circular C-103

UPDATE



State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Water and Land Development

Honolulu, Hawaii
December 1992

JOHN WAIHEE
Governor

BOARD OF LAND AND NATURAL RESOURCES

WILLIAM W. PATY, Chairperson

SHARON R. HIMENO, Member at Large

HERBERT K. APAKA, Kauai Member

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CHRISTOPHER J. YUEN, Hawaii Member

DEPARTMENT OF LAND AND NATURAL RESOURCES

WILLIAM W. PATY, Chairperson

JOHN P. KEPPELER II, Deputy

DONA L. HANAIKE, Deputy

DIVISION OF WATER AND LAND DEVELOPMENT

MANABU TAGOMORI, Manager-Chief Engineer

Honorable William W. Paty, Chairperson
Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Dear Mr. Paty,

Transmitted herewith for your consideration is the Statewide Geothermal Resource Assessment report update prepared pursuant to requirements of Section 205-5.2, Hawaii Revised Statutes.

This report updates a statewide, county-by-county assessment of Hawaii's potential geothermal resource areas, based on currently available geotechnical information.

Presented are the Committee's updated recommendations for high temperature geothermal resource areas having the potential for electrical power generation. High temperature is defined to be greater than 125 degree celcius (250 degree fahrenheit) at depths less than 3 kilometers (9800 feet). These areas have been mapped and identified as potential geothermal resource areas. Also identified in the assessment process were low temperature (less than 125 degree celcius) geothermal resource areas. Further research may be directed in these areas to determine the availability of geothermal resources for future consideration in identifying potential geothermal resource areas.

The Committee has completed its periodic assessment of geothermal resources in the State of Hawaii and will continue to be available to assist the Department of Land and Natural Resources in aspects of managing the State's geothermal resources.

Respectfully submitted,

Mr. Manabu Tagomori, Co-Chairman
DLNR/DOWALD

Dr. Donald Thomas, Co-Chairman
UH/HIG

Dr. Harry J. Olson
UH/HNEI

Dr. Frank L. Peterson
UH/HIG

Dr. John Sinton
UH/HIG

Dr. Tom Hulsebosch
UH/HIG

Dr. James L. Anderson
UH/Hilo

Mr. G. O. Lesperance
DBEDT

Mr. Dean Nakano
DBEDT

Dr. Fred Duennebier
UH/HIG

ACKNOWLEDGEMENT

The Geothermal Technical Advisory Committee acknowledges the assistance of the individuals listed below who provided geotechnical information, participated in technical sessions, and assisted in field visits of sites by the Committee.

MURRAY GARDNER, GeothermEx, Inc.

RALPH PATTERSON, Ralph Patterson Associates

W.L. DOLIER, Ralph Patterson Associates

ART SEKI, Hawaiian Electric Company

RODNEY NAKANO, Hawaii County

STEVE MORRIS, Puna Geothermal Venture

GEOTHERMAL TECHNICAL ADVISORY COMMITTEE

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Manager-Chief Engineer
Division of Water and Land Development
Dept. of Land and Natural Resources
State of Hawaii

DONALD THOMAS, Ph.D. (Co-Chairman)
Geochemist
Hawaii Institute of Geophysics
University of Hawaii - Manoa

HARRY J. OLSON Ph.D.
Spark Matsunaga Fellow in Geothermal
Energy Research
Hawaii Natural Energy Institute
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University of Hawaii - Manoa

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Director, Center for the Study of
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University of Hawaii at Hilo

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Geothermal Program Manager
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State of Hawaii

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Dept. of Business, Economic
Development and Tourism
State of Hawaii

THOMAS P. HULSEBOSCH, Ph.D.
Geologist
Department of Geology and
Geophysics
University of Hawaii - Manoa

****

Staff
Division of Water and Land Development

PREFACE

Act 296, Session Laws of Hawaii 1983, as amended by 151, SLH 1984, required that the Board of Land and Natural Resources examine various factors when designating subzone areas for the exploration, development, and production of geothermal resources. These factors include potential for production, prospects for utilization, geologic hazards, social and environmental impacts, land use compatibility, and economic benefits. In 1984 the Department of Land and Natural Resources prepared a series of reports which addressed each of the subzone designation factors. A report was prepared which assessed the potential for production of geothermal energy throughout the State of Hawaii.

Section 205-5.2 provides that this assessment be updated periodically. This report updates the Board of Land and Natural Resources Statewide Geothermal Resource Assessment Circular C-103 dated September 1984.

The Geothermal Technical Advisory Committee, formed jointly by the Department of Land and Natural Resources and the Department of Business, Economic Development and Tourism, has reviewed once again the areas previously selected within the State which have the greatest potential to produce geothermal energy. The Committee has made changes to update the 1984 report according to its review of information that has become available after the initial report was prepared. The participation of the Committee members, who have volunteered their time and effort is greatly appreciated.

This report was updated by the Department of Land and Natural Resources Division of Water and Land Development under the direction of Manabu Tagomori, Manager-Chief Engineer. The Appendices to this update are available upon request.

CONTENTS

SUMMARY

A Geothermal Technical Advisory Committee was formed to assist the Department of Land and Natural Resources in updating its assessment of geothermal resource potential within the State of Hawaii for application to electrical power generation. Participants were selected on the basis of their expertise in the fields of geology, geochemistry, geohydrology, geothermal exploration technology and the geology of the Hawaiian Islands.

Technical Advisory Committee members met in a series of meetings held on the islands of Oahu and Hawaii to update the previous assessment using the most recently available geotechnical data relevant to the assessment and identification of potential geothermal resource areas.

The statewide geothermal resource assessment update was made on a county-by-county basis and was based on a qualitative interpretation of more recent surveys, exploratory geothermal drilling data, and anomalous water well data.

The Geothermal Technical Advisory Committee reviewed the assessment criteria used in the earlier evaluation of geothermal resource potential. It was agreed that the earlier criteria were still appropriate for the current evaluation but that an additional factor, permeability of the potential reservoir, should be included in the evaluation to the extent data are available.

I. Revision of Assessment Criteria

A. Current Criteria
   a. > 125°C
   b. < 3 km depth
   c. ground elevation

B. Revision
   a. Temperature - none
   b. Depth - none
   c. Elevation - none
   d. Permeability - include to the extent that we have data

II. Revision of Geothermal Potential

Area	Prior Assessment of Resource Potential	New Data	Proposed Assessment
Kauai	< 5%	No	< 5%

Area	Prior Assessment of Resource Potential	New Data	Proposed Assessment
Oahu			
Waianae	< 5%	No	< 5%
Koolau	< 5%	No	< 5%
Molokai	< 5%	Blackhawk EM Study; Waterwell Data	Defer for further evaluation of new data
Lanai	< 5%	Drilling and Water quality data	< 15% revisit after more study
Maui			
Olowalu	< 15%	No	< 15%
Lahaina	< 5%	No	< 5%
Honolua	< 5%	No	< 5%
Haleakala S.W.R.Z.	25% or less	Linenert EM Study; Warm air vents on upper rift	25% or less
Haleakala N.W.R.Z.	< 5%	No	< 5%
Haleakala E.R.Z.	25% or less	No	25% or less
Hawaii			
Kawaihae	< 10%	Blackhawk Studies; Water well data	< 10%, revisit after more data available
Hualalai	35% or less	No	Defer for further evaluation
Mauna Loa S.W.R.Z.	35% or less	No	35% or less
Mauna Loa N.E.R.Z.	35% or less	No	35% or less
Kohala	< 5%	No	< 5%

Area	Prior Assessment of Resource Potential	New Data	Proposed Assessment
Mauna Kea N.W.R.Z.	< 20%	No	< 20%
Mauna Kea E.R.Z.	< 10%	No	< 10%
Kilauea S.W.R.Z.	> 90%	No	> 90%
Kilauea E.R.Z.	> 95%	New Drilling	> 95%

III. Revision of geothermal potential lines

A. Molokai

a. no change pending further analysis

B. Lanai

a. potential geothermal resource within caldera boundary (< 15% probability)

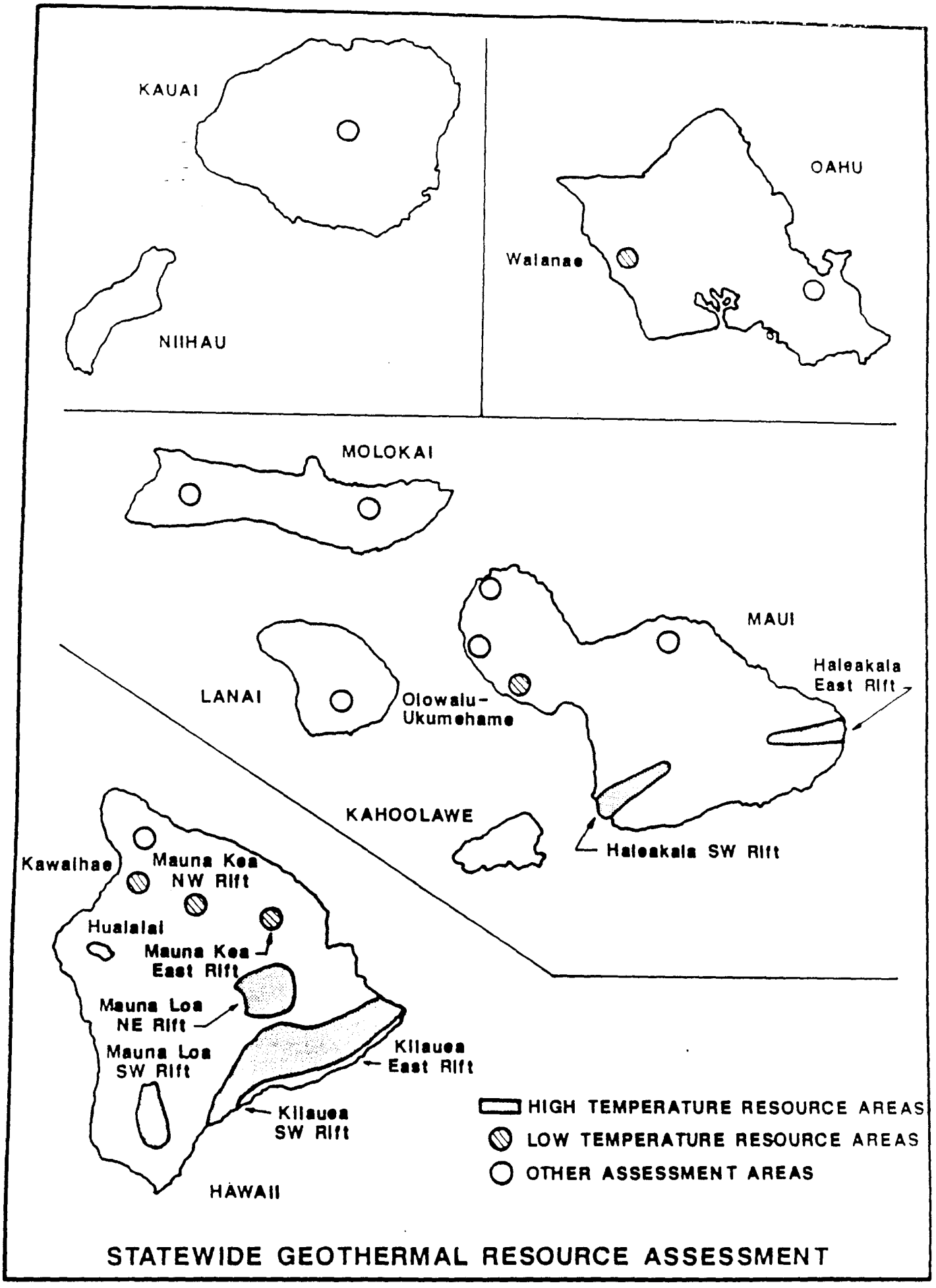
C. Haleakala S.W.R.Z.

a. no change pending further analysis

D. Kilauea E.R.Z.

a. move 90% line north by 1 km

b. leave 25% in current location


KAUAI
NIIHAU
OAHU
Waianae
MOLOKAI
MAUI
Haleakala
East Rift
LANAI
Olowalu-
Ukumehame
KAHOOLAWE
Haleakala SW Rift
Kawaihae
Mauna Kea
NW Rift
Hualalai
Mauna Kea
East Rift
Mauna Loa
NE Rift
Mauna Loa
SW Rift
Kilauea
East Rift
Kilauea
SW Rift
HAWAII
HIGH TEMPERATURE RESOURCE AREAS
LOW TEMPERATURE RESOURCE AREAS
OTHER ASSESSMENT AREAS
STATEWIDE GEOTHERMAL RESOURCE ASSESSMENT

INTRODUCTION

The Board of Land and Natural Resources is charged with the responsibility of designating geothermal resource subzones in the State of Hawaii by Chapter 205, Hawaii Revised Statutes.

This Chapter provides that the statewide geothermal resource assessment be updated periodically in order to provide the best scientific basis for designation of geothermal resource subzones.

This update of the initial statewide geothermal assessment, prepared in 1984 as "Statewide Geothermal Resource Assessment Circular C-103" has been prepared by utilizing currently available information and recent interpretations of this data. Certain studies, interpretations, and exploratory well data were not available at the time of the initial study. These include studies by Blackhawk and Lienert, interpretations by the ENEL consulting team, interpretations of recent SOH data by GeothermEx, Inc. and Ralph Patterson Associates, certain anomalous data from recently drilled water wells, and data from exploratory and commercial geothermal wells drilled in the Kilauea East Rift Zone.

This update includes remapping of estimated percent probability of geothermal resources in the Kilauea East Rift Zone and inclusion of a new area of Lanai with geothermal resource potential.

GEOTHERMAL TECHNICAL ADVISORY COMMITTEE

The Department of Land and Natural Resources in cooperation with the Department of Business, Economic Development and Tourism has jointly selected a committee of technical experts who are closely associated with the field of geothermal research in the State of Hawaii. Some of the same individuals who voluntarily served on the initial Geothermal Resources Technical Committee have volunteered once again to serve on the Geothermal Technical Advisory Committee. The latter Committee has expanded its scope to include other functions beside assessing the resource and updating the 1984 Geothermal Resources Assessment. These added functions include identifying geographic and subject areas where further geothermal research is needed, reviewing current projects and activities, and proposing and evaluating geothermal research proposals, as well as serving as an advisory body in resource management, regulation and enforcement. The Technical Advisory Committee also fosters communication and cooperation between the commercial developers involved in geothermal exploration and their technical consultants, on the one hand, and public sector technicians, regulators and officials with geothermal/alternate energy responsibilities, on the other.

A list of the participating committee members and their area of technical expertise is described below:

Mr. Manabu Tagomori Area of expertise: Manager - Chief Engineer, Division of Water and Land Development, Department of Land and Natural Resources.

Dr. Donald Thomas Area of expertise: Geochemistry, Geology, Geohydrology, Geothermal Exploration Technology, and the Geology of the Hawaiian Islands.

Dr. Harry J. Olson Area of expertise: Geology, Geothermal and Mineral Exploration and Development; Hard Rock Drilling.

Dr. Frank L. Peterson Area of expertise: Hydrology, Insular Hydrogeology, Engineering Geology, Environmental Geology, Hawaiian Geology.

Dr. John Sinton Area of expertise: Igneous Petrology and Geochemistry; extensive experience studying Hawaiian volcanic rocks and ocean floor basalts.

Dr. James L. Anderson Area of expertise: Volcanology, Structural Geology; Igneous Petrology.

G.O. Lesperance Area of expertise: Civil Engineer; involved with Hawaii's geothermal program since 1982; DBEDT Geothermal Project Office.

Dean Nakano Area of expertise: Geothermal Program Manager, Department of Business Economic Development and Tourism.

Dr. Thomas P. Hulsebosch Area of expertise: Igneous and Metamorphic Petrology; Geochemistry; X-ray Fluorescence and electron microprobe analyses of geological materials.

Dr. Fredrick Karl Duennebier Area of expertise: Geology, Seismology, and Geophysical Instrumentation; Exploration Geophysics and Refraction Seismology, Earthquake Seismology, Marine Tectonics, Ocean Drilling, Borehole Instrumentation, Instrumentation of Volcanoes and the Ocean Floor; seismicity of the moon and seismic study of mars.

A more detailed resume of each committee member can be found in Appendix C.

ASSESSMENT APPROACH AND CRITERIA

A series of committee meetings was scheduled between May and December 1991, with one of the Committee's goals to complete the update of the Statewide geothermal assessment by the end of 1991. The first meeting set the scope and schedule for the Committee. The second meeting concentrated on the SOH program. In the third meeting, the resource evaluation update process began with presentation of new data for various geographic areas and suggestions for further assessment models. The fourth meeting was held in Hilo, Hawaii, and was followed by a field trip to the Puna Geothermal Venture site at Kapoho. At the fifth meeting, Dr. Thomas presented his analysis of some of the recent information from water wells presented at the previous meeting.

At the next two meetings, the Committee concentrated on the task of resource reassessment. It was determined that the Committee's work would be presented in the form of an update to the initial Statewide Geothermal Resource Assessment Circular C-103 report. The initial assessment was reviewed by the Committee, and a draft update was prepared by Dr. Thomas. This update was reviewed, evaluated and approved by the Committee in subsequent meetings.

The following is a list of the Geothermal Technical Advisory Committee's meetings which concentrated on resource assessment:

Date	Place
April 12, 1991	Honolulu, Hawaii
May 17, 1991	Honolulu, Hawaii
June 21, 1991	Honolulu, Hawaii
August 2, 1991	Hilo, Hawaii
September 5, 1991	Honolulu, Hawaii
October 14, 1991	Honolulu, Hawaii
November 18, 1991	Honolulu, Hawaii
December 18, 1991	Honolulu, Hawaii

The new information upon which the Committee's update is based is included in the list of references, Appendix A. The following types of geological, geophysical and geochemical data were used in the initial assessment, and in the update: groundwater temperature data, geologic age, geochemistry, resistivity, infrared surveys, seismic monitoring, magnetics, gravity surveys, exploratory drilling, and self potential anomalies.

STATEWIDE RESOURCE ASSESSMENT

The Geothermal Technical Advisory Committee reviewed the previous statewide assessment and took into account all available new data, also on a statewide basis. Changes resulting from the examination of new data are as follows:

HAWAII COUNTY

The Geothermal Technical Advisory Committee decided to leave the assessment the same as in the initial assessment, except that on the basis of the Blackhawk studies at Kawaihae, and various water well data, the Committee decided to revisit that area for further study. In the Hualalai area, the Committee decided to defer its assessment for further evaluation.

Based on the fact that 15 wells have been developed in the Kilauea East Rift Zone, the Committee decided to increase the percentage of geothermal potential from 90% to 95% since there appears to be a proven resource in the area.

MAUI COUNTY

A study by B. Lienert has indicated the presence of resistivity anomalies along the lower SWRZ that can be interpreted to indicate temperatures of up to 59°C at the top of the basal lens in this area.

Also the Committee plans to revisit the Haleakala SWRZ because of the observation of warm air vents in the area.

On the Island of Lanai, the Committee increased the assessment from < 5% to < 15% based on drilling and water quality data, and planned to revisit the matter after further study. Three water wells on Lanai indicated elevated temperatures; two indicated elevated magnesium and chloride levels. The desire is to resample these wells for future assessment. (A complete listing of assessment of well data from recently drilled wells is included in Appendix B, Minutes of Geothermal Technical Advisory Committee Meetings.)

CITY AND COUNTY OF HONOLULU

There was no revisiting of the earlier assessment of areas on Oahu.

KAUAI COUNTY

There was no revisiting of the earlier assessment of Kauai County.

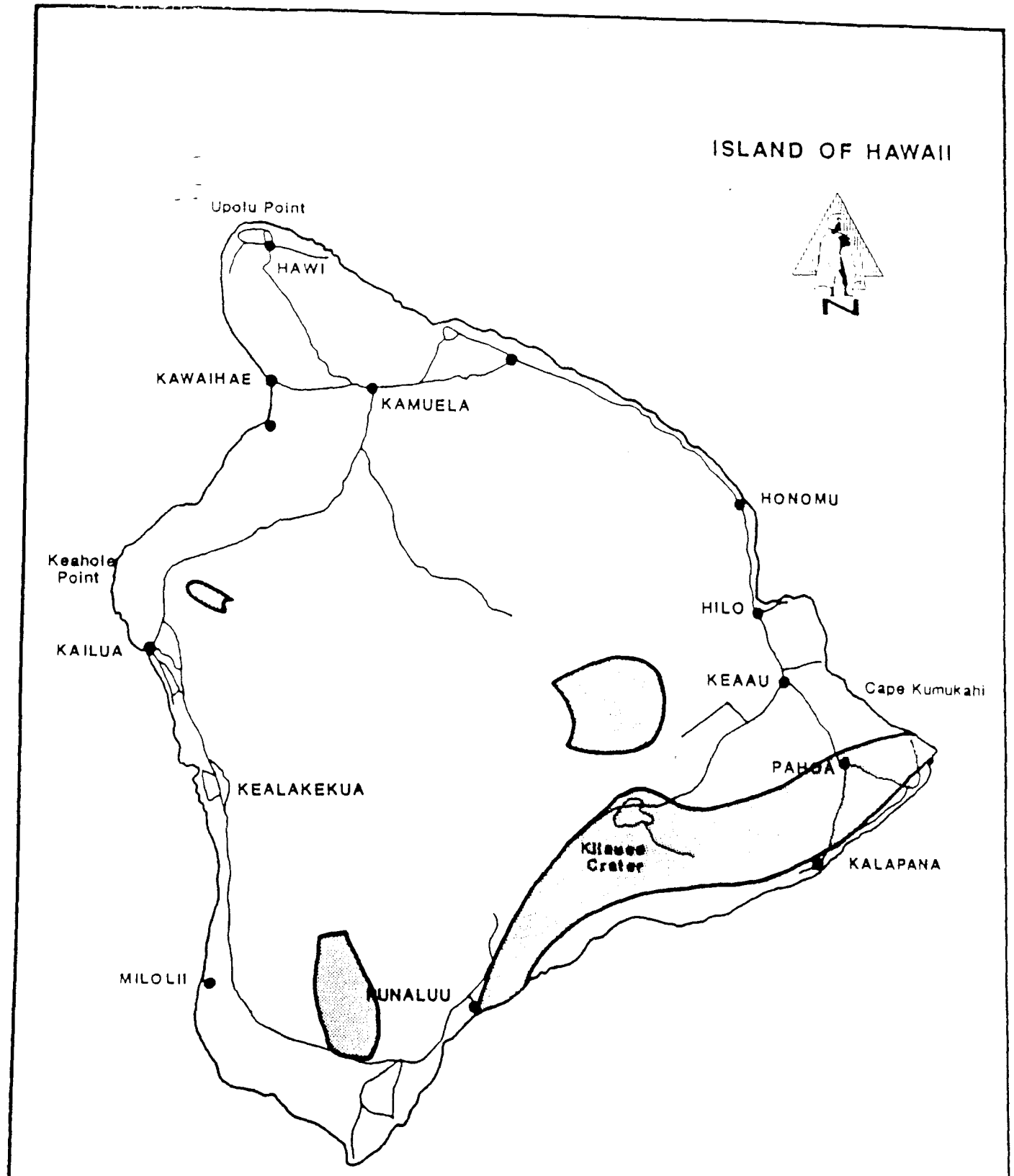
POTENTIAL GEOTHERMAL RESOURCE AREAS

The Geothermal Technical Advisory Committee restated its conclusion that no single geothermal exploration technique except for exploratory drilling is capable of positively identifying a subsurface geothermal system. Accordingly, the Committee is supportive of future slim observation hole exploratory drilling, and participated extensively in discussions on optimal locations for future exploratory wells to maximize their effectiveness in providing information on locations of geothermal resources.

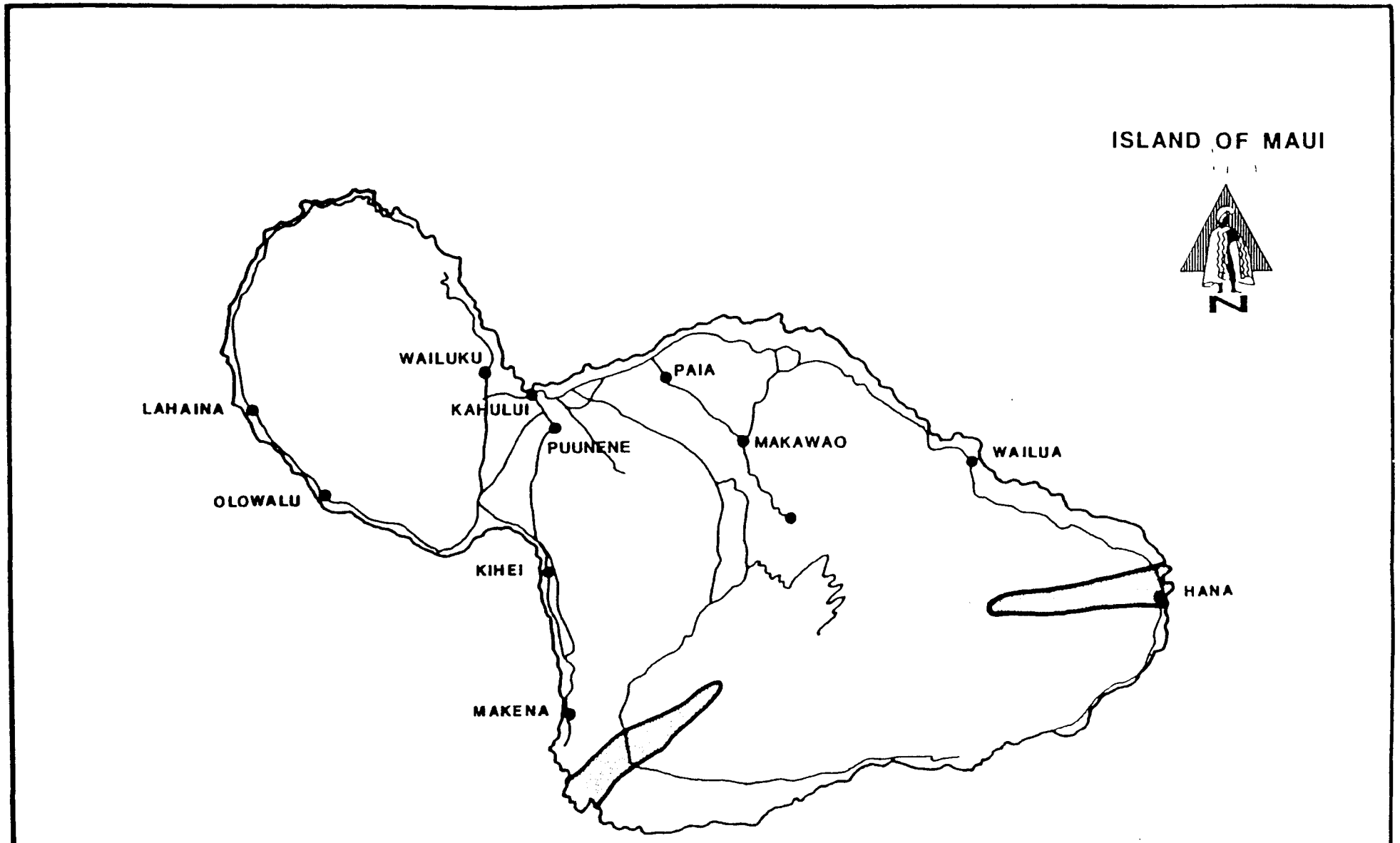
The former conclusion of the previous Geothermal Resource Technical Committee was retained by the Geothermal Technical Advisory Committee that for production of electrical energy, current technology would require the resource to have a temperature greater than 125°C at a depth of less than 3 km.

The additional feature of permeability has been added, however, to the criteria. It was determined that this information is important, but is not readily available.

High temperature potential geothermal resource area mappings have not changed since the initial statewide geothermal resource assessment was made in 1984, and are reproduced as such in this update.



HIGH TEMPERATURE POTENTIAL GEOTHERMAL RESOURCE AREAS



HIGH TEMPERATURE POTENTIAL GEOTHERMAL RESOURCE AREAS

OTHER GEOTHERMAL RESOURCE AREAS

Because low temperature applications of geothermal heat do not require specialized permits and are not confined to geothermal resource subzones, potential geothermal resource areas having temperatures below that necessary for electrical production have not been treated here.

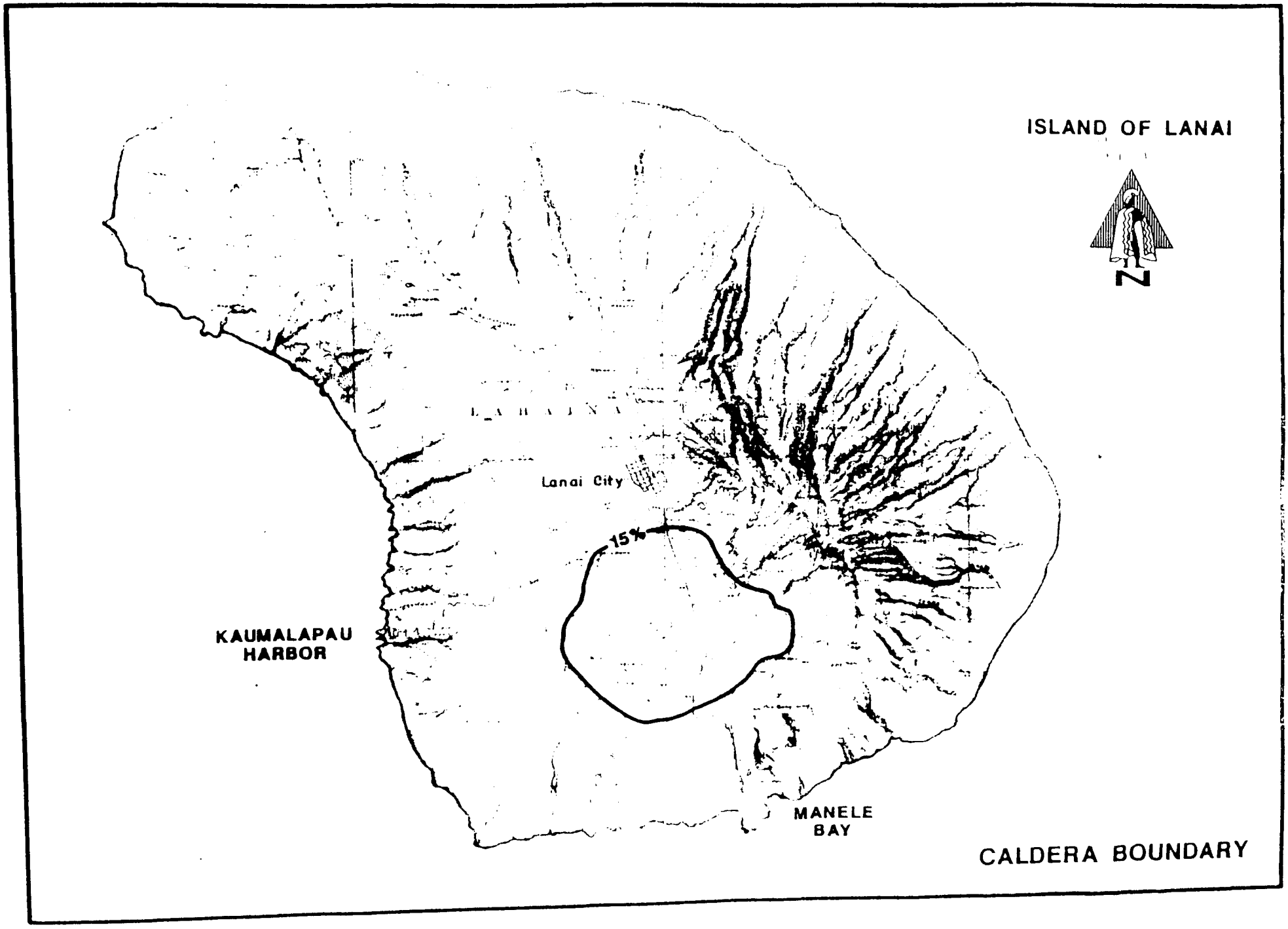
CONCLUSIONS

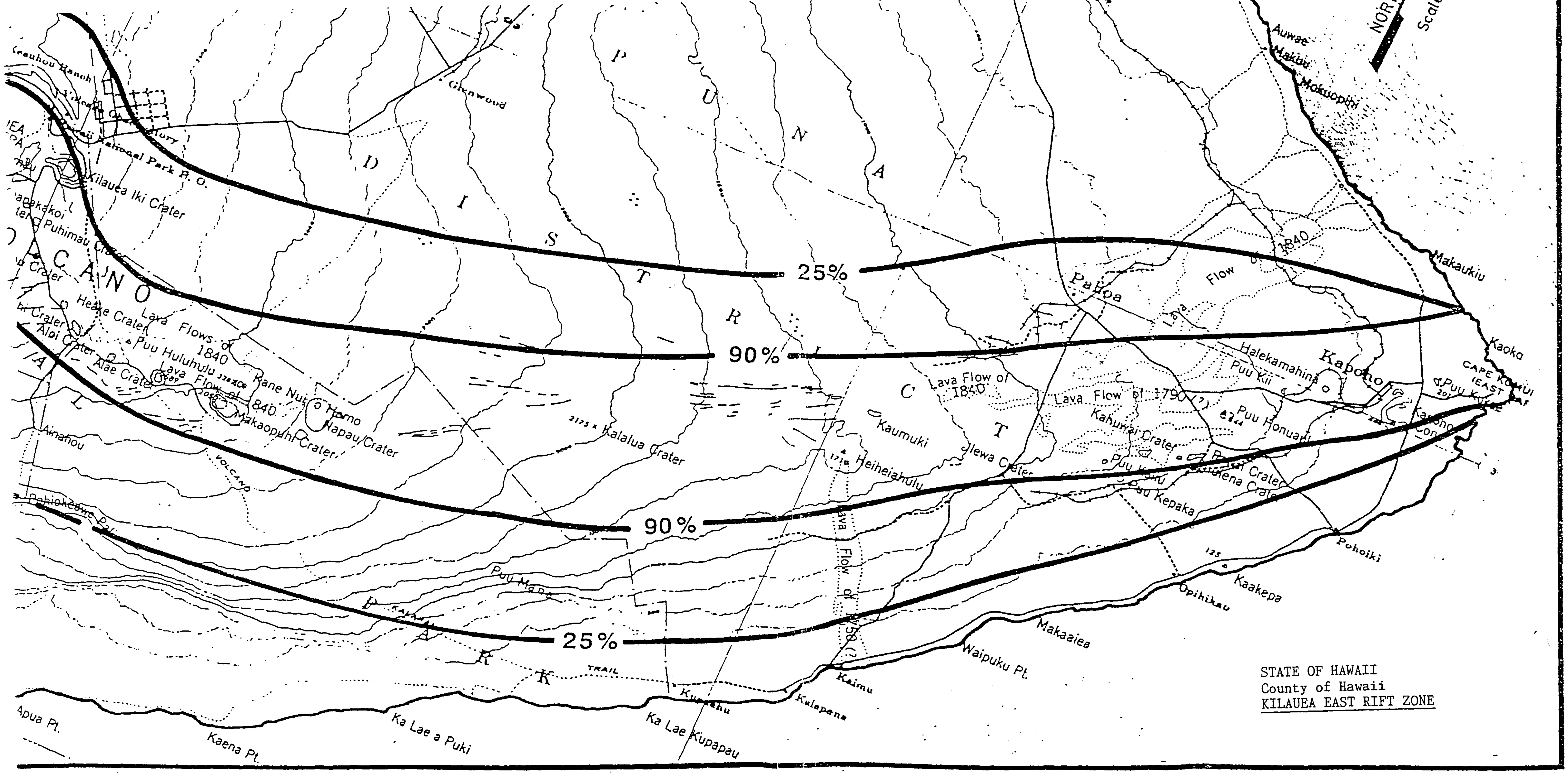
The results of the Geothermal Technical Advisory Committee's updated assessment is essentially to note that there is now a proven resource in the Kilauea E.R.Z., thereby increasing the potential from 90 to 95% probability for location of geothermal resources and to indicate a broader range to the North for the 90% potential in the Pahoa area; and to note that there are unusually high temperatures occurring in water well samples in the Palawai Basin area of southern Lanai Island, thereby increasing the potential from 5 to 15% for location of geothermal resources; and to note that a number of areas are worthy of revisiting for further study.

