



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented Before the
Senate Committee on Energy and Environment
Senate Committee on Education
Senate Committee on Economic Development and Taxation

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Conference Room 414

State Capitol

415 South Beretania Street

by

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SB 1866 Relating to Energy

Chairs Menor, Sakamoto, and Fukunaga, Vice-Chairs Hooser, Tokuda, and Espero, and Members of the Committees:

Thank you for the opportunity to testify in support of intent of the intent of this bill, provided its passage does not replace or adversely impact priorities as indicated in our BOR Approved Executive Biennium Budget.

I am Dr. Richard Rocheleau, Director of the Hawaii Natural Energy Institute of the University of Hawai'i at Mānoa.

I will first comment on Part II of SB 1866. We support the intent of Part II of SB 1866 proposing to establish a revolving loan fund for biofuels. HNEI would be willing to work closely with the Hawaii Strategic Development Corporation to provide technical advice on proposals under this fund. However, we are, at this time, concerned about the wide range of biofuels projects under consideration and would recommend that any commitment of these funds be made only after a suitable master plan for biofuels development in Hawai'i is put into place.

The remainder of my remarks relate to Part I which calls for establishing an Energy Development Special Fund. A number of my remarks have been addressed in HD1 of HB 1003 and I will refer to those changes without detailing the specifics in this testimony.

HNEI believes it is in the public interest of the citizens of Hawai'i to have a technology demonstration program linked to State public policy initiatives. Projects under this program would be designed to provide utilities and end-users in the State with alternatives for deploying new efficient and economic energy technologies. However,

as has been addressed in HD1 of HB 1003, we believe it is critical that projects under this program would also address end-use energy efficient technologies and building technologies specifically including those which could help to ameliorate peak demand problems.

The proposed energy technology development, demonstration, and deployment activity described in SB 1866 should address problems specific to the State while taking advantage of State-based resources and leveraging work funded by other organizations. To achieve this mandate, HNEI recommends taking a "portfolio approach" to ensure that the most beneficial technologies get commercialized to benefit citizens in as timely a manner as possible. Simply put, 'picking winners' too soon is likely to cost the State additional money and not result in tangible benefits for its citizens. While allowing for a broad range of programs, from R&D to market penetration, a key focus of this program, as envisioned, would be to help technologies to bridge the gap between demonstration and a self-sustaining market. At the end of this testimony I provide examples of the types of criteria which will insure selection of the best technologies for support and identify types of technologies that may be appropriate for development under a portfolio approach. These are not meant to imply a plan or roadmap for selection of projects, rather these criteria and projects should be viewed as a starting point from which to build a public interest energy R&D program that will benefit ratepayers, taxpayers, and the overall state economy.

While the correct selection of technologies to be developed and deployed should have additional societal and environmental benefits, it is primary the economic benefits to the ratepayers and state economy by which such a program can be justified. A California Energy Commission program resulted in substantial investment in the state which otherwise would not have occurred. Conservative benefit analysis by independent reviewers of a similar program in California, the Public Interest Energy Research (PIER) program, concluded that there was a return to ratepayers of \$2 to \$5 for each dollar spent on the program. Similar results should be expected for Hawaii.

SB 1866 and its companion HB 1003 establishes HNEI in statute and directs HNEI to establish an advisory council whose primary role is to make recommendations on the award of contracts and grants funded by this program. As a point of clarification, HNEI was established as part of UH Mānoa in 1974 by session law. The language in SB1866 establishes HNEI in statute but largely maintains the same organization and objectives. HNEI believes it critical to ensure that the program receives the advice of all stakeholders in the execution of the program, especially DBEDT. HD1 HB1003 has strengthened the language to facilitate a close working relationship with DBEDT as the lead State agency for the development and implementation of energy policy and its concomitant administration. We endorse these actions.

Portfolio Development

I would like at this time to return to some of the underlying criteria that will be necessary for successful portfolio development in the public interest and to identify potential areas for project support. As indicated above, these are not meant to imply a plan or roadmap for selection of projects, rather these criteria and projects are meant to provide further understanding of what such a program might include and should be

viewed as a starting point from which to build a public interest energy R&D program that will benefit ratepayers, taxpayers, and the overall state economy.

Underlying Criteria for R&D Portfolio Development should include the following:

1. The technical activities must continually be tied to benefiting State ratepayers and taxpayers who are providing the funds for the program.
2. There must be a strong linkage between public policy within the State and the technology development and deployment.
3. The portfolio must be designed to aggressively take advantage of existing programs and related funding.
4. A focus should be placed on indigenous resources that may be unique to the State.
5. Very good relationships must be maintained with the end-user community including environmental groups. This has been a failing of some agency programs in other states.
6. Technology assessments and policy analyses are important in defining next steps to be taken and preventing expenditures on programs that will not succeed. Some funds must be set aside for this type of effort.

These criteria would be expanded upon and quantified by HNEI and its advisory board in the selection of projects. While not intending to short-circuit this approach, it is useful, I believe, to provide some examples of types of programs that might be considered under HB1003.

1. Applied technology development to better utilize State-based energy resources. Some possible near-term technologies that could be demonstrated to take advantage of Hawaii's indigenous resources could include:
 - a. Advanced photovoltaic systems including concentrating photovoltaic technology.
 - b. Solar thermal electric technology.
 - c. Advanced biomass-to-energy technologies.
 - d. Advanced municipal solid waste systems.
 - e. Wave energy
 - f. Energy storage including pumped hydro
2. Control and monitoring systems for the cost-effective use of intermittent renewable energy technology, e.g. smart grids with supplier-user interactions.
3. Demonstration and deployment of efficient energy end-use technologies, including those that address peak demand issues as well as advanced building technologies
4. The grid in the State needs to be extended and upgraded. In particular, the widely distributed nature of the load centers in the State can lend itself to new

technologies under discussion on a national level. HNEI is already linked into such efforts working with the US Department of Energy, GE Global Research, DBEDT, and the utilities.

5. Transportation systems need to become more efficient. This is the leading use of petroleum products in the State. Two areas are worth further development.
 - a. Increased effort to fully develop the potential for tropical-agriculture-based bio-fuels that are unique to the State.
 - b. Testing and development of plug-in hybrid vehicles.
 - c. Advanced renewable energy systems for the proposed mass transit in Honolulu.

In conclusion, we support this bill provided that its passage does not replace or adversely impact priorities as indicated in our BOR Approved Executive Biennium Budget.