

# SB 2933

Measure Title: RELATING TO ENERGY STORAGE.

Report Title: Energy Storage; Tax Credit

Description: Establishes an energy storage tax credit for utility scale renewable energy storage property.

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

FEBRUARY 4, 2014  
3:15 p.m.

**MEASURE:** S.B. No. 2933  
**TITLE:** Relating to Energy Storage

Chair Gabbard and Members of the Committee:

**DESCRIPTION:**

S.B. No. 2933 would establish an energy storage tax credit for residents and corporate taxpayers for costs related to "utility scale renewable energy storage property" ("Energy Storage Property") as defined in the measure. The energy storage tax credit applies to Energy Storage Property 1) for which a related sales agreement with an electric utility is entered into between June 30, 2014 and December 31, 2020, and 2) which is installed and "first placed into service" after December 31, 2014 and on or before December 31, 2024. Specific tax credit amounts are provided for both installation and utilization of Energy Storage Property.

**POSITION:**

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

**COMMENTS:**

As the Commission testified regarding S.B. No. 2932, relating to energy storage, 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 alternative energy options, but it should be recognized that energy storage is not a panacea. Hawaii also has the added advantage where a variety of technologies are be

found to be cost-effective in the right application to increase the integration of renewable and other system benefits, given the high cost of energy.

The Commission cautions the Legislature in selecting one type of technology to incentivize over others. Each kind of technology or program that can provide ancillary services has characteristics to address specific conditions when balancing Hawaii's electric system to ensure reliability.

Thank you for the opportunity to testify on this measure.



**TESTIMONY OF  
THE DEPARTMENT OF THE ATTORNEY GENERAL  
TWENTY-SEVENTH LEGISLATURE, 2014**

---

**ON THE FOLLOWING MEASURE:**  
S.B. NO. 2933, RELATING TO ENERGY STORAGE.

**BEFORE THE:**  
SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

**DATE:** Tuesday, February 4, 2014 **TIME:** 3:15 p.m.

**LOCATION:** State Capitol, Room 225

**TESTIFIER(S):** David M. Louie, Attorney General, or  
Cynthia M. Johiro, Deputy Attorney General

---

Chair Gabbard and Members of the Committee:

The Department of the Attorney General has the following comments on this bill, which establishes an energy storage tax credit for utility scale renewable energy storage property.

This bill may be subject to constitutional challenge because the bill is facially discriminatory in that it restricts the tax credit it creates to Hawaii residents on page 1, line 10.

A court may conclude that the tax credit is unconstitutional because the bill does not expressly articulate a legitimate government interest served by the legislation, sufficient to withstand constitutional challenge based on the Equal Protection and/or Privileges and Immunities Clauses of the United States Constitution.

The Equal Protection Clause prohibits discrimination against a nonresident based solely on residency. See, e.g., Williams v. Vermont, 472 U.S. 14 (1985) (use tax credit for sales taxes paid on cars purchased in other states invalidated because it was only available to Vermont residents). The Hawaii Supreme Court has recognized that the Equal Protection Clause applies where a tax operates unequally on persons or property of the same class. In re Swann, 7 Haw. App. 390, 776 P.2d 395 (1989).

Similarly, under the Privileges and Immunities Clause, a state may not impose higher taxes on a nonresident individual than it imposes on its own citizens.<sup>1</sup> However, a discriminatory tax could be sustained if legitimate reasons for the tax exist and the discrimination

---

<sup>1</sup> The Privileges and Immunities Clause does not apply to corporations. Toomer v. Witsell, 334 U.S. 385 (1948).

bears a substantial relation to those reasons. Lunding v. New York Tax Appeals Tribunal, 522 U.S. 287 (1998) (alimony deduction for residents only struck down as violating Privileges and Immunities Clause).

The residency requirement in the bill arguably violates the Equal Protection and Privileges and Immunities Clauses because it expressly favors residents over nonresidents.<sup>2</sup>

The language in the bill that creates this potential constitutional problem is the word “resident” on page 1, line 10, of the bill.

To insulate the bill from possible constitutional challenge, we recommend that the bill be amended to delete the word “resident” on page 1, line 10, and replace it with the word “individual”.

---

<sup>2</sup> We are aware that a few existing tax statutes have residency requirements. To date, these statutes have not been subject to constitutional challenge.

NEIL ABERCROMBIE  
GOVERNOR

SHAN TSUTSUI  
LT. GOVERNOR



STATE OF HAWAII  
**DEPARTMENT OF TAXATION**  
P.O. BOX 259  
HONOLULU, HAWAII 96809  
PHONE NO: (808) 587-1530  
FAX NO: (808) 587-1584

FREDERICK D. PABLO  
DIRECTOR OF TAXATION

JOSHUA WISCH  
DEPUTY DIRECTOR

To: The Honorable Mike Gabbard, Chair  
and Members of the Senate Committee on Energy and the Environment

Date: Tuesday, February 04, 2014  
Time: 3:15 p.m.  
Place: Conference Room 225, State Capitol

From: Frederick D. Pablo, Director  
Department of Taxation

Re: S.B. No. 2933, Relating to Energy Storage

The Department of Taxation (Department) appreciates the intent of S.B. 2933 to support the renewable energy industry and provides the following comments for the Committee's consideration.

