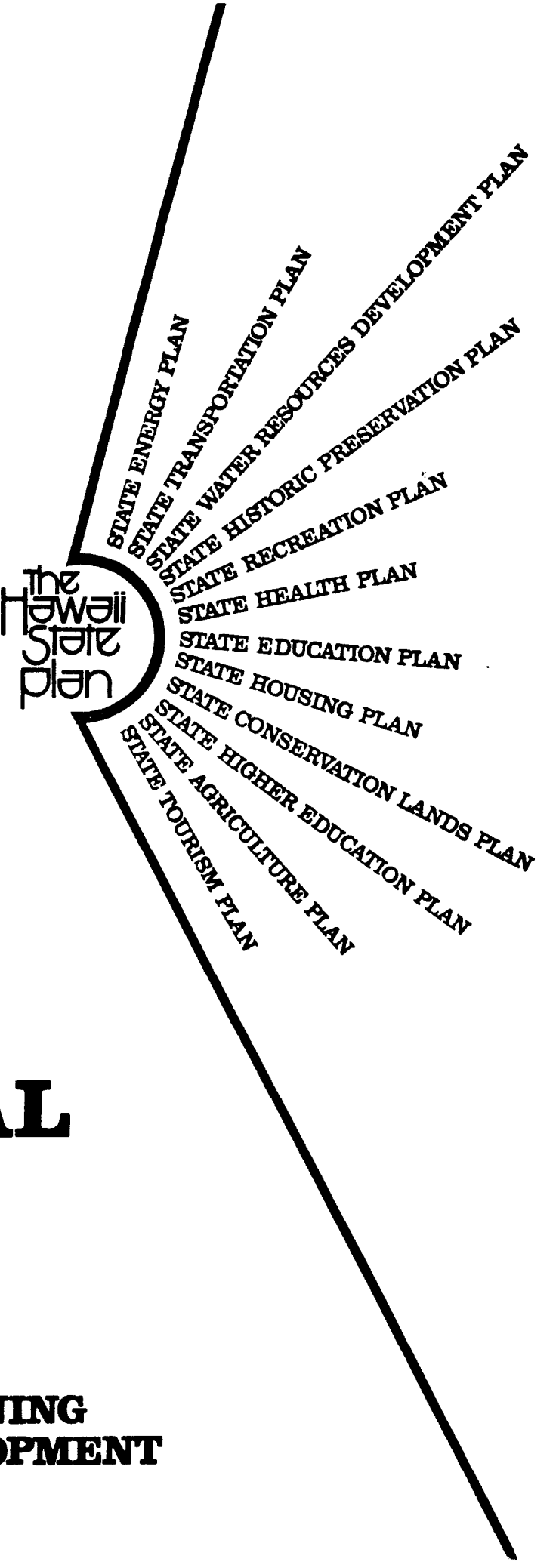
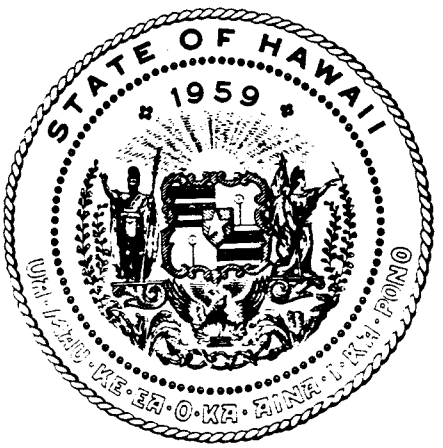


STATE ENERGY FUNCTIONAL PLAN

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

STATE ENERGY FUNCTIONAL PLAN

A STATE FUNCTIONAL PLAN PREPARED IN ACCORDANCE
WITH CHAPTER 226, HAWAII REVISED STATUTES
AND ADOPTED BY THE TWELFTH STATE LEGISLATURE ON
APRIL 19, 1984, BY HOUSE CONCURRENT RESOLUTION NO. 27,
AS AMENDED



Prepared By

Department of Planning and Economic Development
State of Hawaii

June 1984

STATE OF HAWAII

George R. Ariyoshi
Governor

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Kent M. Keith, Director
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EXECUTIVE CHAMBERS

HONOLULU

GEORGE R ARIYOSHI
GOVERNOR

FOREWORD

On May 22, 1978, I signed into law the Hawaii State Plan, a document second in importance only to our State Constitution.

The Hawaii State Plan is the only legislatively-adopted comprehensive state plan in the nation. It is our blueprint for Hawaii's future. It sets forth broad goals, objectives, and policies to guide the long-range growth and development of our state, and establishes a system for coordinating activities of state and county agencies toward the achievement of these common ends. This system has included the formulation of 12 State Functional Plans which specify in greater detail the policies, guidelines, and priorities within selected fields of activity.

The adoption of 10 of the 12 mandated State Functional Plans by the Twelfth State Legislature on April 19, 1984, was a milestone in our effort to implement the Hawaii State Plan. These adopted State Functional Plans--for Conservation Lands, Energy, Health, Higher Education, Historic Preservation, Housing, Recreation, Tourism, Transportation, and Water Resources Development--translate the broad goals and objectives of the Hawaii State Plan into detailed courses of action. They enable us to move ahead with specific state programs and activities in these areas with a clear sense of priority, direction, and purpose.

The State Functional Plans are products of years of work by hundreds of public-spirited citizens, lawmakers, and other government officials. They reaffirm our belief--embodied in the Hawaii State Plan itself--that the diverse and sometimes divisive elements of our state can indeed be brought together to identify common goals, and to determine efficient and harmonious ways for achieving those goals in the best interest of Hawaii's people.

The State Functional Plans can be the basis for cooperation between the public and private sectors. They specify where we want to go, and how we are to get there. I urge all in Hawaii to familiarize themselves with these plans and share in the challenge of working together for a better future for our state.

George R. Ariyoshi

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PREFACE

The Department of Planning and Economic Development (DPED), is charged with the responsibility of preparing the Energy Functional Plan. We have set forth in this Plan a strategy designed to meet Hawaii's future energy needs and resources. The Energy Plan fulfills the energy objectives in the Hawaii State Plan, Chapter 226, Hawaii Revised Statutes. It also follows the areas of concern addressed in Chapter 196, Hawaii Revised Statutes, which assigns energy responsibilities to the Director of DPED, who serves as the State Energy Resources Coordinator. These responsibilities include formulating comprehensive plans and specific proposals for the optimal development of Hawaii's alternate energy resources; the conservation of energy; the allocation and distribution of fuels; and the coordination of government and private efforts in energy activities. Contingency planning for energy emergencies, as specified in Act 238, Session Laws of Hawaii 1984 and earlier legislation, is also addressed.

The State Energy Functional Plan has been prepared in concert with other State and County agencies and energy-oriented private groups and individuals over a period of more than five years. Public presentation of the Plan has been made on a Statewide basis to inform interested persons and organizations of the contents of the Plan and to receive comments and recommendations. The Plan, as presented herein, was adopted by joint resolution of the Twelfth State Legislature in April 1984. Copies of the Energy Plan, technical reports in the various subject matter areas of the Plan, and the Technical Reference Document, are all available in the Energy Division of DPED.

