

DAVID Y. IGE
GOVERNOR

JOSH GREEN M.D.
LT. GOVERNOR



ISAAC W. CHOY
DIRECTOR OF TAXATION

STATE OF HAWAII
DEPARTMENT OF TAXATION
P.O. BOX 259
HONOLULU, HAWAII 96809
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To: The Honorable Nicole E. Lowen, Chair;
The Honorable Lisa Marten, Vice Chair;
and Members of the House Committee on Energy & Environmental Protection

From: Isaac W. Choy, Director
Department of Taxation

Date: Thursday, March 17, 2022
Time: 9:00 A.M.
Place: Via Video Conference, State Capitol

Re: S.B. 2511, S.D. 2, Relating to Taxation

The Department of Taxation (Department) appreciates the intent of S.B. 2511, S.D. 2, and offers the following comments for the committee's consideration.

S.B. 2511, S.D. 2, 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 always available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs." S.D. 2 has a defective effective date of July 1, 2050 and otherwise applies to taxable years beginning after December 31, 2022.

The Department notes that the Committee on Energy, Economic Development, and Tourism amended the original 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.

The Department also notes that the Senate Committee on Ways and Means amended S.D. 1 of this measure to defect the effective date, to remove carbon emissions limitations, to require the "firm energy renewable system" to be always available instead of "typically"

available on the demand of the operator, and to also require the firm energy renewable system to have an *actual* output of one thousand kilowatts of alternating current, rather than merely a capacity for that output.

Instead of continuously amending this credit based on arbitrary cap amounts and minimum energy production thresholds, which have historically caused significant administrative difficulties, the Department strongly recommends amending the RETITC so that the credit amount is simply equal to a specific percentage of the actual cost, similar to the way the federal version of this credit is structured.¹ For example, the credit amount for a firm renewable energy system (regardless of size) could be set at ten per cent of the actual cost. This approach alleviates the need to specifically define what a “system” is for each type of installation.

Additionally, 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 these desired changes, paragraph (a)(3) may be amended to read as follows:

(3) For a firm renewable energy system: ten per cent of the actual cost; 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, 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 26 U.S.C. § 48, *please see* “Renewable Energy Tax Credits” at https://www.energystar.gov/about/federal_tax_credits/renewable_energy_tax_credits for more information.

- (1) Always available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs; and
- (2) 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
P.O. BOX 150
HONOLULU, HAWAII 96810-0150

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 HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
ON
SENATE BILL NO. 2511, S.D. 2

March 17, 2022
9:00 a.m.
Room 325 and Videoconference

RELATING TO TAXATION

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

Senate Bill No. 2511, S.D. 2, 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 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:

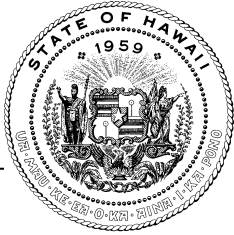
- By enacting policies to raise other sources of revenue;

- 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
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Thursday, March 17, 2022
9:00 AM
State Capitol, Conference Room 325 & Videoconference

**COMMENTS
SB 2511 SD2
RELATING TO TAXATION.**

Chair Lowen, Vice Chair Marten, and Members of the Committee, the Hawai'i State Energy Office (HSEO) offers comments on SB 2511, SD2, which expands the renewable energy technologies income tax credit to include firm renewable energy systems and caps the total amount of tax credits for each firm renewable energy system at \$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 notes that "renewable energy" is not defined. 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 notes that the bill's definition of "firm renewable energy system" does not address the potential availability of fuel to the facility as a condition of operation of the

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.

facility. This is not an issue for renewable technologies such as geothermal, ocean thermal energy conversion, or wave energy systems, which do not require fuel to operate.

HSEO notes that a “firm” generation facility (such as a generator that burns fuel) can, if combined with a system that uses energy available on-site, operate for a longer period in the event of a fuel shortage than one that is purely dependent on receipt of shipments of fuel. In periods of normal operation, fuel supplies last longer when supported by energy production by wind and solar (with batteries firming and smoothing energy output). Therefore, hybrid systems can also meet the definition of “firm.”

HSEO notes that the effects of the minimum size threshold on the use of the credit, or on project sizing, are unknown.

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.

