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DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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Statement of
LUIS P. SALAVERIA
Director
Department of Business, Economic Development and Tourism
before the
HOUSE COMMITTEE ON FINANCE
Wednesday, March 28, 2018
4:00 p.m.
State Capitol, Conference Room 308

in consideration of
SB2100, SD2, HD1
RELATING TO RENEWABLE ENERGY.

Chair Luke, Vice Chair Cullen, and Members of the Committee.

The Department of Business, Economic Development, and Tourism (DBEDT) provides **comments** on SB2100, SD2, HD1, which replaces the current renewable energy technology systems tax credit with tax credits for solar energy system, wind energy system, and energy storage system; applies to taxable years beginning after December 31, 2018.

DBEDT highlights that ramping down the tax credit at this time for solar energy systems, given recent 30% federal tariff on imported solar cells and panels, has the potential to increase their installed cost. In addition, the Net Energy Metering program which provided for attractive payback periods has been replaced with other programs (i.e. Customer Grid Supply Plus and Smart Export[1]) which have lengthened the payback periods. As a whole, the number of solar energy systems installed in Honolulu has dropped in recent years.[2] Therefore, we caution against further accelerating this trend.

DBEDT recognizes that energy storage can play an important role in achieving Hawaii's clean energy goals and believes energy storage can provide benefits to the entire electric system, if the appropriate energy storage technologies are implemented and used in an optimal manner.

[1] Public Utilities Commission (PUC) Order No. 34924 established a revised Customer Grid Supply (CGS+) at 10.08 cents per kilowatt-hour (kwh) as opposed to 15.07 cents per kwh for current Customer Grid Supply (CGS) rate in Oahu, capped at 35 MW. Order No. 34924 also established Smart Export program, which compensates permissible exports (during 12 a.m-9 a.m. and 4 p.m. – 12 a.m.) in Oahu at 14.97 cents/kwh. Rates and caps vary per utility for each program.

[2] According to *Solar PV Installations in Honolulu: an analysis based on building permit data*, 2017 update, "PV installation further slowed down after 2016 with less than 5,000 PV permits issued in 2016 and mere 1,000 permits in the first six months of 2017", page 1. Reference: http://files.hawaii.gov/dbedt/economic/data_reports/Solar_PV_Installation_In_Honolulu_Sep2017.pdf

In addition, DBEDT has concerns about using tax credits as the preferred method for incentivizing an increase in use of energy storage. Consistent with our energy policy of promoting an efficient marketplace, the implementation of PUC-ordered rates that incentivize more adoption of energy storage would be a more direct mechanism to deliver price signals to the marketplace.

Should the Legislature chose to move forward with this bill, we recommend deleting lines 17-21 on page 13 and lines1-3 on page 14 as the combined energy storage and solar energy system tax credit provided in section (5) appears redundant to prior sections (2) and (3).

Given the limited State budget, we are concerned about the unknown additional cost of expansion of the aggregate storage tax credit provided by this bill. We defer to the Department of Taxation on its ability to administer its duties under this bill.

DBEDT also defers to the Public Utilities Commission in setting tariffs that can incentivize the adoption of energy storage that align with its orders that are supportive of Hawaii's 100% Renewable Portfolio Standards goal by 2045.

Lastly, with respect to the solar water heater (SWH) variance statutes on the first two pages of the bill, DBEDT supports these edits to the HRS §196-6.5.

Thank you for the opportunity to offer these comments on SB2100, SD2, HD1.

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LIEUTENANT GOVERNOR

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To: The Honorable Sylvia Luke, Chair
and Members of the House Committee on Finance

Date: Wednesday, March 28, 2018
Time: 4:00 P.M.
Place: Conference Room 308, State Capitol

From: Linda Chu Takayama, Director
Department of Taxation

Re: S.B. 2100, S.D. 2, H.D. 1, Relating to Renewable Energy

The Department of Taxation (Department) appreciates the intent of S.B. 2100, S.D. 2, H.D. 1, but has concerns about its ability to administer the provisions of this bill and offers the following comments for your consideration.

S.B. 2100, S.D. 2, H.D. 1, makes amendments to Hawaii Revised Statutes (HRS) section 235-12.5, which governs the Renewable Energy Technologies Income Tax Credit (RETITC). A summary of key provisions are as follows:

- Eliminates the term "renewable energy technologies" and recognizes three general categories of "systems" that are eligible for tax credits: solar energy systems, energy storage systems, and wind energy systems;
    - Solar energy property is further divided into property used exclusively to heat water and property that is used primarily to generate electricity.
- Changes the RETITC percentages (up to respective applicable cap amounts) as follows:
    - For solar energy systems used exclusively to heat water, 35% of the basis up to the applicable cap amounts:
        - $2,250 per system for single-family residential property;
        - $350 per unit per system for multi-family residential property; and
        - $250,000 per system for commercial property.
    - For solar energy systems used primarily to generate electricity, and energy storage systems not included in the basis of a solar or wind energy system:
        - 35% of the basis for systems that have an executed customer service contract dated prior to June 30, 2018, if installed and first placed into service before December 31, 2019;
        - 25% of the basis for systems first placed into service after December 31, 2018 and before January 1, 2026;

        - 20% of the basis for systems placed into service between December 31, 2025 and January 1, 2027; and
        - 15% for property placed into service after December 31, 2026;
    - Sets higher applicable cap amounts for solar energy systems that are grid-connected and incorporate an energy storage system, raising the cap from $5,000 to $8,000 per system for single-family residential property and from $350 to $700 per unit per system for multi-family residential property.
    - For wind energy systems, 20% of the basis up to the following applicable cap amounts:
        - $1,500 per wind energy system for single-family residential property; provided that if the system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by 20% of the basis or $1,500, whichever is less;
        - $200 per unit per system for multi-family residential property; and
        - $500,000 per wind energy stem for commercial property;
- Determines distribution and share of credit pursuant to section 704(b) of the Internal Revenue Code (IRC);
- States that the use of "basis" in the statute shall be consistent with use of "basis" in section 25D or section 48 of the IRC;
- Defines "energy storage system" as any identifiable facility, equipment, or apparatus, such as a battery, grid-interactive water heater, ice storage air conditioner, or similar, that is permanently fixed to a site and electrically connected to a site distribution panel by means of an installed wiring, and that receives, stores, and delivers electricity generated from various sources;
- Allows for planned community associations, condominium associations, and cooperative housing corporations to claim the credit for systems placed into service and located on common areas;
- Terminates the credit for taxable years ending after December 31, 2036;
- Requires the Department, to the extent feasible and using existing resources, to assist with data collection on the number of solar energy, energy storage, or wind energy systems that have qualified for a tax credit during the calendar year by technology type and taxpayer type (corporate or individual);
- Has a defective effective date of July 1, 2050; and
- Applies to taxable years beginning after December 31, 2018.

First, the Department notes that the House Committee on Energy and Environmental Protection amended this measure to extend by two years the date before credits start decreasing for solar energy systems and energy storage systems, and to reduce the cap amount for solar energy systems used primarily to generate electricity in single-family residential properties to $8,000. That Committee also deleted language prohibiting any government agency or instrumentality from claiming the credit.

Second, the Department notes that the Senate Committee on Transportation and Energy amended this measure to reinstate language referring to "systems" instead of "properties." The term "system," which is not defined in Hawaii income tax law, has caused much confusion and uncertainty for taxpayers and industry participants and has resulted in a much larger than

anticipated number of RETITC claims and revenue lost. The ambiguity in the statute was ultimately addressed by the Department's enactment of administrative rules pertaining to the RETITC in November 2012. (See §§ 18-235-12.5-01 through 18-235-12.5-06, Hawaii Administrative Rules (HAR)).

The Department appreciates the reinstatement of language referring to "systems" instead of "properties," as the use of "properties" by this measure would have the effect of making these administrative rules obsolete and reintroducing a problem that has already been resolved. However, the addition of the new category of "energy storage systems," without a more detailed definition or guidelines for required energy capacity or output, may create new uncertainty for taxpayers and industry. The Department strongly suggests that the measure be amended to include definitions and provisions that will provide sufficient guidance to administer the RETITC without the need for administrative rules. Without sufficient clarity, this tax credit could result in larger than expected revenue losses, as seen previously with the RETITC.

If the intent of the Legislature is to make Hawaii's tax credit more similar to the federal tax credit, the Department suggests simply allowing taxpayers to claim a credit equal to a percentage of the federal tax credit available for renewable energy property, without applying a cap. As explained above, the caps have caused confusion for taxpayers and administrative difficulty for the Department, resulting in unintended revenue losses for the State.

Third, the Department notes that the tax credit in this measure is refundable in certain circumstances. As a general matter, the Department prefers nonrefundable credits because refundable credits create a higher potential for improper claims and abuse.

Finally, if the Committee wishes to advance this measure, the Department notes that it is able to implement this measure with current applicability to taxable years beginning after December 31, 2018. This will allow the Department sufficient time to make the necessary form and computer system changes.

Thank you for the opportunity to provide comments.

LEGISLATIVE TAX BILL SERVICE

TAX FOUNDATION OF HAWAII

126 Queen Street, Suite 304 Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: INCOME, Renewable Energy Tax Credits

BILL NUMBER: SB 2100, SD-2, HD-1

INTRODUCED BY: House Committee on Energy & Environmental Protection

EXECUTIVE SUMMARY: Amends the renewable energy technologies income tax credit to change limitations for certain technology types. Provides increased caps for photovoltaic property that is grid-connected and incorporates energy storage system. Generally, the credit is being phased down, perhaps in recognition that the technology involved is no longer new. If approved, the credit would be an indeterminate expenditure of public dollars out the back door, and could carry with it large administrative costs.

SYNOPSIS: Amends HRS section 196-6.5, relating to requiring a solar water heater system for new single-family residential construction, to decouple the definition from the tax credit definition.

Amends HRS section 235-12.5, to be retitled the solar energy, energy storage, or wind energy system income tax credit, to allow credits for each energy system, as follows:

For each solar energy system used exclusively to heat water and is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year: 35% of the basis up to the applicable cap amount, which is determined as follows: (A) $2,250 per solar energy system for single-family residential property; (B) $350 per unit per solar energy system for multi-family residential property; and (C) $250,000 per solar energy system for commercial property.

For each solar energy system used primarily to generate electricity and is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year, the credit is a certain percentage of the basis up to the applicable cap amount, which is determined as follows: (A) $5,000 per solar energy system for single-family residential property, except that if all or a portion of the property is used to fulfill the substitute renewable energy technology requirement in section 196-6.5(a)(3), HRS, the credit will be reduced by the credit rate times basis or $2,250, whichever is less; (B) $350 per unit per solar energy system for multi-family residential property; and (C) $500,000 per solar energy system for commercial property. The credit rate is 25% for calendar years 2019-2025, 20% for calendar year 2026, and 15% thereafter.

If the solar energy system is grid-connected and incorporates an energy storage system, the applicable cap amount is changed to: (A) $8,000 per solar energy system for single-family residential property, except that if all or a portion of the property is used to fulfill the substitute renewable energy technology requirement in section 196-6.5(a)(3), HRS, the credit will be reduced by the credit rate times basis or $2,250, whichever is less; (B) $700 per unit per solar

energy system for multi-family residential property; and (C) $500,000 per solar energy system for commercial property. The credit rate is 25% for calendar years 2019-2025, 20% for calendar year 2026, and 15% thereafter.

For each energy storage system installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year, if the cost of the energy storage system is not also included in the creditable basis of a solar or wind energy system: a certain percentage of the basis up to the applicable cap amount, which is determined as follows: (A) $5,000 per energy storage system for single-family residential property; (B) $350 per unit per energy storage system for multi-family residential property; and (C) $500,000 per energy storage system for commercial property. The credit rate is 25% for calendar years 2019-2025, 20% for calendar year 2026, and 15% thereafter.

