

# SB 361

RELATING TO ENERGY STORAGE.

Establishes an income tax credit for taxpayers who purchase and install eligible energy storage systems.

The amount of credit depends on type of system installed, filing status, and federal AGI of taxpayer. Excess credit may carry-over to subsequent tax years or is refundable under certain conditions. Applies to taxable years after 12/31/2017. Amends reusable energy technologies tax credit to harmonize definitions.

DAVID Y. IGE  
GOVERNOR

SHAN TSUTSUI  
LT. GOVERNOR



STATE OF HAWAII  
**DEPARTMENT OF TAXATION**  
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MARIA E. ZIELINSKI  
DIRECTOR OF TAXATION

DAMIEN A. ELEFANTE  
DEPUTY DIRECTOR

To: The Honorable Lorraine R. Inouye, Chair  
and Members of the Senate Committee on Transportation and Energy

Date: Wednesday, February 15, 2017

Time: 2:30 P.M.

Place: Conference Room 225, State Capitol

From: Maria E. Zielinski, Director  
Department of Taxation

Re: S.B. 361, Relating to Energy Storage

The Department of Taxation (Department) appreciates the intent of S.B. 361 and provides the following comments for your consideration.

S.B. 361 creates a new income tax credit for energy storage systems. The measure is effective on approval and applies to taxable years beginning after December 31, 2017. The terms of the new tax credit are summarized briefly below.

#### Amount of credit

The amount of the credit is calculated as a percentage of the actual cost of the energy storage system, as follows:

- Residential energy storage systems – AGI less than \$75,000 for single filers or \$150,000 for joint filers. \$7,000 cap per system.
  - 33% of actual cost - January 1, 2018 to December 31, 2019
  - 29% of actual cost - January 1, 2020 to December 31, 2020
  - 24% of actual cost - January 1, 2021 to December 31, 2021
  - 11% of actual cost - January 1, 2022 thereafter
- Residential energy storage systems – AGI greater than \$75,000 for single filers or \$150,000 for joint filers. \$7,000 cap per system.
  - 30% of actual cost - January 1, 2018 to December 31, 2019
  - 26% of actual cost - January 1, 2020 to December 31, 2020
  - 22% of actual cost - January 1, 2021 to December 31, 2021
  - 10% of actual cost - January 1, 2022 thereafter
- Multi-family energy storage system – No AGI limit. \$7,000 cap per system.
  - 30% of actual cost - January 1, 2018 to December 31, 2019
  - 26% of actual cost - January 1, 2020 to December 31, 2020
  - 22% of actual cost - January 1, 2021 to December 31, 2021
  - 10% of actual cost - January 1, 2022 thereafter

- Commercial storage energy systems – No AGI limit. \$20,000 cap per system.
  - 30% of actual cost - January 1, 2018 to December 31, 2019
  - 26% of actual cost - January 1, 2020 to December 31, 2020
  - 22% of actual cost - January 1, 2021 to December 31, 2021
  - 10% of actual cost - January 1, 2022 thereafter
- Utility-scale energy storage systems – must be connected to eligible community-based project as determined by the PUC. \$500,000 cap per system.
  - 27% of actual cost - January 1, 2018 to December 31, 2019
  - 23% of actual cost - January 1, 2020 to December 31, 2020
  - 20% of actual cost - January 1, 2021 to December 31, 2021
  - 9% of actual cost - January 1, 2022 thereafter

### Refundability

Taxpayers may elect to take a thirty percent reduction in the amount of the credit to make the credit refundable, or may qualify for a refundable credit if the taxpayer meets the income limits in subsection (i).

S.B. 361 additionally amends the definition of “actual cost” in the Renewable Energy Technologies Income Tax Credit to disallow “costs related to energy storage systems.”

First, the Department notes that the definition of “energy storage system” in the proposed section needs clarification because it is inconsistent. The residential, multi-family and the commercial systems have a minimum of stored energy that must be met in order to be eligible for the credit. However, for utility-scale systems there is a maximum of 5 megawatt-hours of energy stored. As written, residential and multi-family systems with less than 5 kilowatt-hours of energy stored would not qualify for the credit at all and utility-scale systems can be claimed as long as the energy storage doesn’t exceed 5 megawatt-hours. This means that the \$500,000 cap per utility-scale system will have no effect. The Department strongly suggests that a minimum energy stored be placed on utility-scale systems like the other systems to prevent abuse and unforeseen revenue loss.