S.B. 2933 creates an income tax credit for utility scale renewable energy 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 up to 20% of the basis apportioned over three years or as a utilization credit equal to the product of the capacity of the property and the number of days for which the credit applies multiplied by 7 cents.

The credit applies to utility scale renewable energy storage property used primarily for storage of renewable energy; for which the taxpayer enters into an agreement after June 30, 2014, but on or before December 31, 2020; for the sale of the electricity to an electric utility; and that is first placed in service after December 31, 2014 and on or before December 31, 2024.

The Department offers the following technical comments for your consideration.

First, the 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, as to whether an additional tax credit should be provided to store electricity.

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

Third, the Department suggests that the eligibility to claim the tax credit be clarified. Subsection (a) states that the tax credit is available to any resident or corporate taxpayer. This implies that only resident individuals and corporations may claim the credit. However, in subsection (g) guidelines are provided for other types of entities to claim the credit. The Department suggests that subsection (a) be amended to read:

(a) There shall be allowed to any taxpayer subject to taxes under this chapter an energy storage tax credit for each utility scale renewable energy storage property:

The Department similarly recommends that subsection (m)(1)(B) be amended to read:

(B) Taxpayer type;

These amendments will clarify which taxpayers are eligible to claim the tax credit.

Fourth, the Department notes that the period that the tax credit is available is not clear. The Department suggests that subsection (a)(3) be amended, in order to clarify the taxable years the tax credit is available, to read as follows:

(3) That is installed and first placed in service by a taxpayer during a taxable year beginning after December 31, 2014 and on or before December 31, 2024.

The Department notes that the bill defines "first placed in service" by reference to United States Treasury Regulation section 1.167(a)-11(e)(1). This definition does not contain a requirement that the property be operational or in use to be "first placed in service". Therefore, a taxpayer would be able to claim the tax credit as a utilization credit for a property that is not operative. The investment credit contains a requirement that the property be operational to claim the credit.

Lastly, the Committee may want to consider adding pre-certification requirements for claiming the tax credit, to be verified by a State agency with the technical capability of determining whether the facility is type the State wishes to incentivize with this tax credit. As drafted, the credit will be very difficult for the Department to administer, as the Department does not have the expertise to verify the specifications necessary to determine the applicable caps.

Thank you for the opportunity to provide comments.



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

**NEIL ABERCROMBIE**  
GOVERNOR

**RICHARD C. LIM**  
DIRECTOR

**MARY ALICE EVANS**  
DEPUTY DIRECTOR

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804  
Web site: [www.hawaii.gov/dbedt](http://www.hawaii.gov/dbedt)

Telephone: (808) 586-2355  
Fax: (808) 586-2377

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

Tuesday, February 4, 2014  
3:15 p.m.  
State Capitol, Conference Room 225

in consideration of  
**SB 2933**  
**RELATING TO ENERGY STORAGE.**

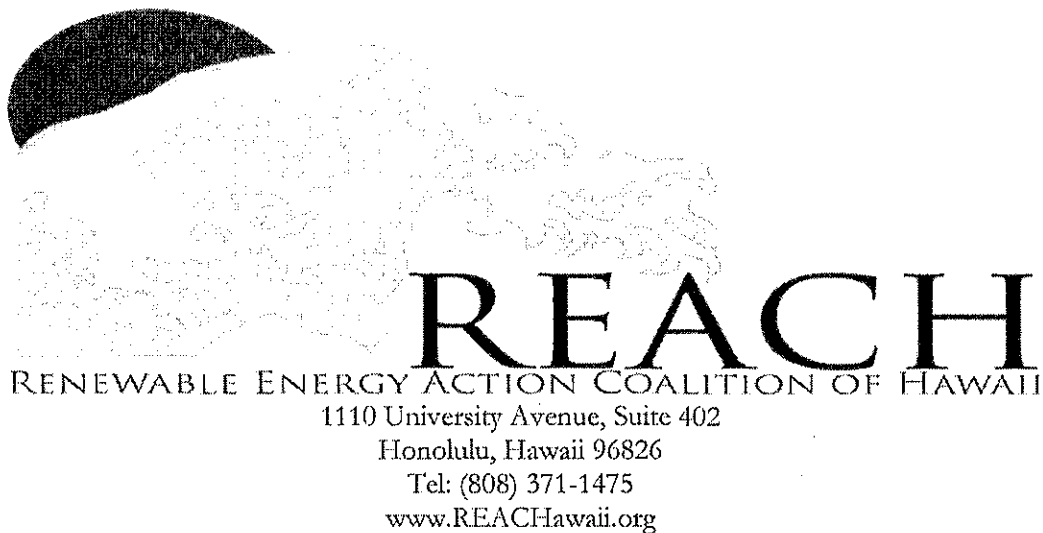
Chair Gabbard; Vice Chair Ruderman; and Members of the Committee.

