

DAVID Y. IGE
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JOSH GREEN M.D.
LT. GOVERNOR



ISAAC W. CHOY
DIRECTOR OF TAXATION

STATE OF HAWAII
DEPARTMENT OF TAXATION
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To: The Honorable Donovan M. Dela Cruz, Chair;
The Honorable Gilbert S.C. Keith-Agaran, Vice Chair;
and Members of the Senate Committee on Ways and Means

From: Isaac W. Choy, Director
Department of Taxation

Date: Tuesday, February 22, 2022
Time: 10:00 A.M.
Place: Via Video Conference, State Capitol

Re: S.B. 2511, S.D. 1, Relating to Taxation

The Department of Taxation (Department) appreciates the intent of S.B. 2511, S.D. 1, and offers the following comments for the committee's consideration.

S.B. 2511, S.D. 1, expands the Renewable Energy Technologies Income Tax credit (RETITC) under section 235-12.5, Hawaii Revised Statutes (HRS), by adding a new category of system that is eligible for the credit. For each "firm renewable energy system" installed and placed in service during a taxable year, the credit is equal to an unspecified percentage of actual costs or the cap amount of \$750,000, whichever is less, as long as the firm renewable energy system has a total output capacity of at least one thousand kilowatts per system of alternating current. "Firm renewable energy system is defined as "a renewable energy technology system that is typically available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs" and that the taxpayer can show has "actual associated lifecycle carbon emissions less than fifty grams of carbon dioxide equivalent per kilowatt hour, using methodology approved or adopted by the National Renewable Energy Laboratory." The measure would apply to taxable years beginning after December 31, 2022.

First, the Department notes that the Committee on Energy, Economic Development, and Tourism amended the previous version of this measure so that it would apply to taxable years beginning after December 31, 2022. The Committee also clarified that \$750,000 was a cap amount and not a limit on the "actual cost," and further specified that taxpayers are prohibited from claiming additional tax credits on the costs used to claim the tax credit established in this measure. The Department appreciates these changes and requests that they remain intact.

Second, the Department suggests that utility-scale firm renewable energy systems be excluded from the credit, like the exclusion for utility-scale solar energy systems. It is the Department's understanding that utility-scale projects need to be approved by the Public Utilities Commission (PUC) and that the PUC considers whether tax credits were claimed when it determines the appropriate rate of return. As such, the tax credit is not necessary for these installations because the approved rate will be higher if no tax credit is claimed. To accomplish this, paragraph (a)(3) may be amended to read as follows:

- (3) For each firm renewable energy system: per cent of the actual cost or the cap amount of \$750,000, whichever is less; provided that the firm renewable energy system has a total output capacity of at least one thousand kilowatts per system of alternating current; provided that no tax credit may be claimed for a firm renewable energy system that is five megawatts in total output capacity or larger and requires a power purchase agreement or other type of contract approved by the public utilities commission;

Finally, the Department notes that even though the definition of "firm renewable energy system" includes availability requirements and limitations on carbon emissions, there is still quite a significant overlap between what constitutes a "firm renewable energy system" and the RETITC's definitions of other types of renewable energy technology systems. One important clarification that should be made is to state whether photovoltaic systems would qualify as a firm renewable energy system for the purposes of the credit. If the intent is to exclude solar and wind energy systems from the new credit, the definition of "firm renewable energy systems" may be amended to read as follows:

- "Firm renewable energy system" means a renewable energy technology system that is:
- (1) Typically available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs;
- (2) Shown by the taxpayer to have actual associated lifecycle carbon emissions less than fifty grams of carbon dioxide equivalent per kilowatt hour, using methodology approved or adopted by the National Renewable Energy Laboratory; and
- (3) Not a solar or wind energy system as defined by this section.

Thank you for the opportunity to testify on this measure.

DAVID Y. IGE
GOVERNOR



CRAIG K. HIRAI
DIRECTOR

GLORIA CHANG
DEPUTY DIRECTOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAII EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
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ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND
MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
OFFICE OF FEDERAL AWARDS MANAGEMENT (OFAM)

WRITTEN ONLY
TESTIMONY BY CRAIG K. HIRAI
DIRECTOR, DEPARTMENT OF BUDGET AND FINANCE
TO THE SENATE COMMITTEE ON WAYS AND MEANS
ON
SENATE BILL NO. 2511, S.D. 1

February 22, 2022
10:00 a.m.
Room 211 and Videoconference

RELATING TO TAXATION

The Department of Budget and Finance (B&F) offers comments on this bill.

