

NEIL ABERCROMBIE
GOVERNOR

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To: The Honorable David Y. Ige, Chair
and Members of the Senate Committee on Ways and Means

Date: Tuesday, March 25 2014
Time: 9:05 A.M.
Place: Conference Room 211, State Capitol

From: Frederick D. Pablo, Director
Department of Taxation

Re: H.B. No. 2618, H.D. 2, S.D. 1, Relating to Energy Storage

The Department of Taxation (Department) appreciates the intent of H.B. 2618, H.D. 2, S.D. 1, to support the renewable energy industry and provides the following comments for the Committee's consideration.

H.B. 2618 creates an income tax credit for grid-connected energy storage properties. The credit is nonrefundable but can be converted to a refundable credit at the taxpayer's election to accept a 30% discount on the amount of the credit. The tax credit can be claimed as an investment credit equal to twenty percent of the basis of property placed in service prior to December 31 2020, or fifteen percent of the basis for property placed in service after December 31, 2020 but before December 31, 2025; or as a utilization credit equal to eight cents per kilowatt/hour of energy storage capacity for property placed in service prior to December 31, 2020, or six cents per kilowatt/hour for property placed in service after December 31, 2020 but prior to December 31, 2025. This measure has a defective effective date of July 1, 2050.

The Department offers the following technical comments for your consideration.

First, the grid-connected energy storage property as described in this measure already qualifies as an accessory under the Renewable Energy Technologies Income Tax Credit (RETITC) provided under section 235-12.5, Hawaii Revised Statutes (HRS), if installed with the energy producing portion of the system. The Department will defer to the Department of Economic Development, Business, and Tourism (DBEDT), as to whether an additional tax credit should be provided to store electricity.

Second, the Department requests that one method of computing the credit be chosen. Two methods of calculation will cause unnecessary confusion for taxpayers and difficulty for the Department in administering the credit and auditing the tax credit claims.

The Department also notes that it is not able to comply with subsection (j)(1) of this measure, as the information requested is currently not submitted by taxpayers. Specifically, the Department does not have specific data on the number or types of properties, but merely aggregate data on the credit amounts claimed by taxpayers. Since this information is not currently submitted by taxpayers, the Department would need to modify its forms, instructions and computer system which would require a substantial amount of resources that the Department does not have.

Thank you for the opportunity to provide comments.

TESTIMONY OF HERMINA MORITA
CHAIR, PUBLIC UTILITIES COMMISSION
DEPARTMENT OF BUDGET AND FINANCE
STATE OF HAWAII
TO THE
SENATE COMMITTEE ON WAYS & MEANS

MARCH 25, 2014
9:05 a.m.

MEASURE: H.B. No. 2618, H.D. 2, S.D. 1
TITLE: Relating to Energy Storage

Chair Ige and Members of the Committee:

DESCRIPTION:

H.B. No. 2618, H.D. 2, S.D. 1 would establish an income tax credit for taxpayers who install and place into service after December 31, 2014 and before December 31, 2025 a “grid-connected energy storage property” with a capacity of at least one megawatt-hour or one megawatt. This measure has an effective date of July 1, 2050.

POSITION:

The Commission would like to offer the following comments for the Committee’s consideration.

COMMENTS:

Energy storage has a role in Hawaii’s strategy to achieve its clean energy policy goals through the development of a diverse and cost-effective portfolio of renewable resource and energy efficiency options, but it should be recognized that energy storage is not a panacea.

A variety of technologies have been found to be cost-effective in Hawaii, when used in the right application, to meet objectives including improved reliability and power quality, greater utilization of renewable energy, and management of demand. The Commission cautions the Legislature in selecting one approach to incentivize over others. Each kind of technology or program has the potential to address a different combination

of objectives and concerns under different conditions or in different locations. Artificially lowering the apparent cost of one technology has the potential to introduce market distortions, whereas a desired approach is to establish a competitive market structure where possible.