We are most appreciative of all the invaluable contributions of members of the State Plan Policy Council, the State Energy Functional Plan Advisory Committee, and members of the public and the staff of DPED, whose joint efforts have made this Plan possible. We are also grateful to members of the State Legislature for their thoughtful analyses of the Plan over the years, and their adoption of the Plan in 1984.

Kent M. Keith
Director of Planning and Economic
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ACKNOWLEDGEMENTS

The State Department of Planning and Economic Development sincerely appreciates the cooperation of the numerous individuals and State and County agencies involved with energy in the preparation of the State Energy Functional Plan.

The Department is grateful for the leadership and contributions of the members of the Twelfth State Legislature who were instrumental in the development and adoption of this Plan, especially Senate President Richard S.H. Wong; Speaker of the House of Representatives Henry H. Peters; Chairman James Aki and Members of the Senate Economic Development Committee; Chairman Mark J. Andrews and Members of the House State General Planning Committee; and Chairman Tom Okamura and Members of the House Energy, Ecology and Environmental Protection Committee.

In particular, the Department acknowledges the invaluable contribution of the State Energy Functional Plan Advisory Committee, whose guidance has greatly enhanced the workability of the Plan.

The Department also expresses its gratitude for the many hours of hard work and the interest of its staff members involved in the development of the Plan.

CONTENTS

I. INTRODUCTION

A. ROLE OF THE STATE FUNCTIONAL PLANS

Chapter 226, Hawaii Revised Statutes, The Hawaii State Plan, provides a long-range guide for Hawaii's future and establishes a Statewide Planning System. The system includes the formulation of 12 State Functional Plans to manage and coordinate functional area activities and to guide resource allocation decision-making. In addition to this plan on energy, plans have been prepared for the following functional areas:

- Agriculture
- Conservation Lands
- Education
- Health
- Higher Education
- Historic Preservation
- Housing
- Recreation
- Tourism
- Transportation
- Water Resources Development

Each plan addresses statewide needs, problems and issues, and recommends policies and priority actions to mitigate those problems and bring about desirable conditions.

Implementing The Hawaii State Plan

Along with the County General Plans, State Functional Plans are the primary guide-posts for implementing The Hawaii State Plan. They further define and particularize the State Plan's comprehensive goals, objectives, policies and Priority Guidelines. Hence, while The Hawaii State Plan establishes overall directions for Hawaii, the State Energy Functional Plan delineates specific objectives, policies and high priority actions with respect to energy to be addressed in seeking to achieve the ideals expressed in The Hawaii State Plan.

Guide to State Programs

State Functional Plans guide a wide variety of programs, processes and activities. The programs, processes and activities include:

- The program appropriations process for the biennial and supplemental budgets;
- The capital improvement program appropriations process;
- The budgetary review process of the Department of Budget and Finance;
- The land use decision-making process of the State agencies; and
- The A-95 State Clearinghouse process.

Although the State Energy Functional Plan, like other State Functional Plans, is prepared by a State agency -- in this instance the Department of Planning and Economic Development (DPED) -- and primarily affects State operations, it also involves some actions of the Federal and County governments and the private sector. It points out where County and private industry coordination will be needed and suggests how those sectors can help achieve energy objectives, policies and Priority Guidelines expressed in The Hawaii State Plan.

Plans As Legislative Policy

The State Energy Functional Plan does not mandate County or private sector actions. Rather, it is a guide to coordinate the various sectors of government and private industry toward achieving the statewide objectives of The Hawaii State Plan. Through its adoption by concurrent resolution, the State Energy Functional Plan will be an expression of legislative policy but is not to be interpreted as law or statutory mandate.

Interactive Relationship With County Plans

State Functional Plans are intended to act in a coordinated fashion with County General Plans and Development Plans toward implementing The Hawaii State Plan. Chapter 226, Hawaii Revised Statutes, as amended, states that County General Plans and Development Plans shall be taken into consideration in the formulation of State Functional Plans. Conversely, the law also states that the Counties shall consider adopted State Functional Plans in formulating, amending and implementing the County General Plans and Development Plans. Thus, State Functional Plans and the County General Plans and Development Plans each draw from the knowledge embodied in the other, and all are essential to implementing The Hawaii State Plan. Hence, with respect to energy planning, the State Energy Functional Plan assures that problems and issues of statewide importance are addressed, while the County General Plans and Development Plans indicate desired population and physical development patterns for each County, and assure that the unique problems and needs of each County are addressed.

B. TECHNICAL REFERENCE DOCUMENT

A Technical Reference Document which serves as the primary resource base has been developed for each State Functional Plan. Each contains background information, a detailed discussion of current conditions, issues and trends, and technical data with analyses to support the objectives, policies, implementing actions and priorities addressed by each Plan. It shows the Plan's relationship with other State and County plans and programs and points out, in detailed fashion, planning and coordination responsibilities.

The State Energy Functional Plan Technical Reference Document, therefore, is primarily a supporting document. Printed under a separate cover, it is not to be adopted by the Legislature. Nevertheless, it is still an important and valuable resource, helpful in understanding the intent, rationale and effects of the objectives, policies and implementing actions in the State Energy Functional Plan.

C. PERIODIC REVIEW AND REVISION

In order to be responsive to constantly changing needs and conditions, the State Energy Functional Plan will be periodically reviewed and updated. Because the Plan obtains its primary direction from The Hawaii State Plan, the timing of the State Energy Functional Plan review and revision process is linked to the review process of The Hawaii State Plan:

- Biennial Review: Priority Guidelines, Part III of The Hawaii State Plan, identify critical statewide needs requiring priority attention. A comprehensive review of Priority Guidelines is to be conducted at two-year intervals to correspond to the biennial cycle of the State budgetary process. In order to assure conformance to Priority Guidelines and integration with the State budget, all State Functional Plans -- including the State Energy Functional Plan -- will also be reviewed and, if necessary, amended every two years.

- Comprehensive Review: Part I of The Hawaii State Plan expresses the Overall Theme and longer-range goals, objectives and policies of Hawaii. A comprehensive review of Part I of the State Plan is to be conducted once every four years.

  To assure conformance with these updates, the DPED and other Functional Plan agencies will also review and revise their respective Technical Reference Documents within a two-year period subsequent to any amendments to Part I of The Hawaii State Plan. Subsequently, the Legislature may amend the State Energy Functional Plan and other State Functional Plans in consideration of any amendments made to Part I of The Hawaii State Plan.

D. STATE PLAN POLICY COUNCIL

The State Energy Functional Plan has been developed in strict accordance with the Administrative Guidelines established by the State Plan Policy Council which is charged with the responsibility of advising the Legislature in the overall review, coordination and evaluation of the Statewide Planning System. With respect to the State Functional Plans, the Policy Council's specific responsibilities include:

- Preparing guidelines for the development of State Functional Plans;

- Reviewing and evaluating each State Functional Plan;

- Seeking to resolve conflict among State Functional Plans and between State Functional Plans and County plans; and

- Submitting its findings and recommendations to the Legislature.

E. ADVISORY COMMITTEES

The preparation of each State Functional Plan has been assisted by an Advisory Committee. Each Committee is composed of State officials, at least one public official of each County, members of the public and experts in the functional area. The Governor appoints all Advisory Committee members in accordance with provisions established in Section 226-57(c), Hawaii Revised Statutes, as amended.

