Final Report in Response to House Concurrent Resolution 195

- Prepared by The Hawaii Energy Policy Forum - April 9, 2007

This document is the final report by the Hawaii Energy Policy Forum (Forum) in response to House Concurrent Resolution 195 (HCR 195) adopted by the 2006 Legislature: "Encouraging Hawaii's landowners, investors, county governments, and regulated electric utilities to pursue development and conversion of fuel crops for electricity generation, and requesting the Hawaii Energy Policy Forum to make recommendations."

HCR 195 required the Forum to issue recommendations on:

1) Financial incentives that may be necessary to stimulate development of fuel crops and the conversion of fuel crops to generate electricity, including incentives to reduce the risk of falling oil prices for investors;
2) The most suitable locations for undertaking biomass projects independent from, or in conjunction with, municipal solid waste-to-energy programs;
3) Options for leasing state land for fuel crop development;
4) Opportunities for state and county governments and private investors to secure federal grants to support the development of fuel crops and the conversion of fuel crops to generate electricity; and
5) The feasibility of setting up a revolving fund as a mechanism to provide incentives necessary to stimulate investment in fuel corps and the conversion of fuel crops to generate electricity.

In support of the objective of diversifying Hawaii's energy system, two events were held in 2006: Governor Lingle convened the Biofuels Summit; and a stakeholder group including state, federal, private sector, and academia representatives organized the Hawaii Agriculture Bioenergy Workshop to explore the potential for a domestic bioenergy and biofuels future. Both events were held with the recognition

that initiating a bioenergy industry in Hawaii must first address a diverse and very complex set of issues that involves many public and private stakeholders.

These two activities also demonstrated the effectiveness of facilitated collaboration and pointed to the value of coordination in the development of supply, production capability, and infrastructure - each requiring long independent lead times - which enables greater understanding and support by both public and private stakeholders.

In addition to the summit and workshop, the Forum gratefully acknowledges the assistance of the Department of Business, Economic Development and Tourism (DBEDT). DBEDT agreed to assist the Forum with its report to the Legislature. DBEDT engaged the Rocky Mountain Institute (RMI) to produce a report, Biomass – and Biofuels – to – Power to provide recommendations for the Forum to consider in preparation of its response to the Legislature. We thank DBEDT for its financial support to this effort.

The Forum developed its recommendations and report based on the above data and submitted it for vetting by the entire Forum membership. The recommendations herein are thus based in part on recommendations made in the RMI report and also on comments received from DBEDT, other Forum members and other interested parties, as well as a review of the outcomes from the Governor's Biofuels Summit and the Bioenergy Workshop.

Based on its analysis of these inputs, the Forum is pleased to make the following recommendations:

Forum Recommendations

1. Develop a State of Hawaii Bioenergy Master Plan

While HCR 195 did not request an evaluation of the need for a Hawaii Bioenergy Master Plan (HBMP), the Forum determined that such a Plan was both the logical outcome of the other recommendations that follow, and the Forum's proposed vehicle for addressing the issues that have been raised during the course of its evaluation.

A. Objective: Given the complexity, diverse stakeholder groups, capital investment requirements, land-use and water supply issues, and supporting infrastructure requirements, the Forum recommends that a comprehensive Bioenergy Master Plan be developed with the objective of establishing a new bioenergy industry in Hawaii.
B. Responsibility: The Director of DBEDT, as the State Energy Resources Coordinator, should take the lead in developing the plan. (Reference: Chapter 196, Hawaii Revised Statutes)
C. Schedule: Because of the complexity and diverse interests involved, development of the plan should include the various stakeholder representatives and with sufficient resources and time (2 years) to prepare and vett the plan, including any supporting studies required to provide required data. A progress report should be delivered to the legislature at the start of the 2008 session. The final plan should be submitted to the 2009 Legislature.
D. Scope: The plan should be action-oriented and should address (but not be limited to) the following issues:

    1. Setting specific objectives, milestones, and timelines such that progress can be measured against clear metrics;
    2. Water resources;
    3. Land resources;
    4. Distribution infrastructure for both marine and land;
    5. Labor resources;
    6. Technology to develop bioenergy feedstock and biofuels;

7. Permitting issues;
8. Financial incentives and barriers, and other funding issues;
9. Business partnering;
10. Policy requirements necessary for implementation of the master plan; and
11. Identification and analysis of the impacts of transitioning to a bioenergy economy.