Finally, the Commission notes that, given this measure's one megawatt-hour/one megawatt capacity size requirement to qualify for the credit, there are currently a number of utility-scale energy storage systems operating in Hawaii that have been successfully financed and installed without the support of a state tax credit. Thus, the Commission believes that this measure may not be necessary to further encourage energy storage in the State.

Thank you for the opportunity to offer written comments on this measure.



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

NEIL ABERCROMBIE
GOVERNOR

RICHARD C. LIM
DIRECTOR

MARY ALICE EVANS
DEPUTY DIRECTOR

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Statement of
Richard C. Lim
Director
Department of Business, Economic Development, and Tourism
before the
SENATE COMMITTEE ON WAYS AND MEANS

Tuesday, March 25, 2014

9:05 a.m.

State Capitol, Conference Room 211

in consideration of
HB 2618, HD2, SD1
RELATING TO ENERGY STORAGE.

Chair Ige, Vice Chair Kidani, and Members of the Committee.

The Department of Business, Economic Development and Tourism (DBEDT) offers comments on HB 2618, HD2, SD1, which establishes an investment tax credit and utilization tax credit for grid-connected energy storage properties.

DBEDT appreciates the importance of adding energy storage capacity to Hawaii's electrical grid; however, we are concerned that this measure may be inconsistent with the State's established energy policy directives of balancing technical, economic, environmental, and cultural considerations, and allowing for market-driven solutions.

Moreover, we note that a working group (consisting of a broad cross-section of interested parties from the private and non-governmental sector, as well as Legislative staff, the Public Utilities Commission (PUC), the Consumer Advocate and DBEDT) agreed to a framework and supporting proposed legislation (HB 1943, HD2, SD1) for a PUC-led study looking at the technical, economics and policy implications of modernizing Hawaii's electrical grid. Instituting a tax credit prior to the findings of this study would be premature.

We defer to the Department of Taxation on the fiscal implications of this bill as well as its ability to carry out the duties required from it.

Thank you for the opportunity to offer these comments.



Statement of
Geoff Brown
Director, Business Development
BEACON POWER, LLC

Before the Senate Committee On **Ways and Means**
March 23, 2014
9:05 AM
State Capitol, Conference Room 211

In consideration of
HB2618 HD2 SD1 RELATING TO ENERGY STORAGE

Chair Ige, Vice Chair Kidani and Members of the Committee on Ways and Means

Comments:

Thank you for the opportunity to present the views of Beacon Power before the Hawaii Legislature. Beacon Power is a US based energy storage company that utilizes its proprietary carbon fiber composite flywheels to store and then recycle electrical energy on the transmission grid to help enable grid operators more accurately balance electricity supply and demand. Beacon Power has deployed its fast-responding and accurate storage devices in New York, New England and Pennsylvania. Our flywheel energy storage systems are particularly helpful to grid operators that are integrating high levels of variable generation renewable resources into their systems.

The strategic visions articulated by both the Governor and the CEO of Hawaiian Electric, designate renewable energy as one of the fundamental pillars of the Hawaii energy supply. As such, Hawaii will integrate very high levels of solar and wind power generation into the electricity system, likely at a higher percentage basis than any other state in the US. This integration will undoubtedly put Hawaii on the path to a more sustainable long term energy plan, one that enables it to attain its energy independence and achieve bold economic objectives, while also living up to its very high standards of environmental stewardship. However, this plan will require supporting infrastructure to ensure that Hawaii can achieve its objectives.

Although the fuel for renewable energy is free, there are direct and indirect capital costs needed to ensure its effective and efficient integration in the electric grid eco-system. The renewable energy generation output is variable; constantly changing based on wind patterns and cloud cover. In addition, renewable energy generation resources sometimes need to be sited remotely with the power being transmitted to locations where it will be consumed. For the host utility, this implies additional investment is needed for modernization of the transmission and distribution (T&D) systems for each new MW of renewable energy added to the system. Specifically, balancing real-time supply and demand becomes a significant challenge, but there are many technologies, including energy storage and demand response, that utilities can use to address these issues. As a



rule of thumb, we believe that for an additional cost of 1 to 2 c/kWh, supporting infrastructure can be installed to ensure renewable energy is seamlessly integrated into the grid.