The membership of the State Energy Functional Plan Advisory Committee is listed on pages v and vi of this document.

Role

The Committees play a critical role in advising State agencies to ensure that the Plans conform with the Overall Theme, Goals, Objectives, Policies and Priority Guidelines of The Hawaii State Plan, and the State Plan Policy Council Administrative Guidelines, as amended. The Committees submit written recommendations on respective State Functional Plans to the Policy Council at the time that the State agency transmits the State Functional Plan to the Policy Council. Committee members may prepare minority reports which are transmitted as supplements to Advisory Committee Reports.

II. FRAMEWORK

A. PURPOSE

The oil embargo of 1973-74 focused national attention on the State's energy supply and Hawaii's almost total reliance upon imported oil. Since that time, spiraling prices for imported oil and petroleum products, coupled with the growing political instability of the oil producing nations, have intensified the interest of decision-makers and the public in energy issues. While a new thrust in national and state energy planning is emerging, a concerted effort to alter dependence on oil imports in Hawaii has become particularly critical since the State obtains about 90 percent of its energy supply from imported petroleum. This situation of near total dependence sets Hawaii apart from the other states and represents over $1 billion in payments flowing out of the Hawaii economy every year. Fortunately, the State is rich in alternative renewable energy resources which are becoming available for use under new or improved technologies, including conservation, biomass, wind, geothermal, direct solar, hydropower, and ocean thermal energy conversion.

Recognizing Hawaii's extremely vulnerable energy situation as well as its opportunities, the State Legislature in 1978 included two long-term energy objectives within The Hawaii State Plan.

The purpose of the State Energy Functional Plan is to further define and implement these objectives which include the provision of:

- Dependable, efficient, and economical statewide energy...systems capable of supporting the needs of the people; and
- Increased energy self-sufficiency.

B. SCOPE

Major Concerns Addressed

A direct linkage exists between the two Hawaii State Plan objectives of supporting energy needs and increasing energy self-sufficiency; that is, the ability to meet the first objective over time greatly depends on achievements made toward the second objective. As such, the policy guidance in this plan strives to increase energy self-sufficiency continually by addressing five major areas of concern. The Hawaii State Plan Priority Guidelines for energy and other issues identified in Chapter III of the Technical Reference Document have provided the basis for the scope of this plan. The outline below describes the five areas of concern:

Area of Concern: Energy Organization and Program Management

Thrust: Improve capabilities to effectively manage, direct and implement the State energy program to achieve overall energy objectives.

Basis: Concerns addressed include improvements in administrative capabilities; energy information management; and State/County coordination for policy planning and resource allocation decision-making.

Area of Concern: Alternate Energy Resource Development

Thrust: Promote alternate energy technologies to commercialization in order to shift demand from petroleum to indigenous renewable resources.

Basis: Priority Guidelines addressed include general promotion of alternate resource developments; and incentives for use of alternate energy in buildings (Chapter 226, Sec. 103(i)(1) and (6), respectively). Other concerns include development of interisland cable technology; incentives for private sector commercialization of alternate energy; and removal of technical and non-technical barriers to commercialization.

Area of Concern: Energy Conservation

Thrust: Moderate growth in energy demand through efforts aimed at minimizing waste and maximizing efficient use of energy.

Basis: Priority Guidelines addressed include general conservation promotion; consumer education; energy-conserving technology use in buildings; and the use of energy-efficient transportation systems (Chapter 226, Sec. 103(i)(2), (4), (5) and (7), respectively).

Area of Concern: Land Use and Support Facility Systems Planning

Thrust: Encourage compact urban development and the design and operation of facility systems for efficient use of energy. Manage impacts of new alternate energy facility systems.

Basis: Priority Guidelines addressed include the location of future urbanization and the development of energy-efficient transportation systems (Chapter 226, Sec. 102(i)(3) and (7), respectively). Other concerns include maintaining desired social and environmental conditions throughout the transition to alternate energy supply systems.

Area of Concern: Management of Petroleum-Based Energy Supply

Thrust: Effectively manage petroleum-based energy supplies to facilitate a smooth transition to indigenous energy supply systems and insure the continuation of basic economic operations.

Basis: Concerns addressed include contingency planning options and regional fuel storage capabilities to mitigate the impacts of possible supply disruptions.

Public and Private Sector Roles

While the State Energy Functional Plan generally supports continuation of existing Federal, State, County and private sector roles in energy, certain interrelationships among these roles should be strengthened through plan implementation. Role enhancement aspects of the plan include:

- Further development of State government as a facilitator of appropriate private sector activities in energy; and
- Increased coordination between the State and the Counties in energy policy formulation and statewide resource allocation decision-making.

The Energy Plan recognizes that the private sector has the primary role in the commercialization of alternate energy resources and in the implementation of effective conservation measures. The public sector, in general, has a unique role in energy in which it strives for desired social, economic and environmental conditions. Activities which exemplify the public sector role in energy include:

- Provision of public awareness and education programs;
- Removal of institutional/legal barriers;
- Provision of economic and financial incentives for conservation and the development of indigenous energy resources;
- Assistance to the private sector or taking a lead role in research, development and demonstration of alternate energy technologies, depending on the cost competitiveness with conventional energy technologies and the perceived level of risk;
- Regulation for the wise use of public resources and to establish rights;
- Policy guidance provided at the local level for facility systems planning; and
- Formulation of plans which indicate the mix of the above actions intended for future implementation.

An integral part of the State's role is to allocate State resources to assist in the implementation of private sector and County actions when consistency with State policy guidance exists. The State also encourages Federal involvement which complements and accelerates implementation of local energy self-sufficiency strategies, as well as promotes Hawaii as an energy research and demonstration center.

The Counties, through their General Plans and Development Plans, provide a more specific basis for articulating State energy policies by expressing desired County growth levels and population distribution, as well as the County position on the compatible use of local resources.

C. COORDINATION OF THE STATE ENERGY FUNCTIONAL PLAN WITH OTHER STATE FUNCTIONAL PLANS

The State Energy Functional Plan is closely interrelated with the State Agriculture, Conservation Lands, Education, Health, Housing, and Transportation Functional Plans. A summary of the many complementary and potentially competing interests which exist among the plans is presented in Figure 1. Complementary interests include areas in which policies or implementing actions in one plan impact upon those in another plan in a supportive manner. Potentially competing interests include areas in which policies or implementing actions in one plan impact on those in another in a potentially competing manner.

Complementary Interests

Major complementary relationships exist between the State Energy Functional Plan and other State Functional Plans relative to biomass utilization, consumer conservation awareness, energy-efficient buildings and urban design, transportation planning, and the maintenance of environmental quality. These relationships are highlighted below:

- Production/Use of Biomass. The State Energy and Agriculture Functional Plans both encourage the development and use of indigenous biomass resources to displace the need for imported petroleum. High priority actions of the State Energy Functional Plan support a long-term liquid fuels research and development program, energy recovery from municipal solid waste and the development of fuel sources in energy tree farms. The State Agriculture Functional Plan complements the Energy Plan by further specifying the opportunities for establishing energy tree farms.

