Testimony Presented Before the House Committee on Finance
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SB 2196 SD2 HD1 – RELATING TO ENERGY

Chair Luke, Vice Chairs Nishimoto and Johanson, and members of the committee:

My name is Richard Rocheleau, Director of the Hawai‘i Natural Energy Institute at the University of Hawai‘i at Mānoa. HNEI supports the sections of SB 2196 SD2 HD1, which would re-establish the Energy Systems Development Special Fund (ESDSF) and extend the repeal of barrel tax allocations until 2030. While this draft of the bill leaves blank the amounts of the barrel tax allocations, HNEI believes the current statutory 10 cent allocation to the ESDSF is appropriate and sufficient. HNEI also supports on-going development of hydrogen solutions for Hawai‘i and has included hydrogen in its portfolio of projects conducted under the barrel tax. However, providing additional resources to the Hydrogen Investment Capital fund would help accelerate this development.

The ESDSF, which was administered by HNEI, sunset last June, therefore the current 10 cent allocation of the tax on each barrel of petroleum product imported into Hawai‘i that went to the ESDSF, now goes to the general fund. While most of HNEI’s resources come from other sources, primarily federal funding, re-establishing the ESDSF would allow HNEI to continue to support Hawai‘i specific projects that could not be directly funded by federal dollars. These include testing of emerging technologies for future deployment in Hawai‘i such as advance battery energy storage and smart grid technology; modeling to understand technical impacts to grid operations as we move toward our HCEI goals, and independent economic analyses to help decision makers make the most informed decision possible.

Approximately $7 million was deposited into the ESDSF between 2010 and 2013, before it sunset. These funds have played a crucial role in leveraging federal investment, removing roadblocks in programs critical for the success of HCEI, and contributing to programs that are likely to spur economic development. The ESDSF funds were, and are being used on projects with significant potential to reduce the use of fossil fuels in Hawai‘i (see attached ESDSF Factsheet).
Re-establishing the ESDSF and extending the barrel tax allocation sunset to 2030 will provide a consistent funding source and a clear signal to federal funding agencies that Hawai‘i is committed to advancing its energy policy initiatives and developing efficient and economic technologies that will help ensure Hawai‘i continues to move forward to meet its clean energy goals.

Thank you for the opportunity to testify.
ENERGY SYSTEMS DEVELOPMENT SPECIAL FUND

- Established in 2007 under ACT 273. sunset on June 30, 2013
- Purpose: To develop “an integrated approach and portfolio management of renewable energy and energy efficient technology projects that will reduce Hawaii’s dependence on fossil fuel and imported oil and other imported energy resources and move Hawaii toward energy self-sufficiency.” (HRS §304A-2169(a))
- Unfunded until 2010, when ACT 73 provided 10 cents of the tax on each barrel of petroleum product ("Barrel Tax") be deposited into the fund
- $7 million – approximate funds received before sunset
- HNEI coordinated closely with DBEDT to develop expenditure plans to maximize value of the funds to meet near term needs and opportunities within the state that cannot be met by federal funding alone
- Current portfolio includes renewable power generation, advanced transportation, energy efficient end-use technologies, and the integration of systems to allow increased renewable use

KEY ACTIVITIES/RESULTS

- Supported Hawaii specific projects important for achieving RPS goals
- Leveraged over $12M in federal funds that would not otherwise have been spent on Hawaii research projects

- GE RPS Study ($850K):
  - Identifies and evaluates scenarios and reserve requirements for achieving 35% to 50% renewables on Oahu and Maui County
  - Compares cost of electricity for various grid-tie, gen-tie, and independent island system scenarios.
  - Ongoing work will assess the impacts of LNG for power production, modified utility operating practices, and advanced ancillary services such as demand response and battery energy storage

- Smart Inverters ($400K) – leveraged $6MM USDOE funding to develop, demonstrate and commercialize smart grid-enabled PV inverters to mitigate grid reliability impacts of high penetrations of PV systems

- Wave Energy Test Site ($500K) – Provided required cost-share for wave energy test resulting in $4.3 MM additional funding from USDOE and leveraging over $20 MM of current and future investment by USDOD to develop and operate grid-connected plug-and-play facility an MCBH
• **Hawaii Clean Energy PEIS** ($1.7M)
  - Develops knowledge base for developers, government agencies, and communities about technologies, environmental resource areas, potential impacts, government requirements, best practices, and mitigation measures
  - Provides guidance to streamline project specific NEPA review, permitting processes, and community interaction
  - Draft PEIS due out in March 2014, with public hearings to follow

• **Geothermal**
  - Resource assessment ($400K) – leveraged over $ 1MM from USDOE to validate a new procedure to map the subsurface structure of the geothermal resource and lower exploration costs
  - Strategic Development study ($115K) – identified needs to prepare state and county agencies for the complex planning, assessment, regulatory, and permitting activities required for geothermal development

• **Hydrogen**
  - Grid Management ($500K) – leveraged over $1.7MM USDOE and $1MM ONR to demonstrate cost effective use of electrolyzer to simultaneously produce hydrogen for fuel and provide for ancillary services to grid
  - Fueling ($550K) - supported the development of critical hydrogen delivery infrastructure to deliver hydrogen produced at the PGV geothermal plant to Hawaii Volcanoes National Park to support fuel cell electric shuttle buses

• **Hawaii Energy Policy Forum support/HCEI metrics** ($350K) – general forum support and development of metrics to measure the State’s progress toward meeting the Hawaii Clean Energy Initiative’s requirements

• **Pacific Asian Center for Entrepreneurship and E-Business (PACE)** ($50K) – funded several UH College of Business fellowships to conduct technical and business analyses of critical energy issues

• **Sea Water Air Conditioning** ($160K) – monitoring of SWAC projects to validate high-fidelity plume models that assess the impacts of cold water return depth. Depth of discharge has major impact on the overall cost of the SWAC project.

• **Energy Efficiency** ($356K) – research and demonstration projects on lower cost natural ventilation and cooling systems including radiant cooling and ceiling fan control systems supporting HCEI energy efficiency goals

• **Hawaii State Energy Office support** ($1M) – support programs for energy efficiency, renewable energy, and test bed development, education and outreach