The Department of Business, Economic Development and Tourism (DBEDT) respectfully offers comments on SB 2933, which establishes an investment tax credit and utilization tax credit for individuals or corporations that install grid-connected energy storage properties. DBEDT appreciates the importance of adding energy storage capacity to Hawaii's electrical grids.

DBEDT is concerned that this measure may be inconsistent with the State's established energy policy directives of balancing technical, economic, environmental, and cultural considerations and letting the market decide. DBEDT also notes, that it is unable to do the study contemplated in SB 2933 without additional resources, and is concerned over its ability to secure information necessary to conduct the report given the privacy laws on taxpayer data. DBEDT defers to the Department of Taxation on the fiscal implications of this bill.

Thank you for the opportunity to offer these comments.





**Testimony of ERIK KVAM**  
**President of Renewable Energy Action Coalition of Hawaii**  
**e-mail: [Kvam@REACHHawaii.org](mailto:Kvam@REACHHawaii.org)**

**In SUPPORT of SB 2933 RELATING TO ENERGY STORAGE**

**Before the  
SENATE COMMITTEE ON ENERGY AND ENVIRONMENT**

**February 4, 2014 3:15 p.m.**

Good afternoon, Chair Gabbard, Vice-Chair Ruderman 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 is in **SUPPORT** of SB 2933.

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** SB 2933 – 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.

Thank you for allowing me to testify.



SENATE COMMITTEE ON ENERGY AND ENVIRONMENT  
Tuesday, February 4, 2014 – 3:15.p.m. – Room 225

**Ulupono Initiative Supports the Intent of SB 2933, Relating to Energy Storage**

Dear Chair Gabbard, Vice Chair Ruderman 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 supports the intent of SB 2933**, which establishes an energy storage tax credit for utility scale 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, opening the door to further renewable energy use and a reduction in expensive oil use. For these reasons we support the intent of SB 2933.

Three key amendments to this bill would improve it and enhance its potential impact:

1. We recommend that the fixed dollar caps per megawatt hour that begin on page 2, line 8 be removed. While the dollar amounts are not unreasonable, they are on the low end of current battery prices. With a fixed dollar cap, developers may have an incentive to use cheaper, sub-optimal technology for a project to get the full credit rather than let the needs of the grid or renewable energy system be the primary consideration in technology selection. Generally, tax credit amounts that are a percentage of cost are the preferred solution for optimal project development.
2. There appears to be a drafting error in the utilization credit section, which begins on page 3, line 12. Earlier versions specified that this utilization credit was payable over 10 years.

Pacific Guardian Center, Meuks Tower  
737 Bishop Street, Suite 2350, Honolulu, HI 96813

808 544 3960 o | 808 544 3961 f

[www.ulupono.com](http://www.ulupono.com)

This version does not specify any time horizon. We recommend that 10 years be used for the utilization credit option.

3. While we understand the intent of the paragraph that begins on page 8, line 15 regarding what types of energy storage equipment are included/excluded by this bill, this section could cause significant uncertainty in the application and administration of this credit. This section specifies that the storage required by the utility as a condition for interconnecting a renewable energy asset be excluded from this credit. At the same time, it allows such assets to be included if they support the interconnection of other renewable energy assets. In practice, any time the utility requires storage to interconnect a renewable energy asset the storage will be excluded by default. However, proving that a battery or other storage equipment can support the interconnection of other renewable energy generators is difficult and uncertain. It is quite unclear how this would be proven. Thus, it will be easy to exclude a battery or other storage equipment and difficult to include it. In practice, most large batteries have the ability to support multiple assets. For example, if a battery primarily services a wind farm, when the battery is depleted and the wind is not blowing, excess solar energy that might otherwise be curtailed could charge that battery. We believe that the one-megawatt hour size limit specified on page 10, line 11 is more than sufficient to ensure the energy storage equipment is providing multiple services to the grid. Therefore, we recommend removing paragraph 2 that begins on page 8, line 15 in its entirety.

We strongly believe that this bill, properly amended, 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](mailto:communications@ulupono.com)

# TAXBILLSERVICE

126 Queen Street, Suite 304

TAX FOUNDATION OF HAWAII

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: INCOME, Energy storage tax credit

BILL NUMBER: SB 2933

INTRODUCED BY: Gabbard, Chun Oakland, Ige, Ihara, Ruderman

**BRIEF SUMMARY:** Adds a new section to HRS chapter 235 to allow taxpayers to claim an energy storage tax credit for each utility scale renewable energy property: (1) that is used primarily to store electricity generated from renewable sources; (2) for which the taxpayer enters into an agreement between July 1, 2014 and December 31, 2020 for the sale of the electricity produced by the utility scale renewable energy storage property to an electric utility; and (3) that is installed and first placed in service by a taxpayer between January 1, 2015 and December 31, 2024.