As renewables are being added to the system across the US, the mainland utilities are addressing the same basic system integration issue as Hawaii. Importantly, FERC addressed the frequency regulation market required for the balancing of generation and load on the transmission systems of its jurisdictional independent system operators and regional transmission organizations in Orders 755 & 784. In these orders, FERC directed that the jurisdictional ISOs and RTOs create market rules to compensate participants in its ancillary services market for their provision of frequency regulation in a manner that reflects the regulation services actually provided by the market participant. This compensation structure encourages the integration of faster-responding and more accurate grid balancing tools, thus allowing the transmission system operators to be able to more accurately address the system balancing needs, including any variability introduced by the integration of high levels of renewable energy into their supply base.

The energy storage and demand side management systems are evolving at a rapid rate. Utility professionals and experts at the PUC must dedicate significant time and effort to stay on top of new technology capability and cost. Because this field is so dynamic, Beacon advocates empowering the subject matter experts at the utility companies and the PUC to take appropriate action to incorporate the best available technologies into their grid as needed. Single point in time energy storage legislation runs a far greater risk of distorting the market than enabling the utilities to make the best technology choice. It would be difficult or impractical to design legislation that could keep pace with the rate of change of the emerging technologies, or for that matter, the constantly changing dynamics on Hawaii's electric system. Legislative solutions also run the risk of delaying infrastructure program implementation, and given the rate of installation of renewable energy in Hawaii, the State needs a bias toward speed of execution of the necessary supporting infrastructure.

Despite the fact the system problems are arguably being created or exacerbated by the introduction of independently developed renewable power projects or customer-owned renewable energy, most utilities are concluding the problem is best solved via centralized solutions. A utility controlled centralized response enables the utilities to account for the spatial diversity benefits of having renewables geographically spread across the islands. This also enables utilities to optimize solutions through project hybridization and combination projects including transmission upgrades, demand response and energy storage. This overall system optimization should result in the lowest total cost and best response to system problems leading to highest reliability.

Placing control and ownership of the implementation of the renewable energy supporting infrastructure with the utility and PUC will help address the issue of cost. The utility is in the best position to determine how much and what type of energy storage is needed to reliably and safely meet Hawaii's renewable energy goals. The PUC and consumer advocate will be there to make sure the investments are prudent and balance the interests of all the stakeholders. The question of who should pay for this supporting infrastructure is often a hotly debated topic. Yet in the case of Hawaii, renewable energy implementation has clear and compelling strategic and societal benefits for the State, which means the cost should probably be borne all the beneficiaries. The utility billing process has always been an effective and fair way to allocate those costs by adding a charge



to customers' bills in proportion to their kWh of usage. It would be difficult to craft legislation that could as fairly allocate those costs.

Thank you again for allowing us to present our views. We very strongly recommend that Hawaii use all the emerging technologies, including energy storage, to help integrate renewable energy into its asset base. Whether the decision is to use the existing regulatory and utility system or implement new legislation, ultimately the program should have a bias for action to ensure renewables achieve their objectives while maintaining a reliable electrical system for the State.



SENATE COMMITTEE ON WAYS & MEANS
Tuesday, March 25, 2014 – 9:05 a.m. – Room 211

Ulupono Initiative Strongly Supports HB 2618 HD 2 SD 1, Relating to Energy Storage

Dear Chair Ige, Vice Chair Kidani and Members of the Committee:

My name is Murray Clay and I am managing partner of the Ulupono Initiative, a Hawai'i-based impact investment firm that strives to improve the quality of life for the people of Hawai'i by working toward solutions that create more locally grown food, increase renewable energy, and reduce/recycle waste. Ulupono invests in projects that have the potential to create large-scale, innovative change.