Senate Bill No. 2511, S.D. 1, amends Section 235-12.5, HRS, by expanding the Renewable Energy Technologies Income Tax Credit to include firm renewable energy systems. The amount taxpayers may claim for firm renewable energy systems would be set at the lesser amount of either an unspecified percent of the system's total cost or \$750,000, provided that the system has a total output capacity of at least 1,000 kilowatts of alternating current.

B&F notes that the federal American Rescue Plan (ARP) Act restricts states from using ARP Coronavirus State Fiscal Recovery Funds (CSFRF) to directly or indirectly offset a reduction in net tax revenue resulting from a change in law, regulation, or administrative interpretation beginning on March 3, 2021, through the last day of the fiscal year in which the CSFRF have been spent. If a state cuts taxes during this period, it must demonstrate how it paid for the tax cuts from sources other than the CSFRF, such as:

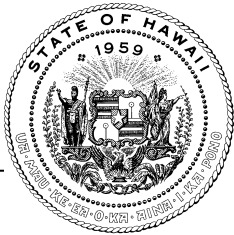
- By enacting policies to raise other sources of revenue;

- By cutting spending; or
- Through higher revenue due to economic growth.

If the CSFRF provided have been used to offset tax cuts, the amount used for this purpose must be repaid to the U.S. Treasury.

The U.S. Department of Treasury has issued rules governing how this restriction is to be administered. B&F will be working with the money committees of the Legislature to ensure that the State of Hawai'i complies with this ARP restriction.

Thank you for your consideration of our comments.



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

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Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
SENATE COMMITTEE ON WAYS AND MEANS

Tuesday, February 22, 2022
10:00 AM
State Capitol, Conference Room 211 & Videoconference

**COMMENTS
SB 2511, SD1
RELATING TO TAXATION.**

Chair Dela Cruz, Vice Chair Keith-Agaran, and Members of the Committee, the Hawai'i State Energy Office (HSEO) offers comments on SB 2511, SD1, which expands the renewable energy technologies income tax credit to include firm renewable energy systems and would provide a tax credit equal to a percentage of the cost of the system, up to a maximum of \$750,000.

To the extent that taxes and tax credits express the desire of the Legislature to encourage, discourage, or accelerate the accomplishment of state objectives, it is appropriate to adjust incentives for certain renewable energy capabilities such as a desired level of availability and dispatchability (e.g., "firm") in the Renewable Energy Technologies Income Tax Credit.

HSEO appreciates that the Senate Draft 1 improves the bill's definition of "firm renewable energy system," avoiding the issue of fuel supply availability as a condition of operation. For consistency in definitions and usage of terms, HSEO recommends that the bill refer to the definition of renewable energy contained in [Section 269-91](#), Hawai'i Revised Statutes.¹ HSEO also notes that the effects of the minimum size threshold on

¹ "Renewable energy" means energy generated or produced using the following sources: (1) Wind; (2) The sun; (3) Falling water; (4) Biogas, including landfill and sewage-based digester gas; (5) Geothermal; (6) Ocean water, currents, and waves, including ocean thermal energy conversion; (7) Biomass, including biomass crops, agricultural and animal residues and wastes, and municipal solid waste and other solid waste; (8) Biofuels; and (9) Hydrogen produced from renewable energy sources.

the use of the credit, or on project sizing, are unknown; and that there appears to be ambiguity regarding whether the \$750,000 cap refers to the maximum amount of credit per system or to the portion of the installed cost eligible for the credit.

Regarding the requirement to use a methodology approved or adopted by National Renewable Energy Laboratory (NREL) in order to show the lifecycle carbon emissions of the system,² HSEO appreciates the reasoning for this approach. HSEO is in contact with NREL regarding methods. It is unclear that a straightforward application of NREL's research is readily available for a potential taxpayer seeking to meet the requirements as proposed in SB 2511 SD1. Another possible standard for consideration is the International Organization for Standardization (ISO) 14040, "Environmental management — Life cycle assessment — Principles and framework." While this is an internationally recognized standard, accessing it is not free to the general public.

HSEO supports the intent of this bill provided that its passage does not replace or adversely impact priorities indicated in the Executive Supplemental Budget. HSEO defers to the appropriate agencies for implementation and fiscal impact.

HSEO's comments are guided by its mission to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient, clean energy, decarbonized economy.

Thank you for the opportunity to testify.