The tax credit may be claimed in either, but not both, of the following forms:

**Investment tax credit** - An investment credit equal to not more than 20% of the basis, apportioned as follows: (1) during the first taxable year of the operation of the utility scale renewable energy storage property, 8% of the basis, up to a maximum of \$80,000 per megawatt-hour of energy storage capacity; (2) during the second taxable year of the operation of the utility scale renewable energy storage property, 6% of the basis, up to a maximum of \$60,000 per megawatt-hour of energy storage capacity; (3) during the third taxable year of the operation of the utility scale renewable energy storage property, 4% of the basis, up to a maximum of \$40,000 per megawatt-hour of energy storage capacity; and (4) during the fourth taxable year of the operation of the utility scale renewable energy storage property, 2% of the basis, up to a maximum of \$20,000 per megawatt-hour of energy storage capacity; or:

**Utilization credit** - A utilization credit equal to the total product of multiplying: (1) the energy storage capacity measured in kilowatt-hours; (2) the number of calendar days in the period for which the credit applies; and (3) 7 cents.

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 utility scale renewable 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, however, that no refund on account of the tax credit allowed by this section shall be made for amounts less than \$1.

The dollar amount of any utility rebate shall be deducted from the basis of the qualifying energy storage property and its installation before applying the state tax credit. Multiple owners of a single utility scale renewable 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 utility scale renewable energy storage property. In the case of a partnership, S corporation, estate, or trust, the tax credit allowable is for every eligible utility scale renewable 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 704(b) of the Internal Revenue Code.

The director of taxation is to prepare any forms that may be necessary to claim a tax credit under this section, including forms identifying the property type of each tax credit claimed under this section. The director may also require the taxpayer to furnish reasonable information to ascertain the validity of the claim for credit made under this section and may adopt rules necessary to effectuate the purposes of this section pursuant to chapter 91.

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, in collaboration with the department of business, economic development, and tourism (DBEDT) to submit a report to the legislature on: (1) the number of grid-connected energy storage properties that have qualified for a tax credit during the preceding calendar year; (2) the total cost of the tax credit to the state during the taxable year; and (3) the estimated economic benefit that may be attributable to the grid-connected energy storage tax credit.

EFFECTIVE DATE: Tax years beginning after December 31, 2013

STAFF COMMENTS: The proposed measure would establish income tax credits to encourage the use of grid-connected energy storage technologies and systems. While this measure would establish an investment credit of a percentage of the basis or a utilization credit equal to 7cents per kilowatt hours for such systems, it should be noted that such systems may already be eligible for the renewable energy technologies credit under HRS section 235-12.5 as 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.



**SENATE COMMITTEE ON ENERGY AND ENVIRONMENT**

February 4, 2014, 3:15 P.M.

Room 225

**(Testimony is 3 pages long)**

**TESTIMONY IN STRONG SUPPORT OF SB 2933**

Chair Gabbard and members of the Energy and Environment Committee:

The Blue Planet Foundation strongly supports SB 2933 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 SB 2933 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

---

Senate Bill 2933 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 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 sold increases, enabling greater use of lower cost, clean energy to displace dirty, expensive fossil energy.

## 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

---

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



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 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.

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 SB 2933.

Thank you for the opportunity to testify.



**Directors**

Jody Allione  
Silver Ridge

Joe Boivin  
Hawaii Gas

Kelly King  
Pacific Biodiesel

Warren S. Bollmeier II  
WSB-Hawaii

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

HB 2933, RELATING TO ENERGY STORAGE

February 4, 2014

Chair Gabbard, Vice-Chair Ruderman 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 purpose of HB 2933 is to facilitate the use of renewable energy by encouraging the use of grid-connected energy storage technologies and systems through a tax credit, limited in scope and duration, for grid-connected energy storage properties. The tax credit may be claimed as an investment tax credit or utilization tax credit.

HREA **supports** this measure and offers the following comments and recommendations:

- 1) Comments. This measure supports our clean energy goals as we will need storage to facilitate the integration of renewables and energy efficiency on our island grids. With respect to the provisions of this measure:
  - a) We do not have any recommendations at this time for "filling in the blanks," i.e., how many cents/kWh.
  - b) The measure offers two options for payment: investment tax credit (the credit would be taken upon installation) and utilization tax credit (the credit would be paid out over a 10 year period). If there is concern about fiscal impact, the utilization tax credit might be preferred as the annual fiscal impacts would be spread out over 10 years.
- 2) Recommendations: We recommend the committee pass this measure out.

Mahalo for this opportunity to testify.

# PRINCETON ENERGY GROUP

*Innovation in Renewable Energy*

STEVE TABER  
*Chairman and CEO*

## PRINCETON ENERGY GROUP'S TESTIMONY IN SUPPORT OF SB 2933

SENATE COMMITTEE ON ENERGY AND ENVIRONMENT  
Tuesday, February 4, 2014 at 3:15p.m.  
Conference Room 225

Good afternoon Chair Gabbard, Vice chair Ruderman, and members of the Committee:

Princeton Energy Group ("Princeton") supports SB2933 and respectfully requests that the Committee pass it out.