Credits for energy storage and a solar energy system may partially stack; the credit for the combined system will be the credit for the energy storage system plus one-half of the credit for the solar energy system.

A wind energy system is also creditable, and the credit rate is 20% basis up to the applicable cap amount, which is determined as follows: (A) $1,500 per wind energy system for single-family residential property, except that if all or a portion of the property is used to fulfill the substitute renewable energy technology requirement in section 196-6.5(a)(3), HRS, the credit will be reduced by 20% of basis or $1,500, whichever is less; (B) $200 per unit per wind energy system for multi-family residential property; and (C) $500,000 per wind energy system for commercial property.

Defines "basis" on which the credit is based as costs related to the solar energy, wind energy, or energy storage system, including accessories, energy storage, and installation, but does not include the cost of consumer incentive premiums unrelated to the operation of the energy system or offered with the sale of the energy system and costs for which another credit is claimed under this chapter. Any cost incurred and paid for the repair, construction, or reconstruction of a structure in conjunction with the installation and placing in service of solar or wind energy system, such as the reroofing of single-family residential property, multi-family residential property, or commercial property, shall not constitute a part of the basis of the eligible property; provided that costs incurred for the physical support of the solar or wind energy system, such as racking and mounting equipment and costs incurred to seal or otherwise return a roof to its pre-installation condition shall constitute part of the basis for the purposes of this section. States that basis shall be consistent with the use of basis in section 25D or section 48 of the Internal Revenue Code.

Defines "energy storage system" as any identifiable facility, equipment, or apparatus, including battery, grid-interactive water heater, ice storage air-conditioner, or the like, that is permanently fixed to a site and electrically connected to a site distribution panel by means of an installed wiring, and that receives electricity generated from various 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.

Defines "solar or wind energy system" as any identifiable facility, equipment, apparatus, or the like that converts solar or wind energy to useful thermal or electrical energy for heating, cooling, or reducing the use of other types of energy that are dependent upon fossil fuel for their generation, if (1) the construction, reconstruction, or erection of the solar or wind energy system is completed by the taxpayer; or (2) the solar or wind energy system is acquired by the taxpayer if the original use of the solar or wind energy system commences with the taxpayer.

The tax credit for solar or wind energy properties 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.

Provides that the tax credit under this section shall be construed in accordance with Treasury Regulations and judicial interpretations of similar provisions in sections 25D, 45, and 48 of the Internal Revenue Code.

Provides that a planned community association, condominium association of owners, or cooperative housing corporation may claim the tax credit under this section in its own name for property or facilities placed in service and located on common areas.

States that no credit shall be authorized for taxable years ending after December 31, 2036.

Provides for data collection and reporting.

EFFECTIVE DATE: July 1, 2050; the credit provisions apply to taxable years beginning after December31, 2018.

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 3/27/2018

Before the House Committee on Finance
Wednesday, March 28, 2018, 4 p.m., Room 325
SB 2100 SD 2 HD 1: Relating to Renewable Energy

Aloha Chair Luke, Vice Chair Cullen, and members of the Committee,

On behalf of the Distributed Energy Resources Council of Hawaii ("DER Council"), I would like to testify in strong support with comments for SB 2100 HD 1 which creates tax incentives for residential and commercial PV plus energy storage for both new installs and legacy PV systems in addition to stand alone storage. SB 2100 HD 1 also ramps down the tax credit over a 9-year period.

The DER Council is a nonprofit trade organization formed to assist with the development of distributed energy resources and smart grid technologies that 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[1], 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.[2]

In addition, distributed energy storage puts private capital to work through customer investments which provide benefits to all rate payers. Energy storage

[1] *See* Docket No. 2015-0412 Demand Response Pilot Project currently underway.
[2] *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.

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. SB 2100 HD 1 is drafted to provide benefits that support both the State's clean energy goals and local industry while remaining relatively revenue neutral as the credit ramps down for all installations from 35% to 15% over a nine-year period.

However, although we appreciate the efforts that went into the drafting of SB 2100 HD 1, we would like to recommend several cost-savings measures and remove some redundant language. The following is a list of our cost-saving measures. We've also attached a draft of SB 2100 HD 1 with our recommendations complete with explanations to this testimony.

- Reduce the duration of the 25% incentive by two years. SB 2100 HD 1 currently allows the application of the 25% level of the tax credit after December 31, 2018 and before January 1, 2026. We recommend that the number of years under the 25% credit be reduced by two years such that the 25% credit can only be utilized through December 31, 2023. This two-year reduction would mean a considerable cost savings and would still allow the renewable industry adequate support. If two years are added to the overall ramp, they should be inserted under the 20% tax incentive instead.

- Remove all exemption language except the exemption listed under Section 235-12.5 (2) which reads as follows:

  > "Provided that a solar energy system that has an executed customer service contract dated prior to June 30, 2018, and is installed and first placed in service before December 31, 2019, shall receive thirty-five percent of the basis for the solar energy system, up to the applicable cap amount as described in this subparagraph;"

  This exemption is designed to protect customers that have systems in development this year. By limiting the exemption only to projects

installed under the current law, the state would see a significant cost savings.

- Create a system size for stand-alone energy storage. The Department of Taxation currently has a system size for PV in order to correctly administer the tax credit. As such, we agree with the Department of Taxation that SB 2100 HD 1 should include a system size for stand-alone energy storage so that the administration of the tax credit can proceed in the manner in which it is now applied. We recommend that for stand-alone energy storage (Section 235-12.5 (4)) a residential energy storage system is defined as 20 kWh and a commercial energy storage system is defined as 1 MWh. This provision will save the state money by limiting the number of credits allowed to the taxpayer.

- Create a minimum system size for energy storage when PV and energy storage are combined. We recommend that for combined PV plus energy storage (Section 235-12.5 (3)), the taxpayer may take the credit for a combined system so long as the aggregate energy storage is at least 5 kWh. This limit will ensure that the credit under this section is properly applied.

- Reduce the cap for stand alone storage. We recommend that the cap be reduced for stand alone storage (Section 235-12.5 (4)) from $5,000 to $3,000 for residential and from $500,000 to $300,000 for commercial for consistency and as a cost-saving measure.

- Allow taxpayers to take the tax credit in the following tax year. We recommend that taxpayers have an option on which year to apply for the tax credit during the transition years of 2018-2019 to prevent a stall in development should customers wait for the new credit to go into effect. This provision would ensure that industry is not hit with a 6-month work hiatus should tax payers decide to wait to until next year to install new systems. By allowing an option on when the taxpayer can take the credit, tax revenues from ongoing work would still be collected while the tax credit applied for would remain the same.

Thank you for the opportunity to testify. We respectfully ask that the Committee on Finance allow SB 2100 HD 1 to pass through Finance so that we may have the opportunity to work with stakeholders and the Department of Taxation in conference. We strongly believe that our recommended amendments will produce a balanced, revenue neutral bill that will serve the entire state in this next phase of clean energy development. We welcome any questions that you might have.

Best regards,
Leslie Cole-Brooks
Executive Director
Distributed Energy Council of Hawaii

THE SENATE
TWENTY-NINTH LEGISLATURE, 2018
STATE OF HAWAII

S.B. NO. 2100 S.D. 2 H.D. 1 DERC

A BILL FOR AN ACT

RELATING TO RENEWABLE ENERGY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Section 196-6.5, Hawaii Revised Statutes, is amended to read as follows:

"**§196-6.5 Solar water heater system required for new single-family residential construction.** (a) On or after January 1, 2010, no building permit shall be issued for a new single-family dwelling that does not include a solar water heater system that meets the standards established pursuant to section 269-44, unless the coordinator approves a variance. A variance application shall only be accepted if submitted by an architect or mechanical engineer licensed under chapter 464, who attests that:

(1) Installation is impracticable due to poor solar resource;

(2) Installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the

new solar water heater system with a life cycle that does not exceed fifteen years;

(3) A renewable energy technology system[~~, as defined in section 235-12.5,~~] is substituted for use as the primary energy source for heating water; or

(4) A demand water heater device [~~approved by Underwriters Laboratories, Inc.,~~] is installed; provided that at least one other gas appliance is installed in the dwelling[~~.~~] and the life cycle cost for the device is less than a solar water heater system based on analysis in subsection (a)(2). For the purposes of this paragraph, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed.

(b) A request for a variance shall be submitted to the coordinator on an application prescribed by the coordinator and shall include a description of the location of the property and justification for the approval of a variance using the criteria established in subsection (a). A variance shall be deemed approved if not denied within thirty working days after receipt of the variance application. The coordinator shall publicize:

(1) All applications for a variance within seven days after receipt of the variance application; and

(2) The disposition of all applications for a variance within seven days of the determination of the variance application.

(c) The director of business, economic development, and tourism may adopt rules pursuant to chapter 91 to impose and collect fees to cover the costs of administering variances under this section. The fees, if any, shall be deposited into the energy security special fund established under section 201-12.8.

(d) Nothing in this section shall preclude any county from establishing procedures and standards required to implement this section.

(e) Nothing in this section shall preclude participation in any utility demand-side management program or public benefits fee program under part VII of chapter 269.

(f) As used in this section, "renewable energy technology system" means a new system that captures and converts a renewable source of energy, such as solar or wind energy, into:

(1) A usable source of thermal or mechanical energy;

(2) Electricity; or

(3) Fuel."

SECTION 2. Section 235-12.5, Hawaii Revised Statutes, is amended to read as follows:

"**§235-12.5 [~~Renewable energy technologies;~~] Solar energy, energy storage, wind energy system; income tax credit.** (a)

When the requirements of subsection [~~(d)~~] (c) are met, each individual or corporate taxpayer that files an individual or corporate net income tax return for a taxable year may claim a tax credit under this section against the Hawaii state individual or corporate net income tax. [~~The tax credit may be claimed for every eligible renewable energy technology system that is installed and placed in service in the State by a taxpayer during the taxable year.~~] The tax credit may be claimed as follows:

(1) For each solar energy system[~~:~~] that is used exclusively to heat water and is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year: thirty-five per cent of the [~~actual cost or the cap amount determined in subsection (b), whichever is less; or~~] basis up to the applicable cap amount, which is determined as follows:

(A) $2,250 per solar energy system for single-family residential property;

(B) $350 per unit per solar energy system for multi-family residential property; and

(C) $250,000 per solar energy system for commercial property;

(2) For each solar energy system that is used primarily to generate electricity and is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year:

(A) Twenty-five per cent of the basis for solar energy systems first placed in service after December 31, 2018, and before January 1, 2024 ~~2026~~, up to the applicable cap amount, which is determined as follows:

(i) $5,000 per solar energy system for single-family residential property; provided that if all or a portion of the solar energy system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by twenty-five per cent of the basis or $2,250, whichever is less;

(ii) $350 per unit per solar energy system for multi-family residential property; and

(iii) $500,000 per solar energy system for commercial property;

Commented [L1]: Reducing the number of years at 25% will save the state money.

provided that a solar energy system that has an executed customer service contract dated prior to June 30, 2018, and is installed and first placed in service before December 31, 2019, shall receive thirty-five per cent of the basis for the solar energy system, up to the applicable cap amount as described in this subparagraph;

(B) Twenty per cent of the basis for solar energy systems first placed in service after December 31, 2023, and before January 1, 2027, up to the applicable cap amount, which is determined as follows:

(i) $5,000 per solar energy system for single-family residential property; provided that if all or a portion of the solar energy system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by twenty per cent of the basis or $2,250, whichever is less;

(ii) $350 per unit per solar energy system for multi-family residential property; and

(iii) $500,000 per solar energy system for commercial property; and

Commented [L2]: two additional years at a lower percentage is fiscally responsible and helps ensure a more efficient transition for industry

(C) Fifteen per cent of the basis for solar energy systems first placed in service after December 31, 2026, up to the applicable cap amount, which is determined as follows:

(i) $5,000 per solar energy system for single-family residential property; provided that if all or a portion of the solar energy system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by fifteen per cent of the basis or $2,250, whichever is less;

(ii) $350 per unit per solar energy system for multi-family residential property; and

(iii) $500,000 per solar energy system for commercial property;

(3) For each solar energy system that is used primarily to generate electricity and is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year; provided that for this section the solar energy system is grid-connected and incorporates an energy storage system that has an aggregate capacity of at least 5 kWh:

Commented [L3]: This amendment will prevent taxpayers "gaming" the credit by ensuring that the combined PV plus storage includes a standard-sized energy storage system that would be a legitimate addition to the entire installation.