Second, the term “energy stored” is not defined. If this term means energy storage capacity or the like, the term should be expressly defined as such. As written, the credit would only be available to systems that already have energy stored. A system could be deemed “installed and placed in service,” but still not activated. The Department suggests clarification.

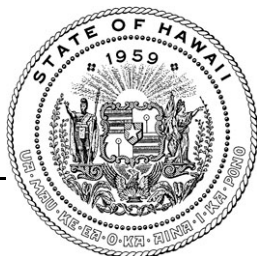
Third, there is not a clear distinction in this credit between residential and multi-family energy storage systems. The credit amounts are different for the different types of system, but the two types of system share the same definition.

Fourth, for residential energy storage systems, the amount of this credit is determined in part by the federal adjusted gross income (AGI) of the “energy storage system user.” This term is not defined in this measure. The Department notes that the user of the energy storage system is not necessarily the owner of the energy storage system or the party that incurred the costs

involved in installing and placing in service the energy storage system. There is no feasible way for the Department to know who the user of the system is versus the taxpayer claiming the credit. Further, the AGI limit should be based on the current year, not a previous tax year.

Finally, the Department is able to implement this new credit for taxable years beginning after December 31, 2017 as currently written.

Thank you for the opportunity to provide comments.



## DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

DAVID Y. IGE  
GOVERNOR

LUIS P. SALAVERIA  
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MARY ALICE EVANS  
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Statement of  
**LUIS P. SALAVERIA**  
Director  
Department of Business, Economic Development and Tourism  
before the  
**SENATE COMMITTEE ON TRANSPORTATION AND ENERGY**  
Wednesday, February 15, 2017  
1:20 p.m.  
State Capitol, Conference Room 225

in consideration of  
**SB 361**  
**RELATING TO ENERGY STORAGE.**

Chair Inouye, Vice Chair Dela Cruz, and Members of the Committee.

The Department of Business, Economic Development and Tourism (DBEDT) **offers comments on SB 361**, which establishes an income tax credit for eligible energy storage systems, where the amount of credit depends on the type of system installed, filing status, and federal adjusted gross income of the taxpayer.

DBEDT recognizes that energy storage has an important role in achieving Hawaii's clean energy goals and can provide various benefits to the electric system. However, DBEDT is not certain that tax credits ought to be the preferred vehicle for incentivizing storage given the various ongoing regulatory proceedings that could also serve as incentives and market drivers for storage and be more directly tied to the necessary and most cost-effective resources to meet our State's clean energy goals. For example, the demand for storage will be influenced by the HECO Companies' Power Supply Improvement Plan (PSIP); once approved it will provide guidance for the type of storage needed (e.g. load shifting, contingency, utility, distributed) and how much capacity is needed for each type. Also, the Distributed Energy Resources docket and Demand Response docket may result in modifying or creating new tariffs or rate structures that could provide the financial mechanisms needed to incentivize energy storage.

Should the Legislature move forward with this measure, we recommend that it define "residential", "multi-family", "commercial", and "utility-scale" energy storage systems so that there is clarity on the implementation of this measure.

Finally, given the limited State budget and without further understanding the relative impact on the expansion of renewable energy resources, we are concerned about the unknown expansion of the aggregate storage tax credit provided by this bill, and defer to the Department of Budget and Finance on the impact of the State budget from this bill and the Department of Taxation on its ability to administer its duties under this bill.

Thank you for the opportunity to offer these comments on SB 361.



DAVID Y. IGE  
GOVERNOR  
  
SHAN S. TSUTSUI  
LT. GOVERNOR

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CATHERINE P. AWAKUNI COLÓN  
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JO ANN M. UCHIDA TAKEUCHI  
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TO THE SENATE COMMITTEE ON TRANSPORTATION AND ENERGY

THE TWENTY-NINTH LEGISLATURE  
REGULAR SESSION OF 2017

WEDNESDAY, FEBRUARY 15, 2017  
1:20 P.M.

