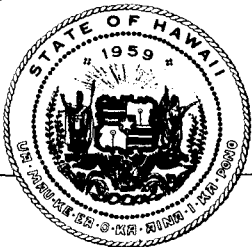


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*WP - would you like
to see the geothermal
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**DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT**

RECEIVED

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

DEC 19 12:31

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813

1041B:599

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

December 16, 1988

MEMORANDUM

TO: Members, Governor's Advisory Board on the
Geothermal/Cable Project

FROM: *Gerald O. Lesperance*
Gerald O. Lesperance

SUBJECT: Draft Request for Proposals (RFP) for Economic Analysis of
Hawaii's Proposed Geothermal/Inter-Island Cable Project

Chairman Quinn would like to discuss the attached draft
RFP at the December 23, 1988, Board meeting.

GOL:geo

Attachment

9 am, DBED

REQUEST FOR PROPOSALS

DRAFT

ECONOMIC ANALYSIS OF
HAWAII'S PROPOSED GEOTHERMAL/INTER-ISLAND CABLE PROJECT

This is to invite your proposal to prepare an economic analysis of the proposed project to develop electricity from the geothermal resources on the Island of Hawaii and transmit it to Oahu and Maui via an inter-island cable system. The analysis shall compare the geothermal/cable system with other resources, particularly petroleum and coal, that presently or are likely to provide a significant portion of the electrical generating capacity for Oahu. While the State's goal is to transmit 500 megawatts of geothermal-generated electricity from the Island of Hawaii to Oahu and Maui, the analysis shall include 125, 250, 375, 500, and 625 megawatt scenarios.

Attached, for your information and use, is a brief description of the purpose and intended scope of the analysis we wish to have performed. Any questions concerning this Request for Proposals shall be addressed in writing no later than

to:

Director of Business and Economic Development
Attention: Gerald O. Lesperance
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

Director of Business and Economic
Development, State of Hawaii

REQUEST FOR PROPOSALS

ECONOMIC ANALYSIS OF
HAWAII'S PROPOSED GEOTHERMAL/INTER-ISLAND CABLE PROJECT

The State of Hawaii's Department of Business and Economic Development (DBED) invites proposals to perform an economic analysis of the proposed project to develop electricity from the geothermal resource on the Island of Hawaii and transmit it to Oahu and Maui via an inter-island cable system, hereinafter called the geothermal/cable project. Three copies of the proposal are due on, or before 3:30 p.m., HST, on . The proposals shall be mailed or delivered to:

Director, Department of Business and Economic Development
Attention: Gerald O. Lesperance
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

Purpose

The purpose of this Request for Proposals is to select a consultant to perform an economic analysis of the geothermal/cable project to guide public and private decisions. The analysis shall compare the cost of electricity developed and transmitted by the geothermal/cable project with other major existing or proposed electrical generating alternatives on Oahu, specifically petroleum and coal. While the goal of the geothermal/cable project is 500 megawatts, the analysis shall also include capacities of 125, 250, 375, and 625 megawatts so that information on the relative size economies is also available.

The purposes of the study that will result from this RFP is to provide government (Governor, Legislature, DBED, Governor's Advisory Board on the Geothermal/Cable Project, and the three involved counties) and private (utilities, prospective geothermal/cable developer, contractors and suppliers, financing organizations) decision-makers with information of the economic viability of the geothermal/cable project compared to other alternatives for supplying large quantities of baseload electricity namely oil and coal. An objective of this study is to not only determine the economic feasibility, but to also identify and discuss those risk elements and non-quantifiable benefits that would affect any decision to proceed with the development of the Hawaii Geothermal/Cable development program.

Response Guidelines

1. The contract resulting from this RFP is expected to be a fixed price contract not to exceed \$100,000.
2. It is anticipated that the selected respondent to this RFP will be given a notice to proceed 45 to 60 days after the date proposals are due.
3. Preparation of proposals shall be at the respondent's expense.
4. The proposal shall be organized in the following sequence:
 - a. An overview of the respondent's understanding of the objectives of the economic analysis.
 - b. Respondent's planned approach to the economic analysis. Each of the items in the Scope of Work and Minimum Requirements of this RFP shall be specifically addressed. All work shall be completed within 5 months of Notice to Proceed.