(A) Twenty-five per cent of the basis for solar energy systems first placed in service after December 31, 2018, and before January 1, 2024, up to the applicable cap amount, which is determined as follows:

(i) $8,000 per solar energy system for single-family residential property; provided that if all or a portion of the solar energy system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by twenty-five per cent of the basis or $2,250, whichever is less;

(ii) $700 per unit per solar energy system for multi-family residential property; and

(iii) $500,000 per solar energy system for commercial property;

Provided that for any solar energy system that incorporates energy storage and is first installed and place in service after July 1, 2018, and before January 1, 2019, the system owner may choose either 2018 or 2019 to designate "First placed in service" for state tax purposes.

Commented [L4]: This provision would ensure a smooth transition to the credit ramp and would prevent a 6-month slow down in business as customers may wait to install in 2019 to receive the new tax credit. This is a cost saving measure as business could continue without hiatus and not lose jobs, tax income, etc. Actual credit collected would be unchanged.

~~provided that a solar energy system that has an executed customer service contract dated prior to June 30, 2018, and is installed and first placed in service before December 31, 2019, shall receive thirty-five per cent of the basis for the solar energy system, up to the applicable cap amount as described in this subparagraph;~~

(B) Twenty per cent of the basis for solar energy systems first placed in service after December 31, 2023, and before January 1, 2027, up to the applicable cap amount, which is determined as follows:

(i) $8,000 per solar energy system for single-family residential property; provided that if all or a portion of the solar energy system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by twenty per cent of the basis or $2,250, whichever is less;

(ii) $700 per unit per solar energy system for multi-family residential property; and

(iii) $500,000 per solar energy system for commercial property; and

Commented [L5]: This exemption is only intended for projects in process under the 2018 tax year, and should not be applied to new sections of the law. This amendment could provide significant cost savings to the state.

(C) Fifteen per cent of the basis for solar energy systems first placed in service after December 31, 2026, up to the applicable cap amount, which is determined as follows:

(i) $8,000 per solar energy system for single-family residential property; provided that if all or a portion of the solar energy system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by fifteen per cent of the basis or $2,250, whichever is less;

(ii) $700 per unit per solar energy system for multi-family residential property; and

(iii) $500,000 per solar energy system for commercial property;

(4) For each energy storage system that is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year, if the cost of the energy storage system is not also included in the basis of a solar or wind energy system under paragraphs (2), (3), or (6); provided that for this section a residential energy storage system shall

be defined as 20 kWh such that the aggregate installation must be at least 5 kWh; for commercial energy storage a system shall be defined as 1 MWh:

(A) Twenty-five per cent of the basis for energy storage systems first placed in service after December 31, 2018, and before January 1, 2024, up to the applicable cap amount, which is determined as follows:

(i) $3,000 per energy storage system for single-family residential property;

(ii) $350 per unit per energy storage system for multi-family residential property; and

(iii) $300,000 per energy storage system for commercial property;

~~provided that an energy storage system that has an executed customer service contract dated prior to June 30, 2018, and is installed and first placed in service before December 31, 2019, shall receive thirty-five per cent of the basis for the energy storage system, up to the applicable cap amount as described in this subparagraph;~~

(B) Twenty per cent of the basis for energy storage systems first placed in service after December 31, 2023, and before January 1, 2027, up

Commented [L6]: This new language provides a system size for energy storage systems as per dotax's concern and will prevent misuse of the storage credit.

Commented [L7]: This cap must be reduced to match section 3 (PV plus storage) so that there is no advantage to taking the credit for PV and energy storage individually.

Commented [L8]: This reduced cap for commercial energy storage is a cost-saving measure.

Commented [L9]: This exemption is only intended for projects in process under the 2018 tax year, and should not be applied to new sections of the law. This amendment could provide significant cost savings to the state.

to the applicable cap amount, which is determined as follows:

(i) $3,000 per energy storage system for single-family residential property;

(ii) $350 per unit per energy storage system for multi-family residential property; and

(iii) $300,000 per energy storage system for commercial property; and

(C) Fifteen per cent of the basis for energy storage systems first placed in service after December 31, 2026, up to the applicable cap amount, which is determined as follows:

(i) $3,000 per energy storage system for single-family residential property;

(ii) $350 per unit per energy storage system for multi-family residential property; and

(iii) $300,000 per energy storage system for commercial property;

~~(5) For each combined energy storage and solar energy system that is installed and first placed in service in the State by a taxpayer during the taxable year or is approved in the taxable year and is placed in the following taxable year, the applicable credit available for an energy storage system under paragraph~~

Commented [L10]: This section is no longer necessary. It was an amendment from Ulupono from last year, and they have since submitted testimony explaining that it is no longer necessary for SB 2100.

~~(4) plus one-half of the applicable credit for a solar energy system under paragraph (2) or (3); and~~

[~~(2)~~] (6) For each [~~wind-powered~~] wind energy system[~~:~~], twenty per cent of the [~~actual cost or the cap amount determined in subsection (b), whichever is less;~~] basis, up to the applicable cap amount, which is determined as follows:

(A) $1,500 per wind energy system for single-family residential property; provided that if all or a portion of the system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by twenty per cent of the basis or $1,500, whichever is less;

(B) $200 per unit per wind energy system for multi-family residential property; and

(C) $500,000 per wind energy system for commercial property.

[~~provided that multiple~~] Multiple owners of a single system shall be entitled to a single tax credit[~~:~~], and [~~provided further that~~] the tax credit shall be apportioned between the owners in proportion to their contribution to the cost of the system.

In the case of a partnership, S corporation, estate, or trust, the tax credit allowable is for every eligible [~~renewable energy technology~~] solar energy, energy storage, or wind energy system that is installed and placed in service in the State by the entity. The cost upon which the tax credit is computed shall be determined at the entity level. Distribution and share of credit shall be determined pursuant to section [~~235-110.7(a).~~] 704(b) of the Internal Revenue Code.

[~~(b) The amount of credit allowed for each eligible renewable energy technology system shall not exceed the applicable cap amount, which is determined as follows:~~

~~(1) If the primary purpose of the solar energy system is to use energy from the sun to heat water for household use, then the cap amounts shall be:~~

~~(A) $2,250 per system for single-family residential property;~~

~~(B) $350 per unit per system for multi-family residential property; and~~

~~(C) $250,000 per system for commercial property;~~

~~(2) For all other solar energy systems, the cap amounts shall be:~~

~~(A) $5,000 per system for single-family residential property; provided that if all or a portion of the system is used to fulfill the substitute~~

~~renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by thirty-five per cent of the actual system cost or $2,250, whichever is less;~~

~~(B) $350 per unit per system for multi-family residential property; and~~

~~(C) $500,000 per system for commercial property; and~~

~~(3) For all wind-powered energy systems, the cap amounts shall be:~~

~~(A) $1,500 per system for single-family residential property; provided that if all or a portion of the system is used to fulfill the substitute renewable energy technology requirement pursuant to section 196-6.5(a)(3), the credit shall be reduced by twenty per cent of the actual system cost or $1,500, whichever is less;~~

~~(B) $200 per unit per system for multi-family residential property; and~~

~~(C) $500,000 per system for commercial property.~~

~~(c)~~] (b) For the purposes of this section:

[~~"Actual cost" means costs related to the renewable energy technology systems under subsection (a), 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 credit is claimed under this chapter.~~

~~"Household use" means any use to which heated water is commonly put in a residential setting, including commercial application of those uses.~~

~~"Renewable energy technology system" means a new system that captures and converts a renewable source of energy, such as solar or wind energy, into:~~

~~(1) A usable source of thermal or mechanical energy;~~

~~(2) Electricity; or~~

~~(3) Fuel.~~]

"Basis" means costs related to the solar energy, wind energy, or energy storage system under subsection (a), including accessories, energy storage, and installation, but does not include the cost of consumer incentive premiums unrelated to the operation of the energy system or offered with the sale of the energy system and costs for which another credit is claimed under this chapter. Any cost incurred and paid for the repair, construction, or reconstruction of a structure in conjunction with the installation and placing in service of a solar or wind energy system, such as the reroofing of single-family residential property, multi-family residential property, or commercial property, shall not constitute a part of the basis for the purpose of this section; provided that costs incurred for the

physical support of the solar or wind energy system, such as racking and mounting equipment and costs incurred to seal or otherwise return a roof to its pre-installation condition shall constitute part of the basis for the purposes of this section.

The basis used under this section shall be consistent with the use of the term "basis" in section 25D or section 48 of the Internal Revenue Code.

"Energy storage system" means any identifiable facility, equipment, apparatus, or the like, including a battery, grid-interactive water heater, or ice storage air conditioner, that is permanently fixed to a site and electrically connected to a site distribution panel by means of installed wiring, and that receives electricity generated from various 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.

"First placed in service" has the same meaning as in title 26 Code of Federal Regulations section 1.167(a)-11(e)(1).

"Grid-connected" means that the individual or corporate taxpayer has obtained an approved interconnection agreement from an electric utility for the solar energy system or whose facility does not have an existing tie to the electric grid.

"Solar or wind energy system" means any identifiable facility, equipment, apparatus, or the like that converts solar

or wind energy to useful thermal or electrical energy for heating, cooling, or reducing the use of other types of energy that are dependent upon fossil fuel for their generation[~~.~~]; ~~provided that:~~

~~(1) The construction, reconstruction, or erection of the solar or wind energy system is completed by the taxpayer; or~~

~~(2) The solar or wind energy system is acquired by the taxpayer if the original use of the solar or wind energy system commences with the taxpayer.~~

[~~(d)~~] (c) For taxable years beginning after December 31, 2005, the dollar amount of any utility rebate shall be deducted from the [~~cost~~] basis of the qualifying system and its installation before applying the state tax credit.

[~~(e)~~] (d) The director of taxation shall prepare any forms that may be necessary to claim a tax credit under this section, including forms identifying the technology type of each tax credit claimed under this section[~~, whether for solar or wind~~]. 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.

[~~(f)~~] (e) If the tax credit under this section exceeds the taxpayer's income tax liability, the excess of the credit over

Commented [L11]: It is unclear what this provision is designed to achieve as it is already the owner of the system that is the taxpayer that is eligible to take the credit. We recommend removal.

liability may be used as a credit against the taxpayer's income tax liability in subsequent years until exhausted, unless otherwise elected by the taxpayer pursuant to subsection (f) or (g) [~~or (h)~~]. All claims for the tax credit under this section, including amended claims, shall be filed on or before the end of the twelfth month following the close of the taxable year for which the credit may be claimed. Failure to comply with this subsection shall constitute a waiver of the right to claim the credit.

[~~(g)~~] (f) For solar energy, energy storage, or wind energy systems, a taxpayer may elect to reduce the eligible credit amount by thirty per cent and if this reduced amount exceeds the amount of income tax payment due from the taxpayer, the excess of the credit amount over payments due shall be refunded to the taxpayer; provided that tax credit amounts properly claimed by a taxpayer who has no income tax liability shall be paid to the taxpayer; and provided further that no refund on account of the tax credit allowed by this section shall be made for amounts less than $1.