The Geothermal Technical Advisory Committee is now an on-going committee with a broad scope of tasks, including assessing on-going studies, proposing and planning future studies, advising government in developing a geothermal resources management plan, and coordinating relations between developers and government regulators and planners. As an on-going body, their research will result in re-assessing geothermal resource potential in the State of Hawaii on an on-going basis.

At this time, the results of the current assessment update do not indicate a need to propose changes in the four existing geothermal resource subzones in the State of Hawaii.

Maps showing the 15% potential area on Lanai, and showing the broader revised 90% potential band are attached.


ISLAND OF LANAI
N
Lanai City
15%
KAUMALAPAU
HARBOR
MANELE
BAY
CALDERA BOUNDARY



STATE OF HAWAII
County of Hawaii
KILAUEA EAST RIFT ZONE

Geothermal and Cable System Development Permitting

State of Hawaii

INTRODUCTION

Chapter 196D, Hawaii Revised Statutes, (Appendix A) requires that the Department of Land and Natural Resources establish a consolidated geothermal resource development permitting process in which county and state agencies are required to participate, and in which all Federal agencies having jurisdiction over any aspect of the project will be invited to participate. The statute also requires establishing an interagency group; preparing a joint agreement to coordinate permitting efforts; transfering certain regulatory functions; creating a conflict resolution process; providing information services; and establishing a repository of laws, rules, and related information concerning geothermal/cable developments.

The Department promulgated administrative rules implementing Chapter 196D that became effective September 5, 1989.

Since that time there have been no applications for a geothermal/cable project. In June 1991 a federal judgement ruled that a federal environmental impact statement must be prepared prior to implementing any geothermal/cable project. Federal agencies have been enjoined from participating in activities supportive of geothermal development pending completion of the federal EIS.

Because the geothermal/cable project has been delayed, the program has been working on currently permitted geothermal projects to gain experience preparatory to coordinating and regulating larger projects. Procedural matters regarding the larger project are under review by the Office of the Attorney General.

This report reviews the Department's past-year accomplishments.

PROGRAM DEVELOPMENT

Background

On June 25, 1991 United States District Judge David Ezra issued a ruling in Civil No. 90-00407 to compel preparation of a federal Environmental Impact Statement ("EIS") for the Hawaii Geothermal Energy Project. This statement will take approximately two years to prepare. Meanwhile no project applications can be processed through the Geothermal/Cable System Development Permitting process.

Meanwhile, existing geothermal developments were monitored throughout the year. These developments are summarized in the folowing sections.

GEOTHERMAL/CABLE SYSTEM DEVELOPMENT STATUS

Power Purchase Contract

Negotiations are on-going between Mission Energy Company of California and Hawaiian Electric Company for a power purchase agreement. Mission Energy Company heads Kilauea Energy Partners, selected last year as the consortium to develop the large-scale geothermal/cable project.

Hawaii Deep Water Cable Program

In September 1990 a contract was completed that proved the technical feasibility of an interisland cable system that could carry 500 megawatts of electricity over some 200 miles at depth to approximately 7,000 feet and have a life expectancy of 30 years. Both laboratory tests and at sea tests of the cable took place. The cable met or exceeded the established requirements. The program included environmental and economic analyses and overland and ocean bottom route surveys.

Master Development Plan

The notices of preparation for a programmatic environmental impact statement will be submitted in 1991, upon completion of a majority of the activities in the master development plan and transmission corridor route selection process. At this time the Master Development Plan is in draft form. The process of developing this plan has included extensive public participation. Efforts are being made to coordinate this plan with the federal environmental impact statement to be prepared by the U.S. Department of Energy.

CURRENT STATUS OF GEOTHERMAL DEVELOPMENT ACTIVITIES

True/Mid-Pacific Geothermal Venture

True/Mid-Pacific Geothermal Venture plans to continue drilling at its second well pad late in 1991. Several more exploratory wells may be needed to determine whether there exists a resource of sufficient quantity and quality to supply a power plan facility. 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

Puna Geothermal Venture began clearing operations for its project's well fields and power plant site in September 1990. Prior to a June 12-14, 1991 uncontrolled venting incident, Puna Geothermal Venture was anticipating delivering 25 megawatts of power to the Hawaii Electric Light Company within a few weeks. The uncontrolled venting incident put the project in some jeopardy since all operations were halted for more than two months under an emergency declaration by Hawaii County. An independent investigation of the incident was conducted and a State/County Task Force was called to respond to the independent investigators' recommendations. The results of the Task Force were released on October 3, 1991 and called for Puna Geothermal Venture to meet an extensive set of new and stiffer health, safety and drilling standards.

Hawaii Scientific Observation Hole (SOH) Program

The Hawaii Natural Energy Institute of the University of Hawaii has completed drilling three of four permitted scientific observation holes. The SOH's are for scientific observation and monitoring purposes. The information gained from the SOH's is being used to assess subsurface geological conditions, groundwater level and composition, temperature, and drilling conditions; an inventory of possible mineral and geothermal resources; and an eruptive history of the island to the depth drilled. The SOH's, in combination with the existing geothermal wells provide data relating to reservoir productivity and to monitor changes in ground-water conditions and volcanic activity.

PROPOSED GEOTHERMAL DEVELOPMENTS

HGP-A Steam Sale to Puna Geothermal Venture

At the time of the June 12-14, 1991 uncontrolled venting incident, negotiations were underway for the sale of steam from the HGP-A.

Should the sale arrangement be concluded, royalties due to the State of Hawaii from the sale would be used to reimburse the initial amount paid to the Hawaii County Geothermal Asset Funds, in accordance with Section 70A, Act 299, SLH 1990 and created by Condition 51 of the County of Hawaii Geothermal Resources Permit No. 2, less any revenue entitlements to the Office of Hawaiian Affairs and to Hawaii County under Hawaii Revised Statutes Section 182-7.

Joint Interagency Monitoring Team

Last year the Department initiated efforts to coordinate and establish an integrated team to monitor and regulate geothermal activities in the Puna District. Meetings were held, an inventory

of monitoring equipment was prepared, and plans for cross-training were underway. This effort is being re-examined by the State/County Task Force organized to respond to the independent investigators' report of the June 12-14, 1991 uncontrolled venting incident at Puna Geothermal Venture's KS-8 well. The task force recommendations will likely build on and strengthen the efforts of the Joint Interagency Monitoring Team by adding staff and equipment for additional monitoring efforts.

OTHER ACTIVITIES

Regional Environmental Meetings

In February and June 1991 the U.S. Department of the Interior organized and held informational meetings regarding the status of the geothermal/cable and other geothermal projects which the Department participated in.

1991 Geothermal Resources Council Training

In October 1991 the Department's Mineral Resources Section Head and its Geothermal Technician attended a course on geothermal drilling conducted by the Geothermal Resources Council in Reno, Nevada.

Research on Royalty Calculation

The Department conducted research in house and contracted consulting services to collect information on various methods for calculating geothermal royalties in anticipation of royalties being due to the State of Hawaii once electrical power generation commences.

Administrative Rules

A major effort has been undertaken this year to update administrative rules regarding geothermal subzones and geothermal leasing and mining to reflect changes in statutes. Plans call for scheduling public hearings on the proposed revised rules in 1992.

Technical Advisory Committee

In February 1991 the Department, in cooperation with the Department of Business and Economic Development, convened a Geothermal Technical Advisory Committee comprised of geothermal experts co-chaired by Dr. Don Thomas of the Hawaii Institute of Geophysics, and Mr. Manabu Tagomori, Deputy Direcot and head of the Division of Water Resource Management. This group advises the Department on resource evaluation, and makes plans for future research projects.

Newspaper File

A chronological file is being kept on geothermal activities in the State of Hawaii. The file has been useful in monitoring and assessing public information and opinion regarding the proposed geothermal/cable project.

FUTURE PLANS FOR INTERAGENCY GROUP

The Interagency Group has finalized procedures for implementing the Consolidated Permit Application and these procedures are under review by the Office of the Attorney General.

To date no identifiable problems have arisen with regard to the consolidated permitting procedures. Accordingly, the Department recommends that no changes be made to either the consolidated permit application and review process or to the statute at this time.

1991 Statistics

The following are statistics of activities accomplished by the Geothermal/Cable System Development Program staff for the period January through October 1991.

1. Assistance rendered 6
2. Investigations Undertaken 20
3. Meetings Coordinated/Attended 16
4. Special Reports Completed 6

GEOTHERMAL/CABLE PERMITTING REGIMES

	PERMIT ALWAYS REQUIRED	GOVT LEVEL	AGENCY	PROCESSING TIME (MONTHS) MIN	MAX	PUBLIC HEARING REQUIRED	CONTESTED CASE PROVISION APPLY	EIS
GEOTHERMAL								
GEOTHERMAL RESOURCE SUBZONE	Y	STATE	DLNR	6	12	Y	N	N
CONSERVATION DISTRICT USE PERMIT	Y	STATE	DLNR	6	6	Y	N	Y
GEOTHERMAL RESOURCE PERMIT	Y	COUNTY	PLNG	6	6	Y	N	Y
GEOTHERMAL MINING LEASE	Y	STATE	DLNR	7	12	?	?	N
GEOTHERMAL EXPLORATION PERMIT	Y	STATE	DLNR	2	2	N	N	N
GEOTHERMAL PLAN OF OPERATION	Y	STATE	DLNR	2	2	N	N	N
GEOTHERMAL WELL DRILLING PERMIT	Y	STATE	DLNR	2	2	N	N	N
AUTHORITY TO CONSTRUCT WELLS (AIR)	Y	STATE	DOH	3	6	?	?	N
PERMIT TO OPERATE WELLS (AIR)	Y	STATE	DOH	1	2	N	N	N
AUTHORITY TO CONST. POWER PLANT (AIR)	Y	STATE	DOH	3	6	?	?	N
PERMIT TO OPERATE POWER PLANT (AIR)	Y	STATE	DOH	1	2	N	N	N
UNDERGROUND INJECTION CONTROL	N	STATE	DOH	3	3	?	?	N
VARIANCE FROM POLLUTION (WATER)	N	STATE	DOH	3	3	?	?	N
PREVENTION OF SIGNIFICANT DETERIORATION	Y	FEDERAL	EPA	12	18	Y	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	½	N	N	N
TRANSMISSION — INLAND — HAWAII								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	—	—	Y	Y	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	Y	Y	?
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	?	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	?	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	12	N	N	N
TRANSMISSION — COASTAL ZONE — HAWAII								
WASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	DLNG	4	?	Y	Y	Y
SHORELINE SETBACK VARIANCE	Y	COUNTY	DLNG	4	?	Y	Y	N
TRANSMISSION — OCEAN — STATEWIDE								
U.S. ARMY CORPS OF ENGR. PERMIT	Y	FEDERAL	ARMY	2	?	Y	—	?
NATIONAL ENVIRONMENTAL PROT. ACT EIS	N	FEDERAL	CEQ	6	?	?	—	Y
OCEAN WATERS CONSTRUCTION PERMIT	Y	STATE	DOT	2	3	?	?	N
NPDES	N	STATE	DOH	—	6	N	N	N
LEASE SUBMERGED LANDS	Y	STATE	DLNR	—	12	Y	N	N
TRANSMISSION — COASTAL ZONE — MAUI								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	PLNG	4	?	Y	Y	Y
SHORELINE SETBACK VARIANCE	Y	COUNTY	PLNG	4	?	Y	Y	N
TRANSMISSION — INLAND — MAUI								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	—	—	Y	Y	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	Y	Y	?
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	?	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	?	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	12	N	N	N
TRANSMISSION — COASTAL ZONE — OAHU								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	DLU	4	?	Y	Y	Y
SHORELINE SETBACK VARIANCE	Y	COUNTY	DLU	4	?	Y	Y	N
TRANSMISSION — INLAND — OAHU								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	?	?	Y	Y	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	Y	Y	?
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	?	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	?	N	N
PUBLIC FACILITIES MAP AMENDMENT	Y	COUNTY	DGP	16	?	Y	?	N
BUILDING PERMITS	Y	COUNTY	BLDG	½	12	N	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N

GEOTHERMAL/CABLE PERMITTING REGIMES

	PERMIT ALWAYS REQUIRED	GOVT LEVEL	AGENCY	PROCESSING TIME (MONTHS) MIN	MAX	PUBLIC HEARING REQUIRED	CONTESTED CASE PROVISION APPLY	EIS
GEOTHERMAL								
GEOTHERMAL RESOURCE SUBZONE	Y	STATE	DLNR	6	12	[illegible]	N	N
CONSERVATION DISTRICT USE PERMIT (CDUA)	Y	STATE	DLNR	6	6	[illegible]	[illegible]Y	[illegible]
GEOTHERMAL RESOURCE PERMIT	Y	COUNTY	PLNG	6	6	[illegible]	N	[illegible]
GEOTHERMAL MINING LEASE	Y	STATE	DLNR	7	12	[illegible]	[illegible]	N
GEOTHERMAL EXPLORATION PERMIT	Y	STATE	DLNR	2	2	N	N	N
GEOTHERMAL PLAN OF OPERATION	Y	STATE	DLNR	2	2	N	N	N
GEOTHERMAL WELL DRILLING PERMIT	Y	STATE	DLNR	2	2	N	N	N
AUTHORITY TO CONSTRUCT WELLS (AIR)	Y	STATE	DOH	3	6	[illegible]	[illegible]	N
PERMIT TO OPERATE WELLS (AIR)	Y	STATE	DOH	1	2	N	N	N
AUTHORITY TO CONST. POWER PLANT (AIR)	Y	STATE	DOH	3	6	[illegible]	[illegible]	N
PERMIT TO OPERATE POWER PLANT (AIR)	Y	STATE	DOH	1	2	N	N	N
UNDERGROUND INJECTION CONTROL	N	STATE	DOH	3	3	[illegible]	[illegible]	N
VARIANCE FROM POLLUTION (WATER)	N	STATE	DOH	3	3	[illegible]	[illegible]	N
PREVENTION OF SIGNIFICANT DETERIORATION	Y	FEDERAL	EPA	12	18	[illegible]	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	½	N	N	N
TRANSMISSION — INLAND — HAWAII								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	—	—	[illegible]	[illegible]	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	[illegible]	[illegible]	[illegible]
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	[illegible]	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	[illegible]	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	12	N	N	N
LEASE PUBLIC LANDS								
TRANSMISSION — COASTAL ZONE — HAWAII								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	DLNG	4	?	[illegible]	[illegible]	[illegible]
SHORELINE SETBACK VARIANCE	Y	COUNTY	DLNG	4	?	[illegible]	[illegible]	N
CDUA; LEASE PUBLIC LANDS								
TRANSMISSION — OCEAN — STATEWIDE								
U.S. ARMY CORPS OF ENGR. PERMIT	Y	FEDERAL	ARMY	2	?	[illegible]	—	[illegible]
NATIONAL ENVIRONMENTAL PROT. ACT EIS	N	FEDERAL	CEQ	6	?	[illegible]	—	[illegible]
OCEAN WATERS CONSTRUCTION PERMIT	Y	STATE	DOT	2	3	[illegible]	[illegible]	N
NPDES	N	STATE	DOH	—	6	N	N	N
LEASE SUBMERGED LANDS	Y	STATE	DLNR	—	12	[illegible]	N	N
CDUA								
TRANSMISSION — COASTAL ZONE — MAUI								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	PLNG	4	?	[illegible]	[illegible]	[illegible]
SHORELINE SETBACK VARIANCE	Y	COUNTY	PLNG	4	?	[illegible]	[illegible]	N
CDUA; LEASE PUBLIC LANDS								
TRANSMISSION — INLAND — MAUI								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	—	—	[illegible]	[illegible]	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	[illegible]	[illegible]	[illegible]
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	[illegible]	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	[illegible]	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	12	N	N	N
LEASE PUBLIC LANDS								
TRANSMISSION — COASTAL ZONE — OAHU								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	DLU	4	?	[illegible]	[illegible]	[illegible]
SHORELINE SETBACK VARIANCE	Y	COUNTY	DLU	4	?	[illegible]	[illegible]	N
CDUA; LEASE PUBLIC LANDS								
TRANSMISSION — INLAND — OAHU								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	?	?	[illegible]	[illegible]	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	[illegible]	[illegible]	[illegible]
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	[illegible]	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	[illegible]	N	N
PUBLIC FACILITIES MAP AMENDMENT	Y	COUNTY	DGP	16	?	[illegible]	[illegible]	N
BUILDING PERMITS	Y	COUNTY	BLDG	½	12	N	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
LEASE PUBLIC LANDS								

ITEMNO7

DRAFT
11-2-88

ACT 301 WORK PLAN

WORK ITEM NO.7: Draft process to resolve conflicts that may arise between and among agencies.

OBJECTIVE: Examine areas where consolidation of interagency functions may be possible, in addition to the identification of potential conflicts and possible solutions.

DISCUSSION:

Development of a conflict resolution process will require the following: (a) identification of areas where agency review, informational meetings, and public hearings can be reasonably combined and conducted; (b) determination of agency jurisdiction and the delineation of regulatory controls between agencies in overlapping situations; (c) evaluation of Federal requirements as they relate to State/County regulations; and (d) discussion of voluntary Federal cooperation and compliance with State/County regulations and the consolidated permit review procedures set forth in the interagency joint agreement.

When finalized and approved, the provisions for conflict resolution between the respective agencies should be set forth in the interagency joint agreement.

The following discussion will attempt to describe areas where consolidation of interagency functions may be possible, including potential problems which may arise and their possible solutions. Finalization of a process to resolve such conflicts shall be subject to further discussion among members of the interagency group.

EXAMPLE (A):

FEDERAL AND STATE/COUNTY ENVIRONMENTAL IMPACT STATEMENT (EIS)

IDENTIFICATION:

Consideration should be given to the possibility of joint Federal and State/County EIS preparation, review, and acceptance. The Federal EIS is required by the National Environmental Policy Act and is regulated by the National Council of Environmental Quality guidelines. The State/County EIS is required under Chapter 343, HRS, and is regulated by the Office of Environmental Quality Control (OEQC) guidelines.

Federal agencies which may be involved in the EIS process are the Environmental Protection Agency (EPA) and the U. S. Army Corps of Engineers. For the purpose of the geothermal/cable project and the interagency group, DLNR may be designated as the responsible or accepting agency for the State and County agencies.

EXAMPLE (A): (cont.)

FEDERAL AND STATE/COUNTY ENVIRONMENTAL IMPACT STATEMENT (EIS)

PROBLEM:

While the consolidation of both the Federal and State/County EIS is feasible, if not desirable, Federal guidelines and requirements may differ significantly from that of the State and County. As such, the EIS format and minimum requirements for one agency may not be acceptable to the other.

In addition, the EIS processing time and procedures for the Federal versus State/County agency may be such that concurrent review of the EIS document may not be possible. A specific example being that the State EIS must be filed with OEQC for circulation and review 30 days prior to the filing of a Federal EIS with the National Council of Environmental Quality (NCEQ).

SOLUTION:

It may be possible, subject to NCEQ and OEQC approval, to modify (for the purposes of Act 301) the existing Federal and State/County EIS processing and review requirements. Such modification should be considered and actions taken in that direction to meet the consolidated review criteria and timeframe set forth by the interagency group.

At the very minimum, a variance or conditional approval could be sought from NCEQ and OEQC, granting the interagency group limited authority to consolidate where necessary, all overlapping areas within the Federal and State/County EIS process.

EXAMPLE (B):

ENVIRONMENTAL SHORELINE/OCEAN PROTECTION

IDENTIFICATION:

Major environmental requirements and permits related to activity within Special Management Areas (SMA) and seaward of the shoreline, should be considered as viable canidates for consolidation and joint informational meetings and public hearings.

These permits and environmental requirements are identified below:

1. COUNTY SPECIAL MANAGEMENT AREA PERMIT: The administrative agency is the County Planning Department and the permit issuing authority is the County Planning Commission. A public hearing is required prior to SMA permit issuance. Provisions allow for contested case hearings and an EIS may be required. As part of the Coastal Zone Management Program (CZMP), the Department of Business and Economic Development is responsible for reviewing Federal and State programs for consistency with CZMP guidelines and objectives. (P/C/E)

EXAMPLE (B): (cont.)

ENVIRONMENTAL SHORELINE/OCEAN PROTECTION

IDENTIFICATION: (cont.)

2. VARIOUS COUNTY ZONING AND CONDITIONAL/SPECIAL USE PERMITS: The administrative agency is the Planning Dept. with the exception of the Dept. of Land Utilization for the City and County of Honolulu. The permit issuing authority is the Planning Commission, with the exception of the City Council of Honolulu. Public and private utilities are permitted uses in most zoning situations. Public hearings may be required and contested case hearings may apply. (P/C ?)

3. COUNTY SHORELINE SETBACK REQUIREMENTS: (Administrative and approving agencies are the same as #2 (zoning) above.) Structures associated with public utilities are exempt from setback requirements. However, the County Planning Departments (DLU in Honolulu) must hold a public hearing and approve the proposed plans. Contested case hearing provisions apply. (P/C)

4. CONSERVATION DISTRICT USE PERMIT: (Applies to electrical transmission and not electrical production.) DLNR is the administrative agency and the permit issuing authority is the Board of Land and Natural Resources. An environmental assessment is required to determine the applicability of an EIS which may be required. Public hearings before the BLNR may be required and contested case hearing provisions apply. (P/C/E/S)

   Note: SMA approval must precede CDUA approval.

5. STATE/COUNTY EIS: It is assumed that DLNR will be designated as the responsible or accepting agency for the State/County EIS.

6. FEDERAL EIS: In most cases the U. S. Army Corps of Engineers would be the accepting Federal agency.

7. U. S. DEPT. OF THE ARMY (CORPS OF ENGINEERS) PERMIT: The District Engineer shall prepare an environmental assessment. Review of said document may initiate the preparation of an EIS by the District Engineer. The Corps of Engineers exercises jurisdiction over navigable waters, which include all ocean, and coastal waters within the area three miles seaward from the coastline.

   When the District Engineer has determined that the application for permit is complete, a public notice shall be issued providing for a 30 day comment period. A public hearing may be required. (P/E)

EXAMPLE (B): (cont.)

ENVIRONMENTAL SHORELINE/OCEAN PROTECTION

IDENTIFICATION: (cont.)

8. PERMIT FOR WORK IN SHOREWATERS AND SHORES OF THE STATE: Construction related work within State shores and shorewaters, including navigable streams are among activities that require a work permit issued by the Harbors Division of the State Department of Transportation (DOT). Application for a DOT permit must include a copy of the U.S. Army Corps of Engineers permit application since both agencies share jurisdiction over all ocean shores and waters below the mean high-water mark.

   Note: A new procedure provides for the DOT to act only in the capacity of a review agency. The proposal for work will be processed as part of the CDUA permit application which shall be approved or denied by the BLNR. A public hearing, while not mandatory, may be required. EIS and contested case hearing provisions may apply. (P/C/E ?)

9. NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT: A NPDES permit is required before any effluent can be discharged to surface streams and coastal waters. The issuance of the permit is administered by the Director of the State Department of Health (DOH). Review and concurrence of the EPA may be required. for water (not air)

   Upon public notification of DOH's intent to issue a permit, a public hearing may be required, if so requested. The permit is usually issued for 5 years, with no guarantee of renewal; a quarterly monitoring program is required. (P)

10. ZONE OF MIXING VARIANCE: A request for variance to discharge effluent may be filed in conjunction with the above permit (item #9). A variance may be issued by the DOH after holding public hearing, and receiving EPA concurrence.

11. VARIANCE FROM POLLUTION CONTROLS: A variance must be obtained for any emmission or discharge of a pollutant or noise which exceeds applicable standards. The DOH is both the administering and permit issuing agency. Public hearing and contested case hearing provisions are not applicable.

12. COUNTY GRADING PERMIT: Permits are issued by the respective County Public Works Departments. No public hearing is required.

13. COUNTY BUILDING PERMIT: A permit is required for construction of any building or structure in the county. Building permits are issued by the respective County Public Works or Building Departments. No public hearing is required.

* Need to discuss Prevention of Significant Deterioration (Air Quality) - PSD. Check w/ DOH regulations re: when PSD is applicable?

EXAMPLE (B): (cont.)

ENVIRONMENTAL SHORELINE/OCEAN PROTECTION

IDENTIFICATION: (cont.)

14. WATER WELL DRILLING PERMIT: DLNR is the administrative agency and the permit issuing authority is the Commission on Water Resource Management. No public hearing is required for permit issuance. If the proposed water use is located within a water management area, then a water use permit will be required and may be subject to a hearing before the Commission, if there is a valid objection to the proposed water use.

15. PUBLIC UTILITIES COMMISSION (PUC) APPROVAL: The PUC is required to hold a public hearing prior to issuing approval for construction of an aboveground 46 kilovolt (KV) or greater electric transmission system through any residential area. An EIS is required. (P/E ?)

PROBLEM:

For analysis of this example (B), an attempt has been made to identify all major permits and environmental requirements which apply only to proposed development within special management areas and areas seaward of the shoreline.

No attempt has been made to identify or examine those other permits or approvals which apply directly to geothermal/cable development activities occurring inland of the Special Management Areas. Preliminary information indicates, however, that most of the permits/approvals required are the same for both inland and seaward areas. Further study is warranted to determine the feasibility of a consolidated permit review and approval process which could encompass the entire scope of the project.

Based on the parameters above, initial analysis of the SMA/Shoreline area permits indicate the potential for the following actions to occur:

a. Nine (9) separate public hearings with the possibility of five (5) contested case hearings.
b. Preparation of possibly five (5) separate Environmental Impact Statements.

In addition, current statutes and/or regulations provide for sequential rather than concurrent approval of certain permits. (e.g. SMA approval must precede the CDUA approval.) Furthermore, some permits may require the concurrence of another agency before approval can be granted. (e.g. NPDES permit issued by the DOH may require EPA review and concurrence.)

EXAMPLE (B): (cont.)

ENVIRONMENTAL SHORELINE/OCEAN PROTECTION

PROBLEM: (cont.)

Procedurally, problems may also arise concerning the consolidation of public hearings required by the respective Federal, State, and County agencies. Immediate questions arise such as:

(1) Who will conduct a consolidated public hearing when the hearing is held before multiple decision-making bodies ? (The simplest example being a joint SMA/CDUA hearing which would require the attendance of both the BLNR and the County Planning Commission.)

(2) In the event of a request for a contested case hearing applicable to similar permits under different jurisdictions, how will a joint hearing be administered and which agency will conduct such a hearing ?

Additionally, standards, criteria, and guidelines used by each respective agency in their review of similar or even overlapping permits may differ considerably from one another. As such, one agency could approve a permit where another would disapprove a similar permit, even if those 2 permits were parallel in nature.

SOLUTION:

Having identified potential areas where consolidation is feasible, including possible conflicts that may arise, the next step would be the drafting of a resolution process acceptable to all members of the interagency group.

Drafting such a resolution process can only be accomplished through the completion and/or approval of the following items by the interagency group as a whole:

1. Coordinate with each member agency to ensure that all standards, criteria, etc., used for any agency decision-making process are clear, precise, and set forth in writing.

2. Draft and adopt amendments to existing rules, regulations, and procedures, such that standardization between agencies is possible.

3. Discuss and modify existing procedures to allow concurrent rather that sequential permit review and approval.

4. Develop a "generic" schedule for joint informational meetings, workshops, and public hearings acceptable to all member agencies.

EXAMPLE (B): (cont.)

ENVIRONMENTAL SHORELINE/OCEAN PROTECTION

SOLUTION:

5. Examine and develop administrative procedures for conducting joint hearings, etc., clearly setting forth the role of each decision-making body who participates in these meetings and hearings.

6. Develop a procedure allowing for the interagency group to make a non-binding recommendation to the disputing agencies who cannot agree on whether a permit should be approved or not.

   Issuance of a non-binding recommendation will only occur after each disputing agency has presented case argument in favor of their respective position before the other members of the interagency group.

   At that time during the presentation, the applicant, as a member of the interagency group, may be asked and required to submit further information or testimony in defense of their permit application.

   At the close of the interagency "dispute hearing", group members (not involved in dispute) shall confer and recommend a non-binding solution which may prescribe a compromise between the disputing agencies or a "veto" of one agency's initial decision to approve or disapprove the permit.

In summary, the conflict resolution elements described above, should be fully examined and discussed by the members of the interagency group. Specific provisions and procedures as they develop and are agreed upon, should be clearly set forth in the interagency joint agreement.

In addition, adoption of administrative rules necessary for the implementation of Act 301, shall be required. These administrative rules should further expand and clarify procedures and requirements not set out within the joint agreement. Both the joint agreement and the adopted rules shall then serve as the means and process for conflict resolution between agencies.

EXAMPLE (C):

ACTIVITIES LANDWARD OF THE SPECIAL MANAGEMENT AREAS

IDENTIFICATION:

Preliminary analysis indicates that most Geothermal/Cable related activities can be divided into three (3) basic geographical areas of government jurisdiction:

1. activities located within the Special Management Areas (SMA's) that abut the shoreline;

2. activities seaward of the shoreline; and

3. activities located landward of the Special Management Areas.

Example (B), entitled Environmental Shoreline/Ocean Protection, identified permit requirements related to activity within SMA's and seaward of the shoreline. In this section, permits for activities landward of SMA's will be identified, with specific attention given to those permits not previously discussed in Example (B).

The "inland" permits and environmental requirements are identified below:

1. VARIOUS COUNTY ZONING AND CONDITIONAL/SPECIAL USE PERMITS: (same as Example B)

2. CONSERVATION DISTRICT USE PERMIT: In Example (B), the permit applies to the use of conservation lands for the transmission of electrical energy. The CDUP referred to in this section applies to geothermal development activities proposed within a conservation district. The CDUP is administered by DLNR and approved by the BLNR. Public hearing is required and contested case provisions do not apply. In lieu of contested case hearings, mediation may be required upon appropriate request. (P/M ?)

3. STATE/COUNTY EIS: (same as Example B)

4. FEDERAL EIS: (same as Example B)

5. U.S. DEPT. OF THE ARMY (CORPS OF ENGINEERS) PERMIT: (same as Example B)

6. NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT: (same as Example B) For Waiau (not sure)

7. COUNTY GRADING PERMIT: (same as Example B)

8. COUNTY BUILDING PERMIT: (same as Example B)

9. WATER WELL DRILLING PERMIT: (same as Example B)

10. PUBLIC UTILITIES COMMISSION (PUC) APPROVAL: (same as Example B)

EXAMPLE (C): (cont.)

ACTIVITIES LANDWARD OF THE SPECIAL MANAGEMENT AREAS

IDENTIFICATION:

11. GEOTHERMAL RESOURCE MINING LEASE: (Note: this lease shall be distinguished from a surface lease for use of State lands. The following discussion will not address the administrative requirements for securing a lease of public lands.)

    The administrative agency is the Department of Land and Natural Resources and the approving authority is the Board of Land and Natural Resources (BLNR). The BLNR may grant a mining lease to drill, discover, develop, operate, utilize, and sell geothermal resources on State and reserved lands.

    Mining leases on State lands shall be granted only on a competitive bid basis at public auction. Leases for reserved lands may be granted on a competitive bid basis by public auction, or to the occupier or to his assignee of the rights to obtain a mining lease, upon the vote of two-thirds of the Board members. If the BLNR decides that it is appropriate to grant a geothermal resource mining lease on reserved lands, the surface owner or the owner's assignee shall have the first right of refusal.

    Public hearing and contested case hearing provisions are not applicable.

12. GEOTHERMAL PLAN OF OPERATIONS: Pursuant to the requirements of the geothermal resource mining lease issued by the BLNR, a Plan of Operations must be submitted to the Department for approval by the Board. (Contents of the plan are outlined in Section 13-183-55.) Public hearing and contested case hearing provisions are not applicable.

13. GEOTHERMAL EXPLORATION PERMIT: The administrative agency is DLNR and the approving authority is the BLNR. No public hearing or contested case hearing provisions apply.

14. GEOTHERMAL WELL DRILLING/MODIFICATION/ABANDONMENT PERMIT: These permit are administered by DLNR and approved by the Chairperson. Public hearings and contested case hearings do not apply.

15. GEOTHERMAL INJECTION WELL PERMIT: The administrative agency is DLNR and the approving authority is the Chairperson. The permit covers both the construction and operation of the injection well, including the requirement for surveillance of the injected effluent. Public hearings and contested case hearings are not required.

    (There is overlapping jurisdiction between DLNR and the Department of Health in their administration of the Underground Injection Control (UIC) Program.)

EXAMPLE (C): (cont.)

ACTIVITIES LANDWARD OF THE SPECIAL MANAGEMENT AREAS

IDENTIFICATION:

16. UNDERGROUND INJECTION CONTROL (UIC) PERMIT: The administrative agency is the Department of Health (DOH) and the approving authority is the Director of DOH.

    Proposed amendments to the DOH's UIC administrative rules (Chapter 11-23) provide for the creation of a special geothermal exempted aquifer for any area which has been designated as a GRS.

    Regardless of whether the area is exempted or not, a UIC permit will be required for the operation, modification, and abandonment of an injection well.

    For those injection wells proposed outside of a geothermal exempted aquifer or mauka of the UIC line, a public notice of such applications will be required. Within 30 days after the required notice, interested parties may request for a public hearing, which will be held at the discretion of the Director of DOH.

    No injection well shall be constructed without prior approval from the DOH. Approval of the start of construction shall not be construed as approval for the operation of the injection well.

    (Note: potential conflict may arise in the event that DLNR and DOH do not agree on the approval and issuance of an injection well/UIC permit.)

NOTICE OF PUBLIC HEARING

Designation of Geothermal Resource Subzone
Pohoiki, Puna District, Hawaii

The Board of Land and Natural Resources has received a proposal from Integrated Resources, Inc. requesting designation of approximately 40 acres located at Pohoiki, Puna District, Hawaii as a Geothermal Resource Subzone (GRS). The subject parcel is identified as TMK:1-4-90:14 and is located near the existing HGP-A Geothermal facility, and adjacent to the Kapoho section of the Kilauea Lower East Rift GRS.

In accordance with Chapter 205, HRS, which authorizes the Board of Land and Natural Resources to designate geothermal resource subzones, the Board will hold a public hearing on the proposal to designate approximately forty (40) acres at Pohoiki as a geothermal resource subzone.

The public hearing will be held at 7:30 p.m., or soon thereafter, on April 20, 1989, at the Hawaii District office Annex, Conference Room 2, 450 Waianuenue Avenue, Hilo, Hawaii.

Information on the proposed geothermal subzone may be reviewed at the Division of Water and Land Development, Department of Land and Natural Resources, Room 227, 1151 Punchbowl Street, Kalanimoku Building, Honolulu, Hawaii 96813 (Telephone: 548-7539) and at the Division of Land Management, Department of Land and Natural Resources, State Office Building, 75 Aupuni Street, Hilo, Hawaii 96720.