TESTIMONY OF DEAN NISHINA, EXECUTIVE DIRECTOR, DIVISION OF  
CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND CONSUMER  
AFFAIRS, TO THE HONORABLE LORRAINE R. INOUE, CHAIR,  
AND MEMBERS OF THE COMMITTEE

SENATE BILL NO. 361 - RELATING TO ENERGY STORAGE

**DESCRIPTION:**

This measure proposes to establish an income tax credit for taxpayers who purchase and install eligible energy storage systems. The amount of credit depends on type of system installed, filing status, and federal AGI of taxpayer and excess credit may carryover to subsequent tax years or is refundable under certain conditions. The measure applies to taxable years after December 31, 2017 and proposes to amend reusable energy technologies tax credit to harmonize definitions.

**POSITION:**

The Division of Consumer Advocacy (“Consumer Advocate”) opposes this bill.

**COMMENTS:**

Energy storage will likely play an important role in stabilizing the electricity grid as greater amounts of intermittent renewable energy are added to the electricity generation mix. On the other hand, energy storage is not the only means by which grid stabilization can be achieved. Energy efficiency, demand response, and fast starting and ramping generating units will also be key components in accommodating intermittent resources, all possibly at lower true costs than existing energy storage technologies. Providing a tax credit for any given resource can boost an uneconomic option over more cost-effective alternatives.

The Consumer Advocate believes that economics and true cost, without subsidies, should drive the market selection of energy resources.

Granted, at present, energy storage technologies, such as battery storage, have exhibited declining costs in recent years. However, in spite of this recent trend, energy storage systems are still very expensive as compared to other alternatives that can be used to modernize the grid. As a result, energy storage systems are likely to be affordable to only the wealthiest consumers until further significant price decreases occur. A tax credit that might encourage wealthy consumers to decrease their contributions to the grid would have the potential unintended consequence of placing a greater financial burden on less affluent consumers who must remain connected to the grid without being able to offset their load with rooftop solar photovoltaic systems and/or take advantage of energy storage systems.

While the Consumer Advocate generally defers to the Hawaii Department of Taxation as it relates to this bill, the Consumer Advocate offers the following comments to further support its opposition to the bill:

- Even though the bill ostensibly provides greater benefits to low- to moderate-income households by calibrating the available credit in inverse proportion to the taxpayer's income, low- to moderate-income customers are less likely to be able to afford the upfront costs of an energy storage system so the credits would most likely be realized by more affluent customers.
- Notwithstanding the idea that the proposed credit should support renewable energy and acknowledging that an interconnected energy storage system will not be able to differentiate energy from a renewable and nonrenewable source, the proposal to allow the tax credit for energy storage systems charged by renewable or nonrenewable energy source is questionable.
- The proposed language does not appear to include any provisions to protect against the possibility that claims for more than one energy storage system could be made by a single individual or business.
- After the proposed step down in the credit following December 2021, the credit appears to be available indefinitely without any sunset provision.
- The proposed language does not include any provision to ensure that the tax credit beneficiary remains connected to the grid throughout the life of the storage system.
- The proposed language does not include any provision to ensure that a tax credit beneficiary is unable to take advantage of arbitrage opportunities where the energy storage system owner may be able to charge the battery using grid energy at low cost times and receiving compensation for discharging the battery into the grid at high cost times.

Thank you for this opportunity to testify.



# TAX FOUNDATION OF HAWAII

126 Queen Street, Suite 304

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: INCOME, Tax Credit for Energy Storage

BILL NUMBER: SB 361

INTRODUCED BY: INOUYE, Baker, K. Rhoads, Shimabukuro

EXECUTIVE SUMMARY: This bill would allow taxpayers a tax credit for energy storage property to encourage market penetration of this technology. If approved, the credit would be an indeterminate expenditure of public dollars out the back door, and would carry with it massive administrative costs.

SYNOPSIS: Adds a new section to HRS chapter 235 to allow taxpayers to claim an energy storage tax credit for each energy storage property.

For each residential energy storage system, where the federal adjusted gross income of the energy storage system user is \$75,000 or less for single filers, or \$150,000 or less for joint filers, the credit is 33% of the actual cost of an energy storage system first placed in service in calendar years 2018 or 2019; 29% of the actual cost of an energy storage system first placed in service in calendar year 2020; 24% of the actual cost of an energy storage system first placed in service in calendar year 2021; 11% of the actual cost of an energy storage system first placed in service in calendar years 2022 or subsequently.