² National Renewable Energy Laboratory:

- [Life Cycle Assessment Harmonization](#)
- [2-page factsheet, Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update](#)
- [Analysis and Tools](#)

TAX FOUNDATION OF HAWAII

126 Queen Street, Suite 305

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: INCOME, Tax Credit for Firm Renewable Energy Systems

BILL NUMBER: SB 2511 SD 1

INTRODUCED BY: Senate Committee on Energy, Economic Development and Tourism

EXECUTIVE SUMMARY: Expands the renewable energy technologies income tax credit to include firm renewable energy systems. Caps the total amount of tax credits for each firm renewable energy system at \$750,000. We suggest direct appropriations or subsidies so that (1) we know what we are paying for, and (2) we know the price.

SYNOPSIS: Amends section 235-12.5, HRS, to allow a credit of ___% of the actual cost, up to \$750,000, for a firm renewable energy system, provided that the firm renewable energy system has a total output capacity of at least one thousand kilowatts per system of alternating current.

Defines a “firm renewable energy system” as a renewable energy technology system that is (1) typically available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs; and (2) shown by the taxpayer to have actual associated lifecycle carbon emissions less than fifty grams of carbon dioxide equivalent per kilowatt hour, using methodology approved or adopted by the National Renewable Energy Laboratory.

Clarifies that subsections (g) and (h), which allow taxpayers to convert the credit to a refundable one (i) at a cost of 30% of the credit claimed, or (ii) for taxpayers with AGI of \$20,000 or less (\$40,000 or less if married filing jointly), at no cost.

Specifies that costs used to claim this credit shall not be used to claim any other credit under the Income Tax Law.

EFFECTIVE DATE: Applies to taxable years beginning after December 31, 2022.

STAFF COMMENTS: At present, the renewable energy technologies income tax credit provides incentives for construction and installation of solar and wind energy systems. These systems do not generate energy continuously, at least in theory, because the sun does set every day and the atmospheric wind conditions are variable. It is unclear what technologies are targeted by this proposed credit expansion – hydroelectric, ocean thermal, ocean wave, tidal, and geothermal come to mind – and it may be better to state the definition of a firm renewable energy system by more specifically describing the technologies intended so that disputes do not develop over whether a particular technology qualifies. It may be argued, for example, that garbage-to-energy technology such as H-POWER or burning of biomass qualifies, although the drafters might not have intended so because of secondary effects such as carbon dioxide emission.

It is also preferable to use direct appropriations or subsidies, rather than tax credits, to encourage development or use of these types of technologies because (1) we know what we are paying for,

Re: SB 2511 SD1

Page 2

and (2) we know the price. A tax credit with an open-ended description of the creditable activity gives us neither.

Digested: 2/19/2022

SB-2511-SD-1

Submitted on: 2/20/2022 7:43:56 PM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Ted Bohlen	Testifying for Climate Protectors Hawai'i	Comments	No

Comments:

To: The Honorable Donovan Dela Cruz, Chair, The Honorable Gilbert Keith-Agaran, Vice Chair, and Members of the Senate Committee on Ways and Means

From: Climate Protectors Hawai'i (by Ted Bohlen)

Re: Hearing: SB2511 SD1 **RELATING TO TAXATION.**

Hearing: Tuesday, February 22, 2022, 10:00 a.m., Rm. 211 and by videoconference

Aloha Chair Dela Cruz, Vice Chair Keith-Agaran, and members of the Senate Committee on Ways and Means:

The Climate Protectors Hawai'i is a group focused on reversing the climate crisis and encouraging Hawai'i to lead the world towards a safe and sustainable climate and future. The Climate Protectors Hawai'i appreciates the bill's intent to incentivize renewable energy sources, but **COMMENTS** as follows: **SB2511 SD1 should not pass unless it clearly excludes tax credits for renewables that exacerbate the climate emergency, such as wood-burning!**

The State and the world face a climate emergency. **It is critical that we incentivize renewable clean sources that help address the climate emergency, not make it worse. Some renewable energy sources, specifically burning wood, are very harmful to the climate.** Mature trees benefit the climate by sequestering carbon. **Harvesting trees and burning them to generate electricity is a "double whammy" on the climate** because it both stops trees from sequestering and emits greenhouse gases in combustion. **If Hawai'i is to reach its goal "to sequester more atmospheric carbon and greenhouse gases than emitted within the State as quickly as practicable, but no later than 2045," we must stop, not incentivize, the burning of wood.**

This bill would allow a tax credit for renewable energy sources, including some firm renewable energy systems. The Climate Protectors Hawai'i appreciates the revisions in SD1 that contain the following definition, which appears on page 4, lines 11-20:

"Firm renewable energy system" means a renewable energy technology system that is:

(1) Typically available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs; and

(2) Shown by the taxpayer to have actual associated lifecycle carbon emissions less than fifty grams of carbon dioxide equivalent per kilowatt hour, using methodology approved or adopted by the National Renewable Energy Laboratory.