Ulupono strongly supports HB 2618 HD 2 SD 1, which establishes an energy storage tax credit for grid-connected renewable energy projects. In recent years Hawai'i has seen significant growth in renewable energy adoption moving the State towards its renewable energy goals. However, over the last year in particular, interconnection of renewable energy systems has become increasingly problematic. The growth rate in new residential solar PV systems, for example, has begun to decline this year. The interconnection of utility-scale renewable energy systems is stretching over years. If the existing interconnection problems continue, renewable energy growth will stagnate in Hawai'i. A modern, flexible grid is necessary to maximize renewable energy penetration.

Energy storage is one of the primary means by which to increase grid flexibility and resilience. Circuits that are currently completely closed to additional renewable energy could effectively be opened up with sufficient storage in place. Furthermore, energy storage has the ability to decrease the curtailment of existing renewable energy – energy that is currently being wasted. A modest tax credit, as proposed by this bill, could be sufficient to push currently expensive storage technology into mainstream use in Hawai'i, thus opening the door to further renewable energy use and a reduction in expensive oil use. For these reasons we support HB 2618 HD 2 SD 1.

Some opponents of this bill have suggested that the currently available renewable energy tax credit (RETITC) covers energy storage. While this is theoretically true, due to the DOTAX administrative ruling and the dollar caps on the tax credit, utility scale systems often hit the cap and therefore have no ability to apply a tax credit against the energy storage portion of their development costs. For example, Ulupono performed due diligence on a 5 MW solar project only to find that due to the DOTAX ruling and dollar caps, the project would effectively get only a 20% ITC not the maximum 35% ITC. Again, this indicates that there is no “room” left for energy storage in the current law/credit. Also, in the unlikely event that there would be “room” left in the currently available tax credit for storage, this bill disallows any credit for which another credit is claimed. This bill allows for no double counting.

It is also important to note that though this bill does not have fixed dollar caps, it is highly unlikely that a large number of storage projects will happen over the next several years. The grid needs



utility scale batteries in a select number of locations. Furthermore, the utility and PUC need to work together to create a market for ancillary services (including storage) before energy storage will be able to reach its potential in Hawai'i. This will take time. Lastly, other than batteries developed and financed with large-scale renewable energy projects and the two pilot battery installations reportedly being worked on by NELHA and the utility, there are no utility scale batteries currently in Hawai'i. In short, there are many reasons we need energy storage in Hawai'i but also many reasons why it will take some time for utility scale storage to show up. Caps are simply not needed for the foreseeable future.

Furthermore, we feel the 20% and 15% investment tax credit on page 2 and the 8 and 6 cent utilization tax credit figures on page 3, adequately balance incentivizing investment in energy storage but not overly burdensome to the State's finances. These figures should be kept throughout the remainder of the bill's existence.

We strongly believe that this bill has the potential to open the door for significant renewable energy growth in Hawai'i.

Thank you for this opportunity to testify.

Respectfully,

Murray Clay
Managing Partner

Email: communications@ulupono.com

Statement of
Shawn Bailey, Regulatory and Market Analysis Manager
Sempra US Gas and Power

Before the Senate Committee On **Ways and Means**

March 23, 2014

9:05 AM

State Capitol, Conference Room 211

In consideration of
HB2618 HD2 SD1 RELATING TO ENERGY STORAGE

Chair Ige, Vice Chair Kidani and Members of the Committee on Ways and Means

Sempra USG **Supports** HB2618 HD2 SD1 Relating to Energy Storage.

Sempra USGP's fleet includes over 2000 MW of wind, solar and natural gas fueled generation. Sempra USGP's Auwahi wind project on Maui includes 21MW of wind generation in combination with 11MW and 4.4MWh of battery storage capacity.

There are a number of factors that make the Hawaii's consideration of energy storage particularly timely. First, storage is uniquely capable of dealing with generation variability associated with the current significant intermittent renewable penetration in the state, and the increasing renewable procurement goals. For example, since storage acts as both generation capacity and load, it can help accommodate periods of over-generation and generation variability by the renewable fleet. In addition, increasing distributed generation on the system, including rooftop solar, makes maintaining the balance between demand and supply more challenging, and can result in less efficient operation for some of the flexible thermal generators on the system.