For each residential energy storage system, where the federal adjusted gross income of the energy storage system user is more than \$75,000 for single filers, or more than \$150,000 for joint filers, the credit is 30% of the actual cost of an energy storage system first placed in service in calendar years 2018 or 2019; 26% of the actual cost of an energy storage system first placed in service in calendar year 2020; 22% of the actual cost of an energy storage system first placed in service in calendar year 2021; 10% of the actual cost of an energy storage system first placed in service in calendar years 2022 or subsequently.

For each commercial energy storage system, the credit is 30% of the actual cost of an energy storage system first placed in service in calendar years 2018 or 2019; 26% of the actual cost of an energy storage system first placed in service in calendar year 2020; 22% of the actual cost of an energy storage system first placed in service in calendar year 2021; 10% of the actual cost of an energy storage system first placed in service in calendar years 2022 or subsequently.

For each utility-scale system co-sited and electrically connected to an eligible community-based renewable energy project as determined by the public utilities commission, the credit is 27% of the actual cost of an energy storage system first placed in service in calendar years 2018 or 2019; 23% of the actual cost of an energy storage system first placed in service in calendar year 2020; 20% of the actual cost of an energy storage system first placed in service in calendar year 2021; 9% of the actual cost of an energy storage system first placed in service in calendar years 2022 or subsequently.

Multiple owners of a single energy storage system 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 cost of the energy system.

In the case of a partnership, S corporation, estate, or trust, the tax credit allowable is for every eligible 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), IRC.

The amount of the credit shall not exceed the applicable cap amount per system, which is: \$7,000 for residential or multi-family systems; \$20,000 for commercial systems; or \$500,000 for utility-scale systems.

Defines “actual cost” as costs related to the energy storage system including accessories and installation, but not including the cost of consumer incentive premiums unrelated to the operation of the system or offered with the sale of the system and costs for which another income tax credit is claimed.

Defines “energy storage system” as any identifiable facility, equipment, apparatus, including battery, grid-interactive water heater, ice storage air conditioner, or the like, that: (1) receives electricity generated from another source or other sources, stores that electricity as electrical, chemical, thermal, or mechanical energy, and delivers the energy back to an electric utility or the user of the electric system at a later time; (2) is fixed to a residential or commercial property and electrically connected to an energy storage system user's load or generation and is connected to the electric utility system if the property is connected to the electric utility system, or in the case of a utility-scale system, is fixed to a property and electrically connected to an eligible community-based renewable energy project; (3) for residential and multi-family energy storage systems, has at least five kilowatt-hours of stored energy at time of purchase; (4) for commercial energy storage systems, has at least one hundred kilowatt-hours of stored energy at time of purchase; and (5) for utility scale systems, has at most five megawatt-hours of stored energy at time of purchase.

The tax credit is nonrefundable by default, but a taxpayer may elect to give up 30% of the credit to make it refundable. Alternatively, a taxpayer whose adjusted gross income is \$20,000 or less for single filers or \$40,000 or less for joint filers may elect to make the tax credit refundable without discount. If a taxpayer receives the nonrefundable credit and is unable to use all of it, the unused credit may be carried forward indefinitely until exhausted. Spouses not filing a joint return may only make the election to the extent that they would have been able to make the election if they had filed a joint return. An election once made is irrevocable.

Makes a conforming amendment to HRS section 235-12.5 so that the credits do not overlap.

EFFECTIVE DATE: Upon approval, shall apply to taxable years beginning after December 31, 2017.

STAFF COMMENTS: Lawmakers need to keep in mind two things. First, the tax system is the device that raises the money that they, lawmakers, like to spend. Using the tax system to shape social policy merely throws the revenue raising system out of whack, making the system less than reliable as there is no way to determine how many taxpayers will avail themselves of the credit and in what amount. The second point to remember about tax credits is that they are nothing more than the expenditure of public dollars, but out the back door. If, in fact, these dollars were subject to the appropriation process, would taxpayers be as generous about the expenditure of these funds when our kids are roasting in the public school classrooms, there isn't enough money for social service programs, or our state hospitals are on the verge of collapse?

If lawmakers want to subsidize the purchase of this type of technology, then a direct appropriation would be more accountable and transparent.

Furthermore, the additional credit would require changes to tax forms and instructions, reprogramming, staff training, and other costs that could be massive in amount. A direct appropriation, or adding on to an existing program such as Hawaii Energy, may be a far less costly method to accomplish the same thing.