- Consumer Energy Conservation and Awareness. The State Energy Functional Plan and State Education Functional Plan contain high priority implementing actions which support the establishment of an energy information dissemination center to enhance consumer awareness.

Figure 1. INTERRELATIONSHIPS OF THE STATE ENERGY FUNCTIONAL PLAN WITH OTHER STATE FUNCTIONAL PLANS

State Functional Plan	Complementary Interests	Potentially Competing Interests
Agriculture	--Production/use of biomass including energy tree farms and liquid fuels production --Energy conservation in agricultural processing techniques	--Impact of tree farm and algal growth on other crops
Conservation Lands	--Management of alternate energy resources in the Conservation District	--Impact of energy resource development in conservation lands
Education	--Energy conservation education and awareness --Establishment of an energy information dissemination center --Participation in State and Federal energy conservation programs --Innovative methods of conservation in school facilities	
Health	--Development and enforcement of environmental standards for geothermal development --Energy conservation program for hospitals and non-profit public care institutions	
Housing	--Energy efficiency considerations in the governmental permitting process for proposed housing developments --Innovative housing designs which promote energy efficiency and the use of alternate energy sources --Removal of legal, institutional and financial barriers to encourage residential solar/heat pump installations	

Figure 1. INTERRELATIONSHIPS OF THE STATE ENERGY FUNCTIONAL PLAN WITH OTHER STATE FUNCTIONAL PLANS (continued)

State Functional Plan	Complementary Interests	Potentially Competing Interests
Higher Education	--National leadership in alternate energy research	
Recreation	--Siting of community recreational facilities to minimize travel distances --Design of energy-efficient recreation facilities	
Tourism	--Clustering of resort developments to promote energy conservation	
Transportation	--Promotion of ridesharing, bikeways, high occupancy vehicle lanes, and public transportation --Provision of additional bus routes and bus services for commuters --Promotion of telecommunications and public sector applications --Evaluation of road pricing and staggered work/school hour programs --Transportation systems which support more compact urban development and concentrate development within existing urban areas --Integration of energy-efficient design considerations with transportation facilities and services planning	
Water Resources Development	--Hydroelectric and geothermal power production	

- Energy-Efficient Buildings and Urban Design. The State Energy Functional Plan and the State Housing Functional Plan both support the integration of energy-efficiency considerations into land use planning relative to the location and physical design of future residential communities. In addition, the Energy Plan and the Education Plan promote innovative methods of conservation in school facilities.

- Energy Conservation in Transportation. The State Energy Functional Plan contains a number of actions which identify Federal, State and County transportation agencies as lead or assisting organizations responsible for implementing energy conservation programs including promoting carpooling and public transportation, providing additional bus routes and bus services for commuters, supporting implementation of transportation networks which encourage the use of energy-conserving alternatives to the use of the private automobile, and the application of telecommunications as a substitute for transportation. The State Transportation Functional Plan supports these actions through a policy which calls for incorporating conservation measures into transportation programs.

- Maintenance of Environmental Quality. The State Energy Functional Plan and the State Health Functional Plan both contain actions which support the maintenance of environmental quality and health standards in the development of energy resources, particularly for geothermal development.

Potentially Competing Interests

Areas which will require close coordination are discussed below. Acknowledging these potential conflicts is the initial step to ensuring that they will be adequately addressed and mitigated.

- Energy Resource Development in Conservation Lands. The resource management policies of the State Conservation Lands Functional Plan will affect resource use options related to alternate energy development which is supported by the State Energy Functional Plan.

- Impact of Tree Farm and Algal Growth on Other Crops. Tree farms and algal growth could compete with other crops for the use of limited amounts of agricultural land. However, with current reductions in sugar acreage taking place, this additional requirement may be of advantage to a beleaguered agriculture industry.

III. OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS

The State Energy Functional Plan objectives, policies and implementing actions are presented in this section.

For the purposes of this plan only, implementing actions are defined as on-going and planned energy activities which require future County, State and/or Federal government action, and which implement the public sector role in those energy activities. Examples of the public sector role in energy are provided on Page 7.

In addition, only high priority implementing actions appear in this Plan Document. The guidelines used to select high priority implementing actions for the Energy Plan include:

- Actions which will provide relatively more significant contributions toward achieving The Hawaii State Plan Priority Guidelines and/or Energy Plan objectives;
- Actions with statewide impact relative to serving energy needs;
- Actions which implement legal mandates; and/or
- Actions which implement the unique aspects of the public sector role in energy.

The following glossary identifies government agency acronyms commonly used in this section:

County Agencies
C&C -- City and County of Honolulu
DLU -- Department of Land Utilization
DPW -- Department of Public Works
DTS -- Department of Transportation Services
OED -- Office of Economic Development
R&D -- Department of Research and Development

State Agencies
DAGS -- Department of Accounting and General Services
DLNR -- Department of Land and Natural Resources
DOA -- Department of Agriculture
DOT -- Department of Transportation
HGP-A Development Group -- DPED; County of Hawaii; University of Hawaii
HNEI -- Hawaii Natural Energy Institute
NELH -- Natural Energy Laboratory of Hawaii
OEQC -- Office of Environmental Quality Control
UH -- University of Hawaii

Federal Agencies
U.S. DOE -- Department of Energy

STATE ENERGY ORGANIZATION AND PROGRAM MANAGEMENT

A. OBJECTIVE: IMPROVE STATEWIDE ENERGY PLANNING AND PROGRAM IMPLEMENTATION CAPABILITIES.

Numerous agencies at all levels of government are involved in carrying out various aspects of the public sector role in energy. Improvements in the planning and implementation capabilities on a statewide basis will guide and facilitate private sector participation in the energy self-sufficiency effort, promote wise management of natural resources, and increase public sector administrative efficiency.

A(1). POLICY: Utilize a statewide integrated approach to formulate and implement public sector strategies designed to accelerate the transition to an indigenous energy economy.

A(1)(a). IMPLEMENTING ACTION: Continue to coordinate energy self-sufficiency (ESS) planning efforts and recommend priorities for State and County energy programs/projects through a group representing State and County government officials and members of the public.

Lead Organization(s): DPED
Assisting Organization(s): County Mayors' Offices
Time Frame: Ongoing
Comments: It is recommended that this coordinating group utilize the input of existing technical advisory groups; in particular, the HNEI State/County ESS Coordinating Committee; the Governor's Advisory Committee on Alternate Energy; and the Hawaii Energy Conservation Council.

A(1)(b). IMPLEMENTING ACTION: Establish County Energy Self-Sufficiency (ESS) Offices.

Lead Organization(s): C&C DPW; Hawaii Mayor's Office; Kauai Mayor's Office; Maui Mayor's Office
Assisting Organization(s): None
Time Frame: FY 1984-86
Comments: County ESS Offices are needed to formulate and implement local public sector energy plans which are consistent with County policies and which are coordinated with State, Federal and private sector energy activities. Proposed County ESS Office functions include: 1) providing staff support to action A(1)(a); 2) coordinating with the State Energy Extension Service to avoid duplication--see action C(1)(b); 3) serving as liaison between State and County Administrations on specific State-initiated energy projects affecting County resources; and 4) acting as a clearinghouse of information on local energy activities, opportunities and data. It is recommended that consideration be given to establishing ESS Offices within the respective County Mayor's Office in order to enhance accessibility and coordination with other government agencies. County funding is also recommended.