We are currently engaged in the Ikehū Molokai Project. The island of Molokai suffers from very high electric rates, a grid that is unstable electrically, and a large carbon footprint. The Ikehū Molokai project aims to solve these problems by converting the island's electric system to 100% renewable energy. This effort will require a mix of technologies and multiple phases, and it will be the work of several years. Nevertheless, we are committed to the success of the project. No modern electric grid of this significance has been converted from 100% carbon-based fuels to 100% renewable energy, so the Ikehū Molokai project will serve as an example of high levels of renewable energy penetration, while keeping rates affordable and the grid stable. As such, Molokai and Hawaii will serve as an example to other islands and to utilities and policy-makers all over the world.

In order to achieve a high penetration of renewable energy on Molokai's weak grid, it is necessary to install a large amount of energy storage. This is fundamentally different from the storage installations on larger grids, such as Oahu and Maui. On the larger grids, renewable energy projects must sometimes install relatively small amounts of storage to mitigate short-term fluctuations in output and prevent transient voltage spikes. This is sometimes called a "Smoothing" application of storage. The cost of such Smoothing storage is typically a small fraction of the overall cost of the renewable generation.

In contrast, on small grids such as Molokai's, it is necessary to install a large amount of storage to shift production from the hours when it is generated into the hours when the need is greatest. As such, it is very valuable, in that it converts low-value energy generated when it isn't needed to high-value energy available when the need is greatest. However, it is very

■ SAN FRANCISCO BAY AREA OFFICE:

PO Box 1155  
SAUSALITO CALIFORNIA 94965 USA  
TEL +1 415 457 1848  
FAX +1 775 201 8500

[www.princetonenergy.net](http://www.princetonenergy.net)

expensive; on the Ikehu Molokai project, for example, the cost of adding this storage will more than double the overall cost of the project.

To illustrate this contrast, below is a simplified analysis of 10 MW renewable projects, one on a large island grid and the other on a small island grid. (The latter is representative of Molokai.) The large island project has a small storage capability, intended for smoothing; the small island project has a large storage capability for shifting the generation into the high-need evening hours. Note that the large island project has a healthy return on investment of 11.23%, even at a PPA price of \$120/MWh. The small island project has a sub-market return of 5.62%, even with a higher PPA price of \$200/MWh.

	Smoothing/large island	Generation shifting (small island)		
generation capacity (KW)	10,000	10,000		
generation capital cost (\$)	20,000,000	20,000,000		
storage cost (\$)	1,000,000	41,000,000		
total capital cost (\$)	21,000,000	61,000,000		
energy generated (MWh/yr)	20,148	20,148		
<b>energy delivered (MWh/yr)</b>		<b>daytime</b>	<b>nighttime</b>	<b>total</b>
Gross	20,148	5,037	15,111	20,148
less storage losses	(504)	0	(3,022)	(3,022)
net energy delivered	19,644	5,037	12,089	17,126
revenue (\$/MWh)	120	200	200	
revenue (\$)	2,357,316	1,007,400	2,417,760	3,425,160
<b>unleveraged return on investment</b>	<b>11.23%</b>			<b>5.62%</b>

Therefore, some form of financial incentive is vitally important to the success of the Ikehu Molokai project.

The economic impact of the tax credit bill to enable energy storage investments in Hawaii will be strongly positive. In the numerical illustration above, we assume a small island generation-shifting energy storage to cost \$41 million. The tax credit will amount to 20%, or approximately \$8 million. On a small island, such as Molokai, the renewable energy project with this type of energy storage can lead to reduction in electricity rates for the residents of 5 to 8 cents per kWh. Over the 20 year life of the energy storage equipment, this will result in savings to the residents of at least \$20 million. In addition, over the same period, the renewable energy/energy storage project will create at least 200 person-years of jobs on the island, representing at least \$10,000,000 in direct economic activity and about 3 times that much, or \$30,000,000, in indirect economic activity. Furthermore, in the case of Molokai, the reduced electricity costs will make water more affordable for homesteaders and will make Molokai businesses more cost-efficient, which will also stimulate economic activity.

We have two proposed amendments to SB 2933:

First: on p. 3, line 12 language needs to be added to indicate that payment of the UTC will be ten years. We would suggest something like, "Such utilization credit may 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 the applicable number of cents per kilowatt-hour.”

Second, to delete the second exception to the definition of basis on p. 8, lines 15-21 and p. 9, lines 1-2. We are proposing this amendment because of potential confusion caused by this phrase. The intent of the phrase was to exclude investments in “smoothing” applications which are generally required as a conditions for interconnection but include investments in generation shifting. While this is a sound principle, the actual text is a recipe for confusion and unintended consequences.

We respectfully request that this measure be passed out.

Thank you for the opportunity to testify.