Digested 2/14/2017



**Hawaii Solar Energy Association**

*Serving Hawaii Since 1977*

**TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION  
IN REGARD TO SB 361, RELATING TO ENERGY STORAGE  
BEFORE THE  
SENATE COMMITTEE ON TRANSPORTATION AND ENERGY  
ON  
Wednesday, February 15, 2017**

Chair Inouye, Vice-Chair Dela Cruz, and members of the committee, my name is Hajime Alabanza, and I represent the Hawaii Solar Energy Association, Inc. (HSEA).

HSEA supports SB 361 with comments. This measure amends §235 of the Hawaii Revised Statutes to include a tax credit to encourage the use of energy storage systems. Energy storage systems will provide measurable support helping to level the electrical demand curve, which will be a financial benefit to all grid customers as well as saving both capital and operation costs for the operating utility. Furthermore, tax incentives for solar energy need to be adopted by the state to advance the growth of renewable energy and, at a state level, accelerate progress towards a 100% renewable energy goal by 2045.

With recent changes in solar policy there will be a greater emphasis within the market for energy storage systems, which have inherent grid support functionality. With the PUC decision to end retail NEM in October of 2015, two new options for the interconnection of solar systems were instituted: customer grid supply (CGS) with only a 30-day reconciliation period and customer self supply (CSS). As it stands, CGS has reached its 35MW cap, leaving the CSS program as the single most viable program for rooftop solar—a program that intends to steer the market towards options that involve energy storage. In spite of this, after over a year since its inception, the CSS program has realized just ten energized systems. Although there are a variety of reasons for its slow adoption, the cost of energy storage systems is a paramount factor. Ultimately, tax incentives like those proposed in SB 361 are imperative to expand consumer choice, contribute to the state's 100% clean energy goal, and provide value to the local economy.

Thank you for the opportunity to testify.



Before the Senate Committee on Transportation and Energy  
Wednesday, February 15, 2017, 1:20 p.m., Room 225  
SB 361: Relating to Energy Storage

Aloha Chair Inouye, Vice Chair Dela Cruz, and members of the Committee,

On behalf of the Distributed Energy Resources Council of Hawaii (“DER Council”), I would like to testify in partial support for SB 361 which establishes tax incentives for energy storage. The amount of the credit depends upon the application of the energy storage installed, and the credit has a low income allocation. We strongly support the creation of a tax credit or rebate for energy storage, but we believe that SB 660, which allows GEMS to use some funds for a storage rebate, or SB 665, which increases the cap for energy storage to be the better legislative vehicles.

The DER Council is a nonprofit trade organization formed to assist with the development of distributed energy resources and smart grid technologies which will support an affordable, reliable, and sustainable energy supply for Hawaii.

The investment in energy storage is seen as a crucial next step towards the development of a resilient and reliable electrical grid which can accommodate more renewable energy resources and help Hawaii achieve its clean energy goals. Specifically, energy storage contributes to grid modernization in a variety of ways. Energy storage can be utilized to shift peak load and supply capacity, provide many valuable ancillary services such as fast frequency response and regulating reserves<sup>1</sup>, delay or offset the need for grid upgrades, and provide energy back-up during emergencies. Distributed energy storage also provides the greatest number of benefits in comparison to other storage technologies, and should be seen as a key driver in Hawaii’s clean energy development.<sup>2</sup>

In addition, distributed energy storage puts private capital to work through customer investments which provide benefits to all rate payers. Energy storage also helps keep local dollars at home by reducing the need for fossil fuels, reducing federal tax liability through the federal investment tax credit, and by supporting an industry that provides good local green jobs that cannot be outsourced.

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<sup>1</sup> See Docket No. 2015-0412 Demand Response Pilot Project currently underway.

<sup>2</sup> See “The Economics of Battery Energy Storage,” Rocky Mountain Institute October 2015 at 6 where distributed behind the meter battery storage provides 13 grid services—the greatest number of grid services when compared to energy storage located on the distribution and transmission system.

However, the DER Council has been informed that the Hawaii department of Taxation is currently in the process of updating its software system, and we are concerned that these administrative improvements will prevent or unduly delay any new tax incentives.

We therefore encourage legislators to consider SB 660, which allows the GEMS program to use some funds for a storage rebate, or SB 665, which increases the cap for energy storage as the primary vehicle to support the development of energy storage.