A(1)(c). IMPLEMENTING ACTION: Reassess statewide energy savings potentials in order to modify, as appropriate, the scope and priorities of the State Energy Conservation Program. Support State funding as needed for implementation.

Lead Organization(s): DPED
Assisting Organization(s): None
Time Frame: FY 1984-86
Comments: To date, the scope of the State Energy Conservation Program (SECP) has been influenced predominantly by the Federal government which serves as the primary funding source. This proposed activity is important to ensure that program emphasis is directed toward areas with the greatest savings potential for Hawaii. Additionally, this activity is timely inasmuch as the termination of Federal funding is anticipated. Implementing actions C(1)(a) and C(1)(c) are current SECP components of high priority in this Plan due to significant energy savings achievements and/or potentials.

A(1)(d). IMPLEMENTING ACTION: Develop through consultation with both private and public sectors, a viable scenario for the State to pursue in order to make an economic transition from oil-based generation to alternative sources of electric energy. The scenario should be based upon: 1) the need to identify positive incentives to accelerate conversion to or addition of electrical generation based upon energy sources other than oil; 2) the need to bring about a reasonable cost of alternate energy to the consumer taking into account the technical and financial risks related to various new sources; and 3) an efficient balance between policies and programs that enhance conservation and policies and programs that emphasize new energy sources.

Lead Organization(s): DPED
Assisting Organization(s): Division of Consumer Advocacy, Public Utilities Commission, DLNR
Time Frame: Ongoing
Comments: Economic conditions are providing the primary impetus for the shift toward energy self-sufficiency. In this regard, a basic premise of the State's energy program should be the need to create an economic environment which attracts capital for research, development, implementation and maintenance of new means of electricity production, while insuring that the ultimate consumers are provided electricity on a reliable basis at reasonable rates.

A(2). POLICY: Improve the statewide energy information management capability for use in energy policy planning, resource allocation decision-making and public awareness.

A(2)(a). IMPLEMENTING ACTION: Develop and implement an ongoing energy data collection and management system within the Department of Planning and Economic Development.

Lead Organization(s): DPED
Assisting Organization(s): DLNR; HNEI; C&C DPW; Hawaii R&D; Kauai OED; Maui Mayor's Office; Hawaiian Sugar Planters' Association
Time Frame: Ongoing
Comments: Preliminary system design is complete. Existing sources of energy data need to be evaluated for integration into the system in order to develop a consistent, accurate, and comprehensive data base that is useful for decision-making.

A(2)(b). IMPLEMENTING ACTION: Coordinate with the Counties to develop a common methodology for the periodic collection, analysis and updating of pertinent energy data in developing the statewide energy data management system. Ensure easy accessibility to the data system as appropriate for use by State and County energy planners and the general public.

Lead Organization(s): DPED
Assisting Organization(s): C&C DPW; Hawaii R&D; Kauai OED; Maui Mayor's Office
Time Frame: Ongoing

A(2)(c). IMPLEMENTING ACTION: Establish a centralized energy information dissemination center. As a top priority, develop and collect market-ready solar energy and conservation information materials for the consumer.

Lead Organization(s): DPED
Assisting Organization(s): HNEI; UH College of Education; Hawaii Solar Energy Association; private alternate energy developers
Time Frame FY 1984-86
Comments: The center as envisioned will provide information to both public and private sectors, develop consumer confidence, serve teachers, and provide energy industry support to promote conservation and commercialization of indigenous resources.

ALTERNATE ENERGY RESOURCE DEVELOPMENT

B. OBJECTIVE: ACCELERATE THE TRANSITION TO AN INDIGENOUS RENEWABLE ENERGY ECONOMY BY FACILITATING PRIVATE SECTOR ACTIVITIES TO EXPLORE SUPPLY OPTIONS AND ACHIEVE LOCAL COMMERCIALIZATION AND APPLICATION OF APPROPRIATE ALTERNATE ENERGY TECHNOLOGIES.

Hawaii's near-total dependence on imported petroleum, spiraling oil prices, the net outflow of dollars for oil payments, and the political unrest of major oil-producing nations threaten local economic stability and the ability to serve energy needs over time. Support and assistance for private sector activities to develop local energy resources will reduce dependence on the world oil market, improve the State's balance of payments, and thus promote economic development, and increase the number and diversity of employment opportunities.

B(1). POLICY: Investigate and alleviate non-technical (legal/institutional/economic/financial) barriers to alternate energy resource development.

B(1)(a). IMPLEMENTING ACTION: SOLAR ENERGY/HEAT PUMPS - Support establishment of a statewide low-interest revolving loan fund to promote the installation of solar hot water heaters and heat pumps in residences.

Lead Organization(s): DPED
Assisting Organization(s): None
Time Frame: Ongoing

B(1)(b). IMPLEMENTING ACTION: SOLAR ENERGY/HEAT PUMPS - Support amendments to provide flexibility in installer's requirements related to residential solar water heating systems and heat pumps.

Lead Organization(s): DPED
Assisting Organization(s): C&C Bldg. Dept. and DLU; Neighbor Island County Public Works Depts.; Hawaii Solar Energy Association
Time Frame: Ongoing
Comments: Implementation would significantly reduce the cost of residential installations; thus, promote further market penetration of solar water heating technology. This action, however, would not fully eliminate the involvement of professionals who are needed to ensure safety.

B(1)(c). IMPLEMENTING ACTION: SOLAR ENERGY - Support continued implementation of a State solar commercialization program. Develop criteria for use in ongoing program evaluation.

Lead Organization(s): DPED
Assisting Organization(s): None
Time Frame: FY 1984-86
Comments: This activity was Federally-funded through the U.S. DOE/Western Solar Utilization Network. An assessment of the scope and State funding requirements to continue a program designed to promote the application of market-ready solar technologies will be necessary.

B(1)(d). IMPLEMENTING ACTION: SOLAR ENERGY - Support solar access rights legislation.

Lead Organization(s): C&C DPW and DLU; Neighbor Island County Public Works Depts.
Assisting Organization(s): DPED
Time Frame: Ongoing
Comments: Legal clarification of solar rights is needed to realize the full market penetration potential for residential direct solar technologies.

B(1)(e). IMPLEMENTING ACTION: BIOMASS ENERGY - Investigate and implement appropriate energy recovery from municipal solid waste in each County.

Lead Organization(s): C&C DPW; Kauai DPW and OED; Hawaii R&D; Maui Mayor's Office
Assisting Organization(s): Hawaii DPW
Time Frame: Ongoing
Comments: Energy recovery from municipal solid waste would contribute to energy self-sufficiency goals as well as greatly reduce landfill requirements.

B(1)(f). IMPLEMENTING ACTION: WIND ENERGY - Coordinate public sector permitting activities as related to planned wind energy installations.

Lead Organization(s): C&C DLU; Neighbor Island County Planning Depts.
Assisting Organization(s): DPED; DLNR; DOA
Time Frame: Ongoing
Comments: This activity is intended to expedite permit approvals while ensuring that potential adverse impacts are satisfactorily addressed and mitigated.

B(1)(g). IMPLEMENTING ACTION: GEOTHERMAL ENERGY - Support continued implementation of the State Geothermal Commercialization Program to address and mitigate legal and institutional concerns.