Other states with similar renewable goals are moving aggressively to procure storage as a means to maximize the benefit of prior and future renewable procurement, and address the need for more flexible generation. California Public Utility Commission has established a 50MW storage procurement mandate to meet local reliability needs in the Los Angeles area in the near term, and a mandate to reach 1325MW of storage procurement by the three investor-owned utilities by 2020. In addition, New York has committed \$23mm in funding for storage development, and the Canadian province of Ontario also plans to procure 50MW of storage capacity as an initial goal.

Sempra USGP supports a near term storage procurement goal to address current needs, and ongoing efforts by HECO and the Public Utilities Commission to establish a storage procurement plan to reach future incremental storage targets, as a prudent course of action. The incorporation of tax credit provisions will enhance the cost effectiveness of storage installations.

TAXBILLSERVICE

126 Queen Street, Suite 304

TAX FOUNDATION OF HAWAII

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: INCOME, Grid-connected energy storage tax credit

BILL NUMBER: HB 2618, SD-1

INTRODUCED BY: Senate Committee on Energy and Environment

EXECUTIVE SUMMARY: This measure would allow a taxpayer to claim a tax credit for each grid-connected energy storage property placed into service between 1/1/15 and 12/31/25. The taxpayer may choose either an investment credit or a unitization credit, but not both. The credit amounts are unspecified. Because energy storage property is generally built to support some type of alternative energy generator, such as a solar farm, it may be seen as integral to the generator. As such, energy storage property may already be eligible for the renewable energy technologies credit under HRS section 235-12.5 on the state level and under IRC section 45 or 48 on the federal level, as determined in PLR (Private Letter Ruling) 201308005. If so, this measure may not be necessary.

BRIEF SUMMARY: Adds a new section to HRS chapter 235 to allow an individual or corporate net income taxpayer to claim an income tax credit for each grid-connected energy storage property that is installed and placed in service during a taxable year after 12/31/14 and shall not be available for tax years beginning after 12/31/25. The tax credit may be claimed in either, but not both, of the following forms:

Investment credit: An investment credit equal to: (1) for a grid-connected energy storage property first placed in service on or before December 31, 2020, not more than 20% of the basis; or (2) 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 15% of the basis; or:

Utilization credit: A utilization credit equal to: (1) for a grid-connected energy storage property first placed in service on or before December 31, 2020, 8 cents per kilowatt-hour of energy storage capacity; or (2) for a grid-connected energy storage property first placed in service after December 31, 2020, and on or before December 31, 2025, 6 cents per kilowatt-hour of energy storage capacity. Permits the utilization credit to be claimed during each of the first ten taxable years that the grid-connected energy storage property is in service; provided that this annual utilization credit shall not exceed the product of the energy storage capacity measured in kilowatt-hours, multiplied by 365, multiplied by the applicable number of cents per kilowatt-hour.

Multiple owners of a grid-connected energy storage property shall be entitled to a single tax credit, and the tax credit shall be apportioned between the owners in proportion to their contribution to the basis of the grid-connected energy storage property. In the case of a partnership, S corporation, estate, or trust, the tax credit allowable shall be for every eligible grid-connected energy storage property that is installed and placed in service in the state by the entity. The basis upon which the tax credit is computed shall be determined at the entity level. Distribution and share of credit shall be determined pursuant to section 235-110.7(a).

Defines “basis,” “energy storage capacity,” “first placed in service” and “grid-connected energy storage property” for purposes of the measure.

Credits in excess of a taxpayer’s income tax liability may be applied to subsequent income tax liability until exhausted. Requires all claims for the credit to be filed on or before the end of the twelfth month following the close of the taxable year. The director of taxation may adopt rules pursuant to HRS chapter 91 and prepare the necessary forms to claim the credit and may require proof of the claim for the credit.