State of Hawaii
Board of Land and Natural Resources

WILLIAM W. PATY
Chairperson

Dated: March 23, 1989

Published in: Honolulu Star-Bulletin, issues of 3/29/89, 4/5/89, 4/13/89
Hawaii Tribune Herald, issues of 3/29/89, 4/5/89, 4/13/89

Rules Amending Title 13, Administrative Rules

August 24, 1984

SUMMARY

Chapter 184 is amended

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUB-TITLE 7. WATER AND LAND DEVELOPMENT

Chapter 184

Designation and Regulation of Geothermal Resource Subzones

Subchapter 1. General

Subchapter 2. Designation of Geothermal Resource Subzones

Subchapter 3. Regulation of Geothermal Resource Subzones

Subchapter 1
General

§13-184-1 Purpose. The purpose of this chapter is to establish guidelines and procedures for the designation and regulation of geothermal resource subzones for the exploration, discovery, development, and production of geothermal resources for electrical energy production and distribution within conservation, agricultural, rural, and urban districts. These guidelines and procedures are intended to assist in designating areas which have potential for geothermal resource development for electrical energy production and which have an acceptable balance of the relationships of geothermal development to uses allowed in the land use classifications, to present uses of surrounding lands, to potential benefits and impacts. [Eff. SEP 6 1984] (Auth: HRS §205-5.1) (Imp: HRS §205-5.1)

§13-184-2 Definitions. As used in this chapter:

"Appropriate county authority" means the county planning commission unless some other agency or body is designated by ordinance of the county council.

"Board" means the board of land and natural resources.

"Chairperson" means the chairperson of the board of land and natural resources or a designated representative.

"Department" means the department of land and natural resources.

"Geothermal development activities" means the exploration, development, or production of electrical energy from geothermal resources.

"Geothermal resource" means the natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from such natural heat, and all minerals in solution or other products obtained from naturally heated fluids, brines, steam and associated gases, in whatever form, found below the surface of the earth.

"Geothermal resource subzone" means any area designated by the board as provided in this chapter for use of geothermal resource exploration, development, or production, of electrical energy from geothermal resources in addition to those uses permitted in each land district under chapter 205 of the Hawaii Revised Statutes.

"Operator" means any person as defined herein engaged in drilling, maintaining, operating, producing or managing any geothermal well and appurtenances, geothermal research facility, and geothermal production or utilization facility including electric power plant.

"Geothermal mining lease" means a State lease approved and issued by the board in accordance with chapter 182, Hawaii Revised Statutes, and chapter 183 of title 13, Administrative Rules entitled "Rules on Leasing and Drilling of Geothermal Resources".

"Special use permit" means a permit issued by the county planning commission for certain unusual and reasonable uses within agricultural and rural districts other than those for which the district is classified. [Eff. SEP 6 1984] (Auth: HRS §205-5.1) (Imp: HRS §205-5.1)

§13-184-2.1 Geothermal resource subzones. Geothermal resource subzones may be designated within the urban, rural, agricultural and conservation land use districts established under section 205-2, Hawaii Revised Statutes. Only those areas designated as geothermal resources subzones may be utilized for geothermal development activities in addition to those uses permitted in each land use district under chapter 205, Hawaii Revised Statutes. Geothermal development activities may be permitted within urban, rural, agricultural, and conservation land use districts in accordance with chapter 205, Hawaii Revised Statutes, rules of the appropriate county authority, and these administrative rules.

The board shall have the responsibility for designating areas as geothermal resource subzones, except that the total area within an agricultural district which is the subject of a geothermal mining lease approved by the board, and any part or all of which area is the subject of a special use permit issued by the county for geothermal development activities, on or before May 25, 1984, is hereby designated as a geothermal resource subzone for the duration of the lease.

The authority of the board to designate geothermal resource subzones shall be an exception to those provisions of chapter 205, Hawaii Revised Statutes, and of section 46-4, Hawaii Revised Statutes, authorizing the land use commission and the counties to establish and modify land use districts and to regulate uses therein.

The provisions of these administrative rules shall not abrogate nor supersede the provisions of chapters 182, entitled "reservation and disposition of government mineral rights" and 183, entitled "forest reservations, water development, zoning", Hawaii Revised Statutes, and chapter 183 of title 13, department administrative rules entitled "rules on leasing and drilling of geothermal resources". [Eff. SEP 6 1984] (Auth: HRS §205-5.1) (Imp: HRS §205-5.1)

§13-184-3 Subzone objectives. The establishment and regulation of geothermal resource subzones is intended to facilitate geothermal development activities in those areas of the

State where such activities will serve, in overall perspective, the best interest of the State, premised upon the criteria set forth in section 13-184-6. The major objectives are:

(1) To allow geothermal development activities to help achieve the State's goal of energy self-sufficiency and broaden the State's economic base through development of a natural resource;

(2) To allow geothermal development activities in areas where such activities would be of greater benefit to the State than the existing or future use of such areas; and

(3) To allow geothermal development activities in areas of the State which best demonstrate an acceptable balance among the criteria set forth in §13-184-6.

[Eff. SEP 6 1984] (Auth: HRS §205-5.1) (Imp: HRS §205-5.1)

Subchapter 2

Designation of Geothermal Resource Subzones

§13-184-4 Board initiated subzone designation. Beginning in 1983, and prior to the designation of any area as a geothermal resource subzone, the board shall first make or cause to be made a county-by-county assessment of those areas within the State which have potential for geothermal development activities. The methods to be used for making the assessments shall be left to the discretion of the board, provided that the board shall as a minimum consider the criteria set forth in section 13-184-6. The board may in its discretion base its methods for assessment on currently available public information. Where applicable, the board shall consider the objectives, policies and guidelines set forth in part I of chapter 205A, Hawaii Revised Statutes, and the provisions of chapter 226, Hawaii Revised Statutes.

The initial county-by-county assessments of areas with geothermal potential shall be revised or updated by the board at least once every five years beginning in 1988, or at any lesser interval of years at the discretion of the board. [Eff SEP 6 1984 (Auth: HRS §205-5.1) (Imp: HRS §205-5.1)

§13-184-5 Landowner initiated subzone designation. In addition to designations initiated by the board, any property owner, State mining lease applicant, geothermal mining lessee, or person with an interest in real property may initiate an application for designation of any area with geothermal potential as a geothermal resource subzone by specifying the area to the

board. The application and three copies shall be accompanied by the following information:

(1) Names and addresses of the applicant, operator, owner of the geothermal mineral rights, landowner if not the same as the applicant, and the geothermal lease number, if applicable;
(2) Evidence that the applicant is qualified to submit such a petition;
(3) An accurate description and map of the area desired to be designated as a geothermal resource subzone;
(4) A statement by applicant of the purpose, justification, and need for designation; and
(5) An assessment report based on the criteria set forth in section 13-184-6 and any other information to support the proposed designation.

Applications for geothermal resource subzones shall be submitted to the department for approval by the board. Each application shall be accompanied by a filing fee of $100.00. The chairperson shall review the application for completeness and may request additional information deemed necessary to process the application for board approval. The chairperson shall notify the applicant in writing of the acceptance of the completed application. Within 180 days of the written notification of acceptance of the application, the board shall publish notice of and hold public hearings and render a decision on designating any part or all of the area requested for designation as a geothermal resource subzone. If the request for geothermal resource subzone is denied, the board shall state its reason for its decision. If the board fails to hold a hearing and render a decision within 180 days after issuance of the notice of acceptance of the application, the application is deemed approved subject to the conditions of section 13-184-11. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

§13-184-6 Criteria for designation of subzones. The board, in designating an area as a geothermal resource subzone, shall be guided by the selection of those areas that can demonstrate an acceptable balance among the criteria set forth below:

(1) That the area has potential for geothermal development activities;
(2) That there is a known or likely prospect for the utilization of geothermal resources for electrical energy production;
(3) That any potential geologic hazards to geothermal production or use in the proposed area are examined;
(4) That any environmental or social impacts of the development of geothermal resources within the proposed area be considered;

(5) That the compatibility of development and utilization of geothermal resources within the proposed area is considered with other allowed uses within the area and within the surrounding lands; and

(6) That the potential benefits to be derived from geothermal development and utilization in the proposed area be in the interest of the county or counties involved and the State as a whole. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

§13-184-7 Environmental impact statement not required. An environmental impact statement as defined under chapter 343, Hawaii Revised Statutes, shall not be required in assessing any area proposed for designation as a geothermal resource subzone. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

§13-184-8 Notice and public hearings. When the board or a qualified applicant proposes an area for designation as a geothermal resource subzone, the board shall hold a public hearing in reasonably close proximity to the proposed area and publish a notice of the public hearing setting forth:

(1) A description of the proposed area;

(2) An invitation for public comment; and

(3) The date, time, and place of the public hearing where written or oral testimony may be submitted or heard.

Such notice shall be published on three separate days in a newspaper of general circulation statewide and in the county in which the public hearing is to be held. The first publication shall be not less than twenty days before the date set for the hearing. Copies of the notice shall be mailed to the State department of planning and economic development and the planning commission and planning department of the county in which the proposed area is located. Publication of the notice of public hearing shall be considered sufficient notice to all landowners and persons who might be affected by the proposed designation.

The public hearing shall be held before the board and the conduct of the public hearing shall not be delegated to any agent or representative of the board. All persons and agencies shall be afforded the opportunity to submit data, views, and arguments whether orally or in writing. The department of planning and economic development and the affected county planning department shall be permitted to appear at the public hearing and make recommendations concerning the proposal to designate an area. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

§13-184-9 Decision of the board. At the close of the public hearing, the board shall consider all the testimony and after deliberation make a decision to designate any portion, all or none of the proposed area or announce the date on which it will render its decision. The board may designate a proposed area as a geothermal resource subzone only if it finds the proposed area possesses an acceptable balance of the criteria set forth in section 13-184-6. If the board designates an area as a geothermal resource subzone it shall cause a notice of its decision to be published in a newspaper of general circulation statewide and in a newspaper of general circulation in the county in which the area is located and when so published its decision shall be final unless otherwise ruled invalid by a court of appropriate jurisdiction. Upon request, the board shall issue a concise statement of its findings and the principal reasons for its decision to designate a particular area. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

§13-184-10 Modification and withdrawal of existing subzones. Modification of the boundaries or the withdrawal of an existing designated geothermal resource subzone may be initiated by the board or by any property owner, State mining lease applicant, geothermal mining lessee, or person with an interest in real property that is within the designated subzone. The procedure for modifying the boundaries or withdrawal of an existing designated geothermal resource subzone shall be conducted pursuant to the provisions of chapter 91, Hawaii Revised Statutes. The board shall withdraw a designation only upon finding by a preponderance of the evidence that the area is no longer suited for designation; provided, however, that within an existing subzone with active geothermal development activities, the area may not be modified or withdrawn. An environmental impact statement as defined under chapter 343, Hawaii Revised Statutes, shall not be required in assessing any modification of the boundaries or withdrawal of subzones. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

Subchapter 3

Regulation of Geothermal Resource Subzones

§13-184-11 Administration of subzones. Geothermal development activities within a geothermal resource subzone shall be administered as follows:

(1) The use of an area for geothermal development activities within a geothermal resource subzone shall be governed by the board, if such activities lie within a conservation use district. If geothermal development activities are proposed within a conservation district, then, after receipt of a properly filed and completed application, the board shall conduct a public hearing and, upon appropriate request, a contested case hearing pursuant to chapter 91, Hawaii Revised Statutes, to determine whether, pursuant to board regulations, a conservation district use permit shall be granted to authorize the geothermal development activities described in the application.

(2) The use of an area for geothermal development activities within a geothermal resource subzone shall be governed by both state and county statutes, ordinances, and rules, if such activities lie within an agricultural, rural, or urban use district; except that land use commission approval or special use permit procedures which are provided for in section 205-6, Hawaii Revised Statutes, shall not be required for the use of such subzones for geothermal development activities.

In the absence of provisions in the county general plan and zoning ordinances specifically relating to the use and location of geothermal development activities in an agricultural, rural, or urban district, the appropriate county authority may issue a geothermal resource permit to allow geothermal development activities. Such uses as are permitted by county general plan and zoning ordinances by the appropriate county authority shall be deemed to be reasonable and to promote the effectiveness and objectives of chapter 205, Hawaii Revised Statutes.

If provisions in the county general plan and zoning ordinances specifically relate to the use and location of geothermal development activities in an agricultural, rural, or urban district, the provisions shall require the appropriate county authority to conduct a public hearing and, upon appropriate request, a contested case hearing pursuant to chapter 91, Hawaii Revised Statutes, on any application for a geothermal resource permit to determine whether the use is in conformity with the criteria specified in section 205-5.1(e), Hawaii Revised Statutes, for granting geothermal resource permits.

If geothermal development activities are proposed within agricultural, rural, or urban districts and such proposed activities are not permitted uses pursuant to county general plan and zoning ordinances, then after receipt of a properly filed and completed application,

the appropriate county authority shall conduct a public hearing and, upon appropriate request, a contested case hearing pursuant to chapter 91, Hawaii Revised Statutes, to determine whether a geothermal resource permit shall be granted to authorize the geothermal development activities described in the application. The appropriate county authority shall grant a geothermal resource permit if it finds that applicant has demonstrated by a preponderance of the evidence that:

(a) The desired uses would not have unreasonable adverse health, environmental, or socio-economic effects on residents or surrounding property; and
(b) The desired uses would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection; and
(c) That there are reasonable measures available to mitigate the unreasonable adverse effects or burdens referred to above.

Unless there is a mutual agreement to extend, a decision shall be made on the application by the appropriate county authority within 180 days of the date a complete application was filed; provided that if a contested case hearing is held, the final permit decision shall be made within 270 days of the date a complete application was filed.

County issued geothermal resource permits shall not abrogate nor supersede the provisions of chapters 177, 178, 182, 183, 205A, 226, 342, and 343, Hawaii Revised Statutes, and administrative rules promulgated thereunder shall apply as appropriate. [Eff. SEP 6 1984] (Auth: HRS §205-5.2) (Imp: HRS §205-5.2)

The amendment to Title 13, Administrative Rules, on the Summary Page dated August 24, 1984, was adopted on August 24, 1984, following public hearings held on Oahu and Kauai on July 31, 1984; on Hawaii on August 1, 1984; and on Maui on August 2, 1984; after public notice was given in The Honolulu Star Bulletin, Hawaii Tribune Herald, Maui News, and The Garden Island on July 11, 1984.

These rules shall take effect ten days after filing with the Office of the Lieutenant Governor.

SUSUMU ONO, Chairperson
Board of Land & Natural Resources

Member
Board of Land & Natural Resources

GEORGE R. ARIYOSHI
Governor
State of Hawaii

Dated: 8-24-84

APPROVED AS TO FORM:

Deputy Attorney General

Dated: 8/24/84

Filed

REC'D. BY

'84 AUG 27 AM 10 01

LIEUTENANT GOVERNOR'S OFFICE

GEOTHERMAL/CABLE PERMITTING REGIMES

	PERMIT ALWAYS REQUIRED	GOVT LEVEL	AGENCY	PROCESSING TIME (MONTHS) MIN	MAX	PUBLIC HEARING REQUIRED	CONTESTED CASE PROVISION APPLY	EIS
GEOTHERMAL								
GEOTHERMAL RESOURCE SUBZONE	Y	STATE	DLNR	6	12	Y	N	N
CONSERVATION DISTRICT USE PERMIT (CDUA)	Y	STATE	DLNR	6	6	Y	N	Y
GEOTHERMAL RESOURCE PERMIT	Y	COUNTY	PLNG	6	6	Y	N	Y
GEOTHERMAL MINING LEASE	Y	STATE	DLNR	7	12	?	?	N
GEOTHERMAL EXPLORATION PERMIT	Y	STATE	DLNR	2	2	N	N	N
GEOTHERMAL PLAN OF OPERATION	Y	STATE	DLNR	2	2	N	N	N
GEOTHERMAL WELL DRILLING PERMIT	Y	STATE	DLNR	2	2	N	N	N
AUTHORITY TO CONSTRUCT WELLS (AIR)	Y	STATE	DOH	3	6	?	?	N
PERMIT TO OPERATE WELLS (AIR)	Y	STATE	DOH	1	2	N	N	N
AUTHORITY TO CONST. POWER PLANT (AIR)	Y	STATE	DOH	3	6	?	?	N
PERMIT TO OPERATE POWER PLANT (AIR)	Y	STATE	DOH	1	2	N	N	N
UNDERGROUND INJECTION CONTROL	N	STATE	DOH	3	3	?	?	N
VARIANCE FROM POLLUTION (WATER)	N	STATE	DOH	3	3	?	?	N
PREVENTION OF SIGNIFICANT DETERIORATION	Y	FEDERAL	EPA	12	18	Y	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	½	N	N	N
TRANSMISSION — INLAND — HAWAII								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	—	—	Y	Y	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	Y	Y	?
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	?	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	?	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	12	N	N	N
LEASE PUBLIC LANDS								
TRANSMISSION — COASTAL ZONE — HAWAII								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	DLNG	4	?	Y	Y	Y
SHORELINE SETBACK VARIANCE	Y	COUNTY	DLNG	4	?	Y	Y	N
CDUA: LEASE PUBLIC LANDS								
TRANSMISSION — OCEAN — STATEWIDE								
U.S. ARMY CORPS OF ENGR. PERMIT	Y	FEDERAL	ARMY	2	?	Y	—	?
NATIONAL ENVIRONMENTAL PROT. ACT EIS	N	FEDERAL	CEQ	6	?	?	—	Y
OCEAN WATERS CONSTRUCTION PERMIT	Y	STATE	DOT	2	3	?	?	N
NPDES	N	STATE	DOH	—	6	N	N	N
LEASE SUBMERGED LANDS	Y	STATE	DLNR	—	12	Y	N	N
CDUA								
TRANSMISSION — COASTAL ZONE — MAUI								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	PLNG	4	?	Y	Y	Y
SHORELINE SETBACK VARIANCE	Y	COUNTY	PLNG	4	?	Y	Y	N
CDUA; LEASE PUBLIC LANDS								
TRANSMISSION — INLAND — MAUI								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	—	—	Y	Y	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	Y	Y	?
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	?	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	?	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
BUILDING PERMITS	Y	COUNTY	PW	½	12	N	N	N
LEASE PUBLIC LANDS								
TRANSMISSION — COASTAL ZONE — OAHU								
COASTAL ZONE CONSISTENCY	Y	STATE	DBED	1½	6	N	N	N
SPECIAL MANAGEMENT AREA PERMIT	Y	COUNTY	DLU	4	?	Y	Y	Y
SHORELINE SETBACK VARIANCE	Y	COUNTY	DLU	4	?	Y	Y	N
CDUA; LEASE PUBLIC LANDS								
TRANSMISSION — INLAND — OAHU								
PUBLIC UTILITIES COMMISSION APPROVAL	Y	STATE	PUC	?	?	Y	Y	N
CONSERVATION DISTRICT USE PERMIT	N	STATE	DLNR	6	6	Y	Y	?
NATURAL AREA RESERVE SYSTEM	N	STATE	DLNR	6	9	?	N	N
HISTORIC SITES	N	STATE	DLNR	—	12	?	N	N
PUBLIC FACILITIES MAP AMENDMENT	Y	COUNTY	DGP	16	?	Y	?	N
BUILDING PERMITS	Y	COUNTY	BLDG	½	12	N	N	N
EASEMENT FOR STATE PARKS, FORESTS	N	STATE	DLNR	—	11	N	N	N
LEASE PUBLIC LANDS								

PRELIMINARY
SUBJECT TO CHANGE

MEMORANDUM

TO: Honorable Warren Price III, Attorney General

ATTN: Mr. Johnson Wong, Deputy Attorney General
Land/Transportation Division

FROM: William W. Paty, Chairperson

SUBJECT: Application for Geothermal Exploration Permits Chapter 196D, HRS

The Department of Land and Natural Resources requests clarification of the rules concerning geothermal exploration as defined by Administrative Rules, Chapters 13-183, 13-184, and Act 301, SLH 1988. The University of Hawaii plans to conduct exploratory test-hole drilling to obtain scientific information on geothermal resources. The drilling project will not involve wells capable of producing or developing geothermal resources.

Pursuant to the State funded geothermal exploratory drilling project proposed by the University of Hawaii, the following issues require your review and legal clarification:

ISSUES

1. Chapter 13-183 entitled "Rules on the Leasing and Drilling of Geothermal Resources" provides that an exploration permit is required to conduct any exploration activity on state or reserved lands for evidence of geothermal resources.

   In addition, Chapter 13-184 entitled "Designation and Regulation of Geothermal Resource Subzones" defines geothermal development activities as the exploration, development, or production of electrical energy from geothermal resources.

   Chapter 13-184 further states that "only those areas designated as geothermal resource subzones may be utilized for geothermal development activities in addition to those uses permitted in each land use district under Chapter 205, HRS."

   We query whether geothermal exploration activities (such as exploratory test hole and well drilling, electro-magnetic ground surveys, etc.) may be conducted outside the boundary of a geothermal resource subzone (GRS).

   It is unclear as to whether Chapter 205, HRS, was intended to prohibit future exploratory activity outside of designated GRS areas, especially if the activity is for scientific purposes which may provide valuable new information useful to this agency when modifying existing GRS boundaries.

PRELIMINARY
SUBJECT TO CHANGE

It should be noted that the proposed permit application for exploration activity is to gather scientific information.

2. Chapter 13-184 requires that geothermal development activities within a GRS be administered as follows: (a) For activities within a conservation district, a conservation district use permit from the BLNR must be obtained prior to conducting any development activity; (b) For activities within urban, rural, and agricultural districts, a geothermal resource permit approved by the County Planning Commission must be obtained prior to any action by the applicant.

   Preliminary review of the pending UofH application indicates that the exploratory well drilling sites are located in both conservation and agricultural land use districts.

   We query whether a geothermal exploration permit issued under Chapter 13-183 will suffice regardless of the area in which the activity is located.

   We query whether a State-funded activity of scientific nature can be legally conjoined with or "piggy-backed" onto existing permits which have already been issued to private geothermal developers or conducted on lands of private geothermal developers.

3. Lastly, Act 301 entitled "Geothermal and Cable System Development Permitting Act of 1988", provides for a consolidated permit application and review process for geothermal development activities.

   One of the provisions of the Act is to establish an interagency committee with DLNR designated as the lead agency to develop regulatory procedures for processing geothermal/cable related permits.

   The Act further states that the chapter shall take effect on July 1, 1988, but shall not apply to any applications filed prior to the effective date.

   Rules to implement the numerous requirements of Act 301 have not been prepared. Therefore, we query whether the UofH proposed exploraion activity should be processed for permit under Act 301 or whether a permit application from the UofH be permitted under Chapter 13-183-7 as set forther in Act 301?

Your opinion on the above issues is respectfully requested and a reply at your earliest convenience will be gretly appreciated. If a meeting with our staff will expedite matters or if you should have any questions, please contact Manabu Tagomori at Ext. 7533. Thank you for your continued assistance.

WILLIAM W. PATY

D. NAKANO

DRAFT IV-C(1)-9/12/86
3288d

This draft adopted by the Planning Commission on 9-11-86 without the Appendix (pg 10-13)

NOTE: THIS DRAFT SHOWS REVISIONS FROM THE PREVIOUS DRAFT. DELETIONS ARE BRACKETED AND ADDITIONS ARE UNDERSCORED OR ARE INDICATED BY NOTES. MINOR GRAMMATICAL CHANGES HAVE ALSO BEEN MADE.

PLANNING COMMISSION
COUNTY OF HAWAII

RULE 12. GEOTHERMAL RESOURCE PERMITS

12.1 Purpose and Authority

This rule governs geothermal resource permit procedures pursuant to authority conferred by section 205-5.1, Hawaii Revised Statutes, as amended, upon the Planning Commission to determine whether proposed geothermal development activities should be allowed. The Planning Commission is the issuing authority for geothermal resource permits in geothermal resource subzones located within Agricultural, Rural and Urban State Land Use Districts in the County.

The Planning Commission's approval of an application for a geothermal resource permit shall not in any way abrogate nor supercede the provisions of Chapters 182 and 183, HRS, and rules promulgated thereunder. "MINERAL RIGHTS RESERVATIONS & MINING LEASES, ETC." "FOREST RESERVE, WATER DEVELOPMENT, ZONING"

12.2 Definitions

As used herein, "geothermal development activities", whether for research or commercialization purposes, means exploration, development, or production of electrical energy from geothermal resources, or as otherwise defined in Hawaii Revised Statutes, Section 205-5.1. (does not inclu. "direct-use applications")

12.3 Contents of Application

Any person who desires to conduct geothermal development activities on land that is located within a geothermal resource subzone and located within either the Agricultural, Rural or Urban State Land Use Districts shall apply to the Planning Commission for a geothermal resource permit. An application for a geothermal resource permit shall be filed in the Planning Department's office and shall include the following:

(a) Non-refundable filing and processing fee of one thousand dollars. (vs. DLNR's $100 filing fee)

(b) Original and twenty-five copies of:

(1) Application form;

(2) Written and appropriate graphic descriptions of the property and the proposed geothermal development activities including, but not limited to:

similar to Plan of Operations per 13-183-55

(A) A description of the property for which a permit is being requested to include the property's real property tax map key designation and a description of the property's location within the County.

(B) A written statement describing the scope of the planned activities and presenting the applicant's reasons for requesting the permit. (13-183-55(10))

(C) A preliminary plot or site plan of the property, drawn to scale, showing all existing and proposed uses and locations of structures including, but not limited to, drilling sites, wells, access roadways, water sources, waste water collection and disposal systems, the geothermal steam and/or brine collection and disposal systems, power plant(s) and electrical power distribution systems.

(D) Preliminary elevation drawings of the proposed temporary and permanent structures.

overlap w/ our "casing and cementing" requirements & BOPE reqts.

*(E) The proposed locations and elevations and depths of all superstructures and drilling rigs, bottom hole locations, casing program, proposed well completion program, size and shape of drilling sites, and location of all existing and proposed access roads. (13-183-71, 74)

(F) Areas of potential temporary and/or permanent surface disturbance, including, but not limited to, excavation and grading sites, the location of camp sites, airstrips, and other support facilities, excavation and borrow pits for roads and other construction activities.

subject to DOH's "UIC and air quality" rules.

*(G) A written description of the methods for disposing of well effluent and other wastes.

(H) A geologist's report on the site and surrounding area's surface and subsurface geology, nature and occurrence of known or potential geological hazards and geothermal resources, surface and

Similar to 13-183-55 (1) "provisions for monitoring deemed necessary by the Commission" and further related to 13-183-54(c) where the operator shall provide environmental baseline data prior to production.

similar to 13-183-87

ground water resources, topographic features of the land, and drainage patterns.

*(I) Pre-exploration meteorological, ambient air quality and noise level measurements that demonstrate the potential effects on surrounding properties through air quality and noise impact analysis [models].

Same as "Plan of Operations" (13-183-55 (8))

(J) A written description of the measures proposed to be taken for protection of the environment, including, but not limited to, the prevention and/or control of:

(i) Fires,
(ii) Soil erosion,
(iii) Surface and ground water contamination,
(iv) Damage to fish and wildlife or other natural resources,
(v) Air and noise emissions,
(vi) Hazards to public health and safety,
(vii) Socio-economic impact(s), and
(viii) Impact(s) on public infrastructure and services.

Same as "GRS" rules 13-184-11(a-c)

(K) Statement(s) addressing how the proposed development would mitigate or reconcile:

(i) Any effects to residents or surrounding properties in the areas of health, environment and socio-economic activities;

(ii) The burdening of public agencies to provide support infrastructure such as roads, sewers, water, drainage, school and related services and police and fire protection.

Same as "Plan of Ops," 13-183-55(8,10,11) and related to "Environmental protection" 13-183-87(b,c,i,j)

(L) Preliminary provisions and/or plans for the monitoring of environmental effects such as noise and air and water quality during each proposed phase of the project (exploration, development and production) demonstrating how the applicant intends to comply with this rule, the rules of the State's Department of Health, and the rules of the State Board of Land and Natural Resources.

(M) A preliminary plan of action for emergency situations which may threaten the health, safety, and welfare of employees and other persons in the vicinity of the proposed project site including, but not limited to, procedures to facilitate coordination with appropriate Federal, State and

(N) 13-183-55(10)

County officials and the evacuation of affected individuals.

(N) Preliminary timetable(s) and/or schedule(s) for each proposed phase of the project.

similar to "Plan of Op" 13-183-55 (10)

(O) Method(s) of presenting timely progress reports to the Planning Commission.

(P) Other pertinent information or data <u>such as an archaeological survey</u> which the Planning Director <u>may require</u> to support the application for the utilization of geothermal resources and the protection of the environment.

(c) Graphic representations suitable for both staff analysis and public presentation, including the depiction of the project boundaries, reference points (roadways, shoreline, etc.), existing and proposed structures and appurtenances. Graphics for public presentation shall be a minimum of 2 feet by 3 feet in dimension, drawn to scale on a map or maps of 1:24,000 scale, or larger when required by the Commission.

12.4 <u>Properly Filed Application</u>

Within twenty days of receipt of an application, the Planning Director shall review it to determine if it is complete. An application that is determined to be complete shall be officially accepted within twenty days of receipt of the application and the applicant shall be so notified in writing.

12.5 <u>Hearing and Notification</u>

(a) [Within a period of ninety days from the date of official acceptance of a properly filed and completed application, the Planning Director, on behalf of the Planning Commission shall set a date for a public hearing.] <u>The Planning Director, on behalf of the Planning Commission, shall set a date for a public hearing to be held within a period of ninety days from the date of official acceptance of a properly filed and completed application.</u>

similar to CDUA procedure

(b) The Planning Commission shall conduct a public hearing and[/or] <u>upon appropriate request</u> a contested case hearing pursuant to the Planning Commission [Rules] <u>rules</u> pertaining to public and contested case hearings.

(c) Promptly after the Planning Director fixes a date for the public hearing and at least 15 days before the date of the public hearing, the applicant shall mail a notice of the hearing to owners of interests in properties, as shown on the current real property tax rolls at the County Real

similar to S.B. 1678 re: "1000' notice"

Property Tax Office, within a minimum of three hundred feet of the perimeter boundary of the property for which a permit is being requested (or as determined by the Planning Director), and to other interested persons or groups as may be determined by the Planning Director. The applicant shall also make a reasonable attempt or best effort in notifying residents within one thousand feet of the perimeter boundary of the property of the public hearing. Such notice shall state:

(1) Name of the applicant;

(2) Precise location of the property involved;

(3) Nature of the proposed geothermal development activities; and

(4) Date, time, and place of the hearing.

(d) If the notification requirement set forth in section 12.5 (c) has not been met, the Planning Commission shall not conduct a hearing and further action on the application shall be deferred until the notification requirement is met [to the satisfaction of the Planning Director].

(e) In addition to said notice and at least fifteen days prior to the date of the hearing, the Planning Commission shall publish notice of the hearing in a newspaper of general circulation in the County which includes the information provided under section 12.5(c)(1-4) of this rule.

12.6 Criteria for Issuance of Geothermal Resource[s] Permit

The Planning Commission shall grant a geothermal resource permit if it finds that the applicant has demonstrated by a preponderance of evidence that:

[(1)] (a) The proposed geothermal development activities would not have unreasonable adverse health, environmental, or socio-economic effects on residents or surrounding property; and

same as in Chap 205, HRS and Gas rules Chap 184

[(2)] (b) The proposed geothermal development activities would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection; and

[(3)] (c) There are reasonable measures available to mitigate the unreasonable adverse effects or burdens referred to above.

12.7 Action

(a) Unless there is mutual agreement by the Planning Director, the applicant, and, if applicable, any intervenors in a contested case hearing to extend the period of time for the Planning Commission's action, the [The] Planning Commission shall take action on a properly filed and complete application within six months (180 days) of the date a properly filed application is officially accepted; provided that if a contested case hearing is held, the Planning Commission shall take action within nine months (270 days) of the date a properly filed application is officially accepted.

(b) The Planning Commission's action shall either:

(1) Grant the geothermal resource permit as requested by the applicant based upon the satisfaction of criteria in section 12.6 above and stating the reasons therefore, subject to performance, reporting and other appropriate conditions imposed by the Commission.

(2) Grant the geothermal resource permit as may be modified from the applicant's request and stating the reasons therefore, subject to performance, reporting, and other appropriate conditions imposed by the Commission.

(3) Grant the geothermal resource permit in phases or increments dependent upon the timely and progressive completion of a precedent phase or increment and stating the reasons therefore, subject to performance, reporting, and other appropriate conditions imposed by the Commission.

(4) Deny the geothermal resource permit and [state] stating the reasons therefore.

(c) [Within fourteen days of the Planning Commission's action, the] The Chairperson of the Commission shall issue official written notification to the applicant of the Commission's action including any performance, reporting, and other appropriate conditions imposed by the Commission.

[(d) Unless there is mutual agreement by the Planning Director, the applicant, and, if applicable, any intervenors in a contested case hearing to extend the period of time for the Planning Commission's action, the application shall be considered as being approved if the Commission fails to render a decision within the prescribed period.]

12.8 Requirements Prior to Initiating Construction

Prior to initiating construction of an approved project or any phase of an approved project, the applicant shall submit the following to the Planning Director:

(a) Copies of approved permits and other applicable approvals for the project or any phase of the project from other County, State or [federal] Federal agencies as applicable.

(b) Final plans or provisions for monitoring environmental effects of the project or any phase of the project such as noise, air and water quality as may be required to insure compliance with County rules and the rules of the State's Department of Health and Board of Land and Natural Resources, and other permit-issuing agencies.

(c) A final plan of action to deal with emergency situations which may threaten the health, safety, and welfare of the employees and other persons in the vicinity of the proposed project site. The plan shall include procedures to facilitate coordination with appropriate State and County officials and the evacuation of affected individuals.

(d) A final site plan and elevations of proposed temporary and/or permanent structures for the project or any phase of the project.

12.9 Amendments of Permit and Conditions

[(a) As a condition of approval, the Planning Commission may authorize the Planning Director to make administratively minor non-substantive amendments to the conditions of an approved permit, including amendments related to time extensions. If the Planning Director disapproves a minor non-substantive amendment, then the amendment shall be referred to the Planning Commission.

(b) For other than minor non-substantive amendments approved administratively, the permittee shall apply to the Planning Commission for an amendment to the geothermal resource permit or to any conditions imposed thereon.

(c)] (a) For any amendments to the [Geothermal Resource Permit] geothermal resource permit or its conditions the permittee shall set forth in writing:

(1) The specific amendment requested;

(2) The reasons for the request, including statements addressing the criteria listed under section 12.6(1) through (3) of this rule; and

(3) Any other applicable information requested by the Planning Director.

(b) In the case of any amendment concerning a time extension to the permit or its conditions, the permittee shall file the request not less than ninety days prior to the deadline for performance of the condition, setting forth:

(1) The affected condition;

(2) The length of time requested; and

(3) The reasons for the request.

If either the Planning Director or the Planning Commission is not able to act on a properly filed time extension request prior to the deadline for a time extension, the geothermal development activities allowed by the Geothermal Resource Permit may be continued by the Planning Director.

(c) [Except for minor non-substantive amendments that the Planning Director is authorized to make, all] All of the procedures set forth in sections 12.4 through 12.12 of this [Rule] rule and the procedures set forth in other applicable Planning Commission rules shall apply.

12.10. Enforcement of Permit and Conditions

(a) If the Planning Director determines that there is noncompliance with the geothermal resource permit or its conditions, the Planning Director shall so inform in writing the permittee and, if applicable, other appropriate County, State or [federal] Federal agencies, setting forth the grounds of his determination. Upon receiving notice of the determination of noncompliance, the permittee shall have five days to provide a written response to the notice of determination of noncompliance.

(b) Notwithstanding any written response submitted by the permittee, if the Planning Director affirms the determination of noncompliance, he shall so advise the permittee in writing. The permittee shall have five days thereafter to correct the noncompliance; provided that the Planning Director may allow a longer period upon a finding of good cause, such as where circumstances beyond the permittee's control will prevent compliance within the five-day period.