SB-2511-SD-2

Submitted on: 3/15/2022 8:58:50 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Ted Bohlen	Climate Protectors Hawaii	Comments	Remotely Via Zoom

Comments:

To: The Honorable Nicole Lowen, Chair, the Honorable Lisa Marten, Vice Chair, and Members of the House Committee on Energy and Environmental Protection

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

Re: Hearing SB2511 SD2 RELATING TO TAXATION.

Thursday March 17, 2022, 9:00 a.m., by videoconference

Aloha Chair Lowen, Vice Chair Marten, and Members of the House Committee on Energy and Environmental Protection!

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 **SUPPORTS the bill's intent to provide tax credits for renewable energy**, but respectfully **COMMENTS IN OPPOSITION** to the inclusion in SB2511 SD2 of **tax credits for firm energy produced by burning wood biomass**.

Hawai'i has recognized that we have a climate emergency. **Not all renewables are better than for the climate than fossil fuels. Burning wood would be a "double whammy " on the climate** because it:

- 1) eliminates sequestration of atmospheric carbon dioxide by the trees; and
- 2) emits carbon into the atmosphere when burned.

Even if trees are replanted, that will not replace the lost sequestration for decades, if ever.

There is a similar problem with hydrogen that is produced from fossil fuels or wood.

Incentivizing wood burning with tax credits to generate electricity would run directly counter to the State's mandate to become carbon negative as soon as practicable.

Please amend this bill to exclude proposed tax credits for firm renewable energy produced from wood.

Mahalo!

Climate Protectors Hawai'i (by Ted Bohlen)

Hawaii Bioeconomy Trade Organization

THE SENATE
THE THIRTY-FIRST LEGISLATURE
REGULAR SESSION OF 2022

Committee on Energy and Environmental Protection

TESTIMONY ON SENATE BILL NO. SB 2511

Position: **Support with Comments**

To the Honorable Representative Nicole Lowen, Chair and Representative Lisa Marten, Vice Chair; and Members of the Energy and Environmental Protection Committee:

- The state planning effort should also factor in low-greenhouse gas **lifecycle** options, not just point source and tailpipe emissions.
- To include **air transport specifically**, and not just electricity and ground transportation.
- The clause in the bill requiring 55% firm renewable electricity generation on each island is a bit arbitrary and may limit operational considerations and optimization too much.

To provide an example for a bus operating in Honolulu:

At the HEPF greenhouse gas lifecycle methodology workshop held Oct 2019, participants found that a bus converted to biodiesel emitted 80% less greenhouse gas emissions across the lifecycle and the same emissions as diesel at the tail pipe, while a bus converted to electricity and charged from Oahu's electrical grid mix emitted 2.5 times more greenhouse gases across the lifecycle, but zero emissions at the tailpipe.

[Thank you for your consideration of this testimony.](#)

Regards,

Carl Campagna
Executive Director
carl@hawaii.bioeconomy.org



To: The House Committee on Energy and Environmental Protection
From: Sherry Pollack, 350Hawaii.org
Date: Thursday, March 17, 2022, 9am

In strong opposition to SB2511 SD2

Aloha Chair Lowen, Vice Chair Marten, and Energy and Environmental Protection Committee members,

I am Co-Founder of the Hawaii chapter of 350.org, the largest international organization dedicated to fighting climate change. 350Hawaii.org **strongly opposes SB2511 SD2** that would expand the renewable energy technologies income tax credit to include firm renewable energy systems.

350Hawaii supports and encourages the efforts of the legislature to incentivize our transition to truly clean, non-climate harming renewable energy. However, “firm” renewable energy as currently defined would include burning trees and other wood products. Incentivizing firm renewable energy systems that include burning trees and wood products would result in unintended negative consequences to our environment and climate.

Burning trees is more expensive than utility-scale wind and solar. Furthermore, burning wood for energy is disastrous for the climate. It destroys forests, and puts out more carbon dioxide into the air than coal. The period for regrowth and making up that carbon debt can take many decades or more, time that we no longer have the luxury of wasting. We are in a climate crisis and must make scientifically sound choices that will reduce greenhouse gas emissions as soon as possible if we are to stay below 1.5 degrees Celsius rise. Now is not the time to promote technologies that increase greenhouse gases simply because they are not derived from fossil fuels.