The election required by this subsection shall be made in a manner prescribed by the director on the taxpayer's return for the taxable year in which the solar energy, energy storage, or wind energy system is installed and first placed in service. A separate election may be made for each separate solar energy,

energy storage, or wind energy system that generates a credit. An election once made is irrevocable.

[~~(h)~~] (g) Notwithstanding subsection [~~(g),~~] (f), for any [~~renewable energy technology~~] solar energy, energy storage, or wind energy system, an individual taxpayer may elect to have any excess of the credit over payments due refunded to the taxpayer[~~,~~] without discount, if:

(1) All of the taxpayer's income is exempt from taxation under section 235-7(a)(2) or (3); or

(2) The taxpayer's adjusted gross income is $20,000 or less (or $40,000 or less if filing a tax return as married filing jointly);

provided that tax credits properly claimed by a taxpayer who has no income tax liability shall be paid to the taxpayer; and provided further that no refund on account of the tax credit allowed by this section shall be made for amounts less than $1.

A [~~husband and wife~~] married couple who do not file a joint tax return shall only be entitled to make this election to the extent that they would have been entitled to make the election had they filed a joint tax return.

The election required by this subsection shall be made in a manner prescribed by the director on the taxpayer's return for the taxable year in which the solar energy, energy storage, or wind energy system is installed and first placed in service. A

separate election may be made for each separate solar energy, energy storage, or wind energy system that generates a credit. An election once made is irrevocable.

[~~(i)~~] (h) No taxpayer shall be allowed a credit under this section for the portion of the renewable energy technology system required by section 196-6.5 that is installed and first placed in service on any newly constructed single-family residential property authorized by a building permit issued on or after January 1, 2010.

(i) The tax credit under this section shall be construed in accordance with Treasury Regulations and judicial interpretations of similar provisions in sections 25D, 45, and 48 of the Internal Revenue Code.

(j) A planned community association, condominium association of owners, or cooperative housing corporation may claim the tax credit under this section in its own name for systems or facilities placed in service and located on common areas.

(k) No credit under this section shall be authorized for taxable years ending after December 31, 2036.

[~~(j)~~] (l) To the extent feasible, using existing resources to assist the energy-efficiency policy review and evaluation, the department shall assist with data collection on the following for each taxable year:

(1) The number of [~~renewable energy technology~~] solar energy, energy storage, or wind energy systems that have qualified for a tax credit during the calendar year by:

(A) Technology type; and

(B) Taxpayer type (corporate and individual); and

(2) The total cost of the tax credit to the State during the taxable year by:

(A) Technology type; and

(B) Taxpayer type.

[~~(k) This section shall apply to eligible renewable energy technology systems that are installed and placed in service on or after July 1, 2009.~~]"

SECTION 3. If any provision of this Act, or the application thereof to any person or circumstance, is held invalid, the invalidity does not affect other provisions or applications of the Act that can be given effect without the invalid provision or application, and to this end the provisions of this Act are severable.

SECTION 4. This Act does not affect rights and duties that matured, penalties that were incurred, and proceedings that were begun before its effective date.

SECTION 5. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 6. This Act shall take effect on July 1, 2050; provided that section 2 shall apply to taxable years beginning after December 31, 2018.

Report Title:
Renewable Energy; Solar and Wind Energy System; Energy Storage System; Tax Credit

Description:
Replaces the current renewable energy technology systems tax credit with tax credits for solar or wind energy systems and energy storage systems. Applies to taxable years beginning after 12/31/2018. (SB2100 HD1)

The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.

THE ALLIANCE FOR SOLAR CHOICE

HOUSE COMMITTEE ON FINANCE

March 28, 2018, 4:00 P.M.
(Testimony is 1 page long)

TESTIMONY IN SUPORT OF SB 2100 SD2, HD1

Aloha Chair Luke and Members of the Committee:

The Alliance for Solar Choice (TASC) supports SB 2100, SD2, HD1, relating to renewable energy. This measure ramps down the existing renewable energy tax credit starting in 2019 and incorporates energy storage.

TASC supports smart, prudent incentives to meet Hawaii's ambitious clean energy goals. Successful incentives must be predictable and give the market time to react. The proposed bill wisely incorporates energy storage into the eligible tax credit, but also starts a process to wind down the credit over time.

Mahalo for the opportunity to submit these comments.

Testimony in Support with Proposed Amendments to
SB 2100 SD 2, HD 1
being heard by the House Committee on Finance
on Wednesday, March 28, 2018 at 4:00 PM

Aloha Chair Luke, Vice Chair Cullen and Members of the Committee:

Thank you for the opportunity to provide testimony regarding SB 2100 SD 2, HD1, which would modify the current Renewable Energy Technology Tax Credit (REITC) program, by ramping down the tax credit available to solar and wind systems and adding energy storage as an eligible technology. Tesla strongly supports this bill as way to further advance Hawaii's pace-setting efforts to transition to 100% renewable energy, an effort within which storage plays a key role.

Tesla's mission is to accelerate the world's transition to sustainable energy through the deployment of electric vehicles and sustainable energy products, like storage and solar. As the penetration of variable renewable resources, most notably solar, has increased in the state, it makes sense for the policies to evolve to actively support the deployment of energy storage technologies, recognizing that storage has an essential role to play in integrating renewable energy onto the grid. Energy storage in effect transforms an "as-available" resource, i.e. one that produces energy based on when the wind blows or sun shines, into a resource that can be dispatched based on the needs of the energy system.

In addition to the central role in integrating renewable resources and facilitating the State's transition to renewable energy, energy storage can also benefit the grid in a number of other ways. Leveraged through well-designed programs, energy storage offers the potential to significantly improve overall grid resiliency and efficiency and can serve as an alternative to costly investments in distribution and transmission infrastructure by storing and delivering power in transmission or distribution constrained areas during times of grid congestion. For these reasons, Tesla strongly supports including energy storage as an eligible technology under the REITC.

With the ramp-down in the tax credit rate proposed in the bill, we believe the bill strikes an appropriate balance between supporting the deployment of those technologies that are necessary if Hawaii is to be successful in its efforts to transition away from fossil fuels, while mitigating the fiscal impacts of this program. To the degree the current ramp down is deemed insufficient to address the revenue impacts of the bill, Tesla would support reducing the number of years over which the 25% tax credit rate prevails, such that rather than running through 2025 it would ramp down to 20% beginning in 2024.

In addition to the ramp down, Tesla would also support substantially reducing the per system cost cap applicable to storage systems. For residential storage systems, Tesla would support reducing the cap from the current per system cap of $5000 to $3000 per system. For commercial systems, Tesla would similarly support reducing the per system cap from $500,000 per system to $300,000 per system.

Additionally, Tesla wishes to acknowledge the concern of the Department of Taxation ("DoTax") in its testimony before the Energy and Environmental Protection Committee, specifically as those concerns related to the need to define what constitutes a storage "system". Tesla believes that for residential systems, and for purposes of this program, a storage system could be defined as every 20 kWh of energy capacity. For commercial systems, Tesla recommends defining a system as every 1 MWh of capacity. While these system size determinations are somewhat arbitrary, we believe they are appropriately scaled with the per system caps discussed above. Tesla would welcome the opportunity to collaborate with DoTax and other stakeholders to ensure that this bill is workable for everyone.

Finally, although Tesla supports allowing customers that executed a solar contract in the first half of 2018 for projects that come online in 2019 to be eligible for the 35% tax credit, we believe the language that allows for this was incorrectly included throughout the bill. As Tesla understands it, the intent of this language is to prevent customers that may have entered into contracts for solar systems in 2018 under the premise that the 35% tax credit would be available going forward from having the rug pulled out from under them when the tax credit drops to 25% in 2019. However, this language should not be included in the sections pertaining to energy storage. Because storage is not currently an eligible technology, there cannot be any expectation that a storage system would receive a 35% tax credit. For this reason, Tesla recommends removing the relevant language from Section 3 (pg. 9, lines 14-20) and Section 4 (pg. 12, lines 10-16). This change should also further reduce the fiscal impacts of this bill.

Thank you for the opportunity to submit this testimony.

HOUSE COMMITTEE ON FINANCE
March 28, 2018, 4:00 P.M.
Room 308
(Testimony is 6 pages long)

TESTIMONY IN STRONG SUPPORT OF SB 2100 SD2 HD1, SUGGESTED AMENDMENT

Aloha Chair Luke, Vice Chair Cullen, and Finance Committee members:

Blue Planet Foundation **strongly supports** Senate Bill 2100, which seeks to tighten the loophole in the state's solar water heater mandate. We offer suggested amendments to further clarify this policy. **Blue Planet Foundation is not taking a position on the suggested tax credit changes in SB 2100.**

Solar water heating is recognized as a hugely efficient—and cost-saving—strategy for most homes. Since 2010, the state has required solar water heating in all new homes. But this law has a variance process for rare exceptions where solar just doesn't work. Unfortunately, this variance has been abused by developers, despite the legislature's intent that **variances "will be rarely, if ever, exercised or granted**."

Senate Bill 2100 provides amendments to Hawaii's solar water heating law that helps to tighten the fossil fuel loophole and protect consumers, while promoting the state's energy security and sustainability. **Closing the loophole is necessary and urgent**. For example, a large production builder is seeking variances to install gas water heaters for thousands of homes being built on the Ewa Plain—one of the most abundant sun zones in the nation. Without a policy to close the loophole, this misuse of the variance process will continue to the detriment of consumers and to the detriment of the state's progress toward renewable energy.

Blue Planet respectfully requests that the Committee amend SB 2100 to further align the variance process with the clear legislative intent behind Hawaii's solar water heater mandate, as a preferred alternative to the language presented in the current draft of SB 2100**.** These suggested amendments seek to ensure that when variances are granted (albeit "rarely"), only grid-interactive water heaters or heat pump water heaters are to be used in place of a solar water heater. In other words, only water heaters that further our clean energy goals and add value to our increasingly renewable electric grid will be deemed viable replacements that align with the original intent of law.

Our suggested language is at the end of this testimony.

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Intent Behind Hawaii's Solar Water Heater Law is Clear

As summarized in the preamble, in 2008 the legislature passed Act 204, which for the benefit of consumers required that new homes shall utilize solar water heating except in very narrowly limited circumstances through a variance process. In 2009's Act 155, the legislature took the extraordinary step of expressly addressing concerns with potential implementation of the solar water heating law and its variance process. Act 155 explained that it "present[ed] a range of measures to reach aggressive energy goals while balancing the interests of various stakeholders."

Part VII of Act 155 focused on the solar water heater law and explained that in passing Act 204, the legislature "found that retrofitting a home for a solar water heater after [the home] was constructed was more costly, and that such upfront costs . . . were substantial barriers for the average consumer. The financial barriers can be addressed, however, by including the installation of a solar water heater into the purchase price and mortgage of a home, where the cost of the system may pay for itself immediately."

The current solar water heater mandate includes a variance process by which a single family dwelling can be built without a solar water heater if (1) "installation is impracticable due to poor solar resource," (2) "installation is cost-prohibitive based upon a life cycle cost-benefit analysis," (3) a "renewable energy technology system [e.g. solar photovoltaic system] is substituted for use as the primary energy source for heating water," or (4) a "demand water heater device approved by Underwriter Laboratories, Inc., is installed; provided that at least one other gas appliance is installed in the dwelling."