However, it is critical with this language that the NREL methodology be properly interpreted by the taxpayer, who has a strong self-interest in obtaining a tax credit. **Please amend this renewables tax credit bill to state clearly that it does not provide tax credits for wood-burning generators.**

Mahalo!

Climate Protectors Hawai'i (by Ted Bohlen)



1143 Kukuau St., Hilo, HI 96720

February 20, 2022

COMMENTS FOR SB2511 SD1 RELATING TO TAXATION

Dear Chair Del Cruz, Vice-Chair Keith-Agaran, and members of the Ways and Means Committee,

I am Richard Ha, Chair of Sustainable Energy Hawai'i, a coalition of concerned citizens dedicated to improving the quality of life of Hawaii residents through affordable renewable energy.

Sustainable Energy Hawaii is supportive of the intent of SB2511 SD1 as it will incentivize renewable energy sources. However, we recommend:

- a higher tax credit cap be afforded to geothermal energy system development as geothermal is among the few viable candidates to fulfill our firm renewable energy requirements, and
- the complete lifecycle carbon emission assessment threshold equal to or greater than 50g CO₂/kWh using methodology approved or adopted by the National Renewable Energy Laboratory shall not result in the utilization of tree-based biomass feedstock for energy production.
- The definition of “renewable source of energy” includes the forgoing life cycle assessment language.

Aloha, and thank you for this opportunity to testify.

Richard Ha
Chair
Sustainable Energy Hawai'i
www.sustainableenergyhawaii.org

Sustainable Energy Hawaii is an all-volunteer, 501(c)3 dedicated to furthering energy self-sufficiency for Hawaii Island. For more information, visit sustainableenergyhawaii.org.



**TESTIMONY BEFORE THE SENATE COMMITTEE
ON WAYS AND MEANS**

SB 2511, S.D.1

Relating to Taxation

February 22, 2022
10:00 a.m., Agenda Item #20
Conference Room 211 & Videoconference

Rebecca Dayhuff Matsushima
Vice President, Resource Procurement
Hawaiian Electric Company, Inc.

Chair Dela Cruz, Vice Chair Keith-Agaran, and Members of the
Committee,

My name is Rebecca Dayhuff Matsushima and I am testifying on behalf of
Hawaiian Electric Company, Inc. (“Hawaiian Electric” or the “Company”)
respectfully **with comments** to S.B. 2511, S.D. 1, Relating to Taxation.

S.D. 1 amends S.B. 2511 by, among other things, (1) specifying that
\$750,000 is the cap amount of the tax credit for each firm renewable energy
system; (2) modifying the definition of a firm renewable energy system; (3) updating
subsection (g) to include “firm renewable energy systems”; and (4) preventing a
taxpayer from claiming additional tax credits on the costs used to claim the tax
credit established in this measure. S.D. 1 also retains the amendment to
subsection (h) and adding “or firm renewable energy system” (previously only for
any renewable energy technology system).

Firm generation is imperative to operate the electric system and ensure
reliability and resilience. Hawaiian Electric believes expanding the tax credit to cover
firm renewable energy systems and setting the maximum credit at \$750,000 provides a

strong incentive for an individual or organization to develop such a system.

Concerning the language used to reflect this in HRS 235-12.5, **Hawaiian Electric** suggests the following edits:

(1) On page 3, starting on line 6, that subsection (a) be amended as follows:

“For each firm renewable energy system: ____ per cent of the actual cost or the cap amount ~~of \$750,000~~ **determined in subsection (b)**, whichever is less; provided that the firm renewable energy system has a total output capacity of at least one thousand kilowatts per system of alternating current.”; and

(2) A new section (4) should be added to HRS 235-12.5, subsection (b), stating that **“(4) For all firm renewable energy systems, the cap amount shall be \$750,000.”**

Revising these two areas as such will make the language consistent with tax credit language that addresses other renewable energy systems.

While Hawaiian Electric supports the addition of firm renewable energy to this statute, the Company does not support the revised definition and recommends reverting to the definition in the original bill. The terms “typically available” is undefined and ambiguous and “firm” by definition and industry use, means “always available”, in other words 24/7, 365 days a year, except for periods of maintenance, as defined in the original bill. Using the term “typically available” could allow for loopholes for intermittent generation to be included, which is not only unnecessary since there are other tax credits for such generation, but harmful as the definition could cloud the importance of actual firm generation from synchronous machines.