(c) The permittee may request a hearing with the Planning Commission to amend the permit, should compliance be impossible or impractical to meet.

(d) If the permittee fails to correct the noncompliance within the required time period, the Planning Director shall refer the matter with his recommendations to the Planning Commission for further disposition, which may include, but is not limited to, either the revocation or the modification of the permit.

(e) Notwithstanding any other provision of this section, pending a hearing by the Planning Commission the Planning Director may immediately and temporarily suspend the permit and operations allowed thereunder. Notice of a temporary suspension shall be provided in writing or orally with subsequent written confirmation within three days to the permittee and shall set forth the reasons for the temporary suspension. The Planning Director may reactivate the permit upon a subsequent finding of the permittee's compliance with the permit condition. Subject to the Planning Commission rules, the permittee may at any time request a hearing before the Planning Commission for its review and action with regard to the permit's temporary suspension or any subsequent refusal of the Planning Director to reactivate the permit. Referrals by the Planning Director to the Planning Commission and reviews by the Planning Commission of the Planning Director's action shall be heard at the Commission's next meeting when the matter can be placed on the Commission's agenda.

12.11 Penalties

If a permittee, its successors or assigns [does] do not comply with any provision of a permit or its conditions issued under this Rule they may be subject to a civil fine not to exceed those provided for by applicable statutes.

12.12 Appeals

Any person aggrieved by the action of the Planning Commission in the issuance of a geothermal resource permit or an amendment of condition or permit under section 12.9 shall be entitled to appeal such decision to the applicable court of the State of Hawaii.

NOTE: SECTION 12.13, SEVERABILITY, AND THE APPENDIX ARE ADDITIONS.

12.13 Severability

If any portion of this rule, or its application to any person or circumstance, shall be held unconstitutional or invalid, the remainder of this rule and the application of such portion to other persons or circumstances shall not be affected thereby.

APPENDIX TO RULE 12

In assessing an application for a geothermal resource permit, the Planning Commission shall impose conditions of approval as the Commission deems appropriate and necessary. The following guidelines for conditions are not intended to limit the Planning Commission from including other conditions and excluding or modifying any of the following:

Air Quality: Applicant shall meet Federal and State air quality guidelines and regulations.

Noise: Applicant shall meet Federal, State, and/or County noise guidelines and regulations.

Water Quality: Applicant shall meet Federal and State water quality guidelines and regulations.

Archaeological and Biological Resources: Surveys shall be conducted to determine the presence and value of archaeological and biological resources and submitted to the Planning Director and other appropriate government agencies for review and comment prior to approval of land clearing activities. Plans for the protection and maintenance of valuable archaeological and biological resources shall be prepared to ensure their protection and shall be submitted for approval to the Planning Director and to other appropriate government agencies for review and comment prior to approval of the Planning Director.

Security: All unattended well sites, drilling equipment, well heads, sumps, and ponds shall be protected from access by unauthorized persons.

Emergencies: The applicant shall prepare a plan of action to be approved by the Hawaii County Civil Defense Agency to deal with emergency situations such as volcanic activities, earthquakes, fires, well bore ruptures, blowouts, and any accidents or spills of hazardous materials which may threaten the health, safety, and welfare of the employees and other persons in the vicinity of the project. The plan shall include procedures to facilitate coordination with appropriate Federal, State and County officials and the evacuation of affected individuals.

Aesthetics: In the siting, design and construction of all physical components, measures shall be taken to minimize aesthetic and scenic impacts and to preserve the natural beauty of the area. Such measures can include orientation of buildings, colors of structures, and use of nonreflective, light absorbent material and textures, and landscaping.

Construction, Clearing, Erosion, and Drainage: Activities shall comply with all requirements of Chapter 10, Erosion and Sedimentation Control, Hawaii County Code, as amended, the

Hawaii County Building Code, and the hydrologic criteria incorporated in the Hawaii County Storm Drainage Standards.

Lighting: Lighting for activities, including drilling, shall be designed in such a way so it does not become a nuisance to surrounding properties or interfere with important biological resources that may be in the area. In any event, all activities and facilities shall meet the requirements of Chapter 14, Article 9, Outdoor Lighting, of the Hawaii County Code, as amended.

Wells: All wells shall be drilled, operated and abandoned in accordance with "Rules on Leasing and Drilling of Geothermal Resources" of the Department of Land and Natural Resources. Wells used for the injection, or re-injection of geothermal brines, power plant effluents, gases, etc. and drywells used for surface drainage or stormwater runoff shall conform to the conditions specified in the Department of Health, Administrative Rules, Title 11, Chapter 23, entitled Underground Injection Control.

Sumps and Ponds: All sumps and ponds shall be operated in a manner meeting with the approval of the State Department of Health. Waste materials to be disposed of from the geothermal development activities shall be disposed of at sites approved by the State Department of Health. Sump and pond locations, construction, and operation shall comply with regulations of the State Department of Health.

Reports: Copies of drilling, production, and operation reports, as provided to the State Department of Land and Natural Resources in accordance with Chapter 183 of Title 13, Administrative Rules shall be made available to the Planning Director. Other information and/or reports may be requested by the Commission.

Inspection: Applicant shall grant unrestricted access, subject to safety measures normal and necessary during operations, to authorized governmental representatives or to consultants and contractors hired by governmental agencies for inspection, enforcement, or monitoring activities.

Information and Complaints: Applicant shall designate an individual who has authority to act on behalf of the applicant for the purposes of supplying information and responses deemed necessary by the government agencies who are responsible for monitoring the permitted uses and enforcing conditions of approval of the geothermal resource permit.

Applicant shall publish a telephone number to be manned 24 hours for receiving and responding to noise, odor, or other complaints. Applicant shall keep a log of all complaints received and their responses to be submitted to the Planning

Director monthly. Applicant shall also post signs bearing the name of the operator and current telephone number for receiving complaints at appropriate locations on the perimeter of the project site. Such appropriate locations shall be approved by the Planning Director.

Indemnification: Applicant, its successors or assigns, shall indemnify and hold the County of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury or death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under the geothermal resource permit or relating or connected with the granting of such permit.

Applicant shall protect, indemnify, defend and hold the County of Hawaii harmless against loss, damages, claims and liens of every kind and character (including but not limited to Workmen's Compensation claims and claims of third parties) which may be occasioned by uses or activities conducted by the applicant under the geothermal resource permit or by reason of the operation or working of applicant, its employees, agents or independent contractors upon the property, or any easement for ingress or egress thereto, including injuries to persons or loss of life or damage to property or nuisance and including, but not limited to, pollution or flooding of the surface or subsurface waters or any pollution of the air, with said indemnification to apply irrespective of whether claims allege the cause to be sudden or gradual.

Insurance: Applicant will at its own expense effect and maintain at all times term insurance coverage for professional liability and comprehensive general liability for risks with respect to the permitted uses and related activities allowed under the geothermal resource permit. The policy shall name the County as an additional insured.

Bond: Any applicant granted a geothermal resource permit shall file with the Planning Department a bond in an amount to be determined and to be made payable to the County of Hawaii to secure the faithful performance of requirements and conditions of approval of the permit, including but not limited to restoration of the project premises and in abating nuisances caused by the geothermal development activities. Said bond shall be executed by the applicant and by a surety company qualified to do business in the State of Hawaii and shall remain in force and effect for the full term of the permit. Said bond shall be in addition to any bond required by the Board of Land and Natural Resources of the State of Hawaii for the drilling, maintenance or operation of geothermal wells.

Best Available Control Technology: Applicant shall apply the "Best Available Control Technology" (BACT) with respect to geothermal emissions and noise abatement during all phases of

the project, including well drilling, testing, power plant operation and direct use applications. "Best Available Control Technology" is defined as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under the federal Clean Air Act emitted from or which results from any major emitting facility, which, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs is determined to be achievable for such facility through application or production processes and available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of each such pollutant.

Soil and Water Conservation: Use of the area shall be consistent with soil and water conservation principles.

Conditions of Other Permits: The Commission shall be cognizant of other permits with conditions which the applicant will need to secure from other governmental agencies in order to undertake geothermal development activities.

Compliance with Other Laws and Regulations: Applicant shall comply with all other applicable Federal, State and County laws, statutes, regulations and ordinances.

ADOPTED this ____ day of
_____, 1985.

_____

BARBARA A. KOI, Chairperson
Planning Commission
County of Hawaii

APPROVED AS TO FORM:

_____
Corporation Counsel

APPROVED this ____ day of
_____, 1986.

_____
DANTE K. CARPENTER, Mayor
County of Hawaii

CERTIFICATION

I, BARBARA A. KOI, Chairperson of the Planning Commission, do hereby certify that attached hereto is a copy of a document entitled, "Rule 12, Geothermal Resource Permits," the original of which is on file with the Commission, and that the requirements as prescribed in Section 91-3 of the HRS has been followed.

_____

BARBARA A. KOI, Chairperson
Planning Commission
County of Hawaii

RECEIVED THIS ____ day of
_____, 1986.

_____

R. B. LEGASPI
County Clerk

Neighbor Island Building Guide 1986

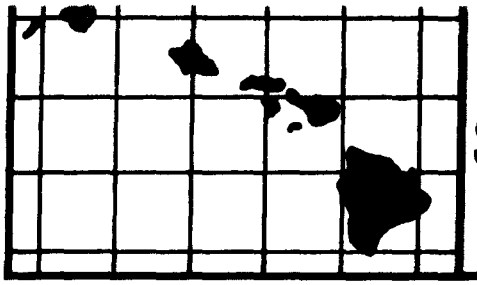
(Note: Each of the four sections of Neighbor Island Building Guide contains its own page numbering, starting from page 1. "State/Federal Data" has 24 pages; "Hawaii County" has 52 pages; "Kauai County" has 36 pages; and "Maui County" has 48 pages.)

On the cover: The Sheraton Princeville Hotel on the North Shore of Kauai, completed in 1985.

STATE/FEDERAL DATA

HAWAII COUNTY

KAUAI COUNTY



STATE OF HAWAII PERMITS

AUTHORITY TO CONSTRUCT PERMIT (AIR QUALITY)

ACTIVITY: The construction or installation of a new air pollution source or the modification of an existing source.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Clean Air Amendment of 1977, Public Law No. 95-95. Chapter 342, Hawaii Revised Statutes; Title II, Administrative Rules, Chapters 59 & 60.

PURPOSE: To ensure that the new source is designed, built, and equipped in accordance with the best practicable/available control technology and operated so as to reduce emissions to a minimum and not endanger the maintenance of applicable ambient air quality standards.

APPROVAL REQUIRED: AUTHORITY TO CONSTRUCT PERMIT (AIR QUALITY)

1. Application: State Department of Health - Environmental Permits Branch
   Data required for processing:
   a. Two (2) copies of complete data, citing information, plan descriptions, specifications, drawings, and other detailed information necessary to determine in what manner the new source will be operated and controlled.
   b. Filing fee: $20.00
2. Review: State Department of Health, Environmental Permits Branch
3. Approval: State Department of Health

FOR INFORMATION AND PROCESSING CONSULT:

Environmental Permits Branch
Hawaii State Department of Health
645 Halekauwila St.
Honolulu, Hawaii 96813

Phone: (808) 548-6410

CONSERVATION DISTRICT USE APPLICATION

ACTIVITY: Land use approval within the conservation district.

APPLICABLE AREA: Lands within the Conservation District, as established by the State Land Use Commission. The Conservation District includes large areas of mountain and shoreline lands, virtually all traditional Hawaiian fishponds, and most submerged offshore lands and outlying small islands. Maps showing the boundaries of the conservation district are available at the Department of Land and Natural Resources.

SOURCE OF LEGAL AUTHORITY: Chapter 183-41, Hawaii Revised Statutes Department of Land and Natural Resources Regulation, Title 13, Chapter 2.

PURPOSE: To regulate uses in the conservation district.

APPROVAL REQUIRED: CONSERVATION DISTRICT USE APPLICATION

1. Application: State Department of Land and Natural Resources - Planning Office
   Data required for processing:
   a. Eighteen (18) copies of the completed application with all attachments. Reduce or fold attachments to 8½" x 11".
   b. Filing Fee: $50.00. If use is defined as commercial, an additional public hearing fee of $50.00 is required.
2. Review: State Department of Land and Natural Resources - Office of Conservation and Environmental Affairs; Board of Land and Natural Resources
3. Approval: Board of Land and Natural Resources

FOR INFORMATION AND PROCESSING CONSULT:

Department of Land and Natural Resources
Office of Conservation and Environmental Affairs
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Phone: (808) 548-7837

DRILLING PERMITS FOR GEOTHERMAL RESOURCES

ACTIVITY: To drill, modify, modify use, or abandon wells.

APPLICABLE AREA: Only in designated geothermal resource subzones (GRS).

SOURCE OF LEGAL AUTHORITY: Chapter 178, Hawaii Revised Statutes; Chapter 182, Hawaii Revised Statutes; Chapter 205, Hawaii Revised Statutes; Title 13, Subtitle 7, Chapter 183 of the Administrative Rules entitled "Rules on Leasing and Drilling of Geothermal Resources" and Chapter 14 of the Administrative Rules entitled "Designation and Regulation of Geothermal Resources Subzones."

PURPOSE: To monitor all drilling activity for the purpose of assuring compliance with the "Rules on Leasing and Drilling of Geothermal Resources" for the protection and safety of the general public.

APPROVAL REQUIRED: DRILLING PERMITS FOR GEOTHERMAL RESOURCES

1. Application: State Department of Land and Natural Resources - Division of Water and Land Development

   Data required for processing:

   A. Name, signature and address of the applicant, the owner of the mining rights and the land owner if the applicant is not the land owner.
   B. The number or other designation by which the well shall be known by. The number or designation shall be subject to the chairperson's (Board of Land and Natural Resources) approval.
   C. A plot plan showing the tax map key, site elevation, and well location with reference to established property corners. A survey by a Hawaii licensed surveyor may be required.
   D. A statement of the purpose and extent of the proposed work and estimate of the depths between which discovery, production, injection, or plugging will be attempted.
   E. A description of the proposed drilling and casing program; and a plan or drawing showing the proposed work and vertical section of the well.
   F. Agreement to file the $50,000 individual well bond or $250,000 blanket bond for any number of wells as required by Subchapter 8 of the Administrative Rules with the Chairperson (Board of Land and Natural Resources) within ten days after application has been approved.
   G. Agreement to operate and maintain the well in accordance with Title 13, Chapter 183 of the Administrative Rules, and all other applicable governmental requirements.
   H. Non-refundable filing fee: $100.00 for each application to drill, modify, modify use or abandon a well.
2. Review: State Department of Land and Natural Resources — Division of Water and Land Development.
3. Approval: Chairperson of the Board of Land and Natural Resources

FOR INFORMATION AND PROCESSING CONSULT:

Department of Land & Natural Resources
Division of Water & Land Development
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Phone: (808) 548-7533

NOTE: Submit application in letter form.

ENVIRONMENTAL IMPACT STATEMENT (EIS)

ACTIVITY: A written report which describes what will probably happen to the environment should a project be carried out.

APPLICABLE AREA: An EIS may be required for a land development project involving:

a. The use of State or County lands or funds (See NOTE.)
b. Land within State Conservation District.
c. Lands within the shoreline area, defined as 20 to 40 feet inland and 300 feet seaward from the shoreline as defined by Chapter 205.31, HRS.
d. Land within any historic site as designated in either the State or National Register of Historic Places.
e. An amendment to the County's General Plan where such amendment would result in a designation other than agriculture, conservation, or preservation.

An EIS is required for projects which take place within the above described categories only when agencies determine that the project may have a significant effect on the environment.

If impacts are judged to be significant, a Negative Declaration is filed with the Environmental Quality Commission by the agency making such a determination.

SOURCE OF LEGAL AUTHORITY: Hawaii Revised Statutes, Chapter 343; Environmental Quality Commission's Environmental Impact Statement Regulations and Rules of Practice and Procedures

PURPOSE: Preparation of an EIS helps to make sure that environmental concerns are considered in making governmental decisions.

APPROVAL REQUIRED: EIS

1. Application: State Environmental Quality Commission

   Agencies must assess a project to determine the need for an EIS within thirty (30) days from the submission of the request for approval. No time limits are set on the preparation of the document. The applicant prepares the EIS, which must include:

   Summary sheet which outlines and concisely discusses the contents.

   Project description.

   Description of environmental setting.

   The relationship of the proposed action to land use plans, policies, and controls for the affected area.

   Any probable adverse environmental effects which cannot be avoided.

   Alternatives to the proposed action.

   The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity.

Mitigation measures proposed to minimize impact.

Any irreversible and irretrievable commitments of resources.

An indication of what other interest and considerations of governmental policies are thought to offset the adverse environmental effects of the proposed action.

Organizations and persons consulted.

There is no filing and no public hearing requirement.

After it is determined that an EIS is required, a notice is published in the EQC Bulletin advertising the public that an EIS will be prepared. The Environmental Impact Statement Preparation Notice — prepared by the agency requiring the EIS — summarizes the proposed action, points out areas of potential impact and generally documents the steps and criteria used in making the decision. The Notice includes the name and address of a person who may be contacted for further information about the project.

Following the publication of the Notice, the public has thirty (30) days in which to request to be a consulted party during EIS preparation. After the EIS is prepared and circulated, the public has an additional thirty (30) days during which to comment in writing. The applicant must respond in writing to any public comments. Both the comments and the applicant's response must be included in the final EIS submitted to the approving agency.

An EIS is accepted or not accepted by the agency requiring it. Acceptance of an EIS must be within sixty (60) days of filing the document with the approving agency. The sixty (60) day period may be extended at the request of the applicant for a period not to exceed thirty (30) days. Agency acceptance of an EIS means that all identifiable environmental impacts have been adequately described, have been satisfactorily answered by the applicant. **Acceptance does not mean that a project is approved.** It is merely a condition preceding requests for permit approval.

The mechanics of filing the statement, public notification of agency decisions, distribution of the statement for review, and appeals from agency decisions are handled through the State Environmental Quality Commission.

NOTE: When actions using State or County resources are subject to both State and Federal EIS requirements, the State's must be satisfied first. HRS, Section 343-4(F).

"Public projects"; e.g., those involving the use of State of County lands or funds are assessed by the agency proposing the project. If it is determined that there would be significant environmental effects, the agency prepares the required EIS. Acceptance of the document is either by the Governor or Mayor — depending upon whether State or County funds/lands are involved. (See Chapter 343, HRS, for further elaboration.)

Project involving wetlands, streams and coastal waters could be subject to both State and Federal **EIS requirements.** (See ENVIRONMENTAL IMPACT STATEMENTS — NEPA).

For additional clarification, please refer to Table 1, Generalized EIS Process.

For additional clarification, please refer to Table 1, Generalized EIS Process.

2. Review: State Environmental Quality Commission; appropriate County Planning Department
3. Approval: Accepting Authority

FOR INFORMATION AND PROCESSING CONSULT:

Environmental Quality Commission
State of Hawaii
550 Halekauwila Street, 3rd Floor
Honolulu, Hawaii 96813

Phone: (808) 548-6915

EXPLORATION PERMIT FOR GEOTHERMAL RESOURCES

ACTIVITY: Any exploration activity on state or reserved lands for evidence of geothermal resources. Exploration activity includes, but is not limited to, geophysical operations, drilling of shallow temperature test holes less than 500 feet in depth, or deeper as may be determined by the Board, construction of roads and trails, and cross-country transit by vehicle over State lands.

APPLICABLE AREA: State or reserved lands.

SOURCE OF LEGAL AUTHORITY: Chapter 182, Hawaii Revised Statutes; Title 13, Subtitle 7, Chapter 183 of the Administrative Rules entitled "Rules on Leasing and Drilling of Geothermal Resources".

PURPOSE: To monitor all exploration activity for the purpose of assuring compliance with the "Rules on Leasing and Drilling of Geothermal Resources" for the protection and safety of the general public.

APPROVAL REQUIRED: EXPLORATION PERMIT FOR GEOTHERMAL RESOURCES

1. Application: State Department of Land and Natural Resources - Division of Land Management
   Data required for processing:
   A. The name and address of the person, association, or corporation for whom the operation will be conducted and of the person who will be in charge of the actual exploration activities.
   B. A description of the type of exploration activities proposed to be undertaken.
   C. A description of the lands to be explored.
   D. A map or maps available from State or Federal sources, showing the lands to be entered or disturbed.
   E. The approximate dates of the commencement and termination of exploration activities.

F. A statement by applicant agreeing to submit to the Board within twenty calendar days after notification by the Board that the permit application has been approved by a surety company bond in the amount of $10,000 payable to the State conditioned upon compliance with all terms and conditions of the exploration permit. If any person holds more than one exploration permit in the State, that person may file with the Board, in lieu of separate bonds for each exploration permit a blanket bond in the amount of $50,000.

G. The name and address of the surface owner of the land.

H. Evidence that the owner and surface lessee, if any, has or has not consented to the entry upon the land and a description of the efforts made and the reasons for not securing the consent.

I. Permit filing fee: $100.00

2. Review: State Department of Land and Natural Resources Division of Land Management

3. Approval: Board of Land and Natural Resources

NOTE: Application should be addressed to the Board of Land and Natural Resources in letter form.

GROUND WATER USE PERMIT

ACTIVITY: Anyone wishing to initiate the use of ground water from "control ground water areas" established by the Board of Land and Natural Resources.

APPLICABLE AREA: Only applicable in ground water control areas. At the present time, there are three ground water control areas, all on Oahu.

SOURCE OF LEGAL AUTHORITY: Hawaii Revised Statutes, Chapters 177 and 178; Title 13, Subtitle 7, Chapter 166 of the Administrative Rules entitled 'Rules of the Control of Ground Water Use in the State of Hawaii'

PURPOSE: To verify that there is water available for use; that the proposed use will be beneficial; and that granting the permit will not substantially and materially interfere with other existing permitted and preserved uses.

APPROVAL REQUIRED: GROUND WATER USE PERMIT

1. Application: State Dept. of Land and Natural Resources - Division of Water and Land Development

   Data required for processing:

   The application must be in writing and must state specifically:

A. The merits of the water use.
B. The hazards to public health, safety and welfare.
C. The desirability of the permit.
D. Any appropriate qualifications of the applicant.

NOTE: Each permit is issued for a specified period, not exceeding fifty (50) years.

2. Review: State Dept. of Land and Natural Resources - Division of Water and Land Development
3. Approval: State Board of Land and Natural Resources

FOR INFORMATION AND PROCESSING CONSULT:

Department of Land and Natural Resources
Division of Water and Land Development
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Phone: (808) 548-7533

HAWAII COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY

ACTIVITY: Projects needing a Federal permit or license may require review for consistency with Hawaii's Coastal Zone Management (CZM) Program.

APPLICABLE AREA: The State's coastal zone which includes all land, waters, and marine waters excluding the State designated Forest Reserves and Federall controlled lands.

SOURCE OF LEGAL AUTHORITY: Section 307, National CZM Act of 1972, as amended (16 U.S.C. 1451 et. seq.); Section 205A-3(3), Hawaii Revised Statutes 15 Code of Federal Regulations, Part 930 "Federal Consistency with Approved Coastal Management Programs", NOAA, U.S. Department of Commerce

PURPOSE: To identify potential conflicts early in the Federal agency's decision-making process and to facilitate the resolution of any inconsistencies between the proposed Federal activity and the State's enforceable CZM policies prior to implementation.

APPROVAL REQUIRED: HAWAII CZM PROGRAM — FEDERAL CONSISTENCY

1. Application: State Department of Planning and Economic Development - Coastal Zone Management (DPED-CZM)

   Data required for processing:
   A. An assessment of the proposed activity's consistency with the CZM program's enforceable policies is required. A format listing the program's major objectives and policies has been developed by DPED and is available in the "Procedures Guide for Achieving Consistency with the Hawaii Coastal Zone Management Program.
   B. A signed statement to the effect that the proposed activity is consistent with the Hawaii CZM Program and a detailed project description are submitted along with the CZM assessment to the DPED.
   C. For federall permitted and licensed activities, a copy of the permit application should be forwarded.
2. Review: State Department of Planning and Economic Development - Coastal Zone Management; County Planning Department
3. Approval: State Department of Planning and Economic Development - Coastal Zone Management

FOR INFORMATION AND PROCESSING CONSULT:

Department of Planning and Economic Development
Coastal Zone Management
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Phone: (808) 548-8467

LAND USE COMMISSION SPECIAL USE PERMIT

ACTIVITY: Any person who desires to use his/her land within an agricultural and rural district other than for agricultural or rural use, as the case may be, may petition the Planning Commission of the county within which his/her land is located for permission to use the land in the manner desired.

APPLICABLE AREA: All lands within the State Rural or Agricultural Districts.

SOURCE OF LEGAL AUTHORITY: State Land Use Commission Rules of Practice and Procedure and District Regulations, 1975

PURPOSE: To allow certain "unusual and reasonable" uses other than those permitted within the State Land Use Commission Agricultural or Rural Districts.

APPROVAL REQUIRED: LAND USE COMMISSION SPECIAL USE PERMIT

1. Application: County Planning Department of the county involved.

   Data required for processing:
   A. Documentation of ownership or authorization from the owner(s) of the property.
   B. Seven (7) sets of a plot plan of the property drawn to scale with all proposed structures shown thereon.
   C. Any architectural plans available.
   D. Filing fee: $35.00
   E. Location by area and tax map key.
   F. Brief statement outlining request and justifications.
2. Review: Planning Department and the Department of Public Works of the county involved.
3. Approval: Planning Commission of the county involved (when the project site is 15 acres or

less); State Land Use Commission (when the project site is greater than 15 acres)

FOR INFORMATION AND PROCESSING CONSULT:

Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Planning Department
County of Kauai
4280 Rice Street
Lihue, Kauai, Hawaii 96766

Planning Department
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

ACTIVITY: Discharging any pollutant, or substantially altering the quality of any discharges, or substantially increasing the quantity of any discharge.

APPLICABLE AREA: Surface streams and coastal waters.

SOURCE OF LEGAL AUTHORITY: Federal Water Pollution Control Act; Amendments of 1972, Public Law 92-500; Chapter 342, Part III, Hawaii Revised Statutes; Title 11, Administrative Rules, Chapter 55.

PURPOSE: To provide for the prevention, abatement and control of new and existing water pollution.

APPROVAL REQUIRED: NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

1. Application: State Department of Health - Environmental Protection and Health Service Division.

   Data required for processing:

   a. Two (2) copies of complete data, siting information, plan description, specifications, drawings, and other detailed information necessary to determine in what manner the new or existing treatment works or wastes outlet will be constructed or modified, operated, and controlled. (Physio-chemical characterization of the proposed effluent, specifically nitrogen and phosphorous, PH, temperature and any other factors and parameters by which the effluent differs from the quality of the receiving water.)
   b. $100.00 non-refundable filing fee.
2. Review: State Department of Health - Environmental Protection and Health Services Division
3. Approval: State Department of Health - Environmental Protection and Health Services Division.

FOR INFORMATION AND PROCESSING CONSULT:

Department of Health
Environmental Permits Branch
Environmental Protection and Health Service Division
State of Hawaii
645 Halekauwila Street
Honolulu, Hawaii 96813

Phone: (808) 548-6410

NATURAL AREA RESERVES

ACTIVITY: The Board of Land and Natural Resources or its authorized representative, with the approval of the commission, may issue permits to conduct activities otherwise prohibited by section 13-209-4 for research, education, management, or for any other purpose consistent with chapter 195, Hawaii Revised Statutes.

The following activities are prohibited within a natural area reserve (section 13-209-4):

(1) To remove, injure, or kill any form of plant or animal life, except game mammals and birds hunted according to department rules;
(2) To introduce any form of plant or animal life, except dogs when permitted by hunting rules of the department;
(3) To remove, damage, or disturb any geological or paleontological feature or substance.
(4) To remove, damage, or disturb any historic or prehistoric remains;
(5) To remove, damage, or disturb any notice, marker, or structure;
(6) To engage in any construction or improvement;
(7) To engage in any camping activity that involves the erecting of a tent or other temporary structure;
(8) To start or maintain a fire;
(9) To litter, or to deposit refuse or any other substance;
(10) To operate any motorized or unmotorized land vehicle or air conveyance of any shape or form in any area, including roads or trails, not designated for its use;
(11) To operate any motorized water vehicle or any shape or form in freshwater environments, including bogs, ponds, and streams, or marine waters, except as otherwise provided in the boating rules of the State Department of Transportation.
(12) To enter into, place any vessel or material in or on, or otherwise disturb a lake or pond.

APPLICABLE AREA: Within the boundaries of a natural area reserve (Ahihi-Kinau Natural Area Reserve - Cape Kinau; West Maui Natural Area Reserve, including Kahakuloa, Honokowai, Paneawa and Lihau sections; and Hanawai Natural Area Reserve)

SOURCE OF LEGAL AUTHORITY: Section 195-5, Hawaii Revised Statutes; Title 13, Administrative Rules of the Department of Land and Natural Resources, Chapter 209.

PURPOSE: To regulate activity within natural area reserves.

APPROVAL REQUIRED: NATURAL AREA RESERVES

1. Application: State Department of Land and Natural Resources - Natural Area Reserves System

   Data required for processing:
   A. Description of project;
   B. purpose;
   C. personnel involved (names and affiliation);
   D. method used;
   E. potential environmental impact;
   F. an Environmental Assessment may be required.

   NOTE: Application should be submitted in letter form.

2. Review: State Department of Land and Natural Resources - Natural Area Reserves System
3. Approval: Board of Land and Natural Resources; Natural Area Reserves System Commission

FOR INFORMATION AND PROCESSING CONSULT:

Department of Land and Natural Resources
Natural Area Reserves System
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Phone: (808) 548-2861

PERMIT FOR WORK IN THE SHORES AND SHORE WATERS

ACTIVITY: Dredging, filling, or erecting of any construction within the shore waters of the State of Hawaii.

APPLICABLE AREA: Shores, shore waters, navigable streams, and harbors belonging to or controlled by the State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapter 266, Hawaii Revised Statutes; Rules and Regulations and Section 19-42-161 of the State Department of Transportation Administrative Rules, Harbors Division.

PURPOSE: To promote public safety, health, and welfare in or on the shore waters and shores and on beaches encumbered with easements in favor of the public.

APPROVAL REQUIRED: PERMIT TO WORK IN THE SHORES AND SHORE WATERS

1. Application: State Department of Transportation — Harbors Division

Data required for processing:

a. Three (3) copies of the application form (DOT 3-009).
b. Tax Map Key (TMK) showing ownership of and adjacent to project site.
c. Three (3) copies of engineer drawings.
   1. Location of property lines.

2. Existing structures.
3. Elevations, soundings
4. Location, dimensions of proposed structure.
5. Other pertinent data; i.e., construction schedule and cost estimate.

d. Three copies of the Department of Army permit application.
e. A $50.00 non-refundable filing fee.

2. Review: State Department of Transportation — Harbors Division; State Department of Health.
3. Approval: State Department of Transportation — Harbors Division.

FOR INFORMATION AND PROCESSING CONSULT:

Department of Transportation
Harbors Division
State of Hawaii
79 S. Nimitz Highway
Honolulu, Hawaii 96813

Phone: (808) 548-2505

Permit to Change the Land Use or Construct or Alter a Structure Located Within the Airport Hazard Area Zones of Any Public, Quasi-Public or Military Airport Within the State

ACTIVITY: A permit is required to change the land use or construct or alter a structure of more than thirty-five (35) feet in height located within established airport hazard area.

APPLICABLE AREA: In the "Airport Hazard Area" which means any area of land or water, public or private, whose boundaries are defined by airport zoning regulations upon which an airport hazard might established if not prevented by Chapter 262-3 of the Hawaii Revised Statutes. The regulations do not apply to private airports.

SOURCE OF LEGAL AUTHORITY: Chapter 262, Hawaii Revised Statutes; Airport Zoning Regulation; Title 19, Administrative Rules of the State Department of Transportation

PURPOSE: That no airport hazard be established, maintained or created.

APPROVAL REQUIRED:

1. Application: State Department of Transportation — Airports Division

   Any such construction must conform to the height limitations established by the Airport Zoning Regulations.

2. Review: State Department of Transportation — Airports Division
3. Approval: State Department of Transportation — Airports Division

FOR INFORMATION AND PROCESSING CONSULT:

Department of Transportation
Airports Division, AIR-EM
State of Hawaii
Honolulu International Airport
Honolulu, Hawaii 96819

PERMIT TO CONSTRUCT AND/OR OPERATE A QUASI PUBLIC AIRPORT

ACTIVITY: Constructing and/or operating a quasi public airport.

APPLICABLE AREA: This permit and/or license requirements applies to any airport or heliport open to the general public either as an aircraft operator or as a passenger being transported for hire.

SOURCE OF LEGAL AUTHORITY: Chapter 261, Hawaii Revised Statutes; Dept. of Transportation's Rules and Regulations; Airport Site Approval; Airport Licensing and Airport License; Renewal Regulations; Title 19, Administration Rules of the Department.

PURPOSE: That the site/airport for the proposed operations are safe and adequate.

APPROVAL REQUIRED: PERMIT TO CONSTRUCT AND/OR OPERATE A QUASI PUBLIC AIRPORT

1. Application: State Department of Transportation — Airports Division

Data required for processing:

Letter of application must indicate the adequacy of the site, the land use, runway standards, traffic patterns and other information pertinent to the proposal.

2. Review: State Department of Transportation — Airports Division
3. Approval: State Department of Transportation — Airports Division

FOR INFORMATION AND PROCESSING CONSULT:

Department of Transportation
Airports Division, AIR-GA
State of Hawaii
Honolulu International Airport
Honolulu, Hawaii 96819

Phone: (808) 836-6450

PERMIT TO OPERATE (AIR QUALITY)

ACTIVITY: Authority to operate a new air pollution source or a modified existing source.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Clean Air Amendment of 1977, Public Law No. 95-95; Chapter 342, Hawaii Revised Statutes; Title II, Administrative Rules, Chapters 59 & 60.

PURPOSE: To ensure that the new source is designed, built, and equipped in accordance with the best practicable/available control technology and operated so as to reduce emissions to a minimum and not endanger the maintenance of applicable ambient air quality standards.

APPROVAL REQUIRED: PERMIT TO OPERATE (AIR QUALITY)

1. Application: State Department of Health — Environmental Permits Branch

Data required for processing:

   a. Submit completed application sixty (60) days prior to the end of construction, installation, or modification. In addition, the applicant must submit a written notification of completion of construction.
   b. Permit fee: To be determined.

2. Review: State Department of Health, Environmental Permits Branch
3. Approval: State Department of Health

FOR INFORMATION AND PROCESSING CONSULT:

Environmental Permits Branch
Hawaii State Department of Health
645 Halekauwila Street
Honolulu, Hawaii 96813

Phone: (808) 548-6410

PREVENTION OF SIGNIFICANT DETERIORATION (AIR QUALITY)

ACTIVITY: The construction and operation of a new major stationary source or a major modification of an existing source.

APPLICABLE AREA: State of Hawaii

SOURCE OF LEGAL AUTHORITY: Clean Air Amendment of 1977, Prevention of Significant Deterioration Regulation (CFR, Title 40, Section 52.21) of August 7, 1980, EPA/DOH Delegation Agreement of August 15, 1983.

PURPOSE: To prevent the significant deterioration of air quality by limiting the amount of degradation in any one area and by regulating any new major stationary sources and major modification of existing sources.

APPROVAL REQUIRED: Prevention of Significant Deterioration (PSD) Permit.