Lead Organization(s): DPED
Assisting Organization(s): DLNR; County Planning Departments
Time Frame: Ongoing
Comments: This program was previously Federally-funded. State support will be needed for program continuation. See Action E(1)(a) for additional program components. Recommended near-term activities include: (1) legal clarification of the ownership of geothermal resources; and (2) coordination with appropriate State and County agencies to investigate regulatory and land use permit streamlining for geothermal development.

B(1)(h). IMPLEMENTING ACTION: GEOTHERMAL ENERGY - Designate, as appropriate, geothermal resource subzones within each of the land use districts to be used for the exploration, development, production and distribution of electrical energy from geothermal sources.

Lead Organization(s): DLNR
Assisting Organization(s): DPED; County Planning Departments
Time Frame: Initiate in 1983
Comments: Act 296, 1983 Session Laws of Hawaii, which amends Chapter 205, HRS, assigns to the Board of Land and Natural Resources the responsibility of designating areas as geothermal resource subzones and conducting a County-by-County assessment of areas with geothermal potential.

B(1)(i). IMPLEMENTING ACTION: HYDROELECTRICITY - Conduct feasibility studies and implement appropriate hydropower projects.

Lead Organization(s): U.S. Army Corps of Engineers; DLNR
Assisting Organization(s): DPED; County Water Departments; Kauai OED; Hawaii R&D
Time Frame: Ongoing
Comments: A feasibility study for Wailua (5 MW) in Kauai County is in completion by the Army Corps of Engineers. Wailuku (5 MW) in Hawaii County was included in reconnaissance study completed by the Army Corps. The feasibility studies for Kokee (about 5 MW) and Wainiha (3.8 MW) are in progress. The term "appropriate" contained in this action includes consideration of environmental impacts.

B(2). POLICY: Facilitate research, development and demonstration activities designed to resolve remaining technical barriers to alternate energy technologies in order to expedite local commercialization.

B(2)(a). IMPLEMENTING ACTION: Continue statewide alternate energy resource assessment studies as appropriate to supplement private sector investigations.

Lead Organization(s): UH; C&C DPW; Hawaii R&D; Kauai OED; Maui Mayor's Office
Assisting Organization(s): DPED; HNEI
Time Frame: Ongoing
Comments: High priority is given to the completion of resource assessments for geothermal energy on Hawaii and Maui; and for wind and insolation throughout the State to develop a data base for small-scale, dispersed installations. Further assessment of ocean thermal energy resources along Leeward Oahu may also be necessary.

B(2)(b). IMPLEMENTING ACTION: Conduct technical studies to advance new opportunities for the use of appropriate alternate energy technologies for electricity production in Hawaii.

Lead Organization(s): HNEI
Assisting Organization(s): DPED
Time Frame Ongoing
Comments: Examples of promising new alternate energy technologies which require further development for widespread application include photovoltaic cells and solar ponds.

B(2)(c). IMPLEMENTING ACTION: Implement a long-term liquid fuels research and development program to support commercialization of indigenous liquid fuels production and displacement of oil-based transportation fuels.

Lead Organization(s): HNEI
Assisting Organization(s): DPED; DOA; DOT; DLNR
Time Frame: FY 1984-86
Comments: The use of local biomass resources, the production and storage of substitute fuels such as hydrogen and ammonia and the use of electric vehicles are among some of oil-based transportation fuel alternatives under investigation.

B(2)(d). IMPLEMENTING ACTION: BIOMASS ENERGY - Continue to implement the Silviculture Research for Energy Program.

Lead Organization(s): BioEnergy Development Corporation
Assisting Organization(s): U.S. DOE; U.S. Dept. of Agriculture
Time Frame: Ongoing
Comments: This joint venture represents one of the largest forestry research and development projects directed at biomass fuel production in the nation. A total of over 900 acres of eucalyptus seedlings will be planted in tree farms along the Hamakua Coast and in Ka'u District on the Big Island to supply chips for two sugar plantation power plants. Approximately 300 acres have been planted.

B(2)(e). IMPLEMENTING ACTION: BIOMASS ENERGY - Continue to implement the Statewide Tree Farms Demonstration Program.

Lead Organization(s): DLNR
Assisting Organization(s): None
Time Frame: Ongoing
Comments: Program designed to demonstrate fossil fuel replacement for electric generation by developing two to four eucalyptus plantations near bagasse-burning plants. The program is designed to plant 400 acres annually over a seven-year period; first harvest anticipated in seventh year.

B(2)(f). IMPLEMENTING ACTION: BIOMASS ENERGY - Conduct the Molokai Giant Koa Haole (Leucaena) Energy Tree Farm feasibility study.

Lead Organization(s): Lokahi Pacific
Assisting Organization(s): DLNR; UH; Molokai Electric Co.; U.S. DOE
Time Frame: Ongoing
Comments: U.S. DOE funding for Phase I is to study variables and costs from an initial seven-acre planting. Depending on Phase I results, a 1,000-acre tree farm may eventually provide wood chips to eliminate the need of a coal backup supply for the utility's biomass boiler. The estimated contribution to electrical self-sufficiency on Molokai is 34 percent of needs.

B(2)(g). IMPLEMENTING ACTION: GEOTHERMAL ENERGY - Continue geothermal research activities as appropriate to support commercialization efforts.

Lead Organization(s): UH
Assisting Organization(s): HGP-A Development Group
Time Frame: Ongoing
Comments: Continued funding is recommended for the following activities: (1) Kapoho reservoir synthesis; (2) electric and seismic properties of rock systems; (3) corrosion studies; and (4) non-electric applications research.

B(2)(h). IMPLEMENTING ACTION: DEEP WATER ELECTRIC CABLE - Develop and demonstrate interisland electrical energy transmission technology.

Lead Organization(s): Hawaiian Electric Co.; Parsons, Hawaii
Assisting Organization(s): DPED; HNEI; Hawaii Institute of Geophysics; Simplex Wire and Cable Co.; Dillingham
Time Frame: FY 1984-86
Comments: Program will develop the technology required to deploy and operate deep water electrical cables. Deployment and recovery of a cable in deep water between Maui and Hawaii will be followed by deployment, energizing and load testing of a cable offshore Kahe Point, Oahu. Four years for four-phase program.

B(2)(i). IMPLEMENTING ACTION: OCEAN THERMAL ENERGY - Assist and facilitate private sector efforts in the design and construction of a Hawaii-based OTEC Pilot Plant.

Lead Organization(s): DPED
Assisting Organization(s): Ad Hoc Committee on the Advancement of OTEC for Hawaii
Time Frame: Ongoing
Comments: The DPED is conducting environmental impact studies for the Kahe Point area to prepare for a 40-MW pilot plant. The State Legislature has also committed $1 million to support Hawaii awards for Phase I. U.S. DOE timetable: Phase I (Concept Definition) in 1982-83; Phase II (Preliminary Design) in 1983-84; Phase III (Construction) in 1984-87; Phase IV (Operation) in 1987.

B(2)(j). IMPLEMENTING ACTION: OCEAN THERMAL ENERGY - Support joint State/County funding of NELH Capital Improvements Projects and operating funds for ocean energy research, including the Seacoast Test Facility (STF).