In contemplating variance no. 4, the legislative identified the potential for abuse and sought to further clarify its intent. In Act 155, the legislature found "that it [was] necessary to clarify the intent of the variance provision that allows for a demand water heater device [i.e. gas water heater]. **There is a potential that this provision may be used to allow a developer/builder, the purchaser of a water heating device, of a single-family dwelling, to circumvent the policy objectives of Act 204**." (Emphasis added). The legislature noted that it "intended for a consumer to have the option to use gas appliances with the full knowledge that such a system may be more costly and less efficient. To obviate any attempt to circumvent Act 204, then, the legislature intends that if the potential variance applicant is not the party who will ultimately pay for the energy cost consumption, then only [variance exceptions (1), (2) or (3)] should apply."

The legislature was unambiguous: **the legislature intended for the solar water heater law variance process to bar any attempt by developers/builders to build housing tracts using gas water heaters**. Such housing tracts, including huge tracts presently undergoing development on Oahu, are not eligible for the gas water heater variance (i.e. variance no. 4) because the application for a variance is not sought by the consumer (who will "ultimately pay for the energy cost consumption") but rather by the developer/builder.

An interpretation to the contrary would mean that new homeowners are locked in to homes with fossil fuel water heaters and are unwittingly subjected to higher energy costs over years of home ownership. Yet this misinterpretation prevails in the state's current implementation of the solar water heater variance process. Senate Bill 2100 rightfully recognizes the urgent need to close this loophole and prevent further misuse.

Clarification on the Process for Variance Requests is Urgently Needed

The legislature's concern about the potential for abuse was well founded. The number of variances requested and approved since the law took effect is in the thousands. In Act 155, the legislature explained that it intended "**that the variances provided for in [Act 204] will be rarely, if ever, exercised or granted** because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost-effective in the context of a thirty-year mortgage term." (Emphasis added).

According to state records,[1] **5,763 variance requests have been received as of February 21, 2018,** with a single architect responsible for submitting over 2,200 of those variance requests. What's more, **over 99% of all variance requests received have been approved**. These numbers far exceed the "*rarely, if ever, exercised or granted*" variances envisioned by the legislature when passing the law. Arbitrary approval of essentially all requests simply because the forms have been filled out is contrary to the law's intent.

In addition, the vast majority of variance requests are for gas water heaters. These facts paint a stark picture. Building out new fossil fuel infrastructure would be plainly at odds with the state's commitment to transition to 100% renewable energy and the state's effort to comply with its climate change obligations enacted with 2017's Act 32 (committing the state to the Paris Climate Agreement).

Senate Bill 2100 is a critical measure to ensure that this trend does not balloon as large production builders continue to seek a steady stream of variances to install gas water heaters for thousands of homes being built on some one of the most abundant sun zones in the nation (e.g., the Ewa Plain).

Suggested Amendment

Blue Planet respectfully requests that the Committee amend SB 2100 to align the variance process with the clear legislative intent behind Hawaii's solar water heater mandate, as a preferred alternative to the language presented in the current draft of SB 2100. The suggested amendments provided below seek to ensure that when variances are granted (albeit "rarely"),

[1] *See* DBEDT Summary Chart of Solar Water Heater Variance Requests, Jan. 11, 2018, *available at*: http://energy.hawaii.gov/wp-content/uploads/2018/03/List-Feb_21_2018.pdf

only grid-interactive water heaters or heat pump water heaters are to be used in place of a solar water heater. In other words, only water heaters that further our clean energy goals and add value to our increasingly renewable electric grid will be deemed viable replacements that align with the original intent of law. The suggested amendments also clarify that discretion may be used in denying any variance application deemed incomplete or insufficient to ensure that any variances granted are in accordance with the intent of the law and further our progress toward a fossil fuel free future for the state.

Our suggested amendments to Section 1 of SB 2100 are as follows:

§196-6.5 Solar water heater system required for new single-family residential construction. (a) On or after January 1, 2010, no building permit shall be issued for a new single-family dwelling that does not include a solar water heater system that meets the standards established pursuant to section 269-44, unless the coordinator approves a variance. A variance application shall only be accepted if ~~if submitted~~ signed by an architect or mechanical engineer licensed under chapter 464, who attests and demonstrates that:

(1) ~~Installation is impracticable due to poor solar resource~~;

~~(2)~~ Installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed fifteen years;

~~(3)~~(2) A renewable energy technology system, as defined in section 235-12.5, is substituted for use as the primary energy source for heating water.~~; or~~

~~(4) A demand water heater device approved by Underwriters Laboratories, Inc., is installed; provided that at least one~~

~~other gas appliance is installed in the dwelling. For the purposes of this paragraph, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed.~~

(b) If a variance is granted for a property that will be connected to an electric utility grid, a grid-interactive water heater or a heat pump water heater shall be used in place of a solar water heater. For the purposes of this paragraph, “grid-interactive water heater” means an electric resistance water heater fitted with grid-integrated controls that are capable of participating in an electric utility load controls or demand response program.

(~~b~~c) A request for a variance shall be submitted to the coordinator on an application prescribed by the coordinator and shall include a description of the location of the property and detailed justification for the approval of a variance using the criteria established in subsection (a), and the type of replacement water heater being used in accordance with subsection (b). The coordinator may exercise discretion in denying any variance application deemed incomplete or insufficient to satisfy the criteria in subsections (a) and (b). A variance shall be deemed approved if not denied within ~~thirty working~~ sixty calendar days after receipt of the variance application. The coordinator shall publicize:

(1) All applications for a variance within seven days after receipt of the variance application; and

(2) The disposition of all applications for a variance within seven days of the determination of the variance application.

(~~c~~d) The director of business, economic development, and tourism may adopt rules pursuant to chapter 91 to impose and collect fees to cover the costs of administering variances under this section, and to impose appropriate penalties or fines for false attestations in variance applications. The fees, fines, or penalties, if any, shall be deposited into the energy security special fund established under section 201-12.8.

(~~d~~e) Nothing in this section shall preclude any county from establishing procedures and standards required to implement this section.

(~~e~~f) Nothing in this section shall preclude participation in any utility demand-side management program or public benefits fee program under part VII of chapter 269.

Conclusion

Blue Planet Foundation strongly supports SB 2100 with our suggested amendment to better align the variance process with the clear legislative intent and clarify that discretion can be exercised when reviewing variance requests. **Closing the loophole is necessary and urgent to avoid backtracking on our commitment to reaching 100% renewable energy and meeting our climate commitments.**

We look forward to working with the legislature on this key policy.

Thank you for the opportunity to testify.

Testimony to the House Committee on Finance

Wednesday, March 28, 2018 4:00 p.m.
Conference Room 308, State Capitol
RE: Senate Bill 2100 SD2 HD1

Chair Luke, Vice Chair Cullen and Members of the Finance Committee

Hawaii Gas **opposes** SB2100 SD2 HD1 and provides the following **comments**

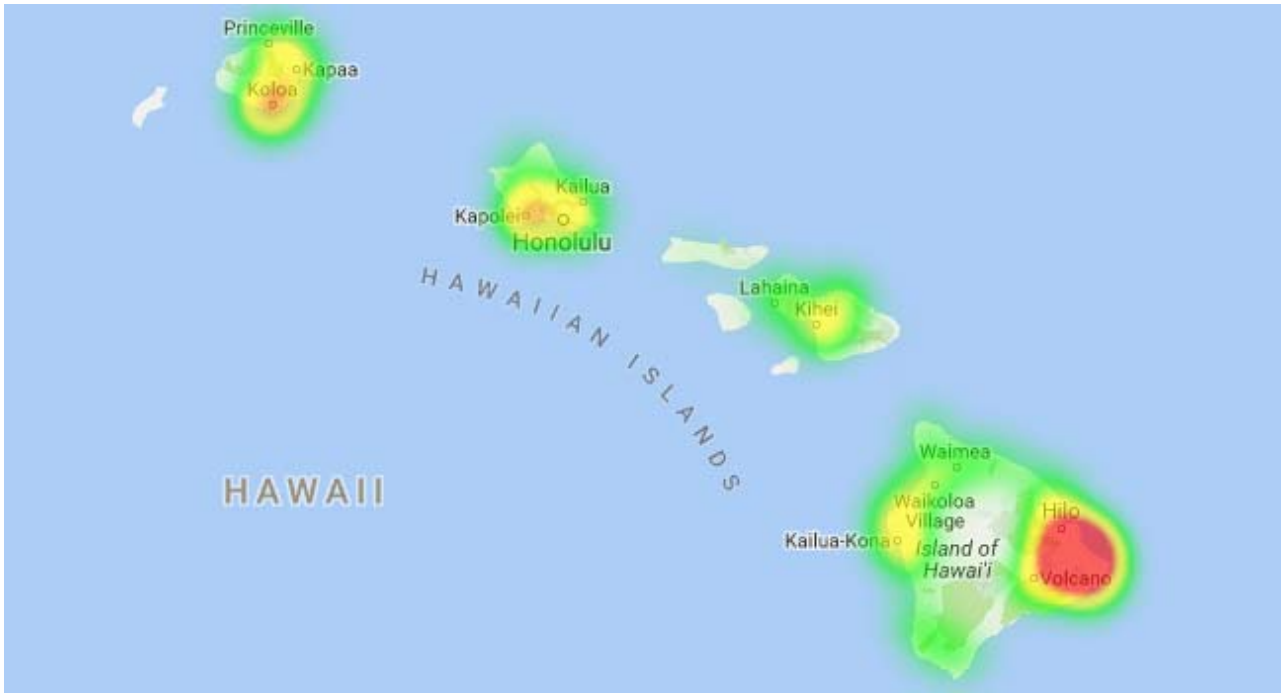
Proposed Bill
SB2100 SD2 HD1 proposes to replace the current renewable energy technology systems tax credit with tax credits for solar or wind energy systems and energy storage systems. Applies to taxable years beginning after 12/31/2018 (SB2100 HD1).

However, the measure also proposes to amend Act 104, which provides a variance by which a single-family dwelling could be built without a solar water heater. One variance currently allows for a demand water heater; however, the amendment proposes to add an additional requirement for a cost analysis, which is already in the statute in Section a (2).

Summary of Position
Hawaii Gas **opposes** the amendment in Section a (4). This places an additional administrative and financial burden on citizens who do not have access to the electric grid, specifically those living in rural areas of Kauai, Maui, the Big Island, Molokai and Lanai.

DBEDT data for variances illustrates that mandate is working as intended with the majority of variances being granted in areas (such as East Hawaii) with poor solar resource and limited or no access to the electric grid.
Proponents of placing added requirements for a demand water heater variance argue that they are closing a loophole, when in fact, based on figures obtained from the Hawai`i State Energy Office, two thirds of all variances granted since 2010 were for the Island of Hawaii, most notably East Hawaii. These homes are often remote and have many resource challenges, including lack of county water (use catchment tanks), poor solar resource (more rain/cloudy days and often dense tree coverage which can block direct sunlight), lack of access to the electric grid, or intermittent service from the electric grid. Gas-powered, instantaneous water heaters are often the only available water heating source. Solar water heating systems in these areas could provide only a fraction of a household's needs for part of the year, at best. When solar resource is intermittent or poor, and there is also no access to an electric grid, these occupants would have an additional barrier to obtain affordable, clean energy to heat their water. Analysis of the actual data from DBEDT demonstrably illustrates that the solar water mandate is working as intended.

The areas which have the most variances include some of the lowest income areas in the state. With examples of median household income in Koloa of $47,404, and Pahoa of $29,773 (contrasted by the Hawaii state median household income of $83,823). Each of these areas represent the highest density of water heater variances throughout the state, as depicted below. (The red color indicates the areas where that have the highest density of water heater variances.)



"Heat Map" showing density of location of variance requests.

DBEDT's cost analysis model is flawed with incorrect and outdated assumptions.

In addition, the form for the cost analysis as required by DBEDT to administer this variance is flawed with dozens of incorrect and outdated assumptions. It does not allow for variable inputs to fairly assess the homeowner's unique situation and completely ignores basic variables such as solar irradiance at a particular home.