1. Application: State Department of Health — Environmental Permits Branch

Data required for processing:

   a. Determination of pollutants subject to PSD review.
   b. Determination of best available control technology for each pollutant subject to PSD review.
   c. Provide preconstruction monitoring of ambient air quality.

d. Conduct an air quality analysis to show that for each pollutant subject to PSD review, the source will not violate the national ambient air quality standards or the PSD concentration increments.
e. Analyze source impacts on soil, vegetation, and visibility.
f. Demonstrate that the source will not significantly impact Class I areas.

2. Time: The process to obtain a PSD permit is lengthy and may take from 8 to 24 months.
3. Review: State Department of Health, Environmental Permits Branch
4. Approval: State Department of Health and U.S. Environmental Protection Agency

FOR INFORMATION AND PROCESSING CONSULT:

Environmental Permits Branch
Hawaii State Department of Health
645 Halekauwila Street
Honolulu, Hawaii 96813

Phone: (808) 548-6410

PERMIT TO PERFORM WORK UPON A STATE HIGHWAY

ACTIVITY: Any work performed within the State highway right-of-way.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapter 264, Hawaii Revised Statutes.

PURPOSE: To regulate and control work on State highways.

APPROVAL REQUIRED: PERMIT TO PERFORM WORK UPON A STATE HIGHWAY

1. Application: State Department of Transportation — Highways Division

Data required for processing:

a. Three (3) sets of construction plans.
b. Performance bond. A letter of guarantee is accepted for government agencies and public utility companies.
c. Certificate of Insurance with the State of Hawaii being the additional or co-insured.
d. Permit fee.
The fee amount is computed on the following basis:
First 20 lin. ft. and/or sq. yd; 20 lin. ft. and/or sq. yd. at $0.50 per lin. ft. and/or sq. yd. = $10.00 (minimum charge)
Balance of Trench: lin. ft. at $0.10 per lin. ft.
Balance of Area: sq. yd. at $.10 per sq. yd.
e. Data required in 1b, 1c and 1d should be submitted upon approval of the construction plans by State Department of Transportation, Highways Division.

FOR INFORMATION AND PROCESSING CONSULT:

Maui
Department of Transportation
Highways Division
State of Hawaii
650 Palapala Drive
Kahului, Hawaii 96732

Phone: 877-5061

Kauai
Department of Transportation
Highways Division
State of Hawaii
3060 Eiwa Street
Lihue, Hawaii 96766

Phone: 245-4461

Hawaii
Department of Transportation
Highways Division
State of Hawaii
50 Makaala Street (P.O. Box 4277)
Hilo, Hawaii 96720

Phone: 935-3347

PRIVATE INDIVIDUAL WASTEWATER DISPOSAL SYSTEM

ACTIVITY: Any construction of private individual wastewater disposal system in an unsewered area unless approved by the Director of Health. "Disposal System" means any outlet, outfall sewer, seepage pit, cesspool, injection well, effluent irrigation system, tile field, disposal trench, or other facility or any combination thereof used in the disposal of wastewater including any wastewater transmission lines, pumps, power or other equipment associated with the ultimate disposal of wastewater.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapters 321 and 342, Hawaii Revised Statutes; Public Health Regulations, Chapter 38

PURPOSE: To set minimum requirements to protect public health, safety, and welfare.

APPROVAL REQUIRED: PRIVATE INDIVIDUAL WASTEWATER DISPOSAL SYSTEM

1. Application: State Department of Health — Environmental Protection and Health Service Division (if dwelling is not built concurrently with the construction of the disposal system); Maui County Department of Public Works — Land Use and Codes Administration (if dwelling is built concurrently with the disposal system).

Data required for processing:
Three (3) copies of detailed plans and specifications for the proposed private individual wastewater disposal system.

2. Review: State Department of Health — Environmental Protection and Health Service Division

3. Approval: State Department of Health — Environmental Protection and Health Service Division

NOTE: Private individual wastewater disposal systems are limited to a dwelling with two or less dwelling units, and in no case are permitted forn an area zoned agricultural or conservation provided such buildings or facilities are incidental to the operation of an agricultural enterprise or are consistent with the conservation district use intent.

FOR INFORMATION AND PROCESSING CONSULT:

Department of Health
Sanitation Branch
Environmental Protection and Health Service Division
State of Hawaii
54 High Street
Wailuku, Maui, Hawaii 96793

Phone: 244-4255

PRIVATE WASTEWATER TREATMENT WORKS APPLICATION FOR PERMIT TO OPERATE

ACTIVITY: Any construction of private treatment works in an unsewered area unless approved by the Director of Health. "Treatment Works" means any treatment unit and its associated collection system and disposal system, excluding individual wastewater systems.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapters 321 and 342, Hawaii Revised Statutes; Title II, Administrative Rules, Chapter 57.

PURPOSE: To set forth minimum requirements for the following general purposes: (a) to clarify responsibilities of owners, engineers and the Department; (b) to set minimum distance requirements so that minor nuisances are avoided; (c) to get minimum requirements to protect public health, safety, and welfare, and to protect the treatment works from malicious damage or unauthorized entry; (d) to emphasize the need for proper operation and maintenance.

APPROVAL REQUIRED: PRIVATE WASTEWATER TREATMENT WORKS APPLICATION FOR PERMIT TO OPERATE

1. Application: State Department of Health — Environmental Protection and Health Service Division

Data required for processing:

A. One (1) set of detailed plans and specifications for building permit clearance.
B. A maintenance schedule.

NOTE: Inspection is required before operation.

2. Review: State Department of Health — Environmental Protection and Health Service Division
3. Approval: State Department of Health — Environmental Protection and Health Service Division

FOR INFORMATION AND PROCESSING CONSULT:

Department of Health
Environmental Protection and Health Service Division
State of Hawaii
P.O. Box 3378
1250 Punchbowl Street
Honolulu, Hawaii 96801

Phone: (808) 548-6455

REVOCABLE PERMIT FOR USE OF STATE LANDS

ACTIVITY: Issuance of revocable permit covering occupancy and use of state-owned property

APPLICABLE AREA: Statewide

SOURCE OF LEGAL AUTHORITY: Chapter 171, HRS

PURPOSE: Temporary occupancy and utilization of state-owned lands for all types of uses.

APPROVAL REQUIRED:

1. Application: Department of Land and Natural Resources, Division of Land Management

   Application must be in writing using standard Division application for state land form or application by letter containing the following data.
   a. Name and address of applicant.
   b. Location of property desired.
   c. Identification of property by Tax Map Key number.
   d. Approximate area of property in square feet or acres.
   e. Proposed use of the property.
2. Environmental assessment of the proposed use must be submitted with the application.
3. Review and recommendation by Division of Land Management.
4. Approval by Board of Land and Natural Resources.
5. Documentation by Attorney General's Office and Division of Land Management.

FOR INFORMATION AND PROCESSING CONSULT:

Statewide

Department of Land and Natural Resources
Division of Land Management
P.O. Box 621
Honolulu, Hawaii 96809

Telephone: 548-3262 for Oahu application
548-6460 for Statewide application

Hawaii
Department of Land and Natural Resources
Division of Land Management
P.O. Box 936
Hilo, Hawaii 96721-0936

Telephone: Hilo 961-7245

Maui/Molokai/Lanai
Department of Land and Natural Resources
Division of Land Management
P.O. Box 1049
Wailuku, Maui, Hawaii 96793

Telephone: Wailuku 244-4272

Kauai
Department of Land and Natural Resources
Division of Land Management
P.O. Box 3390
Lihue, Kauai, Hawaii 96766

Telephone: Lihue 245-4491

SOLID WASTE DISPOSAL PERMIT

ACTIVITY: Establishing, modifying or operating any solid waste disposal or a part thereof or any extension or addition thereto.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapter 342, Hawaii Revised Statutes; Title II, Administrative Rules, Chapter 58

PURPOSE: To protect public health and safety, conserve natural resources, and preserve and enhance the beauty and quality of the environment.

APPROVAL REQUIRED: SOLID WASTE DISPOSAL PERMIT

1. Application: State Department of Health — Environmental Permits Branch

Data required for processing:

a. Detailed plans and specifications for the facility.
b. Certification of compliance with local ordinances and zoning requirements.
c. An operation plan report detailing the proposed method of operation, population and area to be served, the characteristics, quantity, and source of material to be processed, the use and distribution of processed materials, method of processed residue disposal, emergency operating procedures, the type and amount of equipment to be provided and the proposed ultimate use of land or ocean disposal sites.
d. Filing fee: $20.00

2. Review: State Department of Health — Environmental Permits Branch
3. Approval: State Department of Health — Environmental Protection and Health Services Division

STATE CLEARINGHOUSE REVIEW

ACTIVITY: A project which is to be fully or partially funded through a Federal program may be subject to clearinghouse review. Federal regulations require such review for more than 225 Federal programs. Since additions and deletions to the list of programs may be made, it is advisable to confirm applicability to a particular proposed project with the State Clearinghouse Agency — Department of Planning and Economic Development.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Section 204 — Demonstration Cities and Metropolitan Development Act (1966); Title IV — Intergovernmental Cooperative Act (1968); Clearinghouse Procedures Manual (State of Hawaii); Presidential Executive Order 12372

FOR INFORMATION AND PROCESSING CONSULT:
Environmental Permits Branch
Hawaii State Department of Health
645 Halekauwila Street
P.O. Box 3378
Honolulu, Hawaii 96813

Phone: (808) 548-6410

State of Hawaii Permits, *continued*

PURPOSE: The State Clearinghouse coordinates the review of Federal funding applications and proposed direct Federal developments. It is designed to help the applicant develop the best possible project proposals to achieve his/her objectives. The project proposal is reviewed for potential duplication or overlap, and compatibility with existing plans and programs of State and County agencies.

APPROVAL REQUIRED: STATE CLEARINGHOUSE REVIEW

1. Application: State Department of Planning and Economic Development; Federal agency which provides the federal funds for the particular project.

Data required for processing:

A. Standard Form 424 (See Page 88). This must be submitted to State Clearinghouse at least sixty (60) days before the application for Federal funds is submitted. This form serves as notification of intent and summary description of the proposed project.

B. If a detailed plan or program has been developed, two copies should be submitted with Standard Form 424.

C. Projects involving construction or major land use changes are required to provide site maps, tax map keys, and evidence of coordination with the State Dept. of Health, State Dept. of Land and Natural Resources, and the State Office of Environmental Quality Control.

2. Review: State Department of Planning and Economic Development; Federal agency involved; Other agencies having programs which might be affected by the project.
3. Approval: Federal agency involved in project.

FOR INFORMATION AND PROCESSING CONSULT:

Department of Planning and Economic Development
State Clearinghouse
State of Hawaii
250 South King Street
Honolulu, Hawaii 96813

Phone: (808) 548-3016

STATE LAND USE COMMISSION DISTRICT BOUNDARY AMENDMENT

ACTIVITY: The following people may file a petition to the State Land Use Commission for the redistricting of land in the 'Applicable Area': (1) Land Use Commission; 2) State departments or agencies; 3) County departments or agencies in which the land is situated; and 4) Any person with a property interest in the land sought to be reclassified.

APPLICABLE AREA: Lands within the State Urban, Rural, Agricultural or Conservation Districts.

SOURCE OF LEGAL AUTHORITY: Chapter 205, Hawaii Revised Statutes, as amended; State Land Use Commission's Rules of Practice and Procedure and District Regulations

PURPOSE: To provide a mechanism to redesignate land areas to more appropriate land use districts.

APPROVAL REQUIRED: STATE LAND USE COMMISSION DISTRICT BOUNDARY AMENDMENT

For petitions less than 15 acres in Agricultural, Rural and Urban Districts, check process of appropriate County Planning agency.

For Petitions to reclassify Conservation District lands, and petitions to reclassify lands in the Urban, Rural and Agricultural Districts of more than 15 acres, the following procedure would apply:

1. Application: State Land Use Commission

Data required for processing:

Format and information required for petitions is included in the State Land Use Commission's Rules of Practice and Procedure and District Regulations, dated December, 1975, as amended.

2. Review: Appropriate County agencies as identified by the Planning Department of the county involved; State Land Use Commission; State Department of Planning and Economic Development; any Intervenor that is admitted into the proceeding.
3. Approval: State Land Use Commission

FOR INFORMATION AND PROCESSING CONSULT:

State Land Use Commission
Old Federal Building
335 Merchant Street, Rm. 104
Honolulu, Hawaii 96813

Phone: (808) 548-3039

VARIANCE FROM POLLUTION CONTROLS

ACTIVITY: Any emission or discharge of a pollutant or noise which exceeds applicable standards.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapters 321, 340E and 342, Hawaii Revised Statutes; Title 11, Administrative Rules, Chapter 42, 54, and 59.

PURPOSE: The emission or discharge occuring or proposed to occur does not substantially endanger human health or safety.

APPROVAL REQUIRED: VARIANCE FROM POLLUTION CONTROLS

1. Application: State Department of Health — Environmental Protection and Health Services Division

Data required for processing:

Submit together with application form any additional information which will support it for the

variance (i.e., statements, plans, area maps, histories, etc., label "Attachment F-1").
2. Review: State Department of Health — Environmental Protection and Health Services Division
3. Approval: State Department of Health — Environmental Protection and Health Services Division

FOR INFORMATION AND PROCESSING CONSULT:

Department of Health
Environmental Protection and Health Services Division
State of Hawaii
1250 Punchbowl Street
Honolulu, Hawaii 96813

Phone: (808) 548-6455

WELL DRILLING/MODIFICATION

ACTIVITY: Anyone proposing to drill a well, modify an existing well or abandon a well must apply for a permit.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Hawaii Revised Statutes, Chapters 177 and 178; Title 13, Subtitle 7, Chapter 166 of the Administrative Rules entitled "Rules of the Control of Ground Water Use in the State of Hawaii".

PURPOSE: To provide a meaningful information base for making administrative decisions on the designation, allocation and use of ground water resources in the state.

APPROVAL REQUIRED: WELL DRILLING/MODIFICATION
1. Application: State Dept. of Land and Natural Resources — Division of Water and Land Development

Data required for processing:
Site and construction plans.
2. Review: State Dept. of Land and Natural Resources — Division of Water and Land Development
3. Approval: State Board of Land and Natural Resources

FOR INFORMATION AND PROCESSING CONSULT:

Department of Land and Natural Resources
Division of Water and Land Development
1151 Punchbowl Street
Honolulu, Hawaii 96913

Phone: (808) 548-7539

ZONE OF MIXING

ACTIVITY: Discharging waste material into a location where water quality standards for that area would be violated.

APPLICABLE AREA: All waters surrounding the Hawaiian Islands.

SOURCE OF LEGAL AUTHORITY: Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500; Chapter 342, Hawaii Revised Statutes; Title II, Administrative Rules, Chapter 54

PURPOSE: The discharge occurring or proposed to occur does not substantially endanger human health or safety, does not violate basic standards applicable use of the water areas for which it is classified, and has received the best degree of treatment or control practicable under existing technology or, in the case of the proposed discharge, will receive the best available demonstrated pollution control technology, processes and operating methods.

APPROVAL REQUIRED: APPLICATION FOR ZONE OF MIXING

1. Application: State Department of Health — Environmental Protection and Health Services Division

Data required for processing:
Complete and detailed description of present conditions, an explanation of how these conditions do not conform to standards and other pertinent information.

2. Review: State Department of Health — Environmental Protection and Health Services Division
3. Approval: State Department of Health — Environmental Protection and Health Services Division

FOR INFORMATION AND PROCESSING CONSULT:

Department of Health
Environmental Protection and Health Services Division
State of Hawaii
645 Halekauwila Street
Honolulu, Hawaii 96813

Phone: (808) 548-6410

Kauai

Department of Transportation
Highways Division
State of Hawaii
3060 Eiwa Street
Lihue, Hawaii 96766

Phone: 245-4461

Hawaii

Department of Transportation
Highways Division
State of Hawaii
50 Makaala Street
P.O. Box 4277
Hilo, Hawaii 96720

Phone: 935-3347

NEW ACCESS POINT OR RELOCATING EXISTING ACCESS POINT FOR STATE HIGHWAYS

ACTIVITY: Creation of any new access, or widening or relocation of any existing access by a property owner.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: Chapter 264, Hawaii Revised Statutes.

PURPOSE: To regulate and control access points to and from State highways.

APPROVAL REQUIRED: NEW ACCESS POINT OR RELOCATING EXISTING ACCESS FOR STATE HIGHWAYS

1. Application: State Department of Transportation — Highways Division

Data required for processing:

   a. Three (3) sets of construction plans.
   b. Performance bond. A letter of guarantee is accepted for government agencies.
   c. Certificate of Insurance with the State of Hawaii being the additional or co-insured.
   d. Data required in 1b and 1c should be submitted upon approval of the construction plans by State Department of Transportation Highways Division.

2. Review: State Department of Transportation — Highways Division
3. Approval: State Department of Transportation — Highways Division

FOR INFORMATION AND PROCESSING CONSULT:

Maui

Department of Transportation
Highways Division
State of Hawaii
650 Palapala Drive
Kahului, Hawaii 96732

Phone: 877-5061

Kauai

Department of Transportation
Highways Division
State of Hawaii
3060 Eiwa Street
Lihue, Hawaii 96766

Phone: 245-4461

Hawaii

Department of Transportation
Highways Division
State of Hawaii
50 Makaala Street
P.O. Box 4277
Hilo, Hawaii 96720

Phone: 935-3347

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Cable Address "MIDLUMCO"
PHONE: 836-8111

WOOD PROTECTION CO.
150 Keaa St.
Hilo, Hawaii 96720
Ph. 961-4477

HISTORIC PRESERVATION CHAPTER 6E COMPLIANCE

ACTIVITY: Any undertaking by an agency or officer of the State which may affect a significant historic property. Undertakings include: highway construction by the Dept. of Transportation, land subdivisions and awards by the Dept. of Hawaiian Home Lands, conservation district use applications, boundary petitions reviewed by the Land Use Commission, environmental impact statements reviewed by the Office of Environmental Quality Control, etc.

APPLICABLE AREA: State of Hawaii

SOURCE OF LEGAL AUTHORITY: Chapter 6E, Hawaii Revised Statutes.

PURPOSE: To ensure that state agencies and officials adequately consider the impacts of their undertakings on significant historic properties and take acceptable steps to see that any impacts to significant properties are reduced.

APPROVAL REQUIRED: Written approval by the Historic Sites Section.

1. Application: Historic Sites Section.
   Data required for processing:
   a. One (1) copy of a historic preservation review that includes (1) an inventory of historic properties in the project area, (2) initial significance assessments for all such properties, (3) a statement of effect (impact) for all significant properties, and (4) plans (historic preservation management plans) to mitigate the effects on any significant property that will be affected. The steps in such reviews are often submitted incrementally. Minimal standards for historic preservation review are now being prepared. Until these are completed and come into effect, the agency or official should contact the Historic Sites Section for information required in the review.
   b. Filing fee: none.
2. Review: Historic Sites Section
3. Approval: Historic Sites Section

FOR INFORMATION AND PROCESSING CONSULT:

Historic Sites Section
Division of State Parks
Dept. of Land & Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Phone: (808) 548-7460

PERMIT FOR WORK AT HISTORIC PROPERTIES ON STATE-OWNED OR CONTROLLED LANDS

ACTIVITY: Any work at a historic property on state owned or controlled lands. This includes archaeological research, restoration, stabilization, clearing, exhibition, etc.

SOURCE OF LEGAL AUTHORITY: Chapter 6E, Hawaii Revised Statutes.

PURPOSE: To ensure that such work meets acceptable standards and will not damage historic properties.

APPROVAL REQUIRED: Approval by Historic Sites Section.

1. Application: Historic Sites Section.
   Data required for processing:
   a. One (1) copy of proposed work, to meet minimal standards of archaeological research and/or site development. Minimal standards are now being prepared. Until these come into effect, the applicant should contact the Historic Sites Section for information required in a proposal.
   b. Filing fee: None.
2. Review: Historic Sites Section.
3. Approval: Historic Sites Section.

FOR INFORMATION AND PROCESSING CONSULT:

Historic Sites Section
Division of State Parks
Dept. of Land & Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Phone: (808) 548-7460

HISTORIC PRESERVATION SECTION 106 COMPLIANCE

ACTIVITY: Any federal agency's undertaking that may affect any historic property that is included on or eligible for inclusion on the National Register of Historic Places. Undertakings range from federally-funded highway and airport projects, to Community Development Block Grants, to federal permits such as Army Corps of Engineer permits, to FMHA loans.

APPLICABLE AREA: United States.

SOURCE OF LEGAL AUTHORITY: U.S. National Historic Preservation Act of 1966, as amended (Public Law 89-665); Executive Order 11593; associated federal regulations.

PURPOSE: To ensure that federal agencies take into account the effect of their proposed undertakings on significant historic properties listed on or eligible for inclusion on the National Register of Historic Places and attempt to reduce any adverse impacts.

APPROVAL REQUIRED: State Historic Preservation Office, National Park Service, U.S. Advisory Council on Historic Preservation.

1. Application: Initially to State Historic Preservation Officer.
   Data required for processing:

   a. Several steps of historic preservation review are involved — all of which must meet federal requirements. (1) Step 1 requires the agency to inventory historic properties in the project area if significant properties are likely to be present and to initially determine if any properties are eligible for or are on the National Register. Submittal to the SHPO is required. If such properties are not present, review ends. If such properties are present, then the National Park Service's National Register Program is contacted for an official determination. (2) Step 2 requires the agency to determine the effect of the undertaking on such National Register properties. Submittal to the SHPO is required. If there is no effect, review ends. If there is an effect, then mitigation plans are required. (3) Step 3 involves the preparation of mitigation plans by the agency. Such plans are submitted to the SHPO for review, consultation and/or approval. Then the plans are submitted to the Advisory Council on Historic Preservation for review, consultation and/or approval. Agreed upon plans become legally binding.

   b. Filing fee: None.

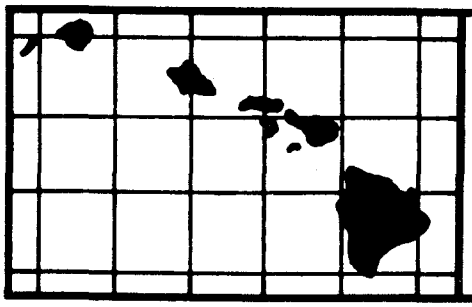
2. Review: State Historic Preservation Office, National Park Service National Register Program, U.S. Advisory Council on Historic Preservation.

3. Approval: State Historic Preservation Office, National Park Service National Register Program, U.S. Advisory Council on Historic Preservation.

FOR INFORMATION AND PROCESSING CONSULT:

Historic Sites Section
Division of State Parks
Dept. of Land & Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Phone: (808) 548-7460



FEDERAL PERMITS

DEPARTMENT OF THE ARMY PERMIT FOR ACTIVITIES IN WATERWAYS

ACTIVITY: Any person, firm or agency (including Federal, State and local governmental agencies) who plan to do work in the waters of the United States must obtain a permit from the U.S. Army Corps of Engineers. Typical activities include construction of seawalls, piers, dredging and excavation, and depositing fill.

APPLICABLE AREA: Waters of the United States include ocean water; coastal, inland and tidal waters, tidal ponds, fishponds, rivers, streams and adjacent wetlands; impoundments, perched wetlands, and intermittent streams.

SOURCE OF LEGAL AUTHORITY: Section 10 of the River and Harbor Act, Approved March 3, 1899 (33 USC 403); Section 404 of the Clean Water Act (33 USC 1344); Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 USC 1413); Regulatory Programs of the Corps of Engineers, as published in the Federal Register, July 22, 1982 (33 CFR Parts 320-330)

PURPOSE: To insure that our nation's water resources are safeguarded and used in the best interest of the public.

APPROVAL REQUIRED: Activities in Waterways

1. Application: U.S. Army Corps of Engineers — Operations Branch

   Data required for processing:
   A. One (1) set of plans of the proposed activity drawn on 8½" x 11" sheets, showing the vicinity map, plan view and typical section.
   B. Environmental information.
   C. Coastal Zone Management certification.
   D. Copies of local government permits or applications.
   E. Permit fee: commercial or industrial use — $100.00, non-commercial use — $10.00. Fees should not be submitted with permit application, but will be collected prior to issuance of the permit.
2. Review: U.S. Army Corps of Engineers; Appropriate government agencies; Special Interest Groups; General Public
3. Approval: U.S. Army Corps of Engineers

FOR INFORMATION AND PROCESSING CONSULT:

U.S. Army Corps of Engineers
Operations Division
Fort Shafter, Bldg. 230
Honolulu, Hawaii 96858

Phone: (808) 438-9258

ENVIRONMENTAL IMPACT STATEMENTS

ACTIVITY: Environmental impact statements are required by NEPA for major federal projects and permit action in Hawaii. NEPA EIS's go through a scoping process, a draft EIS stage, public hearings, and a final EIS stage. An EIS-NEPA is required for private projects if: a) the project requires issuance of a Federal permit and b) the project constitutes a major action significantly affecting the environment.

APPLICABLE AREA: State of Hawaii.

SOURCE OF LEGAL AUTHORITY: National Environmental Policy Act of 1969 (NEPA), Public Law 91-190; National Council of Environmental Quality Guidelines

PURPOSE: To serve as an action-forcing device to insure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal government. It shall provide full and fair discussion of significant environmental impacts and reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.

APPROVAL REQUIRED: EIS-NEPA

1. Application: The Federal Agency under whose jurisdiction the proposed land development project falls.

   Data required for processing:
   The EIS is to be a thorough, detailed evaluation of the environmental consequences of the proposed action. The document is to include sufficient detail so that responsible decision-makers, and the public, have an accurate picture of its possible consequences. Contract and format requirements are quite specific and are detailed in the Guidelines referred to above. While the

Federal Agency is theoretically responsible for preparing the document, in practice the applicant must generate the required information and perform necessary analysis.
2. Review: State Environmental Quality Commission; President's Council on Environmental Quality
3. Approval: President's Council on Environmental Quality

FOR INFORMATION AND PROCESSING CONSULT:
The Federal Agency under whose jurisdiction the proposed land development project falls under.

NOTICE OF CONSTRUCTION, ALTERATIONS, ACTIVATION, AND DEACTIVATION OF AIRPORTS

ACTIVITY: Any person proposing to construct, alter, activate, or deactivate a civil or joint use (civilian/military) airport, must notify the Administrator, Federal Aviation Administration. This does not apply to any project which Federal Aid has been requested under the Federal Airport Act, the Airport and Airway Development Act of 1970, or to any project involving a temporary airport which is intended to be used solely in VFR weather conditions for a period of not less than 30 consecutive days with no more than 10 operations a day.

Project requiring notice:
a. Construct or otherwise establish a new airport or activate an airport.
b. Construct, realign, alter, or activate any runway, landing strip, or associated taxiway for a period of one year or more.
c. Deactivate, discontinue using, or abandon an airport, runway, landing strip, or associated taxiway for a period of one year or more.
d. Change the status of an airport from personal use (exclusive use by the owner or other persons authorized by the owner), to an airport open to the public.

APPLICABLE AREA: United States.

SOURCE OF LEGAL AUTHORITY: Part 157 is codified under Subpart I, Airports, or Title 14 of the Code of Federal Regulations; Federal Aviation Regulations, Part 157, as published January 1975; Advisory Circular No. 70-2D, dated August 1, 1979

PURPOSE: To promote public health and safety.

APPROVAL REQUIRED: NOTICE OF CONSTRUCTION, ALTERATIONS, ACTIVATION, AND DEACTIVATION OF AIRPORTS

1. Application: Federal Aviation Administration (FAA), Pacific-Asia Branch

Hawaii

County Government Contacts

Activity	Person to Call	Telephone
Project Plans/Specs	Robert K. Yanabu (section head) - Civil	961-8327
	Herbert Hayama - Building	961-8331
	Harold Sugiyama - Sewers & Sanitation	961-8338
	Richard Nishimura - Traffic	961-8341
Engineering Service	Bruce McClure	961-8321
Engineering & Surveys	Robert K. Yanabu	961-8327
Building Constr./Maint. & Code Enf.	Herbert Hayama	961-8331
Electrical Inspection	Iemasa Kubo	961-8331
Plumbing Inspection	Kokichi Hara	961-8331
Building Inspection	Wallis Nagareda (Hilo)	961-8331
	Colbert Nozaki (Kona)	323-2661
Safety Coordination	Albert Nakano	961-8215
Building Permits	Wayne Onomura	961-8331
Sewerage/Sewage Pump	Harold Sugiyama	961-8338
Drainage	Robert K. Yanabu	961-8327
Traffic Signs/Marking & Parking Meters	Richard Nishimura	961-8341
Traffic Signals & Street Lights	Lynn Jakahi	961-8341
Highway Construction/Maint.	Richard Mitsumori	961-8349
New Paving	Robert K. Yanabu	961-8327
Water Works	William Sewake (Department of Water Supply)	969-1421
Bid/Contract Award Information	Bruce McClure	961-8321
Parks/Recreation Construction	Glenn Miyao	961-8311
Purchasing/Accounts	Bill Gray	961-8231
Finance/Payments	Gary Takamura	961-8241
Materials Prequalification	Bruce McClure	961-8321
School Construction	Herbert Watanabe (State Department of Education)	961-7201

Hawaii

County Agencies

DEPARTMENT OF PLANNING

The members of the Planning Department, which consists of a planning director, a Planning Commission and a Board of Appeals, are appointed by the mayor and approved by the council.

The Planning Commission consists of nine members and the Board of Appeals of seven members. They retain a staff to support their activities.

The chief engineer of the Department of Public Works and the manager of the Department of Water Supply are ex-officio members of the department without voting authority.

In addition to his duties with the Planning Department, the planning director is the chief planning officer of the county and the technical advisor to the mayor and the council on all planning and related matters.

The Planning Commission holds public hearings when necessary, publishing an advance notice of time and place of the hearings. They recommend any change of the land use boundaries to the State Land Use Commission. However, they act only as an advisory body to the mayor, council and the planning director.

Land is designated for urban, agricultural, rural or conservation use. Under state laws, the county zones are all urban districts.

The Board of Appeals hears and decides appeals from actions of the director and the Planning Commission; appeals from actions of the Chief Engineer in the enforcement an of building, electrical, plumbing, housing and excavation, fills, grading, grubbing, stockpiling and erosion and sedimentation control chapters of the code. The board has jurisdiction including but not limited to variances from the housing, building, plumbing, and electrical chapters of the code;

and adoption, amendment, or repeal of any rule of the board.

Telephone: 961-8288. Address: County Building.

DEPARTMENT OF PARKS & RECREATION

The responsibilities of the Department of Parks and Recreation are varied and extensive. Among the facilities for which it is responsible are seven county swimming pools, 25 community parks, 31 beach parks, 9 neighborhood parks, a municipal golf course, zoo, gymnasiums and tennis courts, the Civic Auditorium, a regional sports complex (Hoolulu) and Island-wide senior citizens program, and the Veterans and Alae Cemeteries.

The Director of Parks and Recreation is appointed by the mayor.

Telephone: 961-8311. Address: County Building.

DEPARTMENT OF FINANCE

The Department of Finance is headed by a director appointed by the mayor and consists of five divisions.

The Division of Accounts, headed by a controller, maintains a general accounting system for the county. Included among the responsibilities for the department are preparation of payrolls, claim warrants, pensions, financial reports, and real and personal property inventories.

The Budget Division assists the mayor and director in preparing and executing the capital budget, operating budget and operating program. It is headed by the budget officer.

The Purchasing Division operates a centralized purchasing system for the procurement of services, supplies and equipment for all county agencies except the Department of Water Supply, Hawaii Redevelopment Agency and the Office of Economic Opportunity. Competitive bidding is required if the amount of purchase is expected to exceed $4,000.00 The division is headed by the purchasing agent.

The Treasury Division is custodian of all public funds and handles collections, deposits and disbursements. It is also responsible for registration of motor vehicles and issues business, occupational, bicycle, dog and other miscellaneous licenses. The division is headed by the treasurer.

The Real Property Tax Division assesses, bills and collects real property taxes.

Telephone: 961-8201. Address: 865 Pilani St., Hilo.

DEPARTMENT OF RESEARCH & DEVELOPMENT

The director of Research & Development, who is appointed by the Mayor, has the responsibility to maintain the county's Municipal Reference Center and disseminate data needed for managerial and legislative decision-making, as well as program and policy-making.

The department encourages and supports economic development projects, including, but not limited to visitor industry promotion, agriculture and new and emerging industries such as astronomy, aquaculture, electronic assembly and other light manufacturing industries.

Telephone: 961-8366. Address: 34 Rainbow Dr.

Department of Public Works

The Department of Public Works shall be headed by a chief engineer appointed by the mayor. The chief engineer must be a registered professional engineer. The powers, duties and functions of the department shall be prescribed by ordinance.

The chief engineer is also an ex-officio member of the Water Commission and the Planning Commission.

Telephone: 961-8321. Address: County Building.

WASTEWATER AND SOLID WASTE DIVISION

The Wastewater and Solid Waste Division is responsible for the operation and maintenance of the county's sewage and solid waste disposal systems and the development of programs for construction and operation of new facilities for sewerage systems and solid waste disposal.

Telephone: 961-8338. Address: County Building.

HIGHWAY MAINTENANCE DIVISION

The Highway Maintenance Division provides road maintenance service through the South Hilo, North Hilo-Hamakua, North and South Kohala, North and South Kona, Ka'u and Puna road districts. The bureau provides repairs and maintenance and improvements of all county roads and streets and does limited construction of new roadways and widening and resurfacing of existing roadways; also, maintains flood control structures and drainage channels, solid waste disposal sites and transfer station sites and rural cemeteries.

Telephone: 961-8349. Address: County Buildings.

ENGINEERING AND SURVEYS DIVISION

The Engineering and Surveys Division is responsible for surveying, designing, reviewing and inspecting the civil engineering aspects of subdivisions, drainage, grading, roads, bridges and flood control. The division performs land

rights surveys for acquisition and construction surveys; also, prepares the maps and description requirements thereof. The division also reviews processing of variances, special permits for subdivisions, zone changes, land use, shoreline and related subjects.

Telephone: 961-8327. Address: County Building.

BUILDING DIVISION

The division is responsible for all code enforcement inspection programs pertaining to building construction and is responsible for the design and construction of building facilities.

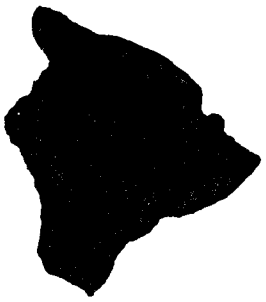
The division is also responsible for the repair and maintenance of all Hawaii County buildings and bridges.

Telephone: 961-8331. Address: County Building.

TRAFFIC SERVICES DIVISION

The Traffic Services Division is responsible for the operation and maintenance of traffic control devices on all county highways, including traffic signals, street lights, signs and markings, and parking meters and facilities.

Telephone: 961-8341. Address: County Building.



Hawaii

Utilities

ELECTRIC

Hawaii Electric Light Co. Inc. (HELCO) was organized in 1894 as Hilo Electric Co. and franchised in 1895 to generate and sell electricity in the Hilo area. By 1921 it was serving a number of populated sections well beyond the Hilo district.

In February, 1970, HELCO became a wholly owned subsidiary of Hawaiian Electric Co., Inc.

HELCO's peak load was 102 megawatts in 1985, and that year the company sold 505 million kilowatthours of electricity to its more than 41,000 metered customers.

HELCO's generating units at four locations (Kamuela, Kanoelehua, Keahole and Waiakea) have a total generating capability rating of 101,000 kilowatts.

The company also purchases biomass-fueled electricity under firm contracts from Big Island sugar plantations, and it purchases wind, hydro and geothermal-generated power from other producers selling electricity from those resources. Of the 505 million kilowatthours of electricity sold to HELCO customers, 36 percent was supplied by the sugar companies, 3 percent was generated using steam from the experimental geothermal power plant at Pohoiki, and 1 percent came from small hydro sources and wind energy.