Sincerely,  
**Princeton Energy Group**

Steve Taber  
Chairman & CEO

Princeton Energy Group is a company of renewable energy veterans deploying renewable energy projects and technologies around the world. The mission of the Princeton Energy Group is to expand the reach of renewable energy and energy efficiency in the marketplace through innovation in technology, business models, and financing techniques. We bring to every task exceptionally qualified individuals, skilled in finding unique resource and business solutions to difficult problems. The founders of Princeton have been at the forefront of the renewable energy industry since its early days in the 1970s in California. In addition to our for-profit activities through Princeton Energy Group, we have held influential positions in state and federal government and have served in the non-profit sector.

2 February 2014



**MOLOKAI RANCH**

*Treasured heritage. Vibrant future.*

**TESTIMONY IN SUPPORT OF SB 2933  
SENATE COMMITTEE ON ENERGY & ENVIRONMENT**

**Tuesday, February 4, 2014 at 3:15Pm Conf. room 225**

**Testifier: Clay R. Rumbaoa – CEO, Molokai Properties Limited (dba Molokai Ranch)**

Goodafternoon & Aloha Chair Gabbard, Vice Chair Ruderman and Committee Members

Molokai Ranch supports SB 2933. Like many Maui Electric Company (MECO) service areas, implementation of solar energy on Molokai has reached it's allowable limit.

Molokai has one of the highest electricity rates in Hawaii, ranging from \$0.48 to \$0.52 per kwh. This bill will allow storage technology to be designed & implemented, allowing MECO to accept more renewable energy, thus lowering our operating costs.

Molokai Ranch operations involve high demand of electricity. HB 2933 will result in rate relief, allowing Molokai Ranch to pass on cost savings to customers and possibly hire additional employees.

Therefore, we respectfully request that HB 2933 be passed out of committee.

Mahalo,

Clay R. Rumbaoa

Oahu

1003 Bishop Street • Suite 1170 • Honolulu, Hawaii 96813  
Telephone 808.531.0158 • Facsimile 808.521.2279

Molokai

P.O. Box 259 • Maunaloa, Hawaii 96770  
Telephone 808.552.2444 • Facsimile 808.552.2908

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

before the  
SENATE COMMITTEE ON  
ENERGY AND ENVIRONMENT

4, February, 2014  
3:15 p.m.  
State Capitol, Conference Room 225

In consideration of SB2933 Relating to Energy Storage

Chair Gabbard, Vice Chair Ruderman, and Members of the Committee on Energy and Environment,

**Sempra USG Supports SB2933** 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 and the incorporation of tax credit provisions that enhance the cost effectiveness of storage installations.

Thank you for the opportunity to testify.



**Testimony before the  
Senate Committee on Energy and Environment**

**S.B. 2933 – Relating to Energy Storage**

**Tuesday, February 4, 2014  
3:15 pm, Conference Room 225**

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

Chair Gabbard, Vice Chair Ruderman, 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").

Hawaiian Electric believes that SB 2933 should be modified to allow application of the proposed tax credit to energy storage systems owned and operated by the Hawaiian Electric Companies. 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.

Furthermore, the current language of SB 2933 specifies that electricity stored by qualifying energy storage systems must be generated from renewable sources. Energy storage systems may be used in applications where the storage systems are charged from the grid (and not from generators directly connected to the storage system) to provide grid services that benefit all utility customers. These types of energy storage systems should qualify for tax credits.

Accordingly, the Hawaiian Electric Companies recommend that this bill be revised according to the aforementioned points.

Thank you for the opportunity to testify.

ROYAL CONTRACTING COMPANY'S  
TESTIMONY IN SUPPORT OF SB 2933

SENATE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

Good afternoon Chair Gabbard, Vice Chair Ruderman, and members of the Committee:

Royal Contracting Co. supports SB2933 and respectfully requests that the Committee pass it out.

Royal Contracting was established in 1961, and has been constructing projects in Hawaii for the past 51 years. We are a general engineering, and site work contractor that has successfully completed projects on all of the major islands, including Molokai.



We are currently considering a role in the Ikehū Molokai project being developed by Princeton Energy Group for the benefit of the residents and businesses on Molokai. This is the project described in SB2933 as the "multi-megawatt renewable energy project with energy storage technology near Kaunakakai to exclusively serve the island of Molokai". The island of Molokai suffers from very high electric rates, a grid that is unstable electrically, and a large carbon footprint. The Ikehū Molokai project aims to solve these problems by converting the island's electric system to 100% renewable energy. This is an exciting project for us and one of which the island and the state will be very proud.

SB2933 is vitally important to the success of the Ikehū Molokai project. The high degree of renewable penetration called for by the project requires a large capital expense, including a robust energy storage component. The capital expense for the Ikehū Molokai project is quite high on a \$/MW basis. The high capital expense can be ameliorated with the benefit of long-term financing at reasonable interest rates, which the SPRBs authorized by SB2933 will provide.

Therefore, some form of financial incentive is vitally important to the success of renewable penetration in Hawaii. We respectfully request that this measure be passed out.