Thank you for the opportunity to testify

Leslie Cole-Brooks  
Executive Director  
Distributed Energy Resources Council of Hawaii



we make life better®

Senator Lorraine Inouye  
Chair, Senate Committee on Transportation and Energy  
Hawaii State Legislature  
415 South Beretania Street  
Honolulu, Hawaii 96813

Senator Inouye,

On behalf of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), I would like to express our gratitude for the opportunity to provide written testimony on SB 361 & SB 365 relating to Energy Storage.

AHRI is the trade association representing manufacturers of HVACR and water heating equipment within the global industry. AHRI's 300+ member companies manufacture quality, efficient, and innovative residential and commercial air conditioning, space heating, water heating, and commercial refrigeration equipment and components for sale in North America and around the world.

Our members also produce energy storage systems that would be eligible for tax incentives under SB 361 & SB 365. Our members' energy storage systems are an excellent source of efficient energy that can help Hawaii meet its renewable energy goals.

While AHRI supports the premise behind SB 361 & SB 365, we believe the measures can be improved through an amendment to the definition of "energy storage system" included in the legislation. The specific definition can be enhanced to include language that would allow the Hawaii State Energy Office the ability to add technologies as they become commercially available and appropriate for credits. This would save the trouble of re-legislating the list of approved technologies, while also allowing for new and improved technologies to be used for energy savings in the future.

AHRI supports the overall concept behind SB 361 and SB 365, but also supports the adoption of the suggested amendment above. If you have any questions, please do not hesitate to contact me through email at [gmcguire@ahrinet.org](mailto:gmcguire@ahrinet.org) or by phone at (703) 600-0312.

Best regards,

A handwritten signature in black ink, appearing to read "Garrett McGuire". The signature is fluid and cursive.

Garrett McGuire  
Director, Government Relations



February 14, 2017

Senator Lorriane R. Inouye, Chair  
Senator Donovan M. Dela Cruz, Vice Chair  
Committee on Transportation and Energy

Re: Testimony on SB 361 (Relating to Energy Storage)  
Wednesday, Feb. 15, 2017 @ 2:30 p.m.; Conference Room 225, State Capitol

**Purpose:** Amber Kinetics, developer of the first utility-scale flywheel, supports an income tax credit for taxpayers who purchase and install energy storage systems. Amber supports the inclusion of mechanical energy in the definition of “energy storage system”.

### **Amber Kinetics and Flywheel Energy Storage Technology**

Amber Kinetics is a California based company that has developed the first utility-scale flywheel capable of providing safe, cost-effective, four hour discharge duration energy storage to supply both capacity and ancillary services to help meet Hawaii’s renewable energy goals.

Hawaii is leading the nation with its goal of 100 percent renewable energy for electricity by 2045. We commend and support the legislature’s commitment to advancing this goal through initiatives that support renewable energy technology.

Amber Kinetics’ technology can store renewable energy for optimal dispatch, replace or defer fossil fuel peaking generation or transmission, avoid distribution upgrades, and increase the overall reliability of the grid.

Amber’s flywheel storage system acts as a mechanical battery. The storage system helps make renewable energy, such as solar, which changes its output according to the weather, be more consistent. This mechanical form of energy storage also has a number of distinct advantages relative to other storage technologies such as chemical batteries. These include unlimited cycling, no degradation, no fire risk, and no hazardous material storage or disposal needs. Our company has been awarded a 20 MW/80 MWh Energy Services Agreement with PG&E for a project in California, and has commercial units operating in the Philippines.

### **Amber Flywheel Demonstration Project at Campbell Industrial Park**

Amber welcomes the opportunity to expand the use of our technology in Hawaii to help the State achieve its laudable renewable energy goals. In 2016, Amber and HECO signed an





agreement to install an Amber flywheel at Campbell Industrial Park as a demonstration project. The flywheel is expected to be in full operation this year. Previously, we were selected for grant funding by the Hawaii-based Energy Excelerator, which is helping fund the HECO demonstration.

### **Comments**

Amber supports tax credit programs that increase the availability of energy storage. The integration of energy storage technology is essential for Hawaii to meet its renewable energy goals. Providing for an income tax credit for taxpayers who purchase and install eligible energy storage systems would incentivize growth of an essential component of the green energy infrastructure.

