



**SENATE COMMITTEE ON ENERGY AND ENVIRONMENT**

March 11, 2:45 P.M.

Room 225

**(Testimony is 4 pages long)**

**TESTIMONY IN STRONG SUPPORT OF HB 2618 HD2, SUGGESTED AMENDMENTS**

Aloha Chair Gabbard and Energy and Environment Committee members:

The Blue Planet Foundation strongly supports HB 2618 HD2, to facilitate and encourage the use of renewable energy by incentivizing the use of grid-connected energy storage technologies and systems through a tax credit (that is limited in scope and duration) for grid-connected energy storage. The proposed investment tax credit or utilization tax credit are intended to promote the use of grid-connected energy storage to address the varying needs of our island electric grids with technologies most applicable to those needs. Energy storage tax incentives are the appropriate and needed tool to enable continued momentum toward Hawaii's independence from fossil fuels.

Energy storage—whether it be batteries, ultra-capacitors, or some other technology—will be an integral part of our island electricity systems. These technologies are evolving rapidly and in the technology development and deployment stage where tax credits could make a critical difference in adoption rates.

Blue Planet believes HB 2618 HD2 is a timely and appropriate policy for the following reasons.

Incentives for energy storage will hasten development of a smart grid, increasing reliability and lowering costs to ratepayers

House Bill 2618 HD2 is intended to support variable energy sources, including wind and solar power, while moderating energy demands during peak hours and facilitating a “smart grid” that is more reliable in order to improve Hawaii's island electricity grids and achieve the state's clean energy future. This measure would help improve the efficiency, versatility and reliability of

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Hawaii's electric grids, and would offer more affordable energy storage technologies for homes and businesses.

Hawaii's electricity grid needs energy storage to achieve the state's aggressive clean energy goals. To take advantage of distributed and diversified energy like solar and wind and other variable sources of power, the grid has to become smarter and have the capacity to store electricity. It will resemble today's Internet—where distributed servers both send and receive packets of information—and less like yesterday's commercial television. Such a self-aware, robust smart grid will instantaneously adjust to shifts in wind strength or cloud cover over solar, balancing energy loads on the other side of the wire and drawing on stored energy when needed.

Energy storage is a critically important tool for reliable system operation of a grid with substantial amounts of intermittent renewable generation. Storage can smooth out variable generation, and it can bank excess renewable energy for use during peak demand. Energy Storage helps to maximize the use of indigenous renewable energy and strengthen Hawaii's economy. It will accommodate expected increasing proportions of variable and/or intermittent renewable generation resources in the near future.

A 2013 study<sup>1</sup> conducted by Hawaiian Electric Companies on battery storage on the MECO system demonstrates showed that a 15 MWh battery storage resource effectively reduced the amount of curtailed renewable energy by almost 2 GWh (i.e., equivalent to 2000 MWh) per year. By reducing curtailment, the amount of renewable energy increased and resulted in a corresponding increase in the ability to reduce the cost of electricity and the amount of fossil fuel use.

## The time is ripe for implementation of existing energy storage strategies and technology

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Currently, a variety of energy storage strategies are available with existing technology: battery technologies, hydrogen and other alternative fuels, and pumped hydroelectric storage. On Maui, large amounts of wind power are frequently being curtailed in favor of fossil generation. Retiring fossil fuel units and developing innovative energy storage is needed to help eliminate this wasteful practice. Evolving technologies continue to enable more renewable energy. As the prices for renewable sources of energy continue to decrease, energy storage will result in higher capacity factors and less curtailment of renewable resources. This increases availability and optimal use of system operation methods.

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<sup>1</sup> Hawaiian Electric Companies 2013 Integrated Resource Planning ("IRP") Report and Action Plan

With increased energy storage, the existing grid will be transformed into a "smarter", more efficient, more reliable grid that integrates more renewable energy through the use of various technologies and capabilities and provide more information and options to customers with the overall goal of reducing costs and improving customer service. This clean energy transformation will help to stabilize and strengthen Hawaii's economy by reducing its dependency on imported fuels and will help protect Hawaii's environment by greatly reducing greenhouse gas emissions.

Hawaii's economy needs power that's as dependable as the sunrise. To make full use of all of Hawaii's native energy sources we need the ability to store power for times when the sun isn't shining or the wind isn't blowing. While it's not clear what form will be most cost effective—fuel cells, pumped water, flywheels, ultra capacitors, batteries, dilithium crystals—we do know that the technology is evolving rapidly. Consider data storage for computers. In the late 1950s, cutting-edge data storage could store the equivalent of one MP3 file in the space of half a carport. Today, over 12,000 such files fit on a keychain flash drive. We are seeing a similar evolution for power storage, with the cost of battery storage dropping at nearly 8% annually.

## Stored energy can serve as an emergency backup to maintain grid reliability

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Currently, such backup is typically in the form of "spinning reserves," or fossil fuel plants that are kept running even when the energy is not needed. Meanwhile, battery technology is already being used with a number of renewable energy projects in Hawai'i, including wind farms on Maui and solar installations on Kaua'i and the Big Island.

### **SUGGESTED AMENDMENTS**

Blue Planet respectfully requests that HB 2618 HD2 be amended to delete the requirement that only storage devices of one megawatt-hour and larger qualify for the tax credit. We believe energy storage devices of all sizes can provide value to strengthening our electricity grid and reducing variability of renewable energy resources. Therefore we request that page 5, lines 14 – 15, be amended as follows:

centralized or distributed manner, [~~have a capacity of at least one megawatt hour or one megawatt,~~] are certified by the

We further recommend that the energy storage tax credit be amended with credit values as follows:

- (1) An investment credit equal to:
  - (A) For a grid-connected energy storage property first placed in service on or before December 31, 2020, not more than 20 per cent of the basis; or
  - (B) For a grid-connected energy storage property first placed in service after December 31, 2020, and on or before December 31, 2025, not more than 10 per cent of the basis; or
- (2) A utilization credit equal to:
  - (A) For a grid-connected energy storage property first placed in service on or before December 31, 2020, 7 cents per kilowatt-hour of energy storage capacity; or
  - (B) For a grid-connected energy storage property first placed in service after December 31, 2020, and on or before December 31, 2025, 3.5 cents per kilowatt-hour of energy storage capacity.

Expanding Hawaii's energy storage capacity will improve the efficiency, flexibility, and reliability of our electric grid, allowing us to wring the most power out of it, while adding large amounts of new renewable energy resources like wind and solar.

Please forward HB 2618 HD2.

Thank you for the opportunity to testify.