For any grid-connected energy storage property, a taxpayer may elect to reduce the eligible credit amount by 30% and, if this reduced amount exceeds the amount of income tax payment due from the taxpayer, the excess of the credit amount over payments due shall be refunded to the taxpayer; provided that no refund on account of the tax credit allowed by this section shall be made for amounts less than \$1. Allows an association of owners under HRS chapters 421I, 421J, 514A, or 514B to claim the credit allowed under this section in its own name for grid-connected energy storage property placed in service and located on common areas. No credit under this section shall be allowed to any federal, state, or local government or any political subdivision, agency, or instrumentality thereof.

Directs the department of taxation to submit a report to the legislature annually on the most recent taxable year on: (1) the number of grid-connected energy storage properties that have qualified for a tax credit during the calendar year; and (2) the total cost of the tax credit to the state during the taxable year by tax credit type and refundability or nonrefundability.

EFFECTIVE DATE: July 1, 2050

STAFF COMMENTS: The proposed measure would establish income tax credits to encourage the use of grid-connected energy storage technologies and systems. This measure would establish an investment credit based on the basis or a utilization credit based on cents per kilowatt hours for such systems. However, such systems may already be eligible for the renewable energy technologies credit under HRS section 235-12.5; indeed, the IRS recently recognized, in PLR (Private Letter Ruling) 201308005, that such energy storage systems can be considered an integral part of a renewable energy system because it helps the underlying photovoltaic or wind system stabilize its output and thereby lessen its impact on the grid.

While the measure also proposes to define what types of storage property qualify for the proposed credit, consideration might be given to adopting the federal definitions of alternate energy devices which qualify for preferential treatment rather than attempting to make up rules and definitions that would be unique to Hawaii. At least administrators could look to the federal standards for these devices for guidance.

Instead of providing tax incentives via tax credits for the purchase of existing technology, lawmakers may want to take advantage of Hawaii’s natural environment which lends itself to all sorts of possibilities to explore and develop more efficient means of harnessing the natural resources that pervade the Islands, from wind to sun to geothermal to hydrogen from Hawaii’s vast resources, all of which could be further developed with the assistance and cooperation of government in Hawaii.

Digested 3/24/14



SENATE COMMITTEE ON WAYS AND MEANS

March 25, 2014, 9:05 A.M.

Room 211

(Testimony is 4 pages long)

TESTIMONY IN STRONG SUPPORT OF HB 2618 HD2 SD1, SUGGESTED AMENDMENT

Aloha Chair Ige and Committee members:

The Blue Planet Foundation strongly supports HB 2618 HD2 SD1, 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 from 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 SD1 is a timely and appropriate policy for the reasons described below. However, we also suggest that HB 2618 should be amended to delete the requirement that only large storage devices of one megawatt-hour and bigger qualify for the tax credit. Energy storage devices of all sizes can have the potential to provide value to strengthening our electricity grid and reducing variability of renewable energy resources. By limiting the eligible storage devices with HB 2618, the bill would essentially be making an engineering decision. Decisions about what size energy storage devices can best support the energy grid (or whether many smaller devices might work together to have a larger impact) should be made on the basis of technical analyses, rather than through the policy incentive embodied in HB 2618. For example, limiting this to large batteries will foreclose tax incentives for smart solutions such as using electric vehicle batteries in a dual role to support the electrical grid.

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

House Bill 2618 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 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 storage¹ 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 study¹ 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.

¹ Hawaiian Electric Companies 2013 Integrated Resource Planning (“IRP”) Report and Action Plan.

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

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.

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

Currently, such backup is often 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 AMENDMENT

Blue Planet respectfully requests that HB 2618 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 11 – 12, be amended as follows:

"Grid-connected energy storage property" means equipment or devices that are connected to the electrical grid in either a centralized or distributed manner, ~~have a capacity of at least one megawatt-hour or one megawatt,~~ are certified by the department of business, economic development, and tourism to receive the tax credit..."

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 SD1.

Thank you for the opportunity to testify.