Additional administrative burden creates barriers for affordable housing.

As the Governor and the State Legislature have highlighted, one of the top challenges in the State is affordable housing. Since rooftop solar heating systems are an expensive investment in comparison to other water heating options (be it gas or electric), restricting the variance option with additional administrative and financial burdens, as well as false barriers can make housing even more expensive and unaffordable for many people. This is particularly true in the affordable housing bracket, as one of the largest challenges for affordable housing purchasers is mortgage qualification. Mandating expensive up-front costs has the potential impact of lowering the pool of moderate-to low-income residents who can qualify for mortgages. For comparison, a typical

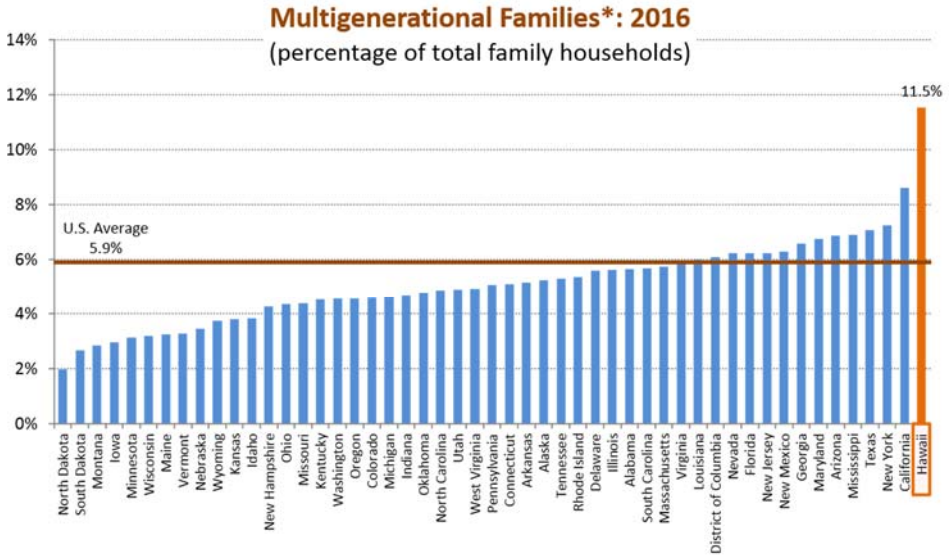
residential solar hot water system will cost $4,000-$8,000, whereas, a demand water heater costs only a fraction of that, typically $800-$2000. When solar water heater costs are included in a typical 30-year mortgage, the accumulated interest is substantial. On-Demand water heaters are an affordable, reliable and energy efficient option now, particularly given a resident only uses heat energy when they need it, and the appliances do not receive any additional funding from the State (as compared to an ITC for solar). The variances issued to date reaffirm the upfront cost savings as a significant motivator with roughly 96% being granted within USDA Rural Development Areas. These areas consist of some of the lowest income census tracts in the state.

Consumer choice is key when living in Hawaii given its remoteness, and having a diverse supply portfolio in the event of a natural disaster like Puerto Rico and Texas is part of survival.

As technology continues to advance, legislators should not pick winners and losers. The freedom for homeowners to choose how they heat their water is especially important given Hawaii is so remote. It's important that Hawaii has a diverse supply portfolio as evidenced recently in Puerto Rico and Texas. Gas water heaters offer the potential to allow residents to have hot water in the event of a power outage. This was the case in Kauai after Hurricane Iniki, where residents were still able to have hot water during the time of the recovery. Solar hot water systems (a significant proportion of which utilize electricity for pumping and controls, and many of which have supplemental electrical heating elements) or any grid-connected electrical-based alternative, will invariably be subject to system outages. As noted in HB 2249, "The Hawaii emergency management agency estimates that under a best-case scenario, it would take at least fourteen days after landfall of a category four hurricane on Oahu to restore eighty per cent of grid power. Most public emergency shelters in the State do not have the capacity to provide two weeks of electrical service and relief from the mainland is dependent upon a functioning airport and seaport".

Solar water heaters are not truly 100% renewable as they are connected to the grid which remains 70% fueled by oil and coal.

Lastly, even solar hot water heaters are grid connected because the sun does not shine ALL the time. When the hot water tank is not able to be adequately heated by the solar resource, as in cloudy days or when there is high demand for hot water by multiple users as may be the case in many multigenerational homes (See chart below), the system will be powered by the electric grid, often unbeknownst to the user. Those with solar water heating may have unanticipated increases in their consumption and electric bill. Currently, this electric usage is fueled by approximately 70% fossil fuel and is 65% less efficient (consumes 3 times more fuel) than alternative gas options.



Source: U.S. Census Bureau, 2016 American Community Survey 1-Year Estimates

Re-focus SB2100 to original intent which is on tax credits for solar and wind energy, not the solar water heater mandate, as it requires more study before implementing any future amendments.

The intent of this bill is to create tax credits for solar or wind energy systems and energy storage systems. Inserting an amendment on the solar water heater variance at this juncture requires more study and input from stakeholders due to the unintended consequences it may have. We urge the Committee members to delete Section 1 of this bill because this section of the amendment restates a definition of renewable energy already found in Section 235 12.5. We urge you to keep the bill clean with regards to the original intent, or at a minimum require a study and more input from stakeholders on the unintended consequences before making the amendment affecting water heaters effective.

Thank you for the opportunity to testify on SB 2100 SD2 HD1.

SB-2100-HD-1
Submitted on: 3/25/2018 12:10:02 PM
Testimony for FIN on 3/28/2018 4:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
John Crouch	Energy Research Systems	Support	No

Comments:

Energy Research Systems is in SUPPORT of this Bill.

1. It addresses a reasonable reduction of tax credits over time.

2. It adds renewable energy storage to the tax credit incentives.

Both of these actions, expecially the inclusion of storage, are essential for continued advancement in the use of renewables in providing energy security for Hawaii.

Aloha, John Crouch

SB-2100-HD-1
Submitted on: 3/27/2018 3:22:02 PM
Testimony for FIN on 3/28/2018 4:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	Oahu County Committee on Legislative Priorities of the Democratic Party of Hawai'i	Support	No

Comments:

To the Honorable Sylvia Luke, Chair; the Honorable Ty J.K. Cullen, Vice-Chair and Members of the Committee on Finance:

Good afternoon. My name is Melodie Aduja. I serve as Chair of the Oahu County Committee ("OCC") Legislative Priorities Committee of the Democratic Party of Hawaii. Thank you for the opportunity to provide written testimony on **SB2100 SD2 HD1**, regarding Renewable Energy; Solar and Wind Energy System; Energy Storage System; and a Tax Credit.

The OCC Legislative Priorities Committee is in favor of **SB2100 SD2 HD1** and supports its passage.

SB2100 SD2 HD1 is in accord with the Platform of the Democratic Party of Hawai'i ("DPH"), 2016, as it replaces the current renewable energy technology systems tax credit with tax credits for solar or wind energy systems and energy storage systems, and applies to taxable years beginning after 12/31/2018.

Specifically, the DPH Platform provides that "[w]e seek to achieve energy sustainability based on renewable energy sources. We must encourage the use of clean alternative fuel sources to include our public transportation systems. . . . We must also urgently develop the use of a variety of cost-effective energy providing systems, encourage transit-oriented development, and support tax incentives that encourage renewable energy initiatives.

We oppose any tax breaks to fossil fuel industries.

We support energy independence, self-sufficiency, affordability and reliability for Hawai'i through the development of renewable alternative energy sources. Specifically, we need to support policies that foster the development of energy production methods that de-emphasize carbon based fuels and promote renewable sources such as wind, solar, wave, geothermal and Ocean Thermal Energy Conversion (OTEC).

Electricity rates in Hawaii are among the highest in the nation despite the fact that we enjoy an abundance of sunshine year round. Electric utility companies and

cooperatives must open the grid to alternative power sources including solar panels and geothermal energy. We support the effort of our government officials to require utilities to provide for the maximum, comprehensive, integrated use of renewable energy and associated technologies such as storage and smart grid technologies. (Platform of the DPH, P. 7, Lines 443-444, 446-462 (2016)).

Given that **SB2100 SD2 HD1** replaces the current renewable energy technology systems tax credit with tax credits for solar or wind energy systems and energy storage systems, and applies to taxable years beginning after 12/31/2018, it is the position of the OCC Legislative Priorities Committee to support this measure.

Thank you very much for your kind consideration.

Sincerely yours,

/s/ Melodie Aduja

Melodie Aduja, Chair, OCC Legislative Priorities Committee

Email: legislativepriorities@gmail.com, Text/Tel.: (808) 258-8889

NRG Renew LLC
100 California Street,
Suite 400
San Francisco, California
94111

March 27, 2018

Via Electronic Submittal

To: The Honorable Rep Sylvia Luke, Chair and Members of the House Committee on Finance

Date: March 28, 2018

Time: 4:00 pm

Place: Conference Room 308; State Capitol; 415 South Beretania Street

Re: SB 2100, SD2 HD1, Relating to Renewable Energy

NRG Renew, LLC ("NRG") applauds and supports the intention of SB 2100 to expand State renewable energy tax credits to both solar and energy storage. We submit testimony with two main objectives:

1. Ensure there is clarity on interpretation so the bill does not unintentionally impact projects already under contract and/ or under construction.

Related to the first objective, NRG proposes the addition of a definition for 'customer service contract' which is referenced in Section 2(A)(iii), Section 3(A)(iii) and Section 4(A)(iii), whereby projects that have existing contracts and are placed in service by December 31, 2019 are grandfathered under the current tax credit structure. This definition of customer service contract should specifically call out the inclusion of Power Purchase Agreements (PPAs) as customer service contracts (the contractual vehicle via which Hawaiian Electric purchases power from Independent Power Producers like NRG but also the contractual vehicle for other residential and commercial solar transactions). NRG has three PPAs with Hawaiian Electric for 110 MW's of projects that will be placed in service before December 31, 2019. NRG would like to ensure there is no confusion as to whether the provision applies to these projects.

Additionally, we find that the recent House addition of the language "or is approved in the taxable year and is placed in the following taxable year" to create some confusion. This language should be clarified to specify what approval is being referenced. We also believe the language should use the term "placed in service" rather than "placed".

2. Ensure there is clarity on how the bill will be interpreted by the Hawaii Department of Taxation once the bill has passed, particularly as it relates to commercial systems.

Combined Solar Plus Storage

NRG believes the way the bill is currently written there is considerable confusion between interpretations of Sections 3 and 5. In Section 3, tax credits are laid out for a solar energy system that "incorporates an energy storage system." In Section 5, tax credits are reduced for "combined" solar and storage systems. The terms "incorporates" and "combined" are not defined in the legislation; it is not clear what the difference between these terms is or how a developer could determine whether either term would apply to their project.

Additionally, NRG is concerned that the language in Section 5 would create a strong disincentive to build solar and storage systems that would be considered to be "combined," even though such systems could be more beneficial to the electric grid than separate systems and even though systems must be considered combined in order to monetize the Federal Investment Tax Credit. Our interpretation is that, in creating a tax credit structure for energy storage, the intention of the Legislature is to incentivize renewable energy plus energy storage, not penalize combined projects.

If a "combined" system meant the loss of millions of dollars in tax credits, developers would go to great lengths to avoid this arrangement – for example, by building standalone solar systems instead of incorporating storage, or by building storage systems that are sufficiently separate from the solar system as to not be considered "combined" – including suboptimal siting and interconnection configurations.

<u>Solution:</u> NRG recommends deleting Section 5. We hope that the intention of the Legislature is not to reduce the tax credit for solar plus storage systems, but if this is the intention, a clearer way to implement this would be to reduce the credits in Section 3 by half.