Thank you for the opportunity to submit our written testimony.

Sincerely,

Roland Au

Project Engineer

Royal Contracting Company, Ltd.

3 February 2014

# Solar Power Systems International

TESTIMONY OF JOHN CROUCH ON BEHALF OF SPSI, A RENEWABLE ENERGY  
COMPANY BASED IN HAWAII, BEFORE THE  
HOUSE COMMITTEE ON ENERGY AND THE ENVIRONMENT  
HB 2933, RELATING TO ENERGY STORAGE

February 4, 2014

Chair Gabbard, Vice Chair Ruderman and distinguished members of the Committee, my name is John Crouch. I and my two local partners have been involved in the design and installation of renewable energy projects in Hawaii since the first commercial system at Mauna Lani Bay Hotel and Bungalows in 1998. We are very supportive of measures that contribute to the full utilization of the renewable energy resources available in our island communities.

**SPSI SUPPORTS THIS MEASURE** and offers the following comments:

- 1) Use of storage to help manage renewable energy production is one of the most important measures of energy management available to us as we move to the elimination of the use of fossil fuels for generation of electricity and fuel for automobiles.
- 2) We see this measure as the key to increased use of renewables in grid-connected applications. This will help our utilities manage the rapid increase in penetration of renewable energy into the grid network.
- 3) We request that the committee pass this measure out.

Mahalo for the opportunity to testify.

**SB2933**

Submitted on: 1/29/2014

Testimony for ENE on Feb 4, 2014 15:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Ed Wagner	Individual	Comments Only	No

Comments: ENE Committee Members, I think you are forgetting that the grid is crumbling beneath our roads and sidewalks. As an example, I have had 12 extended power failures in less than 12 months. New micro grids must be established in individual communities for distributed, decentralized energy transmission. Since battery technology is improving and getting cheaper, more and more home owners like myself and small businesses will use PV and battery backup for their primary energy needs. The grid will be used only as emergency backup, if at all, because a backup generator can be used on site for emergency backup. Every home and small business will be power self-sufficient by 2050. Furthermore, no utility scale operation should have to sell electricity to any utility company that raises the rates as a middleman. Wheeling must be implemented so each company can sell power directly to customers. The grid must be publicly owned. Competition must prevail. There is no competition now.

**SB2933**

Submitted on: 1/30/2014

Testimony for ENE on Feb 4, 2014 15:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Nancy Schmicker	Individual	Support	No

Comments: January 29, 2014 My name is Nancy Schmicker and I am a resident of Oahu and an employee of Molokai Ranch. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support SB2933 and HB2618, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii. Nancy Schmicker, project manager Molokai Ranch 1003 Bishop St., 1170 Honolulu, HI 96813

TESTIMONY IN SUPPORT OF SB 2933

SENATE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

Tuesday, February 4, 2014 at 3:15p.m.

Conference Room 225

To: Chair Gabbard, Vice Chair Ruderman, and members of the Committee:

I support SB2933 and respectfully requests that the Committee pass it.

I am a long-term land owner in Molokai. My husband and I bought land in Molokai, after falling in love with the natural beauty of the island, and hoping to retire there. I am also Director of Project Finance for the Princeton Energy Group, which is developing the proposed renewable energy project with energy storage technology (Ikehu Molokai). Princeton Energy Group has been developing innovative and challenging renewable energy projects since the 1990s.

Because of my day to day work, I stayed very interested in the development of the "Big Wind" project on Molokai. When Molokai Ranch decided not to lease its land to this project in February 2013, I went to Molokai almost immediately thereafter, to hear from as many residents as possible, what could be done on the island which would utilize the abundant renewable energy resources on the island, for the island's benefit. I also met with Molokai Ranch, the Maui Electric Company (Meco) and inspected possible project sites. It emerged that there is strong support on the island for solar power to power Molokai, and provided we can put in significant energy storage, Meco will be supportive.

Upon hearing my report, I was delighted that my CEO (Steve Taber) felt that taking on this challenging project in Molokai is in line with Princeton Energy Group's corporate mission and expertise, and that he will be willing to put in a lot of effort himself, to make the project happen. Steve and his Co-founder have indeed taken on many challenging projects, such as the first renewable energy project in Crete (an island grid) in Greece, in Turkey and in Mexico.

In developing Ikehu Molokai, a key challenge is the cost of energy storage. In order to be able to shift the day time generation from solar photovoltaic panels into night time use on Molokai, we will need a very large amount of energy storage capacity. We are looking at various energy storage technologies, ranging from pumped storage hydro, advanced flow batteries, solar thermal with molten salt storage, etc. They are capital intensive and expensive. However, advanced energy storage technologies are rapidly becoming fully operational, as witnessed at the first North American energy storage conference in San Jose (California) in September 2013. As utilities integrate more renewable energy resources, which are intermittent by nature, energy storage is becoming essential. The State of Hawaii can do its part, by enabling projects such as Ikehu Molokai, to integrate energy storage in renewable energy generation at a utility scale. Incentivizing energy storage will lead to significantly higher levels of renewable energy penetration in the State of Hawaii, as well as to a stable and reliable grid.