Amber also supports the portion of SB 361's definition of "energy storage system" that encompasses Amber's flywheel storage technology by defining "energy storage system", in part, as "any identifiable facility, equipment, apparatus, including battery, grid-interactive water heater, ice storage air conditioner, or the like, that: (1) Receives electricity generated from another source or other sources, stores that electricity as electrical, chemical, thermal, or mechanical energy, and delivers the energy back to an electric utility or the user of the electric system at a later time".

Thank you for the opportunity to comment on this bill.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bill Barnes', is written over a light blue horizontal line.

Bill Barnes  
Managing Director, Development





Email: [communications@ulupono.com](mailto:communications@ulupono.com)

SENATE COMMITTEE ON TRANSPORTATION & ENERGY  
Wednesday, February 15, 2017 — 2:30 p.m. — Room 225

**Ulupono Initiative provides Comments SB 361 with Amendments, Relating to Renewable Energy**

Dear Chair Inouye, Vice Chair Dela Cruz, and Members of the Committee:

My name is Kyle Datta and I am General Partner of 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 produced food; increase affordable, clean, renewable energy; and reduce waste. Ulupono believes that self-sufficiency is essential to our future prosperity and will help shape a future where economic progress and mission-focused impact can work hand in hand.

In considering the alternatives for energy storage tax credits, Ulupono applies the following principles to all of the energy storage bills being addressed today:

**Renewable Energy Subsidies:**

- Subsidies should be used to accelerate the market penetration of energy technologies that are critically important to electric system operations, where large scale adoption of these technologies would lower the risk adjusted rates to all ratepayers
- Subsidies should have defined sunset dates set to the expected point at which the renewable technologies are cost effective without the subsidies.
- If no clear sunset date has been set, subsidies should ramp down to allow the smaller, typically local companies time to adapt, and to prevent the precipitous loss of jobs.
- Subsidies should benefit those who have provided the source of funds used to provide the subsidies, whether these be taxpayer or ratepayer funds
- To that end, funds approved by the public, capital markets, and the Legislature for other purposes should not be used for subsidies, if these subsidies do not serve the

*Investing in a Sustainable Hawai'i*

same purpose

## Budget Considerations

- Renewable energy subsidies should have a total annual cap to ensure the State budget exposure is managed or attempt to be fiscally neutral (ramp down other program to pay for new program)
- This cap can be extended for maximum benefit by focusing subsidies on customer sided energy storage for two reasons:
  - First, distributed photovoltaic systems coupled with energy storage enable “smart export” which eliminates over supply in the daytime peak hours and provides dispatch capable energy and reduces or eliminates the need for costly grid upgrades including utility scale storage. Based on the most recent Power Supply Improvement Plan, *this could save ratepayers billions of dollars.*
  - When the utility or an independent power producer installs a battery on the grid, they receive the tax credits and all ratepayers pay for the remaining costs of battery. Given the cap on the state tax credit for commercial property and assume that the net, combined effect of the federal and state tax credit is 40 percent, ratepayers will pay for 60 percent of the battery. The majority of batteries are used for load shifting and some for regulation. The utility scale batteries will often only be partially utilized.

When a residential customer puts in a battery, he/she will receive a combined 55 percent federal and state tax credit (assuming it falls within the cap) and they personally pay for the difference. If the customers provide load shifting or regulation services to the grid, they are only paid for the value to the grid of the services. Therefore, all ratepayers pay far less for grid services than they would have otherwise paid if the utility had bought the battery, because, in essence, the customer absorbs the cost of the under-utilization.
- Maximization of federal subsidies for the benefit of the state should occur before these subsidies are phased out in five years. Therefore, state energy storage subsidies should start immediately.
- Cognizant of the Department of Taxation reorganization, the definition of energy storage subsidies should fit within the current Department of Taxation schemes to the maximum extent possible.

**Ulupono provides comments on SB 361**, which creates tax credits for energy storage, and has caps and minimum scale. While we prefer SB 665, this bill has several positive elements ...

This bill does align well with the criteria enumerated above (see attached table). In an attempt to make this bill more fiscally neutral for the State, there are several changes to SB 361 that we recommend:

- 1) The bill should have a sunset date, we would recommend expiration at 2035 based on the technology cost projected by National Renewable Energy Lab, which indicate subsidies should no longer be needed at that point.
- 2) Ramp down the RETITC to achieve State budget impact neutrality.
- 3) Based upon prior experience with the abuse of the initial round of RETITC, there should be a section in this bill to prevent similar abuses of this tax credit such that funding is allocated appropriately. There should be a section that clarifies that for systems with solar and storage, there are aggregate caps equal to energy storage cap plus one half the solar cap for the applicable time period.