HELCO's facilities include 556 pole miles of 69 KV and 33 KV transmission lines; 1,896 miles of overhead distribution lines plus 210 miles of underground distribution lines.

HELCO's telephone number is 935-1171. Service applications may be made at their office building at 1200 Kilauea Ave. in Hilo. Engineering and rate cost estimating assistance is available.

TELEPHONE

Hawaiian Tel provides assistance to Hawaii County's owners, developers, architects, engineers, and contractors in the design and installation of telecommunication systems and their associated support structures. Hawaiian Tel's Building Industry Consulting Service offers design consultation for low cost, and extremely aesthetic support structures for telecommunication systems. These services range from the installation of house wiring to the design of telecommunication network support structures.

Hawaiian Tel's Systems + Services Division provides the latest in telecommunication systems. They have equipment for everyone from the small business firm to hotels, commercial buildings, and high tech facilities.

Hawaiian Tel can also locate and identify underground telephone cable, at no cost, for contractors who are planning to excavate. The supervising engineer for Hawaiian Tel can render assistance in this area from the Hawaii branch office at 935-9459.

For more information on telecommunication systems and support structures call 1-800-272-5266.

GAS

Gasco Inc. (The Gas Company), provides LPG (propane) energy for commercial, industrial and residential applications from four locations throughout Hawaii County: Hilo, Waimea, Kailua-Kona and Naalehu (Ka'u).

Residential sales to individual home owners and contractors; commercial and industrial projects, such as hotels, apartments and subdivisions; and LP carburetion are available. Branch manager — George Lee.

Engineering, technical sales and service assistance is available from business offices in Hilo (945 Kalanianaole Avenue, phone 935-0021)

and in Kailua-Kona (74-5564 Kaiwi Street, phone 329-2984). Additional technical and engineering assistance is available from The Gas Company's main office in Honolulu, phone 1-800-547-3519.

WATER

The County of Hawaii Department of Water is a semi-autonomous agency responsible for the management, control and operation of the county water works system and all related property. It prepares an annual budget, has the authority to issue bonds, and can acquire, by eminent domain, real property in the name of the Water Commission.

The department consists of the Water Commission, manager and necessary staff. The commission is a nine-member body with an appointed representative from each district of the county. The manager, who must be a registered engineer, is appointed by the commission. He serves as an ex-officio member.

Telephone: 969-1421. Address: 25 Aupuni St.

Hawaii
State Agencies

DEPARTMENT OF HAWAIIAN HOME LANDS

The department administers the provisions of the Hawaiian Homes Commission Act (HHCA). It is headed by an executive board known as the Hawaiian Homes Commission, whose eight members are appointed by the Governor with advice and consent of the State Senate.

Pursuant to provisions of the HHCA, the department provides benefits to native Hawaiians in the form of 99-year homestead leases at an annual rental of $1. The department also provides lessees with loans and loan guarantees for home construction, home repair or replacement, and farming. In addition, it also provides technical assistance to farmers, maintains roads and facilities in homestead districts, and operates or provides for water systems. The homesteading program aims to increase the economic self-sufficiency of native Hawaiians throughout the provision of land.

The department also manages real property not used for homesteading purposes by awarding leases, licenses, and issuing permits for commercial, industrial, and other uses. Revenues from income-producing land are used to meet the cost of operating the department since it is special funded.

Developer and contractor inquiries should be directed to the state office at 335 Merchant St. in Honolulu.

East Hawaii District Office — 160 Baker Avenue, Hilo. Phone 935-5575.

West Hawaii District Office — Mamalahoa Highway, Waimea. Phone 885-7091.

DEPARTMENT OF LAND & NATURAL RESOURCES

The department is headed by the Board of Land and Natural Resources. The board's six members are from four land districts and two at large. The department is responsible for implementing public land and natural resource programs and a historic sites program. Various divisions of the department conduct research, develop programs for conservation and utilization of natural resources and assure compliance with concessionaires with program requirements.

The department approves plans for projects being done in conservation districts and plans involving any land developed and subdivided by the state. Plans for projects in conservation districts must be submitted directly to the state office in Honolulu at 1151 Punchbowl St. Other matters pertaining to zoning are generally approved by county governments.

Land Management Division, Hilo, Phone: 961-7245; Water & Land Development, Hilo, Phone: 961-7279. Address: State Building.

DEPARTMENT OF TRANSPORTATION

The State Department of Transportation is responsible for transportation conveniences in the state of Hawaii.

The Highways Division of the department must be consulted when "plans and specifications" include any driveways, or any land which abuts a state highway. Engineers in county district offices generally approve plans dealing with con-

struction in their respective counties.

The Airports Division must be consulted, according to a state law designed to protect all public airports, when "plans and specifications" involve the construction of a building or tower which may encroach into the aircraft approach zones.

Airport managers in the Airports Division of the Department of Transportation in county district airports are authorized to check plans for their respective counties.

Airports Division, Lyman Field - Hilo, Phone: 935-0809; Highways Division, 50 Makaala, Phone: 935-3347. Harbors Division, Phone: 935-4877; Keahole Airport, Phone: 329-2484.

DEPARTMENT OF HEALTH

The Department of Health is responsible for maintaining surveillance and control over environmental hazards in providing safe, sanitary and aesthetically pleasant environment for human habitation and commerce.

Recommendation is made to developers and contractors to consult the department on matters relating to individual waste water systems, public drinking water sources, mechanical ventilation, air conditioning, food purveying, air pollution sources and swimming pools.

District offices provide direct and liaison review services and are authorized to approve construction plans and building permit applications. Plan reviews that require engineering in-put in Honolulu involve Underground Injection Control, Air Conditioning and Mechanical Ventilating (Form 1) and Air Pollution Source Permits.

Telephone: 961-7371. Address: 75 Aupuni Street, Department of Health, P.O. Box 916, Hilo, HI 96720.

Hawaii

Federal Agencies

U.S. COAST GUARD

Any person planning to construct a bridge over navigable waters or build approaches to such bridges will require a permit from the U.S. Coast Guard.

The Coast Guard should also be informed of marine construction that may pose a hazard to safe navigation. If construction (even temporary) obstructs the passage of vessels, or interferes with aids to navigation such as buoys, lights, or beacons, the Coast Guard will publish the information in the "Local Notice to Mariners" which is issued weekly to supplement daily radio reports on hazards to marine navigation.

To apply for a bridge permit, report marine construction, or damage to an aid to navigation, contact:

Commander (oan)
Fourteenth Coast Guard District
PJKK Federal Building, Rm. 9139
300 Ala Moana Blvd.
Honolulu, Hawaii 96850-4982

Telephone: (808) 546-7130

On the island of Hawaii, the Coast Guard Cutter *Cape Small* may be reached at 961-6181. The Coast Guard also has a permanent LORAN station at Upolu Point and the telephone number is 889-6939.

FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration (FAA) must be contacted with regard to permission for construction in and around airports, and construction which protrudes into air space. Those involved in airport construction or deactivation of airports in Hawaii may contact:

Airports District Office
Federal Aviation Administration
Room 7116
Prince Kuhio Federal Office Bldg.

Phone: 546-7129

Mailing Address: P.O. Box 50244
Honolulu, Hawaii 96850

Those involved in construction which protrudes into air space, such as highrise buildings which require FAA permits and safety lighting in regard to aircraft must contact the FAA in Los Angeles.

Mailing Address:

Manager Airspace and Procedures Branch
Federal Aviation Administration
Western-Pacific Region
P.O. Box 92007
Worldway Postal Center
Los Angeles, California 90009

Phone: (213) 536-6182

Those projects which generally require notice to the FAA include the establishment of a new airport, any type of work on runways and/or landing strips, the deactivation of airports, etc. At least 30 days prior notice to the FAA is required in most instances.

U.S. ARMY CORPS OF ENGINEERS

The Operations Branch of the U.S. Army Corps of Engineers located at Fort Shafter, Oahu, is concerned with construction in and around the waters of the Hawaiian Islands. A permit is required for such construction so that the Corps can keep watch over the nation's water resources and be certain they are safeguarded and used in the public interest.

Approval is required for construction in all navigable waters. These include coastal, inland and tidal waters, tidal ponds, fishponds, rivers, streams and adjacent wetlands. Typical construction activities would be seawalls, piers, dredging and excavation or deposit of fill.

Plans for such work must be submitted to:

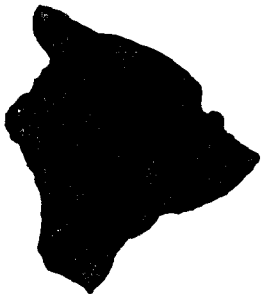
Honolulu District Engineer
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Phone: 438-9258

Although the Corps of Engineers does not maintain offices on any of the Neighbor Islands it's representatives frequently travel between Oahu and all the Islands to inspect on-going projects and enforce federal rules and regulations.

Representatives of the Corps are happy to answer questions while they are visiting Neighbor Island sites and to provide guidance to those who are involved in private construction.

Construction representatives of the Corps work out of its Hawaii Resident Office at Ft. Shafter. Individuals who wish to make contact with them in the field can locate them most readily by calling the Hawaii Resident Office on Oahu at 438-1272.



Hawaii

County Permits

SHORELINE SETBACK VARIANCE

LAW: Chapter 205, Part II, Hawaii Revised Statutes

RULES AND REGULATIONS: Rule No. 8, Planning Commission

RESPONSIBLE AGENCY:
Planning Commission
25 Aupuni Street
Hilo, Hawaii 96720

APPLICABILITY: A variance is required for all proposed construction, improvements, grading, and such related activities within the shoreline setback area. The shoreline is 40 feet inland from the upper reaches of the waves other than storm or tidal except that the shoreline setback may be 20 feet when it meets the requirements of Article 1, Div. 7 Section 25-42(b) of the Zoning Code (Chapter 25).

Projects proposed by government agencies within the shoreline setback area are exempt from the provisions of Rule No. 8 provided that two public hearings are held by the proposing agency — one hearing when the project is first conceived and one hearing prior to letting of the contract.

Special structures necessary for safety reasons or to protect property from erosion or wave damages shall be permitted upon approval by the Planning Director with concurrence of the Chief Engineer of the Department of Public Works, County of Hawaii.

VARIANCE REQUIREMENTS: The variance application is filed with the Planning Commission through the Planning Department. The request should specify the use desired and state the nature of the applicant's interest in the subject matter, his reasons for seeking the variance, and all pertinent facts, maps, plans and data relevant to the request.

A shoreline survey prepared by a registered land surveyor and certified by the Chairman of the Board of Land and Natural Resources must accompany the request. The shoreline survey shall have been certified within six months prior to filing an application.

The filing fee is $100.

A Special Management Area (SMA) Use Permit application shall accompany the variance application — unless previously approved for same project.

PROCEDURE AND REVIEW CRITERIA: In order to grant a setback variance from the rules and regulations, the Planning Commission must find (1) that such structure, activity or facility is in the public interest; or (2) that hardship will be caused to the applicant if the proposed structure, activity, or facility is not allowed on that portion of the land within the shoreline setback.

The Planning Commission shall render written approval or disapproval within 45 days after the public hearing unless such period is extended by written agreement between the governmental body and the applicant.

An SMA Use Permit must be approved prior to the granting of approval for a shoreline setback variance.

PERMIT TO CONSTRUCT DRIVEWAY ONTO COUNTY HIGHWAY

LAW: Hawaii County Code, Chapter 3, Article 2, Section 11

APPLICABILITY: A "Planned Unit Development" (PUD) is to encourage comprehensive site planning which induces optimum adaptation of development to the land by allowing diversification in the relationship of various uses, buildings, structures, open spaces and yards, building heights, and lot sizes in planned building groups while still insuring that the intent of the Zoning Code is observed.

No PUD shall be considered by the Planning Department that proposes a use that is not permitted either directly or as a conditional use within the district unless a separate application for rezoning accompanies or has preceded the filing of the application for approval of the PUD.

The minimum area of Planned Unit Development shall be two (2) acres.

REQUIREMENTS: A "Planned Unit Development" application is submitted to the Planning Department. The applicant is required to provide the following data:

a. Name and mailing address of the applicant and if not the owner of the property, owner's approval is required.
b. Description of the property in sufficient detail.
c. Drawings and plans comprising a general develoment plan covering the entire area of the PUD. Plans shall show: uses, dimensions and locations of proposed structures; streets, pedestrian ways and etc.; parking areas; public uses; landscaping and open spaces; schedule of development; architectural drawings demonstrating the design and character of the proposed buildings and uses.
d. Any other information or plans deemed necessary by the Planning Department.
e. Petitioner's reasons for requesting a PUD.

There is a filing fee of $100.

PROCEDURE AND REVIEW CRITERIA: The Planning Commission shall, within sixty (60) days consider the application at a preliminary hearing. The Commission shall refund the filing fee if it determines that the application does not meet the requirements as set forth in Charter Section 5-4.3(g). If the Commission believes that said requirements may be met, it shall schedule a public hearing within thirty (30) days after said preliminary hearing, or within such longer period as may be found to be in the best public interest.

In order to approve a PUD, the Planning Commission shall find the following:

a. That the construction on the project shall begin within a reasonable period of time from the date of full approval and shall be completed within a reasonable period of time.
b. That the proposed development substantially conforms to the County General Plan.
c. That all residential development shall constitute an environment of sustained desirability and stability, shall be in harmony with the character of the surrounding neighborhood, and shall result in an intensity of land utilization no higher than, and standards of open space at least as high as permitted or as otherwise specified for the district in which this development occurs.
d. That all commercial development shall create no traffic congestion, shall not interfere with any projected improvements, shall provide for proper entrances and exits along with proper provisions for internal traffic and parking, and shall be an attractive center with no adverse effect upon the adjacent and surrounding existing or prospective development.
e. That all industrial development shall be in conformity with desirable performance standards and shall constitute an efficient and well-organized development with adequate provisions for freight service and necessary storage, and that such development shall have no adverse effects upon adjacent and surrounding existing or prospective development.
f. That the development of a harmonious, integrated whole justifies exceptions, and that the contemplated arrangements or use make it desirable to apply regulations and requirements differing from those ordinarily applicable under the district regulations.

Partial approval may be given where architectural plans and drawings have not been submitted with the original application but no building permit shall be issued nor any construction commence unless and until said drawings have been considered and approved by the Planning Department and full approval of the PUD secured.

Application for any extension shall be filed in the office of the Planning Department not less than sixty (60) days prior to the expiration date. Within forty-five (45) days after receipt of such application, the Planning Department shall hold a hearing and take action thereon and if any extension is granted, the Planning Department may impose additional conditions as required.

GENERAL PLAN AMENDMENT

LAW: Hawaii County Ordinance 761.19682

RULES AND REGULATIONS: None

RESPONSIBLE AGENCIES:

County Council
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

APPLICABILITY: A General Plan Amendment is required to amend the General Plan goals, policies, standards, land use pattern maps and zoning acreage allocations.

REQUIREMENTS:

Amendments Pursuant to Comprehensive Review

The Planning Director may initiate amendments

pursuant to the comprehensive review required of and by the General Plan.

The Planning Director shall conduct a public workshop on a proposed amendment prior to submitting it to the Planning Commission. Within sixty (60) days of receipt of the Planning Director's proposed amendment, the Commission must hold a public hearing on the proposed amendment. Within sixty (60) days of the conclusion of the public hearing, the Commission must submit its comments and recommendations to the County Council. The Council then reviews the Commission's recommendations and acts on the Director's proposals.

Interim Amendments

Members of the general public, the Council, and the Planning Director may propose or initiate amendments to the General Plan at any time other than during the comprehensive review period. Members of the general public may propose an amendment by filing a written petition with the Planning Director. Such a petition must include: a) a $100 filing fee; b) a statement of the nature of the petitioner's interest; c) a draft of the language of the proposed amendment; d) an environmental impact statement; e) a statement of the reasons for granting the proposed change, supported by a written, documented analysis of the General Plan and using all pertinent elements upon which the General Plan is based; and f) graphs, plot plan, and other supportive information.

Upon receipt of a properly filed and completed petition, the Planning Director has one hundred eighty (180) days to study the petition, and then either recommend approval or recommend denial. The Planning Commission shall hold a public hearing on the petition witin sixty (60) days of the date of recommendation. Within sixty (60) days after the close of the hearing, the Planning Commission shall forward its comments and recommendation to the Council. Within thirty (30) days the Council may consider the petition upon two-thirds vote of the Council's membership, and the proposed amendment shall be adopted upon a two-thirds vote of the entire Council.

PROCEDURE AND REVIEW CRITERIA: Proposals from the general public to amend the General Plan goals, policies and standards.

After receipt of a petition and its supporting data, the Planning Director will have one hundred eighty (180) days in which to study the proposal and will either (1) reject the proposal stating his reasons; (2) defer the proposal for up to one (1) year; or (3) initiate the proposed amendments with his recommendations and submit it to the Planning Commission for review.

The Planning Commission, upon receiving the proposed amendment, shall have sixty (60) days to study the proposal and to hold a public hearing. No later than sixty (60) days after the date of the final public hearing on the proposed amendment, the Planning Commission shall forward the proposed amendment together with its recommendations to the County Council.

Proposals from the general public to amend the Land Use Pattern and/or Zoning Acreage Allocations follow the same procedure. The planning director will have up to 180 days to study the proposal.

SPECIAL MANAGEMENT AREA USE PERMIT

LAW: Chapter 205A, Hawaii Revised Statutes

RULES AND REGULATIONS: Rule 9, Planning Commission

RESPONSIBLE AGENCIES:

Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

APPLICABILITY: An SMA Use Permit is required for any development as defined by Chapter 205A-22 which involves lands within the designated Special Management Area. The SMA is defined to include coastal lands lying between the shoreline and an established boundary at 100 yards inland. Maps identifying the SMA are located in the Planning Department Office.

Exemptions are contained in Rule 9.12 or the Planning Commission's Rules and Regulations relating to Environmental Shoreline Protection.

REQUIREMENTS: The applicant must present sufficient data to demonstrate that the project will not have any substantial adverse environmental or ecological effects, except where such effects are clearly outweighed by public health and safety.

To do this, the applicant files a "Special Management Area Use Permit Assessment Form" with the Planning Department. Forms for this purpose are available at the Planning Department.

If the proposed project has significant environmental effects or the cost exceeds $65,000, a major "Special Management Area Use Permit Application" must be filed.

The filing fee for a major SMA Use Permit Application is $100.

PROCEDURE AND REVIEW CRITERIA: Detailed review criteria are specified in Rule 9 of the Planning Commission's Rules and Regulations relating to Environmental Shoreline Protection.

If the cost of the proposed land development project is less than $65,000 and it has no significant effects on the SMA, the Department will issue a minor permit. No public hearing is required.

If the proposed project has significant environmental effects or if its total cost exceeds $65,000, the applicant must file a "Special Management

Area Use Permit Application" with the Department.

In the case of significant effects, an Environmental Assessment will be required by the Department. The assessment is prepared by the applicant addressing the items contained in Rule 9.7 Sections A and D.

If the project requires a major SMA Use Permit, a public hearing is held by the Planning Commission no less than 90 calendar days after the date on which the application is accepted, unless the 90-day period is waived by the applicant. Advance notice is given to the owners of all property within 300 feet of the affected property as well as to all owners of property described in the application. The Department shall give written notice, once in a newspaper of general circulation in the County and once in a newspaper of general circulation in the State, at least 20 calendar days prior to the public hearing. The hearing shall, whenever possible, be held in the Council district in which the development is proposed.

NOTE: Issuance of an SMA permit must, by statute, precede any other necessary land use approval.

CLUSTER PLAN DEVELOPMENT (CPD)

LAW: Hawaii County Code, Chapter 25, Article 22, Section 25-257 through 260 and County Ordinance No. 8324.

RULES AND REGULATIONS: None.

RESPONSIBLE AGENCIES:
Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

APPLICABILITY: A Cluster Plan Development (CPD) permit is required for a single family residential development (subdivision) whereby the lot sizes are reduced below the Single Family Residential (RS) district building site area requirements. The minimum area of a CPD shall be at least two (2) acres.

The purpose of CPD is to provide exceptions to the provisions of the Single Family Residential (RS) district so that permitted density of dwelling units contemplated by the minimum lot size requirements is maintained in single family districts on an overall basis and desirable open space, tree cover, recreational areas or scenic vistas are preserved.

REQUIREMENTS: Application for CPD approval shall be made on a form prescribed by the Planning Department and shall be accompanied by a filing and processing fee as set forth under the Subdivision Code, Chapter 23 of the Hawaii County Code.

PROCEDURE AND REVIEW CRITERIA: The procedure for processing an application for approval of CPD shall be in the manner prescribed for a subdivision application.

The maximum number of lots that may be created under the CPD procedure may be computed by subtracting twenty percent (20%) of the total area being considered for CPD for street right-of-way and dividing the remaining area by the minimum lot area requirement of the single family district or districts in which the CPD is to be located. This method shall apply regardless of the amount of land actually required for street right-of-way. The following shall not be considered as part of the gross acreage in computing the maximum permitted number of lots:

(1) Utilities easements
(2) Land normally subjected to submersion
(3) Land with slopes of more than 30%

The minimum lot size requirements under the CPD are contained in Chapter 25, Article 22, Section 25-260.

The location, extent and purpose of the common land proposed to be set aside for open space or for recreational use within any CPD must be received and approved by the Planning Department before the provisions of Section 25-260.a(4) of Article 22 shall apply. The method of maintenance of common land for open space or recreational use shall be accepted to the Director.

SUBDIVISION VARIANCE

LAW: Hawaii County Code, Chapter 23, Article 2, Section 14

RULES AND REGULATIONS: Rules relating to Administrative Procedure, Planning Commission

RESPONSIBLE AGENCY:
Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

APPLICABILITY: A subdivision variance is required when a person wishes to deviate from the provisions of the Zoning Code (Chapter 25) and the Subdivision Control Code (Chapter 23), e.g. lot size, roadway requirements, average width and etc.

REQUIREMENTS: A variance application is submitted to the Planning Department. Forms are available for this purpose at the Department. The applicant is required to provide the following data:

(a) Name and mailing address of the applicant and if applicant is not the owner of the property, the owner's signature is required;
(b) Description of the property (tax map key);
(c) Request - Reference to the Zoning Code requirement from which a variance is proposed;
(d) Applicant's reasons for requesting a variance showing that the review criteria are met (see PROCEDURE AND REVIEW CRITERIA).

There is a filing fee of $100.00

PROCEDURE AND REVIEW CRITERIA: Upon acceptance of a properly completed application, the Planning Department shall set a date for the

Hawaii — County Permits, *continued*

Planning Director's consideration of the application. Within three (3) working days after receiving notice of such date, the applicant must serve notice of the application on owners of interests in properties within three hundred (300) feet of the perimeter boundary of the applicant's property and to owners of interests in other properties which the Director may find to be directly affected by the variance being sought. Such notice must state: the applicant's name, the exact location of the property involved; the nature of the use sought and the proposed accompanying structures, if any; the date on which the Director will consider the application; and that such date is the deadline for the Director's actual receipt of written comments on the application. Prior to the deadline for written comment, the applicant must submit to the Director proof of service or of good faith efforts to serve notice of the application on the designated property owners.

No variance may be granted unless it is found that:

1) There are special or unusual circumstances applying to the subject real property which exist either to a degree which deprives the owner or applicant of substantial property rights that would otherwise be available or to a degree which obviously interferes with the best use or manner of development of that property; and
2) There are no other reasonable alternatives that would resolve the difficulty; and
3) The variance shall be consistent with the general purpose of the district, the intent and purpose of this chapter, and the County General Plan and will not be materially detrimental to the public welfare or cause substantial adverse impact to an area's character or to adjoining properties.

The Director shall within sixty (60) days after the filing of a proper application or within a longer period as may be agreed to by the applicant, approve the application subject to conditions, or deny it. If the Director fails to act within the prescribed period, the application shall be considered denied. Such denial may be appealed.

If the Director denies the application, such decision is final except that the applicant may appeal such action in writing to the Planning Commission within thirty (30) days after notice of the decision. All actions of the Planning Commission are final except that within thirty (30) days after notice of action, the applicant or "interested party" (as defined in Section 25.27.o) may appeal such action to the Board of Appeals in accordance with its rules.

November 21, 1988

MEMORANDUM

TO: Mr. William Paty

FROM: Manabu Tagomori

SUBJECT: STATUS REPORT ON GEOTHERMAL ACTIVITIES

Geothermal and Cable System Development Permitting Act (Act 301, 1988)

1. A Geothermal/Cable Interagency Group has been established, consisting of the following sixteen member agencies:

   DLNR, Lead Agency
   Department of Transportation
   Office of State Planning
   Department of Health
   Department of Business and Economic Development
   County of Hawaii
   County of Maui
   City & County of Honolulu
   U.S. Corps of Engineers
   U.S. Navy
   U.S. Coast Guard
   U.S. Environmental Protection Agency
   U.S. Geological Survey
   U.S. Fish and Wildlife Service
   National Marine Fisheries Service
   National Park Service

2. On September 29, 1988, the first meeting of the interagency group was held to brief members on the status of geothermal activities and to discuss Act 301 and the objectives of the interagency group, including a joint agreement and tentative work plan.

3. November 30, 1988 was set as a deadline for member agencies to submit copies of their rules, regulations, permit application, forms, etc., in order to establish a repository of all pertinent geothermal related rules and procedures. Upon receipt of all participating agencies' rules and regulations, DLNR staff will begin drafting administrative rules to implement provisions of Act 301.

4. DLNR staff is preparing a tentative interagency group workplan.

5. Staff is also working on a consolidated permit application form to be used by potential applicants.

6. A second meeting of the interagency group is tentatively scheduled for sometime in December, at which time members will discuss a joint interagency agreement for processing geothermal/cable permit applications.

7. Establishment of a permit information and coordination center within DLNR, to provide assistance to potential applicants is expected to be in operation by early 1989.

8. Approval has been obtained for hiring of additional staff (a secretary and a geothermal/cable analyst).

DBED/UofH Exploratory Drilling Project

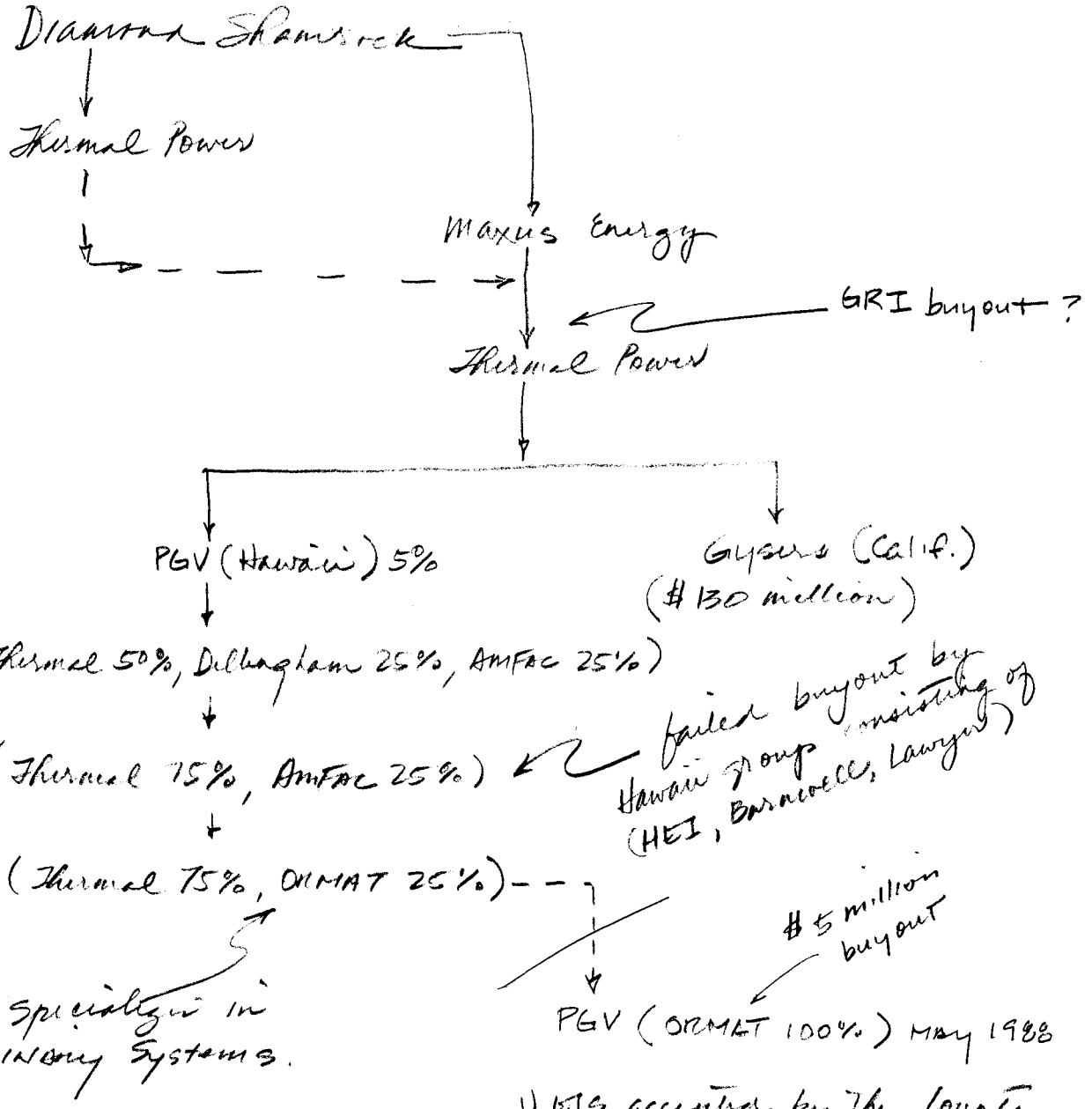
1. The University of Hawaii, under the leadership of Harry Olson and with State funds appropriated to DBED, is proposing to drill as many as five exploratory test holes approximately 4,000 to 6,000 feet in depth within designated Geothermal Resource Subzones (GRS)--two in the Kapoho GRS, one in the Kamaili GRS, one in the Kilauea Middle East Rift GRS, and possibly one in the Haleakala Southwest Rift GRS.

2. The proposed UofH exploratory test-hole drilling will require geothermal exploration and drilling permits from DLNR. Other permits such as Hawaii County Geothermal Resource Permits and Department of Land and Natural Resources' Conservation District Use Permit may be required depending on the land use district selected for the proposed testhole sites. Applications for DLNR permits are expected to be submitted by the UofH about December 1st.

for MANABU TAGOMORI

DN:DL:dh

PGV FLOW CHART (OWNERSHIP)



NAME:_____ QUESTION:

ADDRESS:_____

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NAME:_____ QUESTION:

ADDRESS:_____

_____

PHONE:_____

_____REFERRED TO:_____

February 12, 1987

MEMORANDUM FOR THE RECORD

FROM: Dean Nakano

SUBJECT: Status of Geothermal Activities

Puna Geothermal Venture (PGV) 25 MW Project

* The PGV Project Application submitted to DLNR contains Thermal Power Co.'s Plan of Operations which is currently under review by the Department.

* Requests for comments on the proposed project have been sent to State Parks, Forestry & Wildlife, Aquatic Resources, Aquaculture Development Program, Land Management and the Office of Conservation and Environmental Affairs (OCEA).

* To date Forestry & Wildlife and OCEA have not responded.

* DLNR has requested that Thermal Power Co. submit copies of the Rogers-Jourdane & Nakamura 1984, archaeological survey and the Stemmerman 1985, Hawaiian Hawk Breeding Survey referenced in the application.

* State Parks has requested further review upon receipt of the 1984 archaeological survey.

* The County of Hawaii has defered the acceptance of the PGV Application until the document is revised and edditional information is presented.

* At a meeting on 2/11/87, Thermal Power Co. informed us that they are now planning to submit an EIS document which will supercede the earlier submitted Project Application. Per Ralph Patterson, the EIS will contain PGV's Plan of Operations, and the current application now onhand with the Department should be disregarded.

Ask for letter

MS

Campbell Estate Mining Lease

* As a follow up to the meeting on 1/26/87 between Dowald, Land Management and the Deputy Attorney General, Campbell Estate is now reviewing the latest draft of the standard mining lease.

* Upon completion of their review, Campbell Estate will forward the draft to the Deputy A/G for his final review and approval.

HGP-A/Thermal Power Pipeline Project

* Thermal Power Co. has submitted for approval, its Second Amendment to their current Plan of Operations (POP).

* A letter dated 2/5/87, acknowledging receipt of the POP has been sent by Land Management. The Department has 60 days from that date to approve or disapprove the POP.

* The letter from Land Management also requested that Thermal Power Co. submit a formal request to the Board for the waiver of royalty payments, in addition to a copy of the contract agreement between PGV and the Natural Energy Laboratory of Hawaii.

* At our meeting with Thermal Power Co. on 2/11/87, we were advised that they will request an amendment to their Mining Lease No. R-2, rather than seek Board approval for a waiver of royalty payments.

Dean

Rev. 11/90

DIVISION OF WATER RESOURCE MANAGEMENT

FROM: _____ DATE: _____ FILE IN: _____

TO:	INITIAL:	PLEASE:
___	_____ G. AKITA	___ See Me
___	_____ L. Nanbu	___ Take Action By_____
		___ Route to Your Branch
___	_____ E. Sakoda	___ Review & Comment
___	_____ G. Matsumoto	___ Draft Reply___
___	_____ E. Lau	___ Acknowledge Receipt
___	_____ L. Chang	___ Xerox ____copies
___	_____ Y. Shiroma	___ File
___	_____ Dean	___ Mail
___	_____	
___	_____	FOR YOUR:
___	_____	
___	_____	___ Approval
___	_____	___ Signature
___	_____	___ Information
___	_____ M. TAGOMORI	
___	_____ S. Kokubun	

9/9/91 REMARKS:

Dean,
new Drafts attached

Jean,
Pls research and prepare response on further analysis of the referenced items in the draft guidelines. Dean

Pls make copy, and return orig to me to file. D

DRAFT
a: fasi

DRAFT

plz redraft.

The Honorable Frank F. Fasi,
Mayor,
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Mayor Fasi,

Thank you for your letter of June 28, 1991 regarding the Draft General Guidelines for Processing the Consolidated Permit Application and the Draft Joint Agreement for Geothermal and Cable Development. I appreciate your staff taking the time to review this document. ~~Regarding your concerns enumerated in your letter:~~ rephrase this sentence

1) Your appropriate ~~city~~ county agency will provide the applicants with the information and instructions required for permit approvals. Wording to this effect is being added to item number 3 of the draft General Guidelines for Processing the Consolidated Permit Application. However, the Geothermal/Cable Permit Center is mandated (by HRS 196D, Section 8) to have available and provide this information to potential applicants also. The Center has permit information and requirements for several dozen permits as required by County, State and Federal agencies that may come into play in a large geothermal/cable project. The purpose for having this information is to provide the applicant an overview of what will be required and which may be the longer lead time application processes. However, the applicant will work directly with each permitting agency to be certain that the various applications are properly completed so that the Consolidated Application when submitted will be properly completed. ~~The interpretation of~~ HRS196D and the administrative rules ~~have been interpreted so as not~~ are not intended to infringe on the authority of any agency; the role of DLNR and its Geothermal/Cable Permit Center is ~~to~~ coordinating and monitoring ~~role which will be carried out~~ through use of the Consolidated Permit Application and the consolidated application process outlined in the administrative rules to HRS 196D (HAR Chapter 185).

too long make paragraph

2) The Consolidated Permit Application will only be deemed complete once the individual agencies have indicated the individual applications are in a form acceptable for review - i.e. all forms have been completed, documents included, maps attached, etc. This will require continuing close cooperation with the staffs of the various permitting agencies such as ~~we have enjoyed with~~ your Department of Land Utilization. In effect, your staffs will be reviewing the application prior to DLNR deeming a Consolidated Permit Application complete, since the applicant will be working with your staffs to make sure the individual applications are properly filled out prior to submitting them as part of the Consolidated Permit Application, as now provided in item number 3. The DLNR staff review of the CPA for completeness will not be a detailed technical review, which certainly would be time consuming and beyond the ability of the DLNR staff, but will be a check-off

too long

review to assure that all of several dozens of possible required permits from each jurisdictional agency have been addressed.