I respectfully request that this measure be passed.  
Thank you for the opportunity to testify.

Sincerely,

Kumiko Yoshinari, PhD, CFA

2 February 2014

Date: 1/28/2014

My name is William Daws and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion House Bill, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: William Daws

Address: P.O. Box 2093  
Kaai HI,  
96748

Date: 1-28-14

My name is Rex Kamaokana and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehū Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion House Bill, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: 

Address: PO Box 646  
Kīkaui HI 96748



Date:

My name is Michael Kamakana and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehū Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion **House Bill**, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: Michael Kamakana

Address: Pook 163  
Kaunakakai, HI 96748

Date:

My name is Dennis Kamakana and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion House Bill, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: Dennis Kamakana

Address: PO Box 163  
Kaunakakai, HI 96748

Date:

My name is Hauwani Kamakana and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion House Bill, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: Hauwani Kamakana

Address: Pox 163 Kaeukaeai, HI 96748

Date:

My name is MP Kamakana and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehū Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933 and the companion House Bill**, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: 

Address:

Box 169  
Kaunakakai, HI 96748

Date: *Jan. 28, 2014*

My name is *Elizabeth Kamakana* and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion House Bill, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: *Elizabeth H. Kamakana*

Address: *P.O. Box 690  
Kaunakakai, HI 96748*

Date: 1-28-14

My name is Daniel K. Iaea Sr. and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion **House Bill**, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: Daniel K. Iaea Sr.

Address: P.O. Box 640  
Kaunakakai, HI 96748

Date: 1-28-14

My name is Louise Iaca and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933 and the companion House Bill**, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: *Louise L. Iaca*

Address: P.O. Box 1204  
Kaunakakai, HI 96748

Date:

My name is Clement Reyes Jr. and I am a resident of Molokai. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933** and the companion **House Bill**, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

Name: Clement Reyes Jr.

Address: P.O. Box 1976 Kawunohouli Hi 96748



**SB2933**

Submitted on: 2/3/2014

Testimony for ENE on Feb 4, 2014 15:15PM in Conference Room 225

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nancy Schmicker	Individual	Support	No

Comments: January 29, 2014 My name is Nancy Schmicker and I am a resident of Oahu and an employee of Molokai Ranch. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support SB2933 and HB2618, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii. Nancy Schmicker, project manager Molokai Ranch 1003 Bishop St., 1170 Honolulu, HI 96813

**SB2933**

Submitted on: 2/3/2014

Testimony for ENE on Feb 4, 2014 15:15PM in Conference Room 225

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Maria Bicoy	Individual	Support	No

Comments: My name is Maria Bicoy and I am a resident of Molokai and an employee of Molokai Ranch. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support SB2933 and HB2618, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

My name is Malia Kino and I am a resident of Molokai and an employee of Molokai Ranch. I have observed many solar panels on roof tops in Hawaii, and am very pleased that we are finally harnessing the power of the sun in a productive way. I know however, that to continue generating power from our abundant sunshine in Hawaii, we need to add batteries or energy storage. Energy storage is even more critical as we start generating solar power on a utility scale. Ikehu Molokai is an example of an innovative utility scale solar project. From what I understand, it cannot happen without significant amounts of energy storage. Just as the State of Hawaii facilitates the development of solar power with tax credits, it should do the same for energy storage technologies, since the two go hand-in-hand. I urge our legislators to support **SB2933 and HB2618**, which treats energy storage as a significant component of and contributor to renewable power generation in Hawaii.

**From:** Michael Mangana [mailto:[michaelmangana@citlink.net](mailto:michaelmangana@citlink.net)]  
**Sent:** Wednesday, January 29, 2014 8:50 PM  
**To:** 'Rep. Lee and Senator Gabbard  
**Subject:** SB2754/HB1942 and SB2933/HB2618

Aloha Representative Lee and Senator Gabbard,

As you all may know, the Hawaii Legislative session began a few weeks ago. On the agenda this year are two bills that will impact the Ikehū Molokai project, and could lower the cost of electricity for Molokai residents. Those are [SB2754/HB1942](#) and [SB2933/HB2618](#). The first sets aside Special Purpose Revenue Bonds (SPRBs) for the Ikehū project, bringing down the cost to finance its initial construction. The second is a bill that creates tax incentives for all energy storage projects in the State of Hawaii – a great companion to the many tax incentives for building renewable energy projects that do not have a storage component.

Both of these bills, if passed, will reduce the cost of generating electricity on Molokai for the Ikehū project. As stated by Meco, reduced generation costs will be passed on to the consumer. I support these bills and hope you will as well.

Mahalo for all your efforts to promote renewable energy and reduced electricity rates on Molokai.

Mike Mangana

P.O. BOX 1980

KAUNAKAKAI, MOLOKAI, HAWAII 96748