Further, Hawaiian Electric does not believe that the carbons limits set by the revised definition are necessary and suggests deletion of the same, as the use of

renewable fuels in and of itself is sufficient. Additionally, there is no established general carbon emission limit applicable to all renewables. The limits set forth in the bill are based on solar and wind generation, which are intermittent and not applicable to other types of renewables, which are invaluable to maintaining the resilience and reliability of the grid. There are very few firm technologies available that would meet this definition, effectively making the tax credit unusable on places like O‘ahu where the types of firm generation that would meet this definition are not readily available.

With the introduction of firm renewable energy systems into HRS Section 235-12.5, Hawaiian Electric feels it would only be natural to allow taxpayers the option to claim a refundable tax credit if they elect to reduce their credit by 30% for firm renewable energy systems, as it is consistent with what is currently allowed for solar energy systems. However, Hawaiian Electric believes the update to subsection (g) is incorrect, as a “firm renewable energy system” does not fall under the solar umbrella. As such, Hawaiian Electric recommends that the language be reverted back to the version used in the original S.B. 2511.

With regard to the insertion in subsection (h), **the Company recommends modifying the language on page 6, line 12, as follows:** “...for any renewable energy technology system ~~or~~ including a firm renewable energy system, an individual taxpayer...” We recommend this change, as we believe a “firm renewable energy system” falls under the umbrella of a “renewable energy technology system.”

Lastly, the Company believes that the language added in subsection (i) to prevent a taxpayer from claiming additional tax credits on the costs used to claim the tax credit established in this measure is not needed and should be deleted. As drafted in the original bill, the definition of the various eligible renewable energy technology systems are mutually exclusive. If proper traditional definitions are used, a firm

renewable energy system would never qualify as a solar or wind renewable energy system or vice versa. Consequently, a renewable energy technology systems can only be claimed once under HRS Section 235-12.5.

Thank you for this opportunity to comment on S.B. 2511, S.D. 1.



Testimony to the Committees on Ways and Means

Tuesday, February 22, 2022

10:00 AM

**VIA Video Conference and Conference Room 211 Hawaii State Capitol
SB 2511 SD1**

Chair Dela Cruz, Vice Chair Keith-Agaran, and members of the committee,

Hawaii Clean Power Alliance (HCPA) **supports the intent** of SB 2511 SD1 and provides **comments**, which expands the renewable energy technologies income tax credit to include firm renewable energy systems.

Hawaii Clean Power Alliance is a nonprofit alliance organized to advance and sustain the development of clean energy in Hawaii. Our goal is to support the state's policy goal of 100 percent renewable energy by 2045. We advocate for utility-scale renewable energy, which is critical to meeting the state's clean energy and carbon reduction goals.

Tax credits have proven essential in building momentum and scale in the development and distribution of diverse renewable sources of energy, as demonstrated in the early days of solar and wind development. Similarly, the development of firm renewable energy systems such as hydroelectric, hydrogen and geothermal requires a significant outlay of investment and resources, bringing high-paying jobs and other benefits to the local communities. Hawaii needs to develop more renewable generation based on local resources to mitigate the risk of fossil fuel imports. The establishment of these tax credits provides incentive to create firm renewable based energy systems that can replace all the fossil fuel generation on the electric grid while bringing greater stability and reliability.

New Year's Eve demonstrated in real time what happens when the grid is not receiving enough energy to sustain the demand. A confluence of rain, no wind, and multiple generation units going down left the grid without sufficient power, causing the electric utility to issue a notice of power conservation. We were fortunate that this event occurred during a low-demand period, thus there was little consequences. A similar situation during high demand times would likely be much more dire, similar to the recent tragic events both Texas and California's experienced with multiple outages.

These credits, giving consideration to firm renewable power energy systems, create the runway for new firm renewable power plants with 24/7 availability, which will dramatically improve our energy diversity and ultimately, reliability.

Please consider the following amendments to the bill:

Page 3 Lines 6-11:

(3) For each firm renewable energy system: per cent of the actual cost or the cap amount of \$750,000, ~~whichever is less; provided that the~~ per firm renewable energy system that has a total output capacity of at least one thousand kilowatts per system of alternating current; whichever is less;

Reason: This proposed language was taken from similar language taken from the Renewable energy technologies income tax credit for solar and wind systems (HRS 235-12.5 (a) (1) (B)) and provides a cap that the taxpayer is allowed to access.