- c. A schedule in graphic format of respondent's choosing that clearly shows the major tasks and milestones, including deliverables, in weeks after receipt of Notice to Proceed.
- d. Description of the project team including the name, title and resume of the project manager and other key participants in the employ of respondent; as well as the name, city and state and brief description of the role of each subconsultant.
- e. Comparable work previously performed by respondent and subconsultants.
- f. Total cost to DBED by major budget categories showing: direct costs, including salaries, air travel, other travel-related costs, per diem, subconsultants, printing, and other direct costs; and indirect costs such as overhead, profit and State of Hawaii General Excise Tax. Fringe benefits related to direct salary costs may be included as a direct costs or an element of overhead cost. The direct labor portion of the budget shall list each of respondent's participating professional or technical people by title, and if determined, by name with the number of hours of that person's time that will be charged to DBED.
- g. Assistance and/or information that will be required from DBED. Respondents should note that the list of references included with this RFP reflect information already available from DBED.

- h. Name, title, address, facsimile number, and telephone number of person(s) who may be contacted during the proposal evaluation and with authority to negotiate and contractually bind the responding organization.
 - i. A statement that the proposal is a firm offer for a period of at least 90 days from the date proposals are due.
5. All changes to this RFP will be made by DBED in written addenda sent only to those interested respondents who have completed and returned the NOTICE OF INTENT TO RESPOND attached hereto.

Scope of Work and Minimum Requirements

The scope of work and minimum requirements of a contract resulting from this RFP will include:

- 1. Consultation with DBED, County of Hawaii Department of Research and Development, Hawaiian Electric Company, Inc. (HECO) and its subsidiaries, True/Mid-Pacific Geothermal Venture, Ormat Energy Systems, Inc., the Governor's Advisory Board on the Geothermal/Cable Project, Decision Analysts Hawaii, Inc., Power Technologies, Inc., and others who may have jurisdiction or expertise related to the project, in order to develop and/or verify major assumptions and information including:
 - a. A realistic schedule for the actual development by the private sector of the geothermal wells, steam fields, power plants, converter stations, overland transmission lines and submarine cables.

- b. Electrical demand forecasts, cycling needs, market value of assets of HECO and Maui Electric Company, Inc. (MECO) which will not be needed and could be disposed of after geothermal power is provided, projected electricity sales and avoided fuel, O & M capital and other costs.
 - c. Estimated capital costs as well as operating and maintenance costs of geothermal wells, steam fields, power plants, converter stations, overland transmission lines and submarine cables for delivery of 125 megawatts, 250 megawatts, 375 megawatts, 500 megawatts (base case), and 625 megawatts of electricity to HECO, with and without a 50 megawatt tap on Maui.
 - d. Applicable tax benefits and, on the down side, applicable taxes and royalties for the project.
 - e. Capital costs and O & M costs of a coal plant on Oahu.
 - f. Identify and, if possible, attach an economic value to factors such as environmental, energy security (indigenous versus non-indigenous resources), availability/reliability and socio-economic for oil, coal and geothermal as resources for Oahu's electricity. The result of this analysis is to define and discuss a value-added target for energy independence for geothermal compared to fossil fuel-fired generation.
2. Analyze the cost to deliver Island of Hawaii geothermal-generated electricity to HECO and MECO, compared to Oahu (and Maui)-generated electricity using oil and using coal for each of the development scenarios indicated in 1.c. above. The analysis should not include inflation.

3. Perform risk analysis to identify and treat elements of risk associated with this project that may serve as impediments for implementing this program.
4. Perform a sensitivity analysis for each of the input variables which could significantly affect the output. The study shall define "significantly."
5. Develop projected costs and revenues for each interest group: The Consortium that develops and owns the project; HECO and MECO; State government; and County government(s).
6. Deliverables:
 - a. Monthly written progress reports and invoices.
 - b. Presentation to DBED in Honolulu when all assumptions and background data are assembled and before the analysis is started.
 - c. Five copies of a draft final report.
 - d. A presentation to DBED shortly after delivery of the draft final report. Assume this presentation will occur one week after the draft report is received by DBED. However, respondents may recommend a different timing in their proposals.
 - e. One hundred copies and a camera-ready original of the final report. Assume DBED will require a total of three weeks to review and respond to the draft final report.
 - f. Presentation in Honolulu within two weeks after delivery of the final report. The audience at this presentation may include State Legislators, and State and County officials including the Public Utilities Commission.