3) The initial meeting of the IAG for joint review of the consolidated application is not for the purpose of a "proper" technical review, which I agree would require files and resources, but rather this meeting is for the purpose of an overview to start to identify which if any hearings and long term requirements could be coordinated, to identify major permits and establish general time frames for the permits, to identify members of the CPART, and to ask questions of the applicant in a joint forum.

4) I agree that the applicant should be responsible to prepare materials to meet CPART requirements, and I have added wording to this effect to item number 10 of the draft procedures.

Section 13-185-13 of the administrative rules item (b) states "Signing the joint agreement and thereby participating in the consolidated application process shall not affect or invalidate the jurisdiction or authority of any agency under existing law. Each agency shall issue its own permit or approval based on its own jurisdiction." I am revising the draft joint agreement to repeat these words in order to make it clear that the joint agreement as required by HRS196D will not infringe on any agency's authority, and I am repeating the wording of HRS196D regarding the joint agreement to make it clear what the agreement is required for.

I hope my response assures you that the County's Consolidated Application Process will not infringe on the ~~City's~~ authority to process required permits. Our goal is to use HRS196D to effectively coordinate, monitor, and provide an overview to the permitting aspects of this major project. I appreciate your comments and hope the changes I have made in the drafts meet your concerns.

Yours very truly,

William W. Paty,
Chairperson

DRAFT
a: procedure

GEOTHERMAL/CABLE DEVELOPMENT
CONSOLIDATED PERMIT APPLICATION FORM

General Guidelines (for Processing the Consolidated Permit Application):

(1) As provided by Chapter 196D, Hawaii Revised Statutes, and in accordance with the Department of Land and Natural Resources' Administrative Rules, Chapter 13-185, HAR, a Geothermal/Cable Permit Center (G/CPC) has been established to provide information and assistance to potential applicants throughout the consolidated application process.

(2) The Consolidated Permit Application Form (CPA), along with information and permit application forms for the other agency members of the Interagency Group, are available at the G/CPC and will be provided upon request.

(3) Staff from the Division of Water Resource Management will provide technical assistance to potential applicants, wherever possible. Information, guidelines, and instructions will be made available to assist the applicant in completing the required permit applications and requests for proposals. The applicant will be referred to each pertinent agency for technical assistance in making the required individual applications.

(4) The applicant shall submit the completed CPA, along with (20) copies of the application and attachments (including the respective agency permit applications), to the Department of Land and Natural Resources (Department) for processing.

(5) Upon receipt of the CPA and related permit applications, and the required filing fees made payable to the appropriate agencies, Department staff will review the applications for completeness. If a preliminary determination is made by the Department that the CPA has been properly completed, the applicant will be so notified.

It should be noted, that a preliminary determination of completeness by the Department shall not be construed as an official acceptance of the application by the member agencies.

In the event that a permit application is deemed incomplete and in need of additional information, that application will be immediately returned to the applicant for completion. It is imperative that all required information be provided accurately, full, and in a timely fashion. Failure to do so will delay overall processing of the CPA.

(6) After the applicant has been notified that the CPA is complete, a copy of the application and attachments, (including the appropriate permit applications and filing fees for each agency), will be forwarded to the respective members of the Interagency Group (IAG) for review and processing by that agency.

(7) The IAG members will have thirty (30) days in which to review the CPA and permit applications associated with their agency. During that period the Department will coordinate and schedule an initial meeting of the IAG to jointly review the CPA documents. The IAG meeting shall be convened as soon as possible after the close of the thirty-day review period.

(8) The applicant or designated representative shall be notified of the date, time, and place of the initial IAG meeting and should be present at that meeting to answer any questions concerning the CPA or project.

At that IAG meeting, members of the Consolidated Permit Application and Review Team (CPART) will be identified. The CPART shall be comprised of those member agencies whose permits are being applied for under the CPA.

(9) Based on the applications submitted with the CPA, each agency of the CPART shall provide a list of the permit applications and requests for approvals submitted by the applicant which will require an environmental assessment/impact statement, or public hearings.

These agencies shall also submit a preliminary timetable for the processing of these various permit applications, and should indicate if such applications can be jointly processed and reviewed.

(10) A subsequent meeting of the CPART members shall be convened within thirty (30) days after the initial IAG meeting. The CPART shall formulate a plan to combine, wherever possible, agency review procedures such as public hearings, and environmental document preparation and review. The applicant shall be responsible for any additional requirements resulting from the CPART pursuant to consolidation of aspects of two or more individual permits.

(11) Those agency permit applications which cannot be reasonable consolidated, shall continue to be processed according to the statutory and regulatory requirements of each agency.

(12) Proper notice shall be given for any consolidated public hearing or meeting. Permits or approvals resulting from these combined hearings will continue to be issued through the respective agencies.

(13) If an agency (agencies) do not wish to grant a permit they shall inform the applicant and the IAG in a timely manner, stating reasons for the denial.

(14) After the required permits or approvals have been issued, the Department will prepare a monitoring plan for review and acceptance by the CPART members. The plan shall include, but not be limited to, a schedule for monitoring compliance of permit conditions under

the jurisdiction of the Department, and the individual monitoring activities of each permitting agency.

In preparation of this monitoring plan, each CPART agency shall submit (to the Department) their own schedule for monitoring compliance of permit conditions, names of individuals responsible for such monitoring, and a list of the specific permit conditions being monitored.

(15) Once all permits have been issued and a monitoring plan has been developed, an approval letter from the IAG shall be issued to the applicant.

Interagency Group re Geothermal/Cable Permitting DRAFT as joint

Joint Agreement
Section 1960-6, Hawaii Revised Statutes

(1) The Members of the Consolidated Permit Application and Review Team shall be:

Name	Affiliation

(2) Permits required for the projects are identified in the Consolidated Permit Application distributed.

(3) Signing the joint agreement and thereby participating in the consolidated application process shall not affect or invalidate the jurisdiction or authority of any agency under existing law. Each agency shall issue its own permit or approval based on its own jurisdiction.

(4) The timetable for regulatory review shall be as follows:

Agency with longest lead time: time:

Hearings that may be consolidated:

Environmental statements that may be consolidated:

(5) Any hearing required for a permit shall be conducted on the island where the proposed activity shall occur.

Signatures: Dated:

Rev. 11/90

DIVISION OF WATER RESOURCE MANAGEMENT

FROM: _____ DATE: 6/18 FILE IN: _____

TO:	INITIAL:		PLEASE:		REMARKS:
___	_____	G. AKITA	___	See Me	9/9/91
___	_____	L. Nanbu	___	Take Action By_____	Dear,
			___	Route to Your Branch	New drafts attached
___	_____	E. Sakoda	___	Review & Comment	for.
___	_____	G. Matsumoto	___	Draft Reply____	
___	_____	E. Lau	___	Acknowledge Receipt	
___	_____	L. Chang	___	Xerox ____copies	
___	_____	Y. Shiroma	___	File	
___	_____	_____	___	Mail	
___	_____	_____			
___	_____	_____			
___	_____	_____	'FOR YOUR:		
___	_____	_____			
___	_____	_____	___	Approval	
___	_____	_____	___	Signature	
___	_____	_____	___	Information	
___	_____	M. TAGOMORI			
___	_____	S. Kokubun			

Janet - the following, research the analysis this comments re dept guidelines.

Pls make copy and return for filing.

DRAFT a: hirata

July 19, 1991

TO: The Honorable Edward Y. Hirata
Director of Transportation

FROM: William W. Paty, Chairman and Member
Board of Land and Natural Resources

SUBJECT: Your Memorandum of June 10, 1991 Regarding 1991 Report to the Legislature on Geothermal and Cable Development Permitting

Thank you for reviewing the Draft General Guidelines for Processing the Consolidated Permit Application and the Draft Joint Agreement.

I have revised the draft procedures and the draft joint agreement to include your suggestions.

You should submit your revised guidelines, etc. to DOT again for review and comment. However, I suggest you check w/ Marsden regarding the possible need to have these guidelines and agreement checked by the AG (Bill Tam).

If so, you will need to draft memo to AG requesting review and comment.

D

DRAFT
a: procedure

GEOTHERMAL/CABLE DEVELOPMENT
CONSOLIDATED PERMIT APPLICATION FORM

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DRAFT a: joint

Interagency Group on Geothermal/Cable Permitting

Joint Agreement

Section 196D-6, Hawaii Revised Statutes

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Name	Affiliation

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Agency with longest lead time: time:

Hearings that may be consolidated:

Environmental statements that may be consolidated:

(5) Any hearing required for a permit shall be conducted on the island where the proposed activity shall occur.

Signatures: Dated:

A Report to the 1993 Legislature

GEOTHERMAL AND CABLE DEVELOPMENT PERMITTING

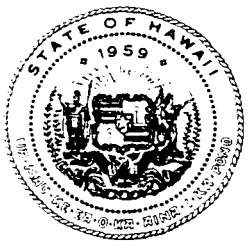
Prepared by the

Department of Land and Natural Resources
State of Hawaii

in response to

Section 196D-11, Hawaii Revised Statutes

Honolulu, Hawaii
December 1992



JOHN WAIHEE
Governor

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SHARON R. HIMENO, Member at Large

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DONA L. HANAIKE, Deputy

DIVISION OF WATER AND LAND DEVELOPMENT

MANABU TAGOMORI, Manager-Chief Engineer

INTERAGENCY GROUP ON GEOTHERMAL/CABLE PERMITTING

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District Engineer
U.S. Army Corps of Engineers

Admiral Charles R. Larson
Commander-in-Chief
U.S. Pacific Fleet

Rear Admiral W. C. Donnell
Commander, U.S. Coast Guard
14th Coast Guard District

Mr. William Meyer, District Chief
Water Resources Division
U. S. Geological Survey

Dr. Robert Smith
Field Supervisor
U. S. Fish and Wildlife Service

Mr. John Naughton
Pacific Island Environmental Coordinator
National Marine Fisheries Service

Ms. Vicki Tsuhako, Manager
Environmental Protection Agency
Pacific Island Contact Office

Mr. G. Bryan Harry
Pacific Area Director
National Park Service

Mr. Rex D. Johnson, Director
Department of Health

Mr. Mufi Hannemann, Director
Dept. of Business and Economic Development and Tourism

Mr. Richard Paglinawan
Administrator

Honorable Stephen K. Yamashiro
Mayor, County of Hawaii

Honorable Linda Crockett Lingle
Mayor, County of Maui

Honorable Frank F. Fasi
Mayor, City and County of Mayor, Honolulu

CONTENTS

Geothermal and Cable System Development Permitting

State of Hawaii

INTRODUCTION

Pursuant to Chapter 196D, Hawaii Revised Statutes, the Department of Land and Natural Resources has established a consolidated permit application and review process.

Recognizing that there has been no application for any large-scale geothermal/inter-island transmission cable project for the State of Hawaii, department resources and staff efforts have been appropriately utilized and actively involved in the monitoring and regulation of existing projects currently permitted to explore, develop and generate geothermal electricity exclusively for the Island of Hawaii.

Although these efforts relative to geothermal development activity on the Big Island did not involve any aspect of inter-island cable transmission, the department's activities have been consistent with the objectives and purpose of Chapter 196D, HRS. The allocation of program resources and duties performed by staff have been invaluable in providing support to the monitoring and regulatory functions of other State and County agencies and the geothermal resource management responsibilities of the department.

STATE ADMINISTRATION'S POLICY AND PRIORITIES ON GEOTHERMAL DEVELOPMENT

From 1987 through early 1990, the State of Hawaii actively supported a 500 MW geothermal/inter-island cable project. However, since January 1990, the State's focus has been on commercial geothermal development to first serve the energy needs of the Island of Hawaii. Any future support of a geothermal/cable project would be dependent upon our experience with the smaller scale projects that satisfy the energy needs of the Big Island, and the acceptable resolution of geothermal resource availability and social, economic and environmental concerns.

As of 1992, the State has further refocussed its support and has adopted the following Geothermal Energy Policy:

> "The State of Hawaii currently supports geothermal energy as a potential energy source exclusively for the Island of Hawaii. Therefore, the State supports the efforts of Puna Geothermal Venture to explore, develop and generate geothermal electricity in a safe and environmentally acceptable manner limited for use to the Big Island.

The State of Hawaii currently is not taking any action to support a large-scale geothermal and undersea cable transmission project to export electrical energy to the other islands, and is not aware of any present efforts, public or private, to undertake such a project.

The Federal government has been mandated by the Federal Court to prepare an EIS for a conceptual "Hawaii Geothermal Project" consisting of a large-scale (i.e., 500 megawatts) development of geothermal power on the Island of Hawaii for transmission to Oahu and one or more of the other islands in the State.

While the State will continue to provide information and cooperate with the Federal government in the preparation of the EIS, the State's position is that there is no such project under consideration at the present time."

This policy limits the State's support for geothermal development to currently permitted projects on the Big Island and establishes that the State is no longer pursuing a large-scale geothermal/cable project for export of electrical energy to the other islands.

GEOTHERMAL/CABLE SYSTEM DEVELOPMENT STATUS

The State of Hawaii is not proposing a large-scale geothermal project for the export of electrical energy to the other islands; however, the Department of Land and Natural Resources (DLNR), together with the Department of Business, Economic Development and Tourism (DBEDT) as the lead agency for the State, is actively cooperating in the U.S. Department of Energy's (DOE) preparation of a Federal NEPA EIS for the Hawaii Geothermal Project (HGP).

In 1991, the U.S. District Court of Hawaii, based on a suit filed by several environmental groups, ruled that DOE must prepare a Federal EIS for a conceptual project identified as the Hawaii Geothermal Project (HGP) before any further disbursement of Federal funds to the State.

In response to this decision, DOE is preparing an EIS for the HGP as defined by the U.S. District Court of Hawaii and the State's earlier proposals defined by the U.S. District Court of Hawaii and the State's earlier proposals to Congress related to a conceptual 500 MW geothermal/inter-island cable project.

As such, the department has given needed support and assistance towards this process and has provided DOE with information and documents relative to water resources, geology, historic sites, and aquatic/terrestrial resources.

A "Draft Implementation Plan for the Hawaii Geothermal Project EIS" was prepared by DOE dated October 20, 1992 and is attached as Appendix A. A final version of the Implementation Plan document will be available during the first quarter of 1993.

Although the State of Hawaii is participating in the EIS as a Cooperating Agency, together with the Counties of Maui and Hawaii and several other Federal agencies, the Federal EIS will be prepared exclusively to fulfill Federal EIS requirements and is not intended to satisfy State EIS requirements (Chapter 343, HRS). The State of Hawaii maintains its right to prepare a State EIS at the appropriate time.

CURRENT GEOTHERMAL DEVELOPMENT ACTIVITIES STATUS

True/Mid-Pacific Geothermal Venture

In connection with the recommendations of the Independent Technical Investigation of the Puna Geothermal Venture's (PGV) Unplanned Steam Release of June 12 and 13, 1991, and the recommendations of the State and County Geothermal Task Force's Geothermal Management Plan, True/Mid-Pacific Venture (True) also has been required to review its well completion program and emergency response plan to assure that these plans meet the same standards applicable to PGV. Pending review of the updated plans, True will continue to develop the resource.

Puna Geothermal Venture

The recommendations of the Independent Technical Investigation and the Geothermal Task Force have been carried out. A revised plan of operations, drilling programs, operating procedures, and drilling permits have been implemented by PGV. A flow test of well KS-8 indicated the presence of an excellent geothermal resource. During production of KS-8, amounts of up to 10 MW of electricity were delivered to HELCO. Because of concerns over the ultimate integrity of the well, however, KS-8 was abandoned in favor of new production wells to be drilled in the area. Well KS-4 has been completed as an injection well, and Well KS-9 is being drilled as a production well at this time. PGV anticipates commencing sale of electricity to Hawaii Electric Light Company in early 1993.

The University of Hawaii Scientific Observation Hole (SOH) Program

The SOH project proposed to drill up to (6) exploratory test holes, approximately 4,000 to 6,000 feet in depth within designated GRS areas. Originally, (4) SOH's were planned for the Kilauea East Rift Zone and (2) for the Haleakala Southwest Rift Zone. To date, (3) SOH's on the Island of Hawaii have been completed.

No drilling has taken place in 1992, and currently, all drilling activities have been voluntarily suspended, and the Tonto drilling rig returned to the mainland.

Non-drilling testing and monitoring activities are being conducted for those wells already drilled. Additional water sampling, hydrogeologic, geochemical and seismic surveys, as well as injection/interference testing will be conducted as part of the continued SOH non-drilling program.

Monitoring

Regulatory agencies have made efforts this year to strengthen program reviews, on-site monitoring and long-term monitoring studies. Short term support for these efforts was made available by Governor Waihee to the Department of Health and to the Department of Land and Natural Resources, to increase personnel for these purposes. Long term support for these efforts must continue to be sought.

OTHER ACTIVITIES

Regional Environmental Meetings

In February and June 1992 the Department participated in informational meetings organized by the U. S. Department of the Interior on the status of geothermal development activities and other projects.

1992 Geothermal Resources Council Training

Various staff members of the Department attended three weeks of geothermal drilling school.

Research on Geothermal Resource Valuation

DOWALD staff attended a training session on geothermal resource valuation and prepared and presented briefings on this topic for affected agencies. Various methods for establishing a value for geothermal resources were presented in order to get feedback from the agencies to the Board of Land and Natural Resources (BLNR). A method will need to be selected by the BLNR in order to calculate royalties due to the State, Office of Hawaiian Affairs, and the County of Hawaii. It is anticipated that a method will be selected early in 1993.

Geothermal Technical Advisory Committee

The Geothermal Technical Advisory Committee (GEOTAC) completed an update of Report C-103 "Statewide Geothermal Resource Assessment" assessing Hawaii's potential geothermal resource areas. This update is attached as Appendix B.

Under the guidance of the GEOTAC committee several geothermal studies have been proposed and are in various stages of completion. A baseline study of subsidence in the Puna area was completed in April 1992, and the same month, a baseline hydrological study of the Puna area was begun. A study of core samples from the scientific observation holes is underway, and other studies have been proposed but not yet approved for funding.

A technical report was prepared for the Department of Business, Economic Development and Tourism entitled "Annual Report: Geothermal Resources Assessment" dated September 1992, and was presented to the GEOTAC for integration with the ongoing research activities of the respective committee members.

Newspaper File

DOWALD continues to maintain a chronological newspaper clippings file on geothermal activities in the State of Hawaii.

FUTURE PLANS FOR INTERAGENCY GROUP

To date no identifiable problems have arisen with regard to the consolidated permitting procedures. Accordingly, the Department recommends that no changes be made to either the consolidated permit application and review process or to the statute at this time.

1992 Statistics*

1. Assistance rendered to the public	8
2. Investigations undertaken	80
3. Meetings coordinated/attended	21
4. Special reports completed	6

*1 - access to files, photocopying documents
2 - looking up property locations within/without geothermal subzones and mining leases
3 - meetings regarding various aspects of geothermal activities
4 - in-house reports on various aspects of geothermal activities

Rev. 11/90

DIVISION OF WATER RESOURCE MANAGEMENT

FROM: _____ DATE: _____ FILE IN: _____

TO:	INITIAL:		PLEASE:	REMARKS:
___	_____	G. AKITA	___ See Me	
___	_____	L. Nanbu	___ Take Action By_____	
			___ Route to Your Branch	
___	_____	E. Sakoda	___ Review & Comment	
___	_____	G. Matsumoto	___ Draft Reply___	
___	_____	E. Lau	___ Acknowledge Receipt	
___	_____	L. Chang	___ Xerox ____copies	
___	_____	Y. Shiroma	___ File	
___	_____	_____	___ Mail	
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___	_____	_____	FOR YOUR:	
___	_____	_____		
___	_____	_____	___ Approval	
___	_____	_____	___ Signature	
___	_____	_____	___ Information	
___	_____	M. TAGOMORI		
___	_____	S. Kokubun		

JOHN WAIHEE
GOVERNOR

WARREN PRICE, III
ATTORNEY GENERAL

CORINNE K. A. WATANABE
FIRST DEPUTY ATTORNEY GENERAL

STATE OF HAWAII
DEPARTMENT OF THE ATTORNEY GENERAL
LAND/TRANSPORTATION DIVISION
ROOM 300, KEKUANAO'A BUILDING
465 SOUTH KING STREET
HONOLULU, HAWAII 96813

October 1, 1991

The Honorable William W. Paty
Chairperson, Board of Land
and Natural Resources
State of Hawaii
Kalanimoku Building, Room 130
1151 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Manabu Tagomori
Deputy Director

Dear Mr. Paty:

Re: Your Request for Review of Draft Documents for Geothermal/Cable Permitting

This is in regards to your September 23, 1991 letter on the above-entitled subject (Your Ref. WRM-BM). We presume the application form itself is still being drafted, and will have to contain the information set out in H.R.S. section 196D-4, i.e. a list of all permits required for the project, and H.R.S. section 196D-5(c)(1). We note that under H.R.S. section 196D-5(c)(3)(B), all permits required for the project should be identified in the joint agreement. We don't see that in the draft joint agreement that you submitted. Nor do we see compliance with Hawaii Administrative Rules section 13-185-13.

In short, much more detail is required before compliance with the applicable law and rules can be found. Please revise these documents and resubmit them in draft.

Very truly yours,

Randall Y. K. Young
Deputy Attorney General

RYKY:ksy
Enclosure
7346E

Interagency Group on Geothermal/Cable Permitting
Joint Agreement
Section 196D-6, Hawaii Revised Statutes

(1) The Members of the Consolidated Permit Application and Review Team shall be:

Name	Affiliation

(2) Permits required for the projects are identified in the Consolidated Permit Application distributed.

(3) Signing the joint agreement and thereby participating in the consolidated application process shall not affect or invalidate the jurisdiction or authority of any agency under existing law. Each agency shall issue its own permit or approval based on its own jurisdiction.

(4) The timetable for regulatory review shall be as follows:

Agency with longest lead time: time:

Hearings that may be consolidated:

Environmental statements that may be consolidated:

(5) Any hearing required for a permit shall be conducted on the island where the proposed activity shall occur.

Signatures: Dated:

GEOTHERMAL/CABLE DEVELOPMENT
CONSOLIDATED PERMIT APPLICATION FORM

General Guidelines (for Processing the Consolidated Permit Application):

(1) As provided by Chapter 196D, Hawaii Revised Statutes, and in accordance with the Department of Land and Natural Resources' Administrative Rules, Chapter 13-185, Hawaii Administrative Rules, a Geothermal/Cable Permit Center (G/CPC) has been established to provide information and assistance to potential applicants throughout the consolidated application process.

(2) The Consolidated Permit Application (CPA), along with information and permit applications for the other agency members of the Interagency Group, are available at the G/CPC and will be provided upon request.

(3) Staff from the Division of Water Resource Management will provide technical assistance to potential applicants, wherever possible. Information, guidelines, and instructions will be made available to assist the applicant in completing the required permit applications and requests for proposals. The applicant will be referred to each pertinent agency for technical assistance in making the required individual applications.

(4) The applicant shall submit the completed CPA, along with (20) copies of the application and attachments (including the respective agency permit applications), to the Department of Land and Natural Resources (Department) for processing.

(5) Upon receipt of the CPA and related permit applications, and the required filing fees made payable to the appropriate agencies, Department staff will review the applications for completeness. If a preliminary determination is made by the Department that the CPA has been properly completed, the applicant will be so notified.

It should be noted, that a preliminary determination of completeness by the Department shall not be construed as an official acceptance of the application by the member agencies.

In the event that a permit application is deemed incomplete and in need of additional information, that application will be immediately returned to the applicant for completion. It is imperative that all required information be provided accurately, full, and in a timely fashion. Failure to do so will delay overall processing of the CPA.

(6) After the applicant has been notified that the CPA is complete, a copy of the application and attachments, (including the appropriate permit applications and filing fees for each agency), will be forwarded to the respective members of the Interagency Group (IAG) for review and processing by that agency.

(7) The IAG members will have thirty (30) days in which to review the CPA and permit applications associated with their agency. During that period the Department will coordinate and schedule an initial meeting of the IAG to jointly review the CPA documents. The IAG meeting shall be convened as soon as possible after the close of the thirty-day review period.

(8) The applicant or designated representative shall be notified of the date, time, and place of the initial IAG meeting and should be present at that meeting to answer any questions concerning the CPA or project.

At that IAG meeting, members of the Consolidated Permit Application and Review Team (CPART) will be identified. The CPART shall be comprised of those member agencies whose permits are being applied for under the CPA.

(9) Based on the applications submitted with the CPA, each agency of the CPART shall provide a list of the permit applications and requests for approvals submitted by the applicant which will require an environmental assessment/impact statement, or public hearings.

These agencies shall also submit a preliminary timetable for the processing of these various permit applications, and should indicate if such applications can be jointly processed and reviewed.

(10) A subsequent meeting of the CPART members shall be convened within thirty (30) days after the initial IAG meeting. The CPART shall formulate a plan to combine, wherever possible, agency review procedures such as public hearings, and environmental document preparation and review. The applicant shall be responsible for any additional requirements resulting from the CPART pursuant to consolidation of aspects of two or more individual permits.

(11) Those agency permit applications which cannot be reasonably consolidated shall continue to be processed according to the statutory and regulatory requirements of each agency.

(12) Proper notice shall be given for any consolidated public hearing or meeting. Permits or approvals resulting from these combined hearings will continue to be issued through the respective agencies.

(13) If an agency (agencies) do not wish to grant a permit they shall inform the applicant and the IAG in a timely manner, stating reasons for the denial.

(14) After the required permits or approvals have been issued, the Department will prepare a monitoring plan for review and acceptance by the CPART members. The plan shall include, but not be limited to, a schedule for monitoring compliance of permit conditions under the jurisdiction of the Department, and the individual monitoring activities of each permitting agency.

In preparation of this monitoring plan, each CPART agency shall submit its own schedule to the Department for monitoring compliance of permit conditions, names of individuals responsible for such monitoring, and a list of the specific permit conditions being monitored.

(15) Once all permits have been issued and a monitoring plan has been developed, an approval letter from the IAG shall be issued to the applicant.

[CHAPTER 196D
GEOTHERMAL AND CABLE SYSTEM DEVELOPMENT]

SECTION

196D-1 CONSERVATION AND RESOURCES

[§196D-1] Short title. This chapter shall be known and may be cited as the Geothermal and Cable System Development Permitting Act of 1988. [L 1988, c 301, pt of §1]

[§196D-2] Findings and declaration of purpose. The legislature hereby finds and declares that:

(1) The development of Hawaii's geothermal resources, which are located principally on the island of Hawaii and possibly on the island of Maui, represents a substantial and long-term source of indigenous renewable alternate energy that could be used to generate electric energy to meet the State's electric energy needs and concurrently help to reduce the State's need for imported fossil fuels;

(2) The State has deemed it appropriate that the private sector should develop these geothermal resources, and, to that end, has sought to encourage private sector exploration and development of geothermal resources;

(3) The private sector companies seeking to develop geothermal resources are, however, unable or unwilling to expend the substantial amounts of funds needed to develop these resources to their full extent without an assured and sufficiently large market for the electric energy to be generated therefrom, and the present and projected electric energy demand on the island of Hawaii does not provide an assured and sufficiently large market;

(4) The greatest present and projected demand for geothermally generated electric energy is located on the island of Oahu;

(5) The State, with the support and assistance of the federal and county of Hawaii governments, has been exploring for several years the technical, engineering, economic, and financial feasibility of an interisland deep water electrical transmission cable system that would be capable of transmitting geothermally generated electric energy from the island of Hawaii to the islands of Maui and Oahu, and believes that a cable system may be feasible and desirable;

(6) The development of such a cable system will not be undertaken without the firm assurance that a sufficient amount of geothermally generated electric energy will be continuously available to be transmitted through a cable system once it becomes operational;

(7) The fundamental interrelationship between the development of geothermal resources and a cable system and the magnitude of the cost to undertake each of these developments clearly indicate that neither will be undertaken without the firm assurance that the other also will be undertaken in a synchronized and coordinated manner to enable both developments in substance to be completed concurrently, thereby ensuring that revenues will be available to begin amortizing the costs of each of these developments;

(8) A major and fundamental difficulty in the development of both geothermal resources and a cable system is the diverse array of federal, state, and county land use, planning, environmental, and other related laws and regulations that currently control the undertaking of all commercial projects in the State;

(9) These controls attempt to ensure that commercial development projects in general are undertaken in a manner consistent with land use, planning, environmental, and other public policies, except that some of these specific laws, regulations, and controls may be repetitive, duplicative, and uncoordinated;

(10) To a limited extent, the State and counties have sought to ameliorate this difficulty through the enactment or adoption of measures to improve the coordination and efficiency of land use and planning controls and specifically to facilitate the development of geothermal resources;

(11) Notwithstanding these efforts, the complexities, the magnitude in scope and cost, the fundamental interrelationship between the development of geothermal resources and a cable system, the inherent requirement for the coordinated development of the geothermal resources and a cable system, the substantial length of time required to undertake and complete both developments, and the desirability of private funding for both developments require that affected state and county agencies be directed to pursue and develop to the maximum extent under existing law the coordination and consolidation of regulations and controls pertinent to the development of geothermal resources and a cable system;

(12) The development of geothermal resources and a cable system, both individually and collectively, would represent the largest and most complex development ever undertaken in the State;

(13) Because of the complexities of both projects, there is a need to develop a consolidated permit application and review process to provide for and facilitate the firm assurances that companies will require before committing the substantial amounts of funds, time, and effort necessary to undertake these developments, while at the same time ensuring the fulfillment of fundamental state and county land use and planning policies;

(14) The development of geothermal resources and a cable system are in furtherance of the State's policies, as expressed in the state plan and elsewhere, to develop the State's indigenous renewable alternate energy resources and to decrease the State's dependency on imported fossil fuels; and

(15) A consolidated permit application and review process for the development of the State's geothermal resources and the cable system should be established by an act of the legislature. [L 1988, c 301, pt of §1]

[§196D-3] **Definitions.** As used in this chapter unless the context clearly requires otherwise:

"Agency" means any department, office, board, or commission of the State or a county government which is a part of the executive branch of that government, but does not include any public corporation or authority that may be established by the legislature for the purposes of the project.

"Applicant" means any person who, pursuant to statute, ordinance, rule, or regulation, requests approval or a permit of the proposed project.

"Approval" means a discretionary consent required from an agency prior to the actual implementation of the project.

"Department" means the department of land and natural resources or any successor agency.

"Discretionary consent" means a consent, sanction, or recommendation from an agency for which judgment and free will may be exercised by the issuing agency, as distinguished from a ministerial consent.

"Environmental impact statement" means, as applicable, an informational document prepared in compliance with chapter 343 or with the National Environmental Policy Act of 1969 (Public Law 91-190).

"Interagency group" means the body established pursuant to section 196D-6.

"Permit" means any license, permit, certificate, certification, approval, compliance schedule, or other similar document or decision pertaining to any regulatory or management program which is related to the protection, conservation, use of, or interference with the natural resources of land, air, or water in the State and which is required prior to or in connection with the undertaking of the project.

"Person" includes any individual, partnership, firm, association, trust, estate, corporation, joint venture, consortium, any public corporation or authority that may be established by the legislature for the purposes of the project, or other legal entity other than an agency.

"Project" means the commercial development, construction, installation, financing, operation, maintenance, repair, and replacement, including without limitation all applicable exploratory, testing, and predevelopment activities related to the foregoing, of:

(1) A geothermal power plant or plants, including all associated equipment, facilities, wells, and transmission lines, on the island of Hawaii for the purpose of generating electric energy for transmission primarily to the island of Oahu through the cable system; and

(2) An interisland deep water electrical transmission cable system, including all land-based transmission lines and other ancillary facilities, to transmit geothermally generated electric energy from the island of Hawaii to the island of Oahu, regardless of whether the cable system is used to deliver electric energy to any intervening point. [L 1988, c 301, pt of §1]

[§196D-4] Consolidated permit application and review process. (a) The department is designated as the lead agency for the purposes of this chapter and, in addition to its existing functions, shall establish and administer the consolidated permit application and review process provided for in this chapter, which shall incorporate the permitting functions of those agencies involved in the development of the project which are transferred by section 196D-10 to the department to effectuate the purposes of this chapter.

(b) The consolidated permit application and review process shall incorporate:

(1) A list of all permits required for the project;

(2) The role and functions of the department as the lead agency and the interagency group;

(3) All permit review and approval deadlines;

(4) A schedule for meetings and actions of the interagency group;

(5) A mechanism to resolve any conflicts that may arise between or among the department and any other agencies, including any federal agencies, as a result of conflicting permit, approval, or other requirements, procedures, or agency perspectives;

(6) Any other administrative procedures related to the foregoing; and

(7) A consolidated permit application form to be used for the project for all permitting purposes.

(c) The department shall perform all of the permitting functions for which it is currently responsible and which are transferred to it by section 196D-10 for the purposes of the project, and shall coordinate and consolidate all required permit reviews by other agencies, and to the fullest extent possible by all federal agencies, having jurisdiction over any aspect of the project. [L 1988, c 301, pt of §1]

[§196D-5] Consolidated permit application and review procedure. (a) The department shall serve as the lead agency for the consolidated permit application and review process established pursuant to section 196D-4(b) and as set forth in this section for the project. All agencies whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project are required to participate in the consolidated permit application and review process.

(b) To the greatest extent possible, the department and each agency whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project shall complete all of their respective permitting functions for the purposes of the project, in accordance with the timetable for regulatory review set forth in the joint agreement described in subsection (c)(3) and within the time limits contained in the applicable permit statutes, ordinances, regulations, or rules; except that the department or any agency shall have good cause to extend, if and as permitted, the applicable time limit if the permit-issuing agency must rely on another agency, including any federal agency, for all or part of the permit processing and the delay is caused by the other agency.

(c) The procedure shall be as follows:

(1) The applicant shall submit the consolidated permit application using the consolidated permit application form, which shall include whatever data about the proposed project that the department deems necessary to fulfill the purposes of this chapter and to determine which other agencies may have jurisdiction over any aspect of the proposed project.

(2) Upon receipt of the consolidated permit application, the department shall notify all agencies whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project, as well as all federal agencies, that the department determines may have jurisdiction over any aspect of the proposed project as set forth in the application, and shall invite the federal agencies so notified to participate in the consolidated permit application process. The agencies, and those federal agencies that accept the invitation, thereafter shall participate in the consolidated permit application and review process.

(3) The representatives of the department and the state, county, and federal agencies and the applicant shall develop and sign a joint agreement among themselves which shall:

(A) Identify the members of the consolidated permit application and review team;

(B) Identify all permits required for the project;

(C) Specify the regulatory and review responsibilities of the department and each state, county, and federal agency and set forth the responsibilities of the applicant;

and each state, county, and federal agency and set forth the responsibilities of the applicant;

(D) Establish a timetable for regulatory review, the conduct of necessary hearings, the preparation of an environmental impact statement if necessary, and other actions required to minimize duplication and to coordinate and consolidate the activities of the applicant, the department, and the state, county, and federal agencies; and

(E) Provide that a hearing required for a permit shall be held on the island where the proposed activity shall occur.