Page 4 Lines 16-20:

~~-(2) Shown by the taxpayer to have actual associated lifecycle carbon emissions less than fifty grams of carbon dioxide equivalent per kilowatt hour, using methodology approved or adopted by the National Renewable Energy Laboratory.~~

Reason: This amendment is redundant and may be in conflict to other statutes. There is already a statute (HRS § 269-6) that provides a mandate to the public utilities commission to consider life cycle greenhouse gas emissions to reduce the State's reliance on fossil fuels and is applied specifically to each proposed project prior to approval. Therefore, a taxpayer would not be accessing this investment tax credit if it had not already passed the hurdle and approval of a lifecycle greenhouse gas analysis by the public utilities commission. The insertion of a specific lifecycle carbon emissions as proposed SD1 is a number that has not been widely accepted by regulators or states across the nation and could limit the delivery of firm renewable projects to replace fossil fuel generation and may be in conflict with the public utilities commission decision and order.

We ask the committee to pass this bill with these proposed amendments.

Thank you for the opportunity to testify.

SB-2511-SD-1

Submitted on: 2/20/2022 1:35:41 PM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Noel Morin	Individual	Comments	No

Comments:

Dear Chair Del Cruz, Vice-Chair Keith-Agaran, and members of the Ways and Means Committee,

I am very appreciative of the intention of SB2511 SD1. This will serve to accelerate our investment in renewable energy sources, including those required for firm power generation. I want to recommend, however, that we explicitly **exclude tax credits for energy solutions that involve the burning of trees or wood products from trees.**

While biomass energy providers can claim that new trees can sequester carbon, this sequestration happens only over a decade or two of growth. We cannot afford to pump even more CO2 into the atmosphere. Instead, we must work on sequestration.

Thank you for this opportunity to testify.

Noel Morin - Hilo

SB-2511-SD-1

Submitted on: 2/20/2022 2:50:06 PM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Tawn Keeney	Individual	Support	No

Comments:

Members of the Senate Ways and Means Committee,

It is the State of Hawaii's goal to transition electricity generation stations from sources emitting large amounts of greenhouse gas (by burning fossil fuels) to sources which will generate electricity without the critical environmental burden of greenhouse gas emissions. Within this context SB2511 SD1 advances this goal by allowing tax credits for generation of electricity from firm renewable sources, with the exclusion of sources that emit GHG above a defined limit per KWh of generation.

I wish to reiterate here why the inclusion of an emissions limit was necessary here. Hawaii state law defines bioenergy, burning green trees for electricity generation, as renewable energy. However, the following analysis clearly shows that burning chipped trees for power adds considerably more Greenhouse Gas to the atmosphere than burning fossil fuels and at the same time eliminates the important function of the forest in the sequestration of CO2 from the atmosphere.

1. It is well known that burning wood to generate electricity emits 1.5X more greenhouse gas per KWh electricity produced than does burning Coal.
2. Likewise burning wood generates 2.2X more GHG in CO2(e) emissions than burning oil and 3x more GHG than burning natural gas per KWh electricity generated.
3. Hu Honua, a proposed wood burning power station on the Big Island, in its 2019 'Greenhouse Gas Analysis' presented to the PUC confirmed that it would generate 1.95 tonsCO2(e) per MWh while the emissions from the fossil fuel stations that it would replace would generate 0.91 tons CO2(e) per KWh. Hu Honua would be emitting more than 2x as much GHG per KWh than the fossil fuel stations that it would replace.
4. Amazingly, testimony from DCCA's Public Advocate at the PUC stated that 58% of the electricity generation which Hu Honua would replace would be from other zero- emissions renewable sources (geothermal, wind or solar) and 42% would be from Fossil Fuels.
5. The DCCA Consumer Advocate in testimony to the PUC on September 17, 2021 stated, "... approval of the (Hu Honua) A&R PPA (Power Purchase Agreement) does not seem reasonable or in the public interest at this time." "Without additional justification, there are GHG emissions, environmental, health, and customer impact concerns that do not support a favorable ruling by the Commission."
6. A proposal has been forwarded to convert, after it's closure this year, the AES coal burning power station on Oahu to burn wood. In this AES scenario, for generation of the same amount of

electricity as currently, AES' CO₂(e) greenhouse gas emissions would rise from the current 1.7 million tons yearly to 2.7 million tons CO₂(e) yearly.

7. The contention exists that regrowth of trees, once harvested, will re-sequester the carbon that was released by harvest. How long will this process take. A literature search finds only one source for these computations: the Government of Canada website, Bioenergy Greenhouse Gas Calculator: <https://apps-scf-cfs.rncan.gc.ca/calc/en/bioenergy-calculator>

Insertion of parameters for Hu Honua of 'fast growth trees', 50 kilometer average distance from forest to mill, comparison with coal shows that , for the example of Hu Honua, the 'best case scenario' is that burning chipped green trees for power give more accumulated Greenhouse Gases than burning coal for 70 years.