In short, pursuing expanding the renewable energy technologies income tax credit to firm renewable energy systems and thereby incentivizing burning wood products as an energy source will worsen the climate and negatively impact our economy. SB2511 SD2 as written would undermine our progress towards 100% truly clean, renewable energy and take us in the wrong direction.

Unless trees and other wood products are excluded from the definition of renewable energy, we urge you to **oppose** this ill-advised bill.

Mahalo for the opportunity to testify.

Sherry Pollack
Co-Founder, 350Hawaii.org



**TESTIMONY BEFORE THE HOUSE COMMITTEE ON
ENERGY & ENVIRONMENTAL PROTECTION**

S.B. 2511, S.D.2

Relating to Taxation

March 17, 2022

9:00 a.m., Agenda Item #6

Conference Room 325 & Videoconference

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

Chair Lowen, Vice Chair Marten 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”) **in support** of S.B. 2511 S.D. 2, Relating to Taxation, and **with recommended edits** for consideration.

S.D. 2 amends S.B. 2511 S.D. 1 by, among other things, (1) specifying that \$750,000 is the cap amount of the tax credit for each firm renewable energy system that has a total output of at least one thousand kilowatts of alternating current; (2) modifying the definition of a firm renewable energy system; and (3) updating subsection (h) by clarifying that a “firm renewable energy system” is a “renewable energy technology system” for purposes of Hawaii Revised Statutes (“HRS”) § 235-12.5. S.D. 2 also retains the amendments to subsection (g) and subsection (i).

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)** 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”; 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.”**

The first edit Hawaiian Electric would like to address is the reinsertion of “capacity” into the definition. By having the measurement of capacity, rather than actual total output, administration of the tax credit will be simpler and consistent with how solar energy systems are measured (i.e., “capacity”) as stated in Section 1(a)(1)(B). If the measurement were to stay as actual total output, a credit application approval process would likely need to be developed, which may raise a number of issues, e.g., who will conduct the verification after the year ends, who will gather and submit the data and when will it need to be submitted, etc.

Regarding the other edits relating to Section B, revising these two areas in the manner shown will make the language consistent with tax credit language that addresses other renewable energy systems.

Hawaiian Electric supports the addition of firm renewable energy to this statute and supports the revised definition in S.D.2.

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 currently drafted, 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 system can only be claimed once under HRS § 235-12.5.

Thank you for this opportunity to comment on S.B. 2511 S.D. 2.



March 17, 2022

**TESTIMONY SUPPORTING THE INTENT OF SB 2511 SD 2
RELATING TO TAXATION**

House Committee on Energy & Environmental Protection
The Honorable Nicole E. Lowen, Chair
The Honorable Lisa Marten, Vice Chair

Thursday, March 17, 2022

9:00 AM

VIA VIDEOCONFERENCE

Conference Room 325

State Capitol

415 South Beretania Street

Chair Lowen, Vice Chair Marten and members of the Committee,

Thank you for the opportunity to submit testimony supporting the intent of SB 2511 SD 2, Relating to Taxation. My name is Eric Wright, President at Par Hawaii and am responsible for energy security for our state and leading our company's transition to the production of renewable energy to support Hawai'i's clean energy goals.

As our state and company transition to renewable energy, we believe tax credits for renewable energy technologies will be critical to supporting our state's clean energy goals.

Currently, more than 80% of Hawai'i's energy is dependent upon fossil fuels. We are responsible for importing crude oil and producing refined fuels that Hawai'i residents and businesses need. However, we also recognize it is our responsibility to help with decarbonizing and reducing greenhouse gases in our state.

Par Hawaii is working with partners now to use our distribution assets to distribute biofuels and exploring ways to sequester carbon. Some of these projects are being funded in part by federal sources such as the U.S. Department of Agriculture grants and other projects will be financed with private capital in partnership with others. Incentives for renewable energy production and related technologies would help to round out the support necessary for us to use proven ways we can use our refining assets for large-scale, permanent renewable energy production.

Mahalo for allowing Par Hawaii to share our perspectives on SD 2511 SD 2.

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 2

INTRODUCED BY: Senate Committee on Ways & Means

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 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 always available on the demand of the energy system's operator, at its contracted capacity, subject only to routine maintenance and emergency repairs.

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: July 1, 2050; applicable 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, and (2) we know the price. A tax credit with an open-ended description of the creditable activity gives us neither.

