



UNIVERSITY OF HAWAI'I SYSTEM

Legislative Testimony

Testimony Presented Before the House Committee on Energy & Environmental Protection

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Conference Room 312
State Capitol
415 South Beretania Street
by

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HB 1003 Relating to Energy

Chair Morita, Vice-Chair Carroll, and Members of the Committee:

Thank you for the opportunity to testify in support of this bill.

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 HB 1003. While not qualified to comment on the financial aspects of revolving loan funds, we do support the intent of Part II and would work closely with the Hawaii Strategic Development Corporation to provide technical advice on proposals to fund biofuel development projects.

The remainder of my testimony is focused on Part I of HB 1003. I also have a marked up version of HB 1003 which I can provide to the committee suggesting the inclusion of language to address end-use energy-efficient technologies including those which ameliorate peak demand problems. I believe this component is critical to achieving the State's goal of energy self sufficiency.

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 the State with alternatives for deploying new efficient and economic energy technologies for use by State industries, commercial establishments, governmental agencies, and the general public. The proposed energy technology development, demonstration, and deployment activity described in HB 1003 should be focused on addressing problems specific to the State while taking advantage of State-based resources and leveraging work funded by other organizations.

To achieve the HB1003 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, it is important that we do not pick ‘winners’ too soon that could cost the State additional money and not result in tangible benefits for its citizens. While providing support to accelerate deployment of promising technologies, winning technologies will reveal themselves by being successful in the marketplace while also providing for economic, environmentally benign, and reliable energy services for all parts of the State's economy. Additional thoughts on the criteria to be used for successful portfolio development are presented later, but first I want to address the issue of programmatic oversight and coordination.

Program Oversight and Coordination

HB1003 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. These actions will serve to facilitate the interaction between HNEI, DBEDT, other government agencies, and the energy community, and ensure that projects selected for funding are most likely to benefit the citizens of the State. We endorse these actions. HNEI believes it critical to ensure that the program receives the advice of all stakeholders in the execution of the program, especially DBEDT. DBEDT is the lead State agency for the development and implementation of energy policy and its concomitant administration. In this set of activities, DBEDT will continue to develop policy and will play a critical role in helping to guide and focus the technology development program. HNEI would work closely with DBEDT and other agencies providing technical and scientific leadership, which would incorporate program direction, contract awards and administration, and coordination of technical reviews. Managed by HNEI and utilizing not only HNEI's resident expertise, this coordination would also make extensive use of the advisory board established by HB 1003 and other government and industry partners.

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. Additional discussion of these criteria and some possible initial directions is appended to my oral statement. I will summarize here.

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 revenue for the program.
2. There must be a strong linkage between public policy within the State and the technology development and deployment underway.
3. The portfolio must be designed to aggressively take advantage of existing programs.
4. A focus should be placed on indigenous resources that may be unique to the State.

5. An attempt should be made to avoid working on certain large-scale energy systems. The financial requirements for effecting success are large. This type of R&D should be left to the federal government or large private sector institutions funded by industry consortia.
6. Very good relationships must be maintained with the end-user community. This has been a failing of some agency programs in other states.
7. 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 must be focused on how to better utilize State-based energy resources. Some possible 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 technology.
 - c. Advanced biomass-to-energy technologies.
 - d. Advanced municipal solid waste systems.
2. Developing control and monitoring systems for the cost-effective use of intermittent renewable energy technology.
3. Undertake the demonstration and deployment of efficient energy end-use technologies, including those that address peak demand issues.
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 and on a national level. HNEI is already linked into such efforts working with DOE, 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.

Concluding Comments

These comments should not be taken as a plan or a roadmap for selection of projects. Rather, it should be seen 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. Judicious and very carefully coordinated use of funding from such a program can – and should – lead to considerable economic benefits for the State. Additionally, by correctly selecting technologies to be developed and deployed, additional societal and environmental benefits can also be realized.

This approach also recognizes and takes advantage of particular strengths within the State government (DBEDT Energy Office) and the university system (HNEI) to most cost effectively conduct this program for the benefit of State taxpayers.

Finally, HNEI accepts the mandate entrusted by HB 1003 and assures the committee that it possesses the necessary capabilities to properly execute it.

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.