Consultant Selection Procedures

1. Only proposals received on or before the stated deadline for receipt of proposals will be considered.
2. Proposals which do not fully comply with the "Proposal Content" may not be further considered.
3. An Evaluation Committee will be formed by DBED to evaluate each proposal.
4. If deemed necessary, the Evaluation Committee may conduct personal interviews and/or require additional written information with respondents.
5. Final consultant selection for scope of work and fee negotiations will be made by the State Director of Business and Economic Development.
6. DBED reserves the right to reject all proposals.

Criteria for Evaluation

Each eligible proposal will be evaluated in accordance with the following:

1. The responding firm's experience in performing economic analysis of energy projects, particularly when geothermal and coal is the resource and when transmission lines are a major element of the projects. The respondent's familiarity with the electrical energy goals of the State of Hawaii and HECO will be an element of this evaluation criteria.

2. The respondent's approach to the economic analysis, based on how well the approach supports and exhibits an understanding of the "Scope of Work and Minimum Requirements" of this RFP, and provides for a logical and comprehensive effort arriving at the objectives of the economic analysis. Creativity by the respondent in approaching and presenting the desired DBED objectives of this RFP will be an element of this evaluation criteria.
3. The experience, education and training of the project director (manager) and project team including subconsultants as it relates to their ability to prepare a comprehensive and supportable economic analysis.
4. The time schedule to complete the full scope of work.
5. The proposed cost and budget for the analysis with an emphasis on hours of professional and technical time that will be devoted to the study and the proportion of the total cost that will be budgeted to productive direct costs.

REFERENCES

- Hills, A.L., Hawaii Geothermal Project, Overview of Status, Development Approach and Financial Feasibility Assessment, Cogeneration Capital Associates for the Department of Business and Economic Development, July 1988.
- Krasnick, G. and J. Mansur, HDWC Program, Phase II-C, Executive Summary, Parsons Hawaii, August 1987.
- Lesperance, Gerald O., Geothermal Development in Hawaii, pp 75-79, Geothermal Resources Council, Transition, Vol 12, October 1988.
- Mountford, J.D., HDWC, Phase II-C, Studies, Final Report for Hawaiian Electric Company, Vols. I, II, III, Power Technologies, Inc., May 22, 1987.
- Plash, Bruce S., Undersea Cable to Transmit Geothermal-Generated Electrical Energy from the Island of Hawaii to Oahu: Economic Feasibility, Decision Analysts, Hawaii, Inc. for Department of Business and Economic Development, February 1988.
- Quinn, William F., Preliminary Report, Governor's Advisory Board on the Underwater Cable Transmission Project, January 15, 1988.
- Sumida, Gerald A., Preliminary Analysis: Legal, Institutional and Financial Aspects of an Inter-Island Electrical Transmission Cable, Carlsmith, Carlsmith, Wichman and Case and Prudential-Bache Securities, Inc. for the Department of Business and Economic Development, April 1984.
- Sumida, Gerald A., Alternative Approaches to the Legal, Institutional and Financial Aspects of Developing an Inter-Island Electrical Transmission Cable System, Carlsmith, Case, Mukai and Ichiki and First Interstate Cogeneration Capital Associates for the Department of Business and Economic Development, April 1986.

Director of Business and Economic Development
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

Attention: Gerald O. Lesperance

NOTICE OF INTENT TO RESPOND

This is to inform you that:

ORGANIZATION'S NAME:

ADDRESS:

CONTACT PERSON:

TELEPHONE:

intends to submit a proposal to perform an economic analysis of Hawaii
Proposed Geothermal/Inter-island Cable Project, in accordance with the Request
for Proposals dated .

Name

Date

Title