**Testimony before the
Senate Committee on Ways and Means**

H.B. 2618 HD2 SD1 – Relating to Energy Storage

**Tuesday, March 25, 2014
9:05 am, Conference Room 211**

**By Darren Ishimura
Acting Manager, Grid Technologies Department
Hawaiian Electric Company**

Written Testimony Only

Chair Ige, Vice Chair Kidani, and Members of the Committee:

My name is Darren Ishimura, Acting Manager of Grid Technologies at Hawaiian Electric. I am testifying on behalf of Hawaiian Electric and its subsidiary utilities, Maui Electric and Hawai'i Electric Light (collectively the "Hawaiian Electric Companies").

The Hawaiian Electric Companies support HB 2618 HD2 SD1 as this tax credit can reduce energy storage project costs, and thus benefit all customers. The Hawaiian Electric Companies envision that the portfolio of energy storage systems that support the electric grid of the future will likely consist of utility-owned storage systems and non-utility storage systems. Tax credits applied to utility-owned storage would allow us to reduce the amount of cost recovery needed from our customers, just as credits applied to non-utility owned storage should enable the owners of those systems to supply lower cost storage services to the utility. Hence all electric utility customers can benefit from this tax credit.

Thank you for the opportunity to testify.

LATE



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Testimony of ERIK KVAM
President of Renewable Energy Action Coalition of Hawaii
e-mail: Kvam@REACHhawaii.org

In SUPPORT of HB2618 HD2 SD1 RELATING TO ENERGY STORAGE

**Before the
SENATE COMMITTEE ON WAYS AND MEANS**

Tuesday, March 25, 2014 9:05 a.m.

Aloha, Chair Ige, Vice-Chair Kidani and members of the Committee.

My name is Erik Kvam. I am the President of Renewable Energy Action Coalition of Hawaii (REACH), a trade association whose vision is a Hawaiian energy economy based 100% on renewable sources indigenous to Hawaii.

REACH SUPPORTS THE INTENT of HB 2618 HD 2 SD1, and believes that it should be amended to apply the tax credit to all energy storage property, not just “grid-connected” energy storage property having a capacity of one MW or one MWh.

Hawaii’s renewable energy technologies tax credit applies only to intermittent solar and wind generation. It does not apply to energy storage or any forms of dispatchable renewable generation.

Without large amounts of energy storage, the large amounts of intermittent solar and wind generation that have been and will be added to the Hawaiian island grids will be undispachable and unusable when imported fuels stop flowing to Hawaii.

REACH SUPPORTS THE INTENT of HB 2618 HD 2 SD1 – creating an energy storage tax credit that complements the existing renewable energy technologies tax credit

-- to encourage development of the dispatchable renewable generation that Hawaii needs when imported fuels stop flowing to Hawaii.

REACH SUPPORTS AMENDMENTS to HB 2618 HD 2 SD1 that would apply the tax credit to all energy storage property, not just “grid-connected” energy storage property having a capacity of one MW or one MWh.

The limitation to “grid-connected” energy storage property having a capacity of one MW or one MWh means that the credit could not be used by any self-generators, such as residential and commercial PV system owners, who install energy storage systems behind-the-meter for their own dispatchable power needs, or who install energy storage systems to provide dispatchable energy for their own off-the-grid or microgrid operations. The limitation forecloses the possibility of increasing Hawaii’s energy resilience through investment by self-generators, whether grid-connected or off-the-grid, in energy storage systems.

The limitation also means that the tax credit could not be used by any prospective owners of grid-connected energy storage systems less than one MW or one MWh who want to sell energy storage services to the electric utility. The limitation forecloses the possibility of increasing Hawaii’s energy resilience through investment in small-scale (< 1 MWh) distributed energy storage systems could be more cost-effective than investment in large-scale (> 1 MWh) systems.

REACH recommends that HB 2618 HD 2 SD1 be amended to apply to all energy storage property, regardless of whether it is “grid-connected,” and regardless of its capacity measured in MW or MWh, to encourage wide-scale development of the dispatchable renewable generation that Hawaii needs when imported fuels stop flowing to Hawaii

Thank you for allowing me to testify.