- Resources: - Sufficient personnel and financial resources must be allocated to prepare the plan. Funding should be available to conduct the necessary studies, using both internal and external DBEDT resources, and to gather necessary data (example: survey of irrigation systems). While the Forum defers to the administering agency, it recommends adequate funding at the level of $1,000,000 over two years. However, both the detailed scope of work and the budget should be determined as the initial task of the HBMP. An updated budget should then be provided as part of the interim report at the end of the first year.
- Consultation: The plan should be developed with input from all interested stakeholders through the use of workshops, working groups, other means of coordination and communication, and, if appropriate, outside consultant services.

2. HCR 195 Requirement #1 – Financial Incentives

HCR 195 requested recommendations on financial incentives that may be necessary to stimulate development of fuel crops and the conversion of fuel crops to generate electricity, including incentives to reduce the risk of falling oil prices for investors.

A. Recommendation: The Forum recommends that a system of financial incentives be developed. This should be an outcome of the Bioenergy Master Plan.

B. Options development & analysis: Develop a variety of options, identify the advantages and disadvantages of each option, and attempt to quantify the impact through the development of financial models and conducting in-depth analysis.
C. Gaming: To avoid unintended consequences, conduct "gaming" analysis to see how the incentive packages could be manipulated.
D. Control and Feedback: Develop protocols for data requirements and models to determine the effectiveness of the incentives.
E. Flexibility: Incentives must be designed so that they have the flexibility to be throttled back or ramped up to match market forces and the situation.
F. Initial Options: The HEPF recommends that the Departments of Business, Economic Development & Tourism (DBEDT) coordinate with the following government departments and agencies to conduct in-depth analyses of the merits of the incentive package options listed below: Agriculture, Taxation, the Public Utilities Commission, and the Division of Consumer Advocacy. This analysis should be part of the Bioenergy Master Plan development work.

Incentive #1: Two-pronged sliding scale production tax credit, consisting of:

Component #1: Links the current State de-taxation of biofuels to in-state feedstock production and quantity of biofuel in the blended product. The purpose of this incentive is to provide protection for Hawaii's farmers given the market risks for investing in growing biofuel feedstocks and to focus Hawaii taxpayer incentives on support for Hawaii-based business; and

Component #2: Creates a state-level sliding-scale subsidy that goes to zero when oil prices are high, and increases when oil prices are low, effectively creating a hedge for consumers and a price floor for producers.

Incentive #2: Agriculture Infrastructure tax credit & Master Plan.

Investment tax credit focused on building Hawaii's irrigation systems. This is modeled on a similar credit being designed through the Department of Agriculture's Important Agricultural Lands' incentive program. A general fund appropriation should be considered.

Incentive #3: Distribution Infrastructure Investment Tax Credit & Master Plan.

Investment tax credit focused on building Hawaii's a bioenergy distribution network in cooperation with stakeholders. This includes bioenergy storage, pipelines, marine and land transport, and terminal infrastructure. The overall scope and the implementation of the infrastructure required to support a biofuels industry would be an outcome of the overall Hawaii Bioenergy Master Plan. The level of investment tax credit required to support implementation would be an outcome of the Bioenergy Master Plan. A general fund appropriation should be considered.

Incentive #4: Research & Development Funding.