Application to Solar Energy Systems

To interpret Hawaii Revised Statutes Section 196-6.5 in current law, one must refer to Department of Taxation Administrative Rules (HAR 235-12.5) that became effective January 2, 2014. These rules clarify that for tax purposes a commercial solar

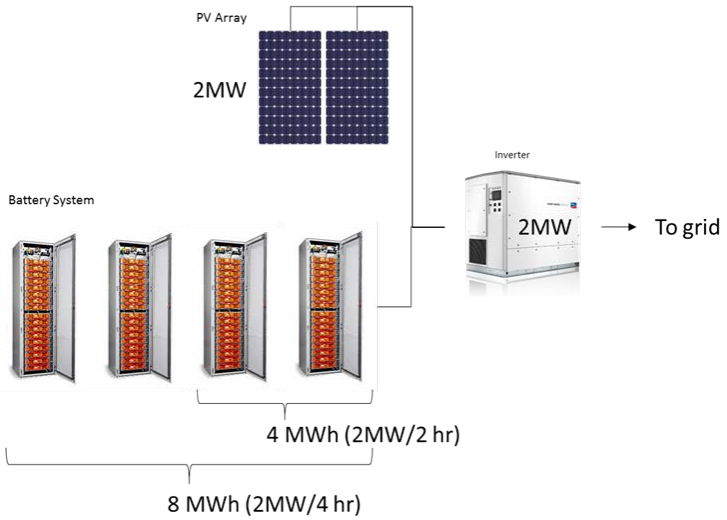
energy system is defined as 1,000 kW DC and they allow for fractional credits for systems smaller than 1,000 kW DC for residential and multi-family residential systems. It creates ongoing uncertainty in the market that the law must be interpreted using the DOTAX administrative rules which are presumably subject to change.

Solution: NRG recommends including DOTAX's definition of "solar energy system" in the language of SB2100 for greater clarity as a starting point. Specifically, for commercial property this should include the detail that "each system for which a credit claimed shall have a total output capacity of at least 1,000 kilowatts".

Application to Energy Storage Systems

Along these lines, the drafted bill does not define the size or scope of an energy storage system. As such, it is not clear how DOTAX will interpret and apply the credit to energy storage. In order to clarify this application and ensure that interpretations are not made by the industry or left to further DOTAX administrative rules, NRG suggests setting the commercial project cap for energy storage systems at 25% of in-basis costs or $70/kWh, whichever is lesser. This will allow the credit to scale with the size of the energy storage system.

It is important to note that the size of an energy storage system is most accurately represented in kilowatt-hours (kWh) rather than in kilowatts (kW). The energy storage capacity of a system (kWh) captures both its rated power for instantaneous output (kW) and the duration of the storage system (hours). For example, a 4 MWh system might be configured to deliver 1 MW for four hours or 2 MW for two hours, with the only difference being the capacity of the inverter connecting the energy storage system to the grid (see illustration below). The in-basis capital cost of the energy storage system will scale with the kWh capacity of the system, as represented in the diagram below. Therefore, the tax credit should scale with the kWh capacity as well.



The cap of $70/kWh was determined by roughly comparing the percentage of the current commercial tax credit cap ($500,000 per system) versus the market capital cost of a 1,000kW DC solar energy system (16 - 20%) and scaling the storage tax credit to be roughly equivalent based on current market pricing for energy storage.

Solution: NRG recommends a cap of $70/kWh for commercial energy storage systems instead of the $500,000 cap in Section 4(A)(iii), Section 4(B)(iii) and Section 4(C)(iii). Taken as a refundable credit this will be equivalent to $49/kWh.

NRG hopes that these comments are helpful for clarifying the language of SB2100 as it specifically applies to commercial systems. We look forward to answering any questions you might have on our testimony.

Sincerely,

Nicola Park
Origination Manager
NRG Renew, LLC

HAWAII TEAMSTERS AND ALLIED WORKERS, LOCAL 996

Affiliated with the International Brotherhood of Teamsters

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Testimony To The House Committee On Finance

Wednesday, March 28, 2018
4:00pm, Conference Room 308
Hawaii State Capitol Building
415 South Beretania Street

RE: Senate Bill 2100 SD2 HD1

Chair Luke, Vice Chair Cullen and Members of the Committee on Finance:

The Hawaii Teamsters and Allied Workers, Local 996 stand opposed to Senate Bill 2100 SD2 HD1.

SB 2100 SD2 HD1 is another proposal that would limit choices and place an additional burden on our members and other consumers who do not have access to the electric grid, especially those living in rural areas of the neighbor islands.

Gas based technologies have proven to be a reliable resilient power over many years unlike renewable energy such as wind and solar which is in infancy.

Solar water heaters are not 100 % renewable and remain connected to the electric-grid, which continues to be fueled by oil and coal.

There will be times when the ability for solar resources to collect becomes intermittent or non-existent and connection to the electric grid is lost leaving further challenges for consumers to obtain affordable, clean energy to heat water.

The original intent of SB2100 is on tax credits for solar or wind energy and energy storage systems that should remain the focus. Refrain from adding the solar water heater mandate.

Thank you for the opportunity to testify on SB 2100 SD2 HD1.

Wayne K. S. Kaululaau
Political Coordinator
Hawaii Teamsters and Allied Workers, Local 996

LATE

Email: communications@ulupono.com

HOUSE COMMITTEE ON FINANCE
Wednesday, March 28, 2018 — 4:00 p.m. — Room 308

Ulupono Initiative Supports the Intent of SB 2100 SD 2 HD 1 with Amendments, Relating to Renewable Energy

Dear Chair Luke, Vice Chair Cullen, 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 better management of waste and fresh water. 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.

Ulupono supports the intent of SB 2100 SD 2 HD 1 with Amendments, which replaces the renewable energy systems tax credit with tax credits for energy storage, because it aligns with our goal of increasing the production of clean, renewable energy in Hawai'i, while being revenue neutral to revenue positive for the State.

In considering the alternatives for energy storage tax credits, Ulupono believes that SB 2100 SD 2 HD 1 should adhere to all the following good policy principles.

Renewable Energy Subsidies Policy Principles:

- 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 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).

- 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 as quickly as possible.

- 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.

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 through 2025 of implementing this bill could be an approximate **savings to the State of $8 million dollars** with 50 percent residential new solar/storage. However, if residential uptake accounts for 75 percent of the new solar/storage, then there could be an approximate net cost of $111 million dollars through 2025. The expected savings to the State is likely to be realized in the later years as tax credits ramp down. We caution these numbers are only indicative of the important levers that can impact the overall State budget exposure.

Although the potential net cost of a 75 percent residential uptake of new solar/storage could be in excess of $100 million dollars, we expect the residential uptake to be lower consistent with historical ratios, resulting in potential savings to the State from the implementation of this bill. <u>To significantly reduce the potential net cost to the State, the first amendment Ulupono recommends is to accelerate the percent credit ramp down consistent with the original SB 2100 or SB 2100 SD 1 versions of this bill.</u>

Since the cap for solar plus storage was reduced from $10,000 to $8,000 in the House Energy and Environmental Protection committee, the individual solar (currently $5,000)

and individual storage ($5,000) cap should add up to $8,000 to be consistent with the aggregate cap for solar plus storage. The second amendment Ulupono recommends is to reduce the storage only credit cap from $5,000 to $3,000, which can be found on page 12, line 4, page 13, line 1, and page 13, line 11.

The third amendment Ulupono recommends is to delete section 2, paragraph (5), which is found on page 13, line 17 – page 14, line 3.

The fourth amendment Ulupono recommends is to ensure that an energy storage system is defined as including both electrochemical energy storage (i.e. batteries) and kinetic energy storage (e.g. pumped storage hydropower, and compressed air). In Hawai'i, pumped hydro energy storage tends to be cheaper than batteries, and the incentives should be indifferent to technology so that the least cost technology is selected. Therefore, we suggest language for page 19, line 3:

"Energy Storage System" means any identifable facility, equipment, or apparatus, including battery, grid-interactive water heater, ice storage air conditioner, pumped storage hydropower, compressed air storage, or the like, ...

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

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LATE

March 27, 2018

Representative Sylvia J. Luke, Chair
Representative Ty J.K. Cullen, Vice Chair
House Committee on Finance

Comments in Opposition to SB 2100, S.D. 2, H.D. 1, Relating to Renewable Energy (Replaces the current renewable energy technology systems tax credit with tax credits for solar or wind energy systems and energy storage systems; applies to taxable years beginning after 12/31/18.)

Wednesday, March 28, 2018, at 4:00 p.m., in Conference Room 308

The Land Use Research Foundation of Hawaii (LURF) is a private, non-profit research and trade association whose members include major Hawaii landowners, developers and a utility company. LURF's mission is to advocate for reasonable, rational and equitable land use planning, legislation and regulations that encourage well-planned economic growth and development, while safeguarding Hawaii's significant natural and cultural resources, and public health and safety.

LURF appreciates the opportunity to provide comments in opposition to this measure.

SB 2100, S.D .2, H.D. 1. This bill proposes to amend Hawaii Revised Statutes (HRS) Section 196-6.5, which requires a solar water heater system for new single-family residential construction except in certain cases where a variance is allowed. One such variance allows for installation of a demand water heater device; however, the proposed amendment requires the life cycle cost for the device be less than a solar water heater system based on analysis in subsection (a)(2).

LURF's Position. LURF acknowledges the intent of this and other/prior similar versions of renewable energy measures aimed at obliterating all alternatives to solar-powered appliances given what proponents consider to be the unquestionable virtuousness of solar energy coupled with what is erroneously perceived as exploit and greed on the part of developers and construction companies which elect to utilize alternatively powered systems in their projects, however, simply put, these misconceptions and reported justifications for the amendments proposed by this bill

have **not** thus far been convincingly proven or supported by credible facts or evidence, particularly when balanced against other currently prioritized and significant challenges being faced by this State, including affordable housing.

LURF's Opposition to SB 2100, S.D. 2, H.D. 1 is Premised on the Following Reasons and Considerations:

1. **Disallowance of the Installation of Demand Water Heaters is Inconsistent with the Current Focus on and Prioritization of the Affordable Housing Crisis by the State and the City.**

As this Committee is well-aware, the unsustainable costs and onerous obligations now being cast upon developers by development requirements and standards are already of serious concern, as are the enactment of onerous regulations relating to the maintenance and operation of infrastructure, and development of educational facilities, all of which are proving to be potentially counterproductive to the State's long-term objective of creating more affordable housing.

LURF understands that rooftop solar heating systems constitute an expensive upfront investment cost compared to other water heating options, particularly in the affordable housing bracket since one of the greatest challenges for affordable housing buyers is mortgage qualification.

Attempting to keep projects viable and in line with affordable housing mandates, developers are offering potential home buyers efficient and cost-saving appliance alternatives such as demand water heaters, however, by doing so, are being unfairly and unjustifiably characterized as a subverted effort to utilize a loophole in the law to reduce their upfront costs, leaving buyers with higher energy bills. These types of unfounded allegations are improperly being relied upon as justification for the subject bill and amendment.

2. **Credible Facts Are Required to Support the Alleged Need for this Unwarranted Legislation.**

LURF's position is that proponents of this measure have failed to credibly present material facts or evidence to prove that the current variance application process is specious or that this proposed amendment is in fact necessary to close an alleged "loophole." The intent and application of SB 2100, S.D. 2, H.D. 1 is thus arguably unreasonable and unwarranted.