Lead Organization(s): NELH; DPED
Assisting Organization(s): UH; HNEI; DLNR; County of Hawaii
Time Frame: Ongoing
Comments: The STF, which provides an onshore test site for OTEC components and research at Ke-ahole Point, Hawaii County, constitutes the only OTEC cold ocean water test laboratory in the world. State funding for operations is needed to initially supplement facility user fees and direct project support fees.

C. OBJECTIVE: MODERATE GROWTH IN ENERGY DEMAND THROUGH A COMPREHENSIVE AND COORDINATED ENERGY CONSERVATION PROGRAM DESIGNED TO PERMANENTLY MINIMIZE WASTE AND MAXIMIZE EFFICIENT ENERGY USE.

Conservation offers the most immediate, significant, economically feasible and environmentally compatible opportunities for reducing dependence on imported oil. The moderating effect of conservation on the growth in energy demand will also stretch the life of present petroleum supplies and enable the State to increase its energy self-sufficiency at a faster pace than if current inefficient consumption practices continued.

C(1). POLICY: Increase efficiency in personal energy consumption patterns, particularly in the use of ground transportation fuels, utility and bottled gas, electricity and hot water.

C(1)(a). IMPLEMENTING ACTION: CONSUMERS - Support continued implementation of the Consumer Energy Conservation Program.

Lead Organization(s): DPED
Assisting Organization(s): None
Time Frame: FY 1984-86
Comments: This action is a component of the State Energy Conservation Program--see A(1)(c). Consumer services include a "hot-line" telephone service, a clearinghouse information service, a speakers bureau, the provision of energy audit materials for households and other public awareness functions.

C(1)(b). IMPLEMENTING ACTION: CONSUMERS - Support continued implementation of the State Energy Extension Service, and coordinate its functions with County energy conservation activities.

Lead Organization(s): DPED
Assisting Organization(s): UH; Kauai OED; Maui Mayor's Office
Time Frame: FY 1984-86
Comments: U.S. DOE funds, with a 20 percent State match, support the extension of State Energy Conservation Program activities to the Neighbor Islands where the approach is personalized one-on-one technical assistance to small energy consumers. The Service has also co-sponsored workshops with local chapters of the hotel and restaurant associations. Congressional authorization expires in 1983. Coordination with the Counties is recommended to avoid duplication and to dovetail energy conservation activities--see A(1)(b).

C(1)(c). IMPLEMENTING ACTION: TRANSPORTATION - Support continued implementation of the Carpool, Vanpool, and Public Transportation Promotion Program.

Lead Organization(s): DOT
Assisting Organization(s): DPED
Time Frame: FY 1984-86

Comments: This action is a component of the State Energy Conservation Program--see A(1)(c). The DPED assists and monitors the efforts of the DOT and conducts general ridesharing promotion (including legislative proposals).

C(1)(d). IMPLEMENTING ACTION: TRANSPORTATION - Provide additional bus routes and bus services for commuters.

Lead Organization(s): C&C DTS; Hawaii Transit Agency; Kauai DPW; Maui DPW
Assisting Organization(s): Urban Mass Transit Authority
Time Frame: Ongoing
Comments: The C&C currently plans to increase its stock of buses available for use from 400 to 500 by 1985. Additional C&C services, including more express buses and new routes, are planned.

C(1)(e). IMPLEMENTING ACTION: TRANSPORTATION - Support implementation of transportation networks which encourage the use of energy conserving mini-vehicles, bicycles, and walking as safe and convenient alternatives to the private automobile.

Lead Organization(s): DOT
Assisting Organization(s): DPED; Oahu Metropolitan Planning Organization; C&C DTS; Hawaii Transit Agency; Kauai DPW; Maui DPW
Time Frame: Ongoing

C(1)(f). IMPLEMENTING ACTION: TRANSPORTATION - Encourage the use of telecommunications as a substitute for transportation by promoting Hawaii as a viable market for local and international telecommunications applications. Develop and implement telecommunications applications for public sector use.

Lead Organization(s): Division of Consumer Advocacy; DPED; DOT; DAGS
Assisting Organization(s): U.S. Dept. of Defense
Time Frame: Ongoing
Comments: Telecommunications can decrease the need for ground and air travel commuter trips. The Division of Consumer Advocacy is currently developing the State Telecommunications Plan.

C(2). POLICY: Develop a comprehensive package of incentives, mandates, and measures to increase the use of passive design, energy-conserving technology, and energy-efficient appliances by institutions and in residences and other buildings.

C(2)(a). IMPLEMENTING ACTION: BUILDINGS - Support a State program designed to: 1) conduct energy audits of government buildings as appropriate; 2) implement the no cost/low cost operation and maintenance recommendations of audits; and 3) install energy-efficient retrofits based on life-cycle cost analysis in State and County government facilities.

Lead Organization(s): DAGS; UH; DOT; DLNR; Dept. of Social Services and Housing; Dept. of Hawaiian Home Lands; Dept. of Education; Dept. of Health; C&C Bldg. Dept.; Neighbor Island County Public Works Depts.; Kauai OED
Assisting Organization(s): DPED; U.S. DOE
Time Frame: FY 1984-86
Comments: Energy audits provide the baseline data needed to recommend effective conservation measures and retrofits. While most State and County facilities have been initially audited, the no cost/low cost recommendations must still be implemented. The respective lead organizations each have jurisdiction over particular facilities.

C(2)(b). IMPLEMENTING ACTION: BUILDINGS - Continue to modify building design requirements in County building codes to achieve greater energy efficiency and flexibility in design. Educate and promote passive design among urban design review boards and professional groups who influence building design and landscaping.

Lead Organization(s): C&C Bldg. Dept.; Neighbor Island County Public Works Depts.
Assisting Organization(s): DPED
Time Frame: Ongoing
Comments: Further study of implementing performance standards in County building codes is recommended. Performance standards would set a maximum energy consumption ceiling according to building type, and thus, allow for flexibility in design while promoting energy efficiency. This concept applies to new residential and commercial buildings but excludes single-family residences. In addition, the inclusion of more stringent lighting and thermal efficiency standards in all County building codes is recommended as appropriate. These standards would be applicable to new or extensively renovated buildings. The DPED assists in this area by providing technical assistance for life-cycle costing analysis of building design options.

C(2)(c). IMPLEMENTING ACTION: BUILDINGS - Develop specific energy consumption reduction targets for State government buildings and support facility systems. Reinstitute energy savings reporting in order to monitor implementation.

Lead Organization(s): DAGS; UH; DOT; Dept. of Education; DLNR; Dept. of Social Services and Housing; Dept. of Hawaiian Home Lands
Assisting Organization(s): DPED
Time Frame: FY 1984-86

Comments: This proposed action will assist State agencies in responding to a 1980 legislative resolution to reduce energy consumption by 10 percent and in meeting further goals. Required reporting of savings will provide the needed data base to evaluate progress. The respective lead organizations each have jurisdiction over particular facilities.

C(2)(d). IMPLEMENTING ACTION: BUILDINGS - Strengthen the government procurement practices monitoring system to ensure that individual agencies purchase energy-efficient equipment.