From: mailinglist@capitol.hawaii.gov
To: [WAM Testimony](#)
Cc: gerry.dameron8@gmail.com
Subject: Submitted testimony for HB2618 on Mar 25, 2014 09:05AM
Date: Monday, March 24, 2014 1:39:45 PM

HB2618

Submitted on: 3/24/2014

Testimony for WAM on Mar 25, 2014 09:05AM in Conference Room 211

Submitted By	Organization	Testifier Position	Present at Hearing
Gerry	Bright Energy Storage Technologies	Support	No

Comments: Thank you for supporting this key energy storage legislation for the future of Hawai'i's energy sustainability. Every year our Hawai'i trade deficit grows with the importing of \$5.5 billion worth of petroleum products. That's over \$100 Billion in the coming 20 years. We cannot afford this to continue. Now we can take advantage of our home state energy resources, abundant and safe solar and wind energy, with the addition of safe, economical, and practical energy storage. Energy storage is the missing link in large scale renewable power, and is necessary to balance out our grid and to store our precious renewable energy resources for the times when the sun does not shine and when the wind does not blow. We simply store extra renewable power for the rainy and non-windy times of day. This is the future for many countries and communities and needs to become the future for Hawai'i. Modern energy storage plus renewable energy is now LESS COSTLY than fossil fuel fired electricity! We need to put these resources together to save the ratepayers money and to save the aina for future generations too. Thank you for supporting this bill for the means to bring cost effective energy storage to Hawai'i for the people and for the aina. Mahalo for your leadership in the face of so much ignorance, some real and some pretended.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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LATE



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Warren S. Bollmeier II
WSB-Hawaii

TESTIMONY OF WARREN BOLLMEIER ON BEHALF OF THE
HAWAII RENEWABLE ENERGY ALLIANCE BEFORE THE
SENATE COMMITTEE ON WAYS AND MEANS

HB 2060 HD2 SD1, Relating to Taxation

March 25, 2014

Chair Ige, Vice-Chair Kldani and members of the Committee I am Warren Bollmeier, testifying on behalf of the Hawaii Renewable Energy Alliance (HREA). HREA is an industry-based, nonprofit corporation in Hawaii established in 1995. Our mission is to support, through education and advocacy, the use of renewables for a sustainable, energy-efficient, environmentally-friendly, economically- sound future for Hawaii. One of our goals is to support appropriate policy changes in state and local government, the Public Utilities Commission and the electric utilities to encourage increased use of renewables in Hawaii.

The purposes of HB 2060 HD2 SD1 are to: (i) establish a renewable fuels production tax credit to achieve greater energy security for Hawaii, and (iii) repeal the Ethanol Facility Tax Credit.

HREA **strongly supports** this measure with the following comments:

- 1) Meeting Our Clean Energy. This measure supports our clean energy goals by encouraging business opportunities in the production of renewable fuels in Hawaii.
- 2) Merits of a Production Tax Credit (“PTC”). We believe a PTC is the best way for the state to support biofuel production in Hawaii. With a PTC, a “producer” gets paid when the producer actually produces, not when he installs his production facility. This reduces the risk to the state significantly. The PTC has other features that we find attractive:
 - a) we believe the PTC will be easy to administer, including the qualification of biofuel facilities, and documentation of the types and amounts of biofuels produced and sold in Hawaii; and
 - b) the PTC will help facilitate effective producer-ag grower relationships to grow renewable feedstocks for the production of local renewable fuels.
- 3) Recommendations. We recommend that the committee pass out this measure to help us me our Clean Energy Goals to meet 70% of our transportation needs with renewable fuels by 2030.

Mahalo for this opportunity to testify.

From: [George Cattermole](#)
To: [WAM Testimony](#)
Subject: HB2618 HD 2 SDI
Date: Monday, March 24, 2014 2:19:03 PM

Members of the legislature.

I hope you will support HB 2618 HD 2 SDI which is badly needed to encourage the production of dispatchable renewable energy. The development and employment of energy storage technologies and the production and storage of renewables need to be encouraged. Please support this legislation as it will encourage investment in self-generation and storage of renewables.

Sincerely,
George Cattermole, Ph.D., Waikiki