Our financial analysis, based on the projections of new solar in the Hawaiian Electric Companies' most recent Power Supply Improvement Plans provides an indication of the total net cost exposure (incomplete because it does not cover Kaua'i). One of the biggest impacts to the State's budget is the usage of this credit by residential or commercial customers. Greater residential adoption would increase the fiscal deficit to the State because currently many residential customers use the existing tax credit in full. If residential uptake accounts for 50 percent of the new solar/storage, the net impact to the State budget through 2025 could be \$191 – 252 million dollars. Due to the caps and minimum scale, this bill has a lower overall cost exposure as compared to SB 365. If the RETITC were ramped down, this bill could more easily be net neutral to the State budget. We caution these numbers are only indicative of the important levers that can impact the overall State budget exposure.

As Hawai'i's energy issues become more complex and challenging, we appreciate this committee's efforts to look at policies that support renewable energy production.

Thank you for this opportunity to testify.

Respectfully,

Kyle Datta  
General Partner

	SB 361	SB 365	SB 665
Accelerate technology	Yes	Yes	Yes
Defined sunset dates	No	No	No
Ramp Down	Yes	No	Yes
Benefit those who provided the funds	Yes	Yes	Yes
Appropriate use of funds	Yes	Yes	Yes
Annual total cap or fiscally neutral	No	No	Yes
Focused on distributed scale	No	No	Yes
Maximizes Federal Subsidies	Yes	Yes	Yes
Fits within DOTAX capabilities	No	No	Yes

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Tuesday, February 7, 2017 6:50 PM  
**To:** TRE Testimony  
**Cc:** mendezj@hawaii.edu  
**Subject:** \*Submitted testimony for SB361 on Feb 15, 2017 13:20PM\*

**SB361**

Submitted on: 2/7/2017

Testimony for TRE on Feb 15, 2017 13:20PM in Conference Room 225

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Javier Mendez-Alvarez	Individual	Support	No

Comments:

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**SB361**

Submitted on: 2/14/2017

Testimony for TRE on Feb 15, 2017 14:30PM in Conference Room 225

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Carl Campagna	Individual	Support	No

Comments: Many thanks for the opportunity to submit testimony in support of this measure. The pricing of Photovoltaic system have come down over the past several years. In order to achieve the State goal of 100% renewable/clean electricity by 2015, storage will be needed. Therefore, providing an incentive for storage will support the State goals.

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February 15, 2017  
Senate Committee on Transportation and Energy  
Wednesday, February 15, 2017, 2:30 p.m.  
RE: Support of SB361, SB365, and SB665

Dear Chair Inouye, Vice Chair Dela Cruz, and Esteemed Committee Members:

Thank you for the opportunity to submit testimony on this important issue. My name is Sean Aronson and I am a 3rd year law student at Richardson. I believe incentivizing energy storage is vital to ensuring Hawaii achieves the 100% RPS by 2045. That is why I support these three bills as necessary to furthering that goal.

During my time in law school, I have focused on energy law and policy – figuring out ways more people can participate in the energy revolution transforming Hawaii. As it now stands, having the capitol to invest in a solar plus storage system is only likely for a very small section of the population. The State needs to find a way to enable more participation and these bills are a positive step in that direction. By offering tax credits and rebates, energy storage systems will flourish and become more accessible to a greater portion of the population.

These proposed bills, taken together, represent a significant step towards weaning ourselves off of fossil fuels and towards a cleaner energy future. Just as solar credits have been so successful, credits for battery storage will jumpstart an ailing industry. Incentivizing more renewable systems for Hawaii is good for the State and allows us to reach our goals in a democratic fashion.

Under the current system, installing solar panels on homes is no longer as cost-effective as it once was before the retirement of NEM. If tax credits are given for

storage systems, both current solar owners and new owners will be incentivized to make the rather expensive investment in storage systems. An increase in batteries will also make the overall electric system more reliable and safe. Ultimately, it will help HECO if customers are able to control when their solar power is utilized by the overall system.

Only when everyone participates, will it truly be an energy revolution. This is why I urge you to support Senate Bills 361, 365, and 665.

Thank you for your attention to this important matter.

Sean Aronson