Lead Organization(s): DAGS
Assisting Organization(s): DPED; Other State agencies
Time Frame: Ongoing
Comments: Strengthening the procurement monitoring system by making the fiscal officers in individual agencies accountable for ensuring that energy-efficient equipment is purchased to the greatest extent possible would further facilitate implementation of Act 134. The DPED provides technical assistance to promote efficient procurement practices.

LAND USE AND SUPPORT FACILITY SYSTEMS PLANNING

D. OBJECTIVE: PROMOTE ENERGY EFFICIENCY THROUGH LAND USE AND SUPPORT FACILITY SYSTEMS PLANNING.

Significant energy savings can be realized when energy efficiency is considered in land use and facility systems planning. In particular, land use planning which attempts to moderate growth in the demand for gasoline is critical inasmuch as substitute fuels from present supplies of biomass are not currently available and will be inadequate to entirely replace the demand for gasoline.

D(1). POLICY: Wherever feasible, direct future urbanization into easily serviceable, more compact, concentrated developments next to existing urban areas.

D(1)(a). IMPLEMENTING ACTION: Integrate energy efficiency considerations early in the process of land and water use planning relative to: 1) the review of non-urban lands to identify suitable areas for future housing; 2) the review of State and County reclassification and rezoning applications; and 3) the initial review of the orientation and physical design concepts of new development proposals.

Lead Organization(s): County Planning Depts.; DPED
Assisting Organization(s): Hawaii Housing Authority; DOA; DLNR
Time Frame: FY 1984-86

Comments: Options for integrating energy efficiency considerations into planning processes should be coordinated among State and County agencies to insure effective and efficient implementation consistent with government permit simplification and streamlining goals. Item (1) above expands upon the State Housing Functional Plan implementing action B(1)(a). The DPED will serve as the lead organization in the assessment of State Land Use Commission guidelines (part of item (2)) only; the Counties have the lead role for all other aspects of this implementing action.

D(2). POLICY: Facilitate the design and use of energy-efficient and energy-conserving support facility systems.

D(2)(a). IMPLEMENTING ACTION: Provide innovative technical assistance to government agencies and the private sector for the planning, design, construction and operation of energy-efficient support facility systems.

Lead Organization(s): DPED
Assisting Organization(s): C&C Bldg. Dept; Hawaii DPW; Kauai OED; Maui DPW
Time Frame: Ongoing
Comments: Coordination with functional agencies is necessary to determine appropriate focus and to formalize processes for input. Discussions are ongoing with the DOT for land transportation planning and with the Dept. of Education for school facilities.

D(2)(b). IMPLEMENTING ACTION: Evaluate the need to institute energy audits of existing support facility systems and related operation and maintenance procedures. Develop cost effective options for implementation of energy audits as appropriate.

Lead Organization(s): DPED
Assisting Organization(s): OEQC; C&C Bldg. Dept.; Hawaii Planning Dept.; Kauai Planning Dept. and OED; Maui Planning Dept.
Time Frame: FY 1984-86

E. OBJECTIVE: PROMOTE DESIRED SOCIAL AND ENVIRONMENTAL CONDITIONS IN THE PROVISION OF ENERGY FACILITIES AND DISTRIBUTION SYSTEMS.

The shift toward energy self-sufficiency will necessitate a significant increase in the number of energy facilities throughout the State. Associated impacts of this development activity may not be initially understood or identified, inasmuch as Hawaii's experience to date with energy developments is extremely limited and new technologies will be employed in some instances. Attention given to impact management during the initial planning stages for energy developments will help maintain a high degree of environmental quality which is critical to the tourist industry, preserve future resource use options and increase community acceptance of energy projects.

E(1). POLICY: Address and manage potential adverse sociological impacts and environmental concerns early in the process of energy facility siting.

E(1)(a). IMPLEMENTING ACTION: Support continued implementation of a statewide energy impact management program. Expand the program scope to incorporate a public awareness function regarding energy developments to increase community acceptance. As a top priority, allocate program funds to avoid or mitigate social, environmental and health concerns related to geothermal development.

Lead Organization(s): DPED; Department of Health
Assisting Organization(s): County Planning Departments; UH; U.S. Dept. of Commerce/National Oceanic and Atmospheric Administration
Time Frame: FY 1984-86
Comments: To date, energy impact management has been addressed primarily through the Federally-funded Coastal Energy Impact Program which is administered by the DPED. State support is recommended to continue this type of program after Federal support terminates. In the immediate future, State support focused on geothermal development concerns and general public awareness regarding alternate energy projects is recommended. The near-term needs related to geothermal energy include: (1) coordinate and fund as appropriate the collection of baseline environmental data and monitoring during geothermal exploration and development; (2) coordinate the development of State geothermal noise and air emissions standards and support implementation of an enforcement program; and (3) develop and implement a public awareness program to increase community acceptance of geothermal energy.

MANAGEMENT OF PETROLEUM-BASED ENERGY SUPPLY

F. OBJECTIVE: MANAGE CONVENTIONAL SOURCES OF ENERGY IN ORDER TO ENSURE ECONOMIC STABILITY AND FACILITATE A SMOOTH TRANSITION TO AN INDIGENOUS ENERGY ECONOMY.

The transition to an indigenous energy economy will require time and will not constitute a complete shift away from the current reliance on imported oil before the year 2000. Measures taken to manage the supply of petroleum fuels in Hawaii are essential to insure that dependable energy systems are available to serve present and future needs.

F(1). POLICY: Recommend contingency planning options for the allocation and distribution of petroleum products in order to cope with supply shortages.

F(1)(a). IMPLEMENTING ACTION: Maintain energy emergency planning options for fuel shortage situations.

Lead Organization(s): DPED
Assisting Organization(s): None
Time Frame: Ongoing
Comments: The DPED has investigated and maintains gasoline management options available to the State during a gasoline shortage. The fuel requirements of essential services have also been identified. An assessment of the need for similar guidelines to cope with diesel supply shortages is recommended.

F(1)(b). IMPLEMENTING ACTION: Assess the impacts of proposed Federal rules, regulations and laws related to petroleum-based energy supply. Recommend strategies for the allocation and distribution of fuels which account for Hawaii's uniqueness.

Lead Organization(s): DPED
Assisting Organization(s): None
Time Frame: Ongoing
Comments: Current review/analysis provides input for State fuel management program planning.

F(2). POLICY: Ensure that adequate contingency storage of crude oil and products is maintained in Hawaii.

F(2)(a). IMPLEMENTING ACTION: Continue to pursue establishment of a Federally-funded contingency storage of crude oil and products in Hawaii. Evaluate alternative strategies for establishing local contingency storage, and assess the extent of and mechanisms for feasible State funding support.

Lead Organization(s): DPED
Assisting Organization(s): Refineries; HECO
Time Frame: Ongoing
Comments: Establishing contingency storage of oil holds equal status with Hawaii's goal of increased self-sufficiency, inasmuch as it will mitigate the impacts of severe supply disruptions. Although the State has attempted to acquire a portion of the National Strategic Petroleum Reserve, and will continue its efforts in this regard, current national policy directs states to support local stockpiling without Federal involvement. Thus, the identification of other contingency storage options, as well as financing capabilities and mechanisms is recommended. The State is currently investigating the use of existing excess storage capacity as an alternative to constructing new storage.