8. Would using wood as 'renewable energy' satisfy the desire for energy self sufficiency? Hu Honua has proposed a 7 year harvest cycle. Kamehameha Schools, Hu Honua's principal tree supplier has announced publicly that they will not regrow the trees on their 12,000 acres after the initial harvest. Parker Ranch has not committed to regrowing the trees on their 8,000 acres. The State of Hawaii has announced plans to plant or protect 100 Million trees by 2030. They will not sacrifice lands to supply a 7 year harvest cycle. It is presumed that Hu Honua will be importing wood pellets from the continental Americas or Oceania. Given that AES' need is for 200,000 to 300,000 acres of trees, as opposed to Hu Honua's 25,000 acres, this will not be sourced in the Islands. Thus energy 'self sufficiency is not a reason to consider 'bioenergy'.

The following are excerpts from a letter signed by 500 Expert Scientists in February, 2021, to leaders of the United States, European Union, Japan and Korea regarding use of Biomass for energy. (The impressive credentials of the signatories, which include former chair of the UN IPCC; two US National Medal of Science winners; President of the European Academies of Science; Director, Woodwell Climate Research Center; Environmental Program Chair, European Academy of Science Advisory Panel; etc., can be found with the full text of the letter at the bottom link.)

To President Biden, President von der Leyen, President Michel, Prime Minister Suga and President Moon:

"The undersigned scientists and economists commend each of you for the ambitious goals you have announced for the United States, the European Union, Japan and South Korea to achieve carbon neutrality by 2050. Forest preservation and restoration should be key tools for achieving this goal and simultaneously helping to address our global biodiversity crisis. We urge you not to undermine both climate goals and the world's biodiversity by shifting from burning fossil fuels to burning trees to generate energy."

"In recent years, there has been a misguided move to cut down whole trees or to divert large portions of stem wood for bioenergy, releasing carbon that would otherwise stay locked up in forests."

"The result of this additional wood harvest is a large initial increase in carbon emissions As numerous studies have shown, this burning of wood will increase warming for decades to centuries. That is true even when the wood replaces coal, oil or natural gas."

“Overall, for each kilowatt hour of heat or electricity produced, using wood initially is likely to add two to three times as much carbon to the air as using fossil fuels.”

"Government subsidies for burning wood create a double climate problem because this false solution is replacing real carbon reductions. Companies are shifting fossil energy use to wood, which increases warming, as a substitute for shifting to solar and wind, which would truly decrease warming.”

“To avoid these harms, governments must end subsidies and other incentives that today exist for the burning of wood whether from their forests or others. The European Union needs to stop treating the burning of biomass as carbon neutral in its renewable energy standards and in its emissions trading system. Japan needs to stop subsidizing power plants to burn wood. And the United States needs to avoid treating biomass as carbon neutral or low carbon as the new administration crafts climate rules and creates incentives to reduce global warming.”

<https://s3.documentcloud.org/documents/20482842/scientist-leter-to-biden-van-der-leyden-michel-suga-moon-february-11-2021.pdf>

Mahalo for your consideration,
Tawn Keeney MD

SB-2511-SD-1

Submitted on: 2/21/2022 7:19:16 AM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Alice Kim	Individual	Support	No

Comments:

If the State can give tax credits for solar energy, an intermittent renewable energy source, the State should also do the same for geothermal, a firm renewable energy source. Furthermore, the \$750,000 cap on the total amount of tax credits should be removed from the bill.

Offering a tax credit can offset the financial risks of geothermal development. While producing geothermal power incurs low operating costs, developing a geothermal power plant requires a large capital investment and a competitive Purchase Power Agreement (PPA). To obtain a PPA, a developer has to provide proof of a demonstrated resource and an interconnection study/agreement. While demonstrating the resource for solar or wind is inexpensive, the same for geothermal is very expensive and requires multiple surveys (e.g., geophysical surveys, thermal gradient holes, full-size diameter drilling well). Each of these activities costs \$1 million or more, resulting in a \$5-to-10 million cost to demonstrate a geothermal resource. In Hawaii, drilling a well to confirm a geothermal resource alone costs over a million dollars. Purchasers often require geothermal developers to demonstrate the size of the potential resource with a reservoir model and obtain third-party verification. Therefore, geothermal developers have to invest significantly more money into a project than solar or wind project developers do before knowing whether a PPA can be obtained. Because of this cost, geothermal developers need to be able to obtain a competitively priced PPA with appropriate terms and conditions to avoid losses and proceed in a timely manner.