Significant Hawaii-specific research and development is needed to investigate potential biodiesel crop cultivars and micro-algae, improved varieties of sugar cane, new harvesting techniques, appropriate energy crops, and enhanced product utilization. Such an effort should be subsidized by the state through a grant fund that can be accessed by either public or private sector entities (HB 1003 HD3 and SB 1943 SD1). The focus of the R&D effort should be defined in the Bioenergy Master Plan.

Incentive #5: Biodiesel Producer's Credit.

The Hawaii Bioenergy Master Plan should include an evaluation of a state producer's credit for biodiesel that mirrors the state ethanol producer's credit.

3. HCR 195 Requirement #2 – Coordination of biomass projects and municipal solid waste-to-energy programs

HCR 195 requested recommendations on the most suitable locations for undertaking biomass projects independent from, or in conjunction with municipal solid waste-to-energy programs. The factors that should be considered in determining the location of biomass operations, specifically:

1. Distance from biomass feedstocks;
2. Distance from electric load centers;
3. Interconnection issues; and
4. Locations of landfills/transfer stations.
5. County MSW programs

The actual siting of projects will require in-depth analysis and should be included in the Hawaii Bioenergy Master Plan effort, with adequate resources for assessing the various factors in location determination. It will likely require the assistance of outside consultants to execute properly and in the detail required to formulate concrete action items. The plan will also require close coordination with the counties which actually control the MSW.

4. HCR 195 Requirement #3 – Options for Leasing State Land for Fuel Crop Development

HRS §171-95 allows the Department of Lands and Natural Resources (DLNR) to lease public land to renewable energy producers for up to 65 years without public auction. There is ambiguity as to whether a person growing a fuel crop is a renewable energy producer.

- Recommendation #1: To enable feedstock producers to lease lands, HRS 171-95 should be amended to explicitly include feedstock producers in the definition of "renewable energy producer."
- Recommendation #2: Amend HRS §171-95 to offer preferential rent prices for start-up biofuel crop growers.

- Recommendation #3: Provide an expedited review of permits for leasing state lands for growing biofuel crops.

5. HCR 195 Requirement #4 – Opportunities for state and county governments and private investors to secure federal grants to support the development of fuel crops and the conversion of fuel crops to generate electricity.

To facilitate and support the development of this industry, information on currently available grants and other opportunities should be easily accessible to interested investors and producers. It is therefore recommended that DBEDT maintain a comprehensive inventory of federal, state, and other opportunities and post the information on a suitable website. Additionally, it might also maintain a data base of contact addresses and send out email notifications as changes in funding opportunities occur.

6. HCR 195 Requirement #5 – Feasibility of setting up a revolving fund to provide incentives to stimulate investment in fuel crops and the conversion of fuel crops to generate electricity.

Based on examples of successful revolving loan funds described in the RMI report, a revolving loan fund is feasible; and the Forum thus recommends the establishment of a Hawaii Bioenergy Revolving Fund ("HBRF") (Reference HB 1003 HD3). The HBRF would allow Hawaii entrepreneurs to transcend barriers associated with financing innovative projects and should target two (2) areas:

- **Credit-worthiness:** Lack of credit-worthiness particularly characterizes small and/or new entrepreneurs. Given the capital-intensity of the conversion and the storage/distribution segments of the biofuels/biomass value chain, small and/or new entrepreneurs would mostly be present in the agricultural segment of the biofuels value chain.
- **Small-scale farming & biodiesel**: Whereas crops grown to produce ethanol generally require large tracts of land and industrial-scale agriculture,

biodiesel can often be grown at a small scale. Because of the smaller scale, these producers might struggle to find the necessary financing, and are therefore an ideal target for a revolving loan fund.

7. Additional Forum Recommendation – Assistance to Potential Local Growers

DBEDT should include in support of the HBMP, investigations and analyses of:

- The total cost per ton to grow and deliver alternative energy crops to bioenergy converters; and
- The need for local cooperatives for sharing of information, equipment, facilities, etc.