Prior to enacting unnecessary legislation which could potentially conflict with efforts currently being made to address the current affordable housing crisis, LURF believes that it may be advisable and prudent for this Committee to require support for this measure in the form of material facts and/or credible studies which would prove allegations being made by bill proponents. Such inquiry should include, for example, installation cost and future savings comparisons (i.e., upfront vs. sustained costs) between solar and other alternative energy systems; and whether the current solar water

heater mandate is working as intended or is in fact being averted to determine whether claims being made by proponents in fact support the alleged need for the amendment to HRS Section 196-6.5.

3. Installation of Demand Water Heater Devices is Supported by a Myriad of Practical Reasons and Considerations.

LURF understands that there are also a number of other judicious, practical reasons to take into consideration to maintain demand water heaters as an approved alternative to solar systems for single-family homes in Hawaii:

a. Alternatives Necessary to Drive Competitive Market Prices – Alternative design/construction products and systems drive price competition in the marketplace, which is key to construction affordability. If only solar hot water systems were allowed, the cost of solar systems would undoubtedly rise.

b. Efficient Suite of Appliances – Demand water heaters are part of a larger suite of appliances powered by gas, clothes dryers, kitchen ranges/ovens and outdoor lanai appliance hook-ups. Single family home developers may offer this type of suite of products to create an economy of scale in savings to the homeowner.

c. Use of Appliance during Power Outages – Unlike electric appliances, gas-powered appliances can all be used during power outages minimizing disruption to daily living functions.

d. On Demand Cost Only – Demand water heaters heat water on demand, day or night, so homeowners only pay for the hot water used, not the hot water needed to be stored in a tank.

e. Rooftop Real Estate – Affordable and workforce housing demand efficient home floor plans with compact roof designs. Available rooftop space is often limited once required plumbing vents and attic vents are installed. Size 4'x8' solar hot water panels (1 to 2 panels per home depending on size) demand prime rooftop surfaces for optimum efficiency, taking up valuable rooftop space that could otherwise be used for photovoltaic panels. Demand water heaters are wall mounted, yielding maximum rooftop real estate for homeowners seeking net zero PV systems.

f. Garage Real Estate – Solar hot water tanks are typically located within the garage of a home, taking up space that could be otherwise used for needed storage space. If located within the home, solar tanks take up prime living space.

g. Maintenance – Demand water heaters have a lower maintenance and replacement cost.

h. Value to Community – Main gas lines supplying residential homes create a valuable infrastructure that services neighborhood commercial, restaurants and mixed used developments, bringing heightened value to the community.

i. Hot Water Tank Increased Requirements – Over the past several years, an increase in hot water tank requirements such as expansion tanks, seismic strapping and bollard/wheel stops, are ultimately resulting in the increased cost of a home.

4. Compliance with the Requirements Newly Added to this Measure Would Be Confusing and Unreasonable.

The new provision added to HRS Section 196-6.5 (a)(4) in this H.D. version of the bill requiring attestation by a licensed architect or mechanical engineer that the life cycle cost for the demand water heater device is less than a solar water heater system based on a cost-benefit analysis (as required in subsection (a)(2)) is confusing and unreasonable. Does said added provision now require that two cost-benefit analyses be conducted for installation of a demand water heater device? What is the purpose of unreasonably requiring two cost-benefit analyses in such a situation other than increasing costs, causing delays and placing an undue burden on the developer/builder?

If the new provision was included to make clear that attestation of such an analysis is required when a demand water heater device is installed in lieu of the attestation of cost-benefit analysis pursuant to subsection (a)(2), further clarifying language must necessarily be included in this amendment.

Conclusion. LURF's position is that proponents of this measure have failed to credibly present any material facts or circumstances to prove that this proposed legislation is in fact necessary. The intent and application of this bill thus arguably remain unreasonable and unwarranted. LURF therefore believes it would be irresponsible for this Committee to agree to support this bill which may potentially stifle current efforts by the State and the City to address and work through the affordable housing crisis, and in turn, impact the overall economy, without thorough review and analysis of all the facts and information relating to the proposed amendment, as well as its potential consequences.

In view of the above discussion, LURF must **oppose SB 2100, S.D .2, H.D. 1**, and respectfully requests that this bill be held in this Committee.

SIERRA CLUB OF HAWAIʻI
MĀLAMA I KA HONUA. Cherish the Earth.

LATE

HOUSE COMMITTEE ON FINANCE

Wednesday, March 28, 2018 4PM Conference Room 308

In SUPPORT of SB 2100 SD2 HD1 Relating to Renewable Energy

Aloha Chair Luke, Vice Chair Cullen, and members of the FIN Committee,

On behalf of our 20,000 members and supporters, the Sierra Club of Hawaiʻi, a member of the Common Good Coalition, **supports SB 2100 SD2 HD1**, which includes language to clarify the use of the variance from the statewide requirement to install solar-powered hot water heaters on new homes.

To understand the intent of this amendment to SB 2100, it is important to first review the intent of Act 204 (enacted in 2008) and Act 155 (enacted in 2009) for context.

HB 2109 HD1 seeks to amend §196-6.5 of Act 204, regarding the solar water heater mandate for new single-family home construction, which serves to encourage the adoption of inexpensive and energy efficient renewable energy water heaters in new single-family home.

Act 155, an effort to clarify the administration of the Solar Hot Water Variance Law, states that variances would be "rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a thirty-year mortgage."

To be clear: liquified natural gas (LNG), especially when using hydraulic fracturing (fracking) for extraction, *is not clean energy*. Act 204 was meant to encourage the adoption of energy efficient water heaters on new homes *that are congruent with the state's goals of 100% by 2045* and, further, any variance request for gas water heaters should rarely, if ever, be granted. Since the enactment of 204, however, *over 5,600 variances have been requested and over 5,300 of them approved for the installation of gas water heaters*. It does not follow that, in a state that currently has no infrastructure for full-scale natural gas--not to mention in addition to its ambitious

renewable energy goals--that thousands of gas water heaters have been installed in news homes and with no evidence of slowing.

Also of importance to note is that the initial implementation costs--when considering available tax credits and rebates--the return on investment over time for solar water heaters is less than for gas heaters, especially in many regions (e.g., Hoʻopili, Koa Ridge) where solar irradiance is high. SB2100 as amended ensures consumers have lower energy costs, while simultaneously bringing the state closer to it's goal of 100% clean energy by 2045.

Thank you for the opportunity to submit testimony on this important measure.

LATE

Hawaii Solar Energy Association

Serving Hawaii Since 1977

TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION
IN REGARD TO SB 2100 SD2 HD1, RELATING TO RENEWABLE ENERGY
BEFORE THE
HOUSE COMMITTEE ON FINANCE
ON
WEDNESDAY, MARCH 28, 2018

Chair Luke, Vice-Chair Cullen, and members of the committee, my name is Will Giese, and I am the Executive Director of the Hawaii Solar Energy Association, Inc. (HSEA).

The HSEA was founded in 1977 to further solar energy and related arts, sciences and technologies with concern for the ecologic, social and economic fabric of the Hawaiian Islands. Our membership includes the vast majority of locally owned and operated solar installers, contractors, distributors, manufacturers, and inspectors across all islands.

HSEA **supports, with amendments, SB 2100 SD2 HD1**. This measure seeks to amend §196-6.5 and §235-12.5 in light of changes in both the overall state of clean energy technology as well as recent alterations in state policy.

Over the last 2 years, since the closing of NEM, the HSEA has witnessed and recorded significant job losses across all levels of our industry.[1] Permitted and interconnected systems have declined between 40-60% year over year and several local companies have ceased operations and closed their doors for good. On some islands, it is likely that there has been a reduction of up to 50% of the solar workforce as a result of this decline.

This precipitous decline in systems installed, while troubling for both state energy goals and the local economy, has also had the effect of lowering the state's tax obligation for claimed solar investment tax credits. Therefore, the argument that the solar tax credit creates an undue financial burden on the state is simply false, given that the amount of credits claimed over the past two years have declined. In fact, over the life of a system Hawaii may actually be *decreasing* its own taxable revenue. A recent study of Hawaii's investment tax credit found that it benefits both the state and the individual energy consumer.[2] Specifically, the study found that an average residential PV system **generated $1.97 in state revenue for every $1.00 spent** on that system's construction over the life of that system.

From a state policy perspective, Hawaii PUC's order ending NEM in October 2015 and its subsequent orders in Docket 2014-0192 as well as the Power Supply Improvement Plan (2015-0183) and HECO's Grid Modernization Plan (April 2017), have urged the adoption of energy storage technology in congress with renewable energy generators

[1] See "HSEA Industry Reports" 2016-2017. Provided upon request or at hsea.org.
[2] Loudat, Thomas A., and Kasturi, Prahlad. "The Economic and Fiscal Impacts of Hawaii's Solar Tax Credit." *International Journal of Energy Economics and Policy : IJEEP*, vol. 7, no. 1, 2017, pp. 224–252.

such as solar PV as a means to a 100% renewable portfolio standard as outlined in Act 97.[3] Thus, any incentive that could be adopted by the Hawaii state legislature that would allow our state's energy markets to utilize these types of technologies should be encouraged.

However, given recent federal tariff decisions regarding foreign manufactured solar modules[4] as well as the White House administration's increasingly troubling tendency to push energy schemas favoring fossil fuels like coal and natural gas[5] it is ***imperative*** that Hawaii be a leader in both federal and state energy policy. Recent tariff decisions on PV modules manufactured outside the United States are already impacting financing models of both large and small PV developments. Significant changes to the state's tax code will put further pressure on already overstressed project development timelines and financing structures. This will likely increase project timelines or force developers back to the drawing board, slowing Hawaii's progress towards a 100% 2045 RPS and preventing energy consumers from benefiting from renewable energy deployment.

In general, tax credits without step-downs create market stability and allow for reliable benchmarks that the state can use to measure consistent revenue projections. If a stepdown as proposed in this bill were to be considered, **we suggest SB2100 be amended to better fit current market realities.**

If the legislature were to consider a step-down structure like the one proposed in SB2100 SD2, we would suggest the following amendments be considered:

- A step-down of 10% within the first year of SB 2100's effect would have an overall negative impact on renewable projects currently in the pipeline for deployment. We instead suggest a step-down of 5% for the first year, then another 5% for the next 4 years, then the step down structure as currently defined in SD2.
- We appreciate efforts by the Senate to amend this bill more in-line with state RPS goals. While the current final step sunsets in 2036, we urge the committee to consider a step-down structure more in line with the state's 2045 RPS goals and amended the sunset year to the 100% RPS goal year of 2045.
- Consider clarifying or deleting language in Section (b), (1) and (2). It is unclear what the purpose or function of this language is meant to be and may cause confusion for the tax beneficiary.
- We suggest that language regarding tax credit application in transition years and the years that this bill take into effect not be applied to energy storage technology

[3] https://governor.hawaii.gov/newsroom/press-release-governor-ige-signs-bill-setting-100-percent-renewable-energy-goal-in-power-sector/
[4] Shallenberger, Krysti. "Will Utilities Keep Investing in Solar after Trump's Tariffs?" *Utility Dive*, 25 Jan. 2018, www.utilitydive.com/news/will-utilities-keep-investing-in-solar-after-trumps-tariffs/515556/.
[5] Roberts, David. "Rick Perry's Proposed Coal Bailout Just Died an Unceremonious Death."*Vox*, Vox, 9 Jan. 2018, www.vox.com/energy-and-environment/2018/1/9/16866196/perry-coal-bailout-nopr-ferc.

in contracts including that technology executed prior to June of 2018, reducing negative budget impacts.

- We agree with Department of Taxation recommendation to adequately add definitions for energy storage technology as noted in their testimony filed on March 13, 2018. We would be happy to work with this committee as well as the Department on this definition.

While we greatly appreciate efforts by the prior committee to work with stakeholders on this measure, we continue to urge the committee to consider these points and offer **support SB 2100 SD2 HD1 with amendments**.

Thank you for the opportunity to testify.