Geothermal can provide baseload power, or the minimum amount of power that a utility company must generate for its customers. Baseload power not only ensures reliability of the electricity grid, but also reduces the cost of renewable energy. Unlike solar and wind energy, geothermal energy does not depend on favorable weather conditions and produces electricity continuously--24 hours a day, 7 days a week. Because geothermal energy is stable and predictable, it enables accurate energy planning and can meet the minimum level of demand on an electrical grid during a twenty-four-hour period.

Geothermal also holds an advantage of its capacity factor, the ratio of actual energy output to possible energy output. The capacity factor indicates how fully and reliably a unit's capacity is used. Out of all renewable energy sources, geothermal provides the highest capacity factor. Modern geothermal power plants deliver a capacity factor upwards of ninety-to-ninety-five percent.

The solar and wind energy industries became mainstream because they benefited from supportive government policies, and the State of Hawaii can do the same for geothermal. Geothermal can become more competitive in cost, produce more clean energy locally and develop and provide local quality jobs.

Please support SB 2511 to make geothermal a viable local industry, ensure reliability of the State's electricity grid, and make the State's goal of reaching 100 percent renewable energy by 2045 more affordable.

SB-2511-SD-1

Submitted on: 2/21/2022 7:55:41 AM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Rilan Ferreira	Individual	Support	No

Comments:

I support

SB-2511-SD-1

Submitted on: 2/21/2022 8:08:56 AM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Peter Sternlicht	Individual	Support	No

Comments:

COMMENTS FOR SB2511 SD1 RELATING TO TAXATION

Dear Chair Del Cruz, Vice-Chair Keith-Agaran, and members of the Ways and Means Committee

I am supportive of the intent of SB2511 SD1 as it will incentivize renewable energy sources. However, we recommend:

- A higher tax credit cap be afforded to geothermal energy system development as geothermal is among the few viable candidates to fulfill the firm renewable energy goals of SB2510, and
- A complete lifecycle carbon emission assessment threshold equal to or greater than 50g CO2/kWh using methodology approved or adopted by the National Renewable Energy Laboratory shall not result the utilization of tree-based biomass feedstock for energy production.
- The definition of “renewable source of energy” includes the forgoing lifecycle assessment language.

Thank you for the opportunity to testify in support of SB2511 SD1.
Peter Sternlicht

SB-2511-SD-1

Submitted on: 2/21/2022 9:59:20 AM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Sherryl Royce	Individual	Comments	No

Comments:

Comments: To: The Honorable Glenn Wakai, Chair, the Honorable Bennette Misalucha, Vice Chair, and Energy, Economic Development and Tourism Committee members

I oppose this bill in its present form because burning wood is harmful to the climate. Mature trees sequester carbon which of course is good for the environment. However, if we burn them, all that carbon is released at once, instead of little by little as when a tree decomposes. Imagine the destructiveness that burning many, many trees would have on the environment. Please amend the bill and clarify that it does not give tax credits for wood-burning generators.

Thank you all for your hard work protecting our islands,

Sherryl Royce

LATE

SB-2511-SD-1

Submitted on: 2/21/2022 10:04:43 AM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Andrea Nandoskar	Individual	Oppose	No

Comments:

Oppose

LATE

SB-2511-SD-1

Submitted on: 2/21/2022 11:57:55 AM

Testimony for WAM on 2/22/2022 10:00:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Michael Carion	Individual	Support	No

Comments:

I support the bill.

From: [Jerry Chang](#)
To: [WAM Committee](#); [Dane Wicker](#)
Subject: In support
Date: Monday, February 21, 2022 8:46:08 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Aloha,
I support SB2510, SB 2478, SB2483 and SB 2511.
Mahalo,
Jerry L. Chang
808 286-0461

From: [Alika Maikui Jr](#)
To: [WAM Committee](#)
Subject: SB2511
Date: Sunday, February 20, 2022 9:01:36 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Please support SB2511.

Mahalo!

Alika Maikui Jr.

Sent from my iPhone

From: [sophia cabral-maikui](#)
To: [WAM Committee](#)
Subject: SB2511 Support
Date: Sunday, February 20, 2022 9:06:48 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Aloha,

Please support SB2511.

Thank you!

Sophia Cabral-Maikui

**JON MIYATA
483 MAKANAA STREET
HILO, HAWAII 96720**

February 21, 2022

To: Senate Ways and Means Committee

Re: Support of SB2478, SB2483, SB2511, and SB2513

I am in favor of the referenced bills as it will provide for a cleaner, safer and more dependable electrical grid utilizing renewable fuels, by providing incentives to various types of renewable energy. This will assist with diversifying our renewable energy sources, leading to cleaner and more reliable power.

Thank you for your consideration of my comments.

Sincerely,

Jon Miyata