(4) A consolidated permit application and review team shall be established and shall consist of the members of the interagency group established pursuant to section 196D-6(a). The applicant shall designate its representative to be available to the review team, as it may require, for purposes of processing the applicant's consolidated permit application.

(5) The department and each agency whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project, and each federal agency shall issue its own permit or approval based upon its own jurisdiction. The consolidated permit application and review process shall not affect or invalidate the jurisdiction or authority of any agency under existing law, except to the extent that the permitting functions of any agency are transferred by section 196D-10 to the department for the purposes of the project.

(6) The applicant shall apply directly to each federal agency that does not participate in the consolidated permit application and review process.

(7) The department shall review for completeness and thereafter shall process the consolidated permit application submitted by an applicant for the project, and shall monitor the processing of permit application by those agencies whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project. The department shall coordinate, and seek to consolidate where possible, the permitting functions and shall monitor and assist in the permitting functions conducted by all of these agencies, and to the fullest extent possible the federal agencies, in accordance with the consolidated permit application and review process.

(8) Once the processing of the consolidated permit application has been completed and the permits requested have been issued to the applicant, the department shall monitor the applicant's work undertaken pursuant to the permits to ensure the applicant's compliance with the terms and conditions of the permits.

(d) Where the contested case provisions under chapter 91 apply to any one or more of the permits to be issued by the agency for the purposes of the project, the agency may, if there is a contested case involving any of the permits, be required to conduct only one contested case hearing on the permit or permits within its jurisdiction. Any appeal from a decision made by the agency pursuant to a public hearing or hearings required in connection with a permit shall be made directly on the record to the supreme court for final decision subject to chapter 602. [L 1988, c 301, pt of §1]

[§196D-6] Interagency group. (a) The department shall establish an interagency group comprised of those agencies whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project and which have jurisdiction over any aspect of the project. Each of these agencies shall designate an appropriate representative to serve on the interagency group as part of the representative's official responsibilities. The interagency group shall perform liaison and assisting functions as required by this chapter and the department. The department shall invite and encourage the appropriate federal agencies having jurisdiction over any aspect of the project to participate in the interagency group.

(b) The department and agencies shall cooperate with the federal agencies to the fullest extent possible to minimize duplication between and, where possible, promote consolidation of federal and state requirements. To the fullest extent possible, this cooperation shall include, among other things, joint environmental impact statements with concurrent public review and processing at both levels of government. Where federal law has requirements that are in addition to but not in conflict with state law requirements, the department and the agencies shall cooperate to the fullest extent possible in fulfilling their requirements so that all documents shall comply with all applicable laws.

(c) If the legislature establishes any public corporation or authority for the purposes of the project, then upon its establishment, the public corporation or authority shall be a member of the interagency group. [L 1988, c 301, pt of §1]

[§196D-7] Streamlining activities. In administering the consolidated permit application and review process, the department shall:

(1) Monitor all permit applications submitted under this chapter and the processing thereof on an ongoing basis to determine the source of any inefficiencies, delays, and duplications encountered and the status of all permits in process;

(2) Adopt and implement needed streamlining measures identified by the interagency group, in consultation with those agencies whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project and with members of the public;
(3) Design, in addition to the consolidated permit application form, other applications, checklists, and forms essential to the implementation of the consolidated permit application and review process;
(4) Recommend to the legislature, as appropriate, suggested changes to existing laws to eliminate any duplicative or redundant permit requirements;
(5) Coordinate with agencies to ensure that all standards used in any agency decision-making for any required permits are clear, explicit, and precise; and
(6) Incorporate, where possible, rebuttable presumptions based upon requirements met for permits issued previously under the consolidated permit application and review process. [L 1988, c 301, pt of §1]

[§196D-8] Information services. The department shall:
(1) Operate a permit information and coordination center during normal working hours, which will provide guidance to potential applicants for the project with regard to the permits and procedures that may apply to the project; and
(2) Maintain and update a repository of the laws, rules, procedures, permit requirements, and criteria of agencies whose permitting functions are not transferred by section 196D-10 to the department for the purposes of the project and which have control or regulatory power over any aspect of the project and of federal agencies having jurisdiction over any aspect of the project. [L 1988, c 301, pt of §1]

[§196D-9] Construction of the Act; rules. This chapter shall be construed liberally to effectuate its purposes, and the department shall have all powers which may be necessary to carry out the purposes of this chapter, including the authority to make, amend, and repeal rules to implement this chapter; provided that all procedures for public information and review under chapter 91 shall be preserved; and provided further that the consolidated permit application and review process shall not affect or invalidate the jurisdiction or authority of any agency under existing law. The adoption, amendment, and repeal of all rules shall be subject to chapter 91. [L 1988, c 301, pt of §1]

[§196D-10] Transfer of functions. (a) Those functions identified in paragraphs (1) and (2) insofar as they relate to the permit application, review, processing, issuance, and monitoring of laws, and rules and to the enforcement of terms, conditions, and stipulations of permits and other authorizations issued by agencies with respect to the development, construction, installation, operation, maintenance, repair, and replacement of the project, or any portion or portions thereof, are transferred to the department. With respect to each of the statutory authorities cited in paragraphs (1) and (2), the transferred functions include all enforcement functions of the agencies or their officials under the statute cited as may be related to the enforcement of the terms, conditions, and stipulations of permits, including but not limited to the specific sections of the statute cited. "Enforcement", for purposes of this transfer of functions, includes monitoring and any other compliance or oversight activities reasonably related to the enforcement process. These transferred functions include:

(1) Such functions of the land use commission related to: district boundary amendments as set forth in section 205-3.1 et seq.; and changes in zoning as set forth in section 205-5; and

(2) The permit approval and enforcement functions of the director of transportation or other appropriate official or entity in the department of transportation related to permits or approvals issued for the use of or commercial activities in or affecting the ocean waters and shores of the State under chapter 266.

(b) Nothing in this section shall be construed to relieve an applicant from the laws, ordinances, and rules of any agency whose functions are not transferred by this section to the department for the purposes of the project.

(c) This section shall not apply to any permit issued by the public utilities commission under chapter 269.

(d) Notwithstanding any other provision of this chapter, this section shall take effect on July 1, 1989. [L 1988, c 301, pt of §1]

Note

"July 1, 1989" substituted for "a date that is one year after the effective date of this chapter".

[§196D-11] Annual report. The department shall submit an annual report to the governor and the legislature on its work during the preceding year, the development status of the project, any problems encountered, and any legislative actions that may be needed further to improve the consolidated permit application and review process and implement the intent of this chapter. [L 1988, c 301, pt of §1]

[§196D-12] Severability. If any provision of this chapter or the application thereof to any person or circumstances is held invalid, the invalidity shall not affect other provisions or applications of this chapter that can be given effect without the invalid provision or application, and to this end the provisions of this chapter are declared severable. [L 1988, c 301, pt of §1]

[§196D-13] Exemptions from certain state laws. In order to promote the purposes of this chapter, all persons hired by the department to effectuate this chapter are excepted from chapters 76, 77, and 89. [L 1988, c 301, pt of §1]

[§196D-14] Development of geothermal resources on Maui. To the extent an applicant's proposed project includes the development of geothermal resources on the island of Maui and the delivery of electric energy generated from these resources to the island of Oahu through the cable system, this chapter shall apply to that proposed project. [L 1988, c 301, pt of §1]

HAWAII ADMINISTRATIVE RULES

TITLE 13
DEPARTMENT OF LAND AND NATURAL RESOURCES

SUB-TITLE 7. WATER AND LAND DEVELOPMENT

Chapter 185
Rules of Practice and Procedure for Geothermal and Cable System Development Permitting

Subchapter 1. General

Subchapter 2. Consolidated permit application and review process

Subchapter 3. Regulation of consolidated geothermal and cable system development permitting

Subchapter 1. General

Section 13-185-1 Purpose. The purpose of this chapter is to establish guidelines and procedures for consolidated geothermal and cable system development permitting. Consolidated permitting procedures are intended to coordinate and streamline permitting requirements of the diverse array of federal, state, and county land use, planning, environmental, and other related laws and regulations that affect geothermal and cable system development. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-2)

Section 13-185-2 Definitions. As used in this chapter: "Act" means the geothermal and cable system development permitting act of 1988, codified as chapter 196D, Hawaii Revised Statutes.

"Agency" means any department, office, board, or commission of the State or a county government which is a part of the executive branch of that government, but does not include any public corporation or authority that may be established by the legislature for the purposes of geothermal and cable system development.

"Applicant" means any person who, pursuant to statute, ordinance, rule, or regulation, requests approval or a permit for a geothermal and cable system development project.

"Approval" means a discretionary consent required from an agency prior to the actual implementation of a geothermal and cable system development project.

"Conflict" means a procedural disagreement between or among agencies as a result of conflicting permit, approval, or other requirements, procedures, or agency perspectives, not based on statute, ordinance, or rule established pursuant thereto, but based on administrative interpretation outside of statutory authority, which does not affect or invalidate the jurisdiction or authority of any agency under existing law.

"Consolidated permit application form" means a package of forms comprising the form made for this purpose by the department of land and natural resources plus the forms of whatever federal and other agencies have

permitting authority over a particular project and are required to use their own application form. Information provided in this package includes but is not limited to information identifying the applicant, the landowner, the location of the proposed geothermal and cable system development project, the types of permits required, environmental requirements, information on the geographic location of the project, a description of the proposed project, and plan information.

"Department" means the department of land and natural resources or any successor agency.

"Discretionary consent" means a consent, sanction, or recommendation from an agency for which judgement and free will may be exercised by the issuing agency, as distinguished from a ministerial consent.

"Environmental impact statement" means, as applicable, an informational document prepared in compliance with chapter 343, Hawaii Revised Statutes, or with the National Environmental Policy Act of 1969 (Public Law 91-190).

"Geothermal and cable system development project" or "project" means the commercial development, construction, installation, financing, operation, maintenance, repair, and replacement, including without limitation all applicable exploratory, testing, and predevelopment activities related to the foregoing, of:

(1) a geothermal power plant or plants, including associated equipment, facilities, wells, and transmission lines, on the islands of Hawaii or Maui, for the purpose of generating electric energy for transmission primarily to the island of Oahu through the cable system; and

(2) an interisland deep water electrical transmission cable system, including all land-based transmission lines and other ancillary facilities, to transmit geothermally generated electric energy from the islands of Hawaii or Maui, to the islands of Oahu or Maui, regardless of whether the cable system is used to deliver electric energy to any intervening point.

"Interagency group" means a group comprised of representatives from county, State, and federal agencies involved in geothermal and cable system development permitting activities whose permitting functions are not transferred by Sec. 196D-10, Hawaii Revised Statutes, to

the department for the purpose of consolidating the permitting process for geothermal and cable system development projects.

"Intervenor" means a person or agency who properly seeks by application to intervene and is entitled as of right to be admitted as a party in any court or agency proceeding.

"Permit" means any license, permit, certificate, certification, approval, compliance schedule, or other similar document or decision pertaining to any regulatory or management program which is related to the protection, conservation, use of, or interference with the natural resources of land, air, or water in the State and which is required prior to or in connection with the undertaking of the project.

"Person" includes any individual, partnership, firm, association, trust, estate, corporation, joint venture, consortium, any public corporation or authority that may be established by the legislature for the purposes of the project, or other legal entity other than an agency.

[Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Secs. 196D-3, HRS 196D-6)

Section 13-185-3 Transfer of functions. (a) For purposes of geothermal and cable system development projects and for those projects only, the following functions are transferred to the department: the functions of the land use commission related to district boundary amendments as set forth in section 205-3.1 et seq., Hawaii Revised Statutes; and functions of the land use commission related to changes in zoning as set forth in section 205-5, Hawaii Revised Statutes; and permit approval and enforcement functions of the department of transportation related to use of or commercial activities in or affecting the ocean waters and shores of the State under chapter 266, Hawaii Revised Statutes. If a geothermal and cable system development project is not successful or is terminated as determined by the department, any change in boundary or zoning made pursuant to this section shall revert to the boundary or zoning in place before the change.

(b) Regarding functions of the land use commission related to district boundary amendments as set forth in section 205-3.1 et seq., Hawaii Revised Statutes, for

district boundary amendments involving land areas greater than fifteen acres, and for land areas fifteen acres or less in conservation districts, for purposes of geothermal and cable system development projects and for those projects only, the department shall process applications as follows. The applicant shall file a petition for boundary amendment with the department. The petition shall be in writing and shall provide a statement of the authorization or relief sought and the statutory provisions under which authorization or relief is sought. For petitions to reclassify properties from the conservation district to any other district, the petition shall include an environmental impact statement or negative declaration approved by the department for the proposed reclassification request; the legal name of the petitioner, and the address, description of the property, the petitioner's proprietary interest in the property, and a copy of the deed or lease, with written authorization of the fee owner to file the petition. The petition shall include the type of development proposed and details regarding the development including timetables, cost, assessment of the effects of the development, and an assessment of the need for reclassification. The department shall serve copies of the application upon the county planning department and planning commission within which the subject land is situated, upon the director of the department of business and economic development, or a designated representative, and upon all persons with a property interest in the property, and upon all persons with a property interest lying within 1000 feet of the subject property, recorded in the county's real property tax records at the time the petition is filed, along with a notice of a public hearing on the matter, to be conducted on the appropriate island. The department shall set the hearing within not less than sixty and not more than one hundred eighty days after a proper application has been filed. The department shall also mail notice of the hearing to all persons who have made a timely written request for advance notice of boundary amendment proceedings, and notice of the hearing shall be published at least once in a newspaper in the county in which the land sought to be redistricted is situated as well as once in a newspaper of general circulation in the State at least thirty days in advance of the hearing. The notice shall comply with the provisions of chapter 91, Hawaii Revised Statutes, shall indicate the time and place that

maps showing the proposed district boundary may be inspected, and further, shall inform all interested persons of their rights regarding intervening in the proceedings. The petitioner, the office of state planning and the county planning department within which the subject land is situated shall appear at the proceedings as parties in the petition and shall make recommendations relative to the proposed boundary change. The department shall admit any other department or agencies of the State and of the county in which the land is situated as parties upon timely application. The department shall admit any person who has some property interest in the land, who lawfully resides on the land, or within 1000 feet of the land, or who otherwise can demonstrate that they will be so directly and immediately affected by the proposed change that their interest in the proceeding is clearly distinguishable from that of the general public, as intervenors to the proposed boundary change. The department shall receive applications for leave to intervene from any member of the public, provided the department may deny an application if it appears it is substantially the same as the position of a party already admitted to the proceeding and if admission of additional parties will render the proceedings inefficient and unmanageable. The petition for intervention shall be filed with the department within fifteen days after the notice of hearing is published in the newspaper. The petition shall make reference to the following:

(1) Nature of petitioner's statutory or other right;

(2) Nature and extent of the petitioner's interest, and if an abutting property owner, or a property owner whose property lies within 1000 feet of the subject land, the tax map key description of the property; and

(3) Effect of any decision in the proceeding on petitioner's interest.

Within a period of not more than one hundred and twenty days after the close of the hearing, the department shall, by findings of fact and conclusions of law, act to approve the petition, deny the petition, or to modify the petition by imposing conditions necessary to uphold the intent and spirit of the law or to assure substantial compliance with representations made by the petitioner in seeking a boundary change.

The department shall not approve an amendment of a land use district boundary unless the department finds upon the clear preponderence of the evidence that the

proposed boundary amendment is reasonable, not violative of section 205-2, Hawaii Revised Statutes, and consistent with the policies and criteria established pursuant to sections 205-16, 205-17 and 205A-2, Hawaii Revised Statutes.

In its review of any petition for reclassification of district boundaries pursuant to this chapter, the department shall specifically consider the following:

(1) The extent to which the proposed reclassification conforms to the applicable goals, objectives, and policies of the Hawaii State Plan and relates to the applicable priority guidelines of the Hawaii State Plan and the adopted functional plans;

(2) The extent to which the proposed reclassification conforms to the applicable district standards;

(3) The impact of the proposed reclassification on the following areas of state concern:

(A) Preservation or maintenance of important natural systems or habitats;

(B) Maintenance of valued cultural, historical, or natural resources;

(C) Maintenance of other natural resources relevant to Hawaii's economy including, but not limited to agricultural resources;

(D) Commitment of state funds and resources;

(E) Provision for employment opportunities and economic development; and

(F) Provision for housing opportunities for all income groups, particularly the low, low-moderate and gap groups; and

(4) In establishing the boundaries of the districts in each county, the department shall give consideration to the general plan of the county in which the land is located.

Amendments of land use district boundary in other than conservation districts involving land areas fifteen acres or less shall be determined by the appropriate county land use decision-making authority for the district.

(c) Regarding transfer of the function of the land use commission concerning changes in zoning, for purposes of geothermal and cable system development projects and for those projects only, for land within agricultural and rural districts the area of which is greater than fifteen acres, special permits of the county planning commission for geothermal and cable development projects shall be

subject to approval by the department for unusual and reasonable uses within agricultural and rural districts other than those for which the district is classified. The department may impose additional restrictions as may be necessary or appropriate in granting such approval, including the adherence to representations made by the applicant. The following guidelines are established in determining an "unusual and reasonable use":

(1) The use shall not be contrary to the objectives sought to be accomplished by chapters 205 and 205A, Hawaii Revised Statutes;

(2) The desired use would not adversely affect surrounding property;

(3) The use would not unreasonably burden public agencies to provide roads and streets, sewers, water drainage and school improvements, and police and fire protection;

(4) Unusual conditions, trends and needs have arisen since the district boundaries and rules were established; and

(5) The land upon which the proposed use is sought is unsuited for the uses permitted within the district.

A copy of the decision together with the complete record of the proceeding before the county planning commission on all special permit requests for a geothermal and cable system development project involving a land area greater than fifteen acres shall be transmitted to the department within sixty days after the decision is rendered. Within forty-five days after receipt of the complete record from the county planning commission, the department shall act to approve, approve with modification, or deny the petition. A denial either by the county planning commission or by the department or a modification by the department as the case may be, of the desired use shall be appealable to the circuit court of the circuit in which the land is situated and shall be made pursuant to the Hawaii rules of civil procedure.

(d) Regarding permit approval and enforcement functions of the department of transportation related to use of or commercial activities in or affecting the ocean waters and shores of the State under chapter 266, Hawaii Revised Statutes, for any construction, dredging, or filling within the ocean waters of the State, including ocean waters, navigable streams and harbors belonging to or controlled by the State, to be undertaken as part of a

geothermal and cable systems development project, a permit application form called "Application for Work in the Ocean Waters of the State of Hawaii" (hereinafter Application for Work), available at the Division of Water and Land Development, shall be filed by the applicant. Requirements to accompany the application include an environmental assessment or statement, a description of the shoreline, nature and extent of proposed work (such as construction, dredging, disposition of dredged material, filling, or other work), reference to public access, effects on adjacent property owners, and other information pertinent to the proposed work as required. In areas where a Conservation District Use Application (CDUA) is required, the Application for Work need not be filed. The requirements outlined above will be met via inter-division coordination within the department. A separate application for Application for Work in the shorewaters of the State will no longer be necessary except when: (1) an applicant's proposal is in the conservation district, but does not require a CDUA per the department's determination and (2) an applicant applies for a CDUA, but in the review process the department expresses opposition or objection to the proposal. In areas where the proposed project is in the ocean waters, but not in the conservation district, the applicant is required to file an Application for Work with the department. The department shall inform and consult with, as appropriate, various agencies that have jurisdiction over navigable waters. When directed, the applicant shall notify the United States Coast Guard of such work for publication of a "Notice to Mariners". [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-10)

Section 13-185-4 Consolidated permit application and review process. In order to carry out the intent of the Act, the department shall establish and administer a consolidated permit application and review process as provided in this chapter. The consolidated permit application and review process shall not affect or invalidate the jurisdiction or authority of any agency under the existing law, except to the extent that permitting functions have been transferred by the Act to the department for the purposes of the project, and each federal agency shall isssue its own permit or approval based on its own jurisdiction. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-5)

Section 13-185-5 Contested case provisions. Where the contested case provisions under chapter 91, Hawaii Revised Statutes, apply to any one or more of the permits to be issued by an agency for the purposes of the project, the agency shall, if there is a contested case involving any of the permits, conduct only one contested case hearing on the permit or permits within its jurisdiction. Any appeal from a decision made by the agency pursuant to a public hearing or hearings required in connection with a permit shall be made directly on the record to the supreme court for final decision subject to chapter 602, Hawaii Revised Statutes. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-5)

Section 13-185-6 Streamlining. The department shall monitor the processing of all permit applications under this chapter on an ongoing basis to identify inefficiencies, delays, and duplications of effort. Any alternative suggestions and recommended changes in procedures will be brought to the interagency group as appropriate for consideration and adoption, in consultation with those agencies whose permitting functions are not transferred to the department for purposes of the project and with members of the public. The department may develop legislative proposals as appropriate to eliminate any duplicative or redundant permit requirements. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-7)

Section 13-185-7 Information services. (a) The department shall operate a permit information and coordination center that will provide guidance to potential applicants for geothermal and cable system development projects with regard to permits and procedures that may apply to the project. The center shall be known as the geothermal and cable system development permitting information and coordination center.

(b) The department shall maintain and update at the geothermal and cable system development permitting information and coordination center a repository of the laws, rules, procedures, permit requirements, and criteria of agencies whose permitting functions are not transferred

to the department for the purpose of consolidated permitting and which have control or regulatory power over any aspect of geothermal and cable systems development projects and of federal agencies having jurisdiction over any aspect of these projects. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-8)

Section 13-185-8 Annual report. The department shall submit an annual report to the governor and the legislature on its work during the preceding year. The report shall include the status of geothermal and cable system development projects, any problems encountered, any legislative actions that may be needed to improve the consolidated permit application and review process, and to implement the intent of the Act. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-11)

Subchapter 2. Consolidated permit application and review procedures

Section 13-185-9 Application and review procedure. (a) The department shall provide applicants with a geothermal/cable development consolidated permit application form. The consolidated permit application form will be available during office hours 7:45 a.m. to 4:30 p.m. Monday through Friday, except holidays, at the following address:

Department of Land and Natural Resources
Division of Water and Land Development
1151 Punchbowl Street, Room 227
Honolulu, Hawaii 96813
Telephone: 548-7533
Telefax: 548-6052

The department shall provide necessary assistance for applicants to fill out the consolidated geothermal/cable development application form.

(b) The department shall provide advice to applicants when federal and other agencies have indicated that they will not participate in the consolidated permit application and review process. The department shall assist applicants in applying directly to these agencies, and shall coordinate to the fullest extent possible the consolidated permitting process with the permitting processes of the non-participating federal and other agencies.

(c) Upon receipt of the properly completed consolidated permit application, the department shall notify all State and county agencies whose permitting functions are not transferred to the department for the purpose of geothermal/cable system development permitting, as well as all federal agencies that may have jurisdiction over any aspect of the proposed project as set forth in the application, and shall invite the federal agencies and shall require State and county agencies so notified to participate in the consolidated permit application and review process. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-5)

Section 13-185-10 Application filing and fees. (a) Applicants shall attach to the consolidated permit application form a preliminary statement of project costs. A filing fee varying with the statement of project cost shall accompany consolidated permit applications as follows:

Project Cost	Fee
$0 - 999,999	$200
1,000,000 - 9,999,999	$400
more than 10,000,000	$600

(b) The fee shall be payable by checks which shall accompany applications and should be made payable to the State of Hawaii. Checks and the applications shall be submitted to:

State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96806

or delivered to:

Department of Land and Natural Resources
Division of Water and Land Development
1151 Punchbowl Street, Room 227
Honolulu, Hawaii 96813

(c) Checks for filing fees required for filing applications with agencies participating in the consolidated permit application and review process but whose permitting functions have not been transferred to the department for the project shall be made out in separate amounts to the respective agencies but shall be attached to the consolidated permit application form.

(d) Filing fees for federal and other agencies not participating in the consolidated permit application and review process shall be submitted directly to those agencies. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-5)

Section 13-185-11 Interagency group. (a) In order to provide coordination amongst agencies to facilitate carrying out the consolidated permit application and review process, the department shall convene an interagency group comprised of representatives of federal and other permitting agencies whose permitting functions have not been transferred to the department including but not limited to the following:

U.S. Army Corps of Engineers
District Engineer (POD CO-O)
Building 230
Fort Shafter, Hawaii 96858

Commander in Chief
U.S. Pacific Fleet
Pearl Harbor, Hawaii 96860

Commander, U.S. Coast Guard
Fourteenth Coast Guard District (OAN)
300 Ala Moana Boulevard, Room 9153
Honolulu, Hawaii 96850

District Chief,
Water Resources Division
U.S. Geological Survey
300 Ala Moana Boulevard, Room 6110
Honolulu, Hawaii 96850

Pacific Islands Administrator
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 5302
P.O. Box 50167
Honolulu, Hawaii 96850

National Marine Fisheries Service
Pacific Islands Coordinator
2570 Dole Street, Room 106
Honolulu, Hawaii 96822-2396

Environmental Protection Agency
Manager,
Pacific Islands Contact Office
300 Ala Moana Boulevard, Room 1302
Honolulu, Hawaii 96850

Pacific Area Director
National Park Service
300 Ala Moana Boulevard, Room 6305
Honolulu, Hawaii 96850

State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

State of Hawaii
Office of State Planning
State Capitol, Room 410
Honolulu, Hawaii 96813

State of Hawaii
Department of Health
1250 Punchbowl Street
Honolulu, Hawaii 96813

State of Hawaii
Department of Business and
Economic Development
250 South King Street
Honolulu, Hawaii 96813

Office of Hawaiian Affairs
1600 Kapiolani Boulevard
Honolulu, Hawaii 96814

Mayor, County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96721

Mayor, County of Maui
200 South High Street
Wailuku, Hawaii 96783

Mayor, City and County of Honolulu
Honolulu Hale
530 South King Street
Honolulu, Hawaii 96813

(b) State and county agencies having permitting authority in geothermal and cable systems development projects shall participate in the activities of the interagency group. Federal agencies with permitting authority are invited to participate and the department shall give them the fullest cooperation possible in coordinating federal and State permit requirements.

(c) If the legislature establishes any public corporation or authority for the purposes of implementing geothermal and cable systems development projects, then upon its establishment, the public corporation or authority shall be a member of the interagency group. The department shall convene meetings of the interagency group as required, and in appropriate locations, to organize to participate and to participate in the consolidated permit application and review process. The department shall convene a meeting of the interagency group in a timely manner upon completion of the department's review of each properly completed geothermal/cable consolidated permit application. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-6)

Section 13-185-12 Consolidated permit application and review team. (a) The department shall select a working team known as the consolidated permit application and review team from members of the interagency group. Applicants shall designate a representative to be available to the consolidated application and review team for purposes of processing consolidated permit applications. The consolidated application and review team shall work with the department to provide permitting coordination for each geothermal and cable system development project. The team shall consolidate the various permitting requirements for each project.

(b) The department and agencies, through the consolidated permit application and review team, shall cooperate with the federal agencies to the fullest extent possible to minimize duplication and where possible promote consolidation of federal and State requirements. To the fullest extent possible, this cooperation shall include joint environmental impact statements with concurrent public review and processing at both levels of government. Where federal law has requirements that are in addition to but not in conflict with State law requirements, the department and the agencies shall cooperate to the fullest extent possible in fulfilling those requirements so that all documents shall comply with all applicable laws. [Eff: SEP 05 1989] (Auth: HRS Sec, 196D-9) (Imp: HRS Secs. 196D-5, 196D-6)

Section 13-185-13 Joint agreement. (a) Representatives of the State and county agencies participating on the consolidated application and review team shall sign a joint agreement committing them to meet and perform the following tasks for each project application:

(1) provide a listing of all permits required for the proposed project;
(2) specify the regulatory and review responsibilities of the department and each State, county, and federal agency and the responsibilities of applicants;
(3) provide a timetable for regulatory review, the conduct of necessary hearings, preparation of an environmental impact statement, if necessary, and other actions required to minimize duplication and to coordinate and

consolidate the activities of applicants, the department, and the State, county, and federal agencies, with the timetable accommodating existing statutes, ordinances, or rules established pursuant thereto, of each participating agency so that if one participating agency requires more time than another agency to process its portion of the consolidated permit application and cannot move up its schedule, the consolidated process shall defer to the agency with the longer time requirement;

(4) coordinate hearings required for a permit, and hold hearings on the island where the proposed activity shall occur;

(5) prepare alternatives for resolving administrative or procedural conflicts and bring these to the affected agencies for resolution and if none of these alternatives is satisfactory to resolve a conflict, follow the conflict resolution process in section 13-185-14;

(6) approve a consolidated permit compliance monitoring program and schedule prepared by the department to take effect after a proposed project is approved, to be monitored by the department; and

(7) provide that each agency shall monitor and enforce the respective terms and conditions of each agency's respective permits.

(b) Federal agencies are invited to sign the joint agreement for a period not to exceed the term of the entire process for each geothermal and cable system development project application submitted to the department. Signing the joint agreement and thereby participating in the consolidated application process shall not affect or invalidate the jurisdiction or authority of any agency under existing law. Each agency shall issue its own permit or approval based on its own jurisdiction. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-4)

Section 13-185-14 Conflict resolution process. (a) Should administrative or procedural conflicts, as opposed to conflicts of authority, which are not treated in this chapter, arise that the consolidated permit application and review team cannot resolve, the conflict resolution process described in this section shall be implemented, provided that the conflict resolution process shall not affect or invalidate the jurisdiction or authority under existing law.

(b) In an administrative or procedural conflict, as opposed to a conflict of authority, which is not treated in this chapter, conflict between State departments, any affected State department head may declare that an impasse exists between that department and any department or departments of the State during any phase of the permitting process related to the geothermal and cable systems development project. Applicants may also seek an impasse declaration by filing in writing with the administrative director of the State that such a declaration should be issued if the processing of a permit application has not made significant progress for forty-five calendar days. The administrative director shall make the determination whether an impasse declaration should be made. Upon an impasse being declared, the involved department heads shall each submit a report in writing to the administrative director within ten calendar days from the date of the impasse declaration. The reports shall list the chronological events leading to the impasse, the perceived causes of the impasse, and a suggested solution. The administrative director or the administrative director's designee shall meet with the involved directors within twenty calendar days from the impasse declaration date. Should the impasse still exist following this meeting, the administrative director shall report to the governor the latest position of the directors and a recommendation. Upon a decision of the governor resolving the impasse, the involved departments shall initiate implementing the governor's decision within three calendar days from the date of the final decision.

(c) In an administrative or procedural conflict, as opposed to a conflict of authority, which is not treated in this chapter, between State and county agencies, any State or county department head involved in processing an application related to the geothermal/cable project can declare that an impasse has developed between the involved county and State departments.

(d) Such a declaration shall be in writing identifying the unresolved issues and the respective positions of the affected departments. Applicants may also seek an impasse declaration by filing a written request with the administrative director of the State or the county agency which shall be designated by the mayor. Such a request for impasse declaration may be made if the processing of a permit application has not made significant progress for forty-five calendar days. Unless objected to in writing by the reviewing county and State department or State departments, an impasse declaration shall be made within ten working days from the date that the request for impasse declaration was filed. Upon an impasse being declared, the affected State and county department heads shall each submit a report in writing to both the State administrative director and the designated county agency within ten days from the date of impasse declaration. The reports shall list the chronological events leading to the impasse, the perceived causes of the impasse, and a suggested solution. The administrative director or the administrative director's designee and the head of the mayor's designated county agency or that agency's designee, shall meet with the involved State and county department heads within twenty calendar days from the impasse declaration date. Should the impasse declaration still exist following the meeting, the administrative director shall render a decision. The involved State and county departments shall initiate implementing the administrative director's decision within three calendar days from the date of the final decision. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-4)

Subchapter 3. Regulation of Geothermal and Cable System Development Permitting

Section 13-185-15 Monitoring applicants' compliance with terms and conditions of permits. Once all the required permits have been approved, the department shall commence monitoring applicants' compliance with the terms and conditions of the permits for which the department has

full and direct responsibility, including those issued pursuant to functions transferred to the department by section 196D-10, Hawaii Revised Statutes. The department shall prepare a schedule for monitoring terms and conditions of consolidated permits that shall be accepted by the consolidated permit application and review team. The department shall monitor permitting agencies' monitoring activities to assure permit compliance is being monitored. The monitoring schedule will identify terms and conditions of compliance, dates of monitoring, federal and other agencies and individuals who shall carry out the monitoring activity, and the date the report of the monitoring activity shall be sent to the department. The department shall maintain a log of the monitoring activities and shall alert the appropriate permitting agency if monitoring for permit compliance is not being carried out on schedule. If necessary the department in conjunction with the affected agency or agencies shall enforce all terms and conditions related to any permit. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-5)

Section 13-185-16 Enforcement of District Boundary Amendments and Special Permits. (a) The department shall enforce compliance with conditions placed on reclassifications of district boundaries and terms and conditions of special permitted activities.

(b) Whenever the department shall have reason to believe that there has been a failure to perform according to the conditions imposed, the department shall issue and serve upon the party bound by the conditions an order to show cause why the property should not revert to its former land use classification or be changed to a more appropriate classification.

(1) The department shall serve the order to show cause in writing by registered or certified mail with return receipt requested at least thirty days before the hearing. A copy shall be also sent to all parties in the boundary amendment proceedings;

(2) The order to show cause shall include:

(A) A statement of the date, time, place, and nature of the hearing;

(B) A description and a map of the property to be affected;
(C) A statement of the legal authority under which the hearing is to be held;
(D) The specific sections of the statutes, or rules, or both, involved; and
(E) A statement that any party may retain counsel if the party so desires.

(c) The department shall conduct a hearing on an order to show cause in accordance with the requirements of chapter 91, Hawaii Revised Statutes. Any procedure in an order to show cause hearing may be modified or waived by stipulation of the parties and informal disposition may be made in any case by stipulation, agreed settlement, consent order, or default. Post hearing procedures shall conform to chapter 91, Hawaii Revised Statutes. Decisions and orders shall be issued in accordance with chapter 91, Hawaii Revised Statutes. The department shall amend its decision and order to incorporate the order to show cause by including the reversion of the property to its former land use classification or to a more appropriate classification.

(d) Whenever the department finds that there is prima facie evidence that breach has occurred the special permit shall be automatically suspended pending a hearing on the continuity of such special permit provided that written request for such a hearing is filed with the department within ten days of the date of receipt of such notice of alleged breach. If no request for hearing is filed within said ten day period the department may revoke said special permit. [Eff: SEP 05 1989] (Auth: HRS Sec. 196D-9) (Imp: HRS Sec. 196D-10)

DEPARTMENT OF LAND AND NATURAL RESOURCES

Chapter 13-185, Hawaii Administrative Rules, on the Summary Page dated August 11, 1989, was adopted on August 11, 1989, following a public hearing held on June 21, 1989, after a public notice was given in the Honolulu Star-Bulletin May 22, May 29 and June 14, 1989, in the Hawaii Tribune-Herald May 22 and June 14, 1989, in the Garden Isle May 22, and June 14, 1989, in the Maui News May 23 and June 14, 1989, and in West Hawaii Today May 22 and June 14, 1989.

The adoption of chapter 13-185 shall take effect ten days after filing with the Office of the Lieutenant Governor.

State of Hawaii
BOARD OF LAND AND NATURAL RESOURCES

By _____
Its Chairperson

And By _____
Member

APPROVED:

_____
John Waihee
Governor
State of Hawaii

Dated: AUG 24 1989

APPROVED AS TO FORM:

_____
Deputy Attorney General

RECD. BY
1989 AUG 25 AM 9 05
LT. GOVERNOR'S OFFICE

_____
Filed