As a technical matter, we suggest that some attention be paid to the provision that allows conversion of a nonrefundable credit to a refundable one. The provision as currently drafted allows nonresident partners in a partnership with little or no Hawaii source income (but perhaps with tons of income elsewhere) to make the election with no cost, while Hawaii resident partners presumably would have Hawaii source income and would need to give up 30% to make the credit refundable. We question whether that is what lawmakers intend.

Digested: 3/15/2022



**Testimony to the Committee on Energy & Environmental Protection
Thursday, March 17, 2022
9:00 AM
Conference Room 325, Hawaii State Capitol & VIA Video Conference
SB 2511 SD2**

Chair Lowen, Vice Chair Marten, and members of the committee,

Hawaii Clean Power Alliance (HCPA) **supports** SB 2511 SD2, 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 of 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 were 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 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.

We ask the committee to pass this bill.

Thank you for the opportunity to testify.

SB-2511-SD-2

Submitted on: 3/14/2022 8:47:25 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Alice Kim	Individual	Support	Written Testimony Only

Comments:

If the State gives tax credits for solar energy, an intermittent renewable energy source, the State should do the same for firm renewable energy sources including geothermal. Furthermore, the \$750,000 cap on the total amount of tax credits should be removed from SB 2511.

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. Therefore, 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 and increase energy security. Baseload power is the minimum amount of power that a utility company must generate for its customers and ensures reliability of the electricity grid. 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.

Geothermal offers a high capacity factor. The capacity factor is the ratio of actual energy output to possible energy output and 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. The State of Hawaii can provide the same support to

geothermal. Geothermal can become more competitive in cost, produce more clean energy locally, 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-2

Submitted on: 3/15/2022 2:42:52 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
John Gavelek	Individual	Support	Written Testimony Only

Comments:

I support the state's goal of all renewable energy production by 2045. We need to get off of fossil fuels and this bill is part of the program to do so. Thank you

SB-2511-SD-2

Submitted on: 3/15/2022 3:20:44 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Debra Gavelek	Individual	Support	Written Testimony Only

Comments:

I support this bill the state's push to creating our own renewable energy by 2045. This bill helps move Hawaii into a sustainable energy future. Mahalo!

SB-2511-SD-2

Submitted on: 3/15/2022 3:36:35 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Andrea Quinn	Individual	Support	Written Testimony Only

Comments:

Dear Honorable Committee Members:

Please support SB2511.

Thank you for the opportunity to present my testimony.

Andrea Quinn

Kihei, Maui

SB-2511-SD-2

Submitted on: 3/15/2022 4:15:36 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Michael Carion	Individual	Support	Written Testimony Only

Comments:

Tax incentives will go a long way in helping Hawaii reach its renewable energy goals!

Tax credits will contribute greatly to the state's success.

SB-2511-SD-2

Submitted on: 3/15/2022 4:27:53 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Lydia Hoepner	Individual	Support	Written Testimony Only

Comments:

If Hawaii is going to get out of the fossil fuel business, then we need more incentives to do so.

Solar and Wind has had great success due to decades of solar and wind incentives. We need to focus on firm renewables.

Vote YES for Island Residents. Go down in history for making Hawaii a leader of a new energy future.

SB-2511-SD-2

Submitted on: 3/15/2022 5:17:35 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Joyce Barbarich	Individual	Support	Written Testimony Only

Comments:

This bill provides incentives to get Hawaii free of fossil fuels. It helps create jobs and is good for the environment.

SB-2511-SD-2

Submitted on: 3/15/2022 10:17:24 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Thomas H. Daniel	Individual	Support	Written Testimony Only

Comments:

Taxation policy needs to support the priorities of the state. This bill does that.

If Hawaii is going to get out of the fossil fuel business, then we need more incentives to do so.

Solar and Wind has have great success due to decades of solar and wind incentives. But they are not firm energy resources. We need to focus on firm renewables.

SB-2511-SD-2

Submitted on: 3/15/2022 11:07:38 PM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Cat Mikkelsen	Individual	Support	Written Testimony Only

Comments:

It's a huge priority to get out of the fossil fuel hamster wheel, and this bill helps. Few things happen without incentives and these incentives will make a big difference. This bill will help us develop alternative fuel methods.

SB-2511-SD-2

Submitted on: 3/16/2022 4:21:30 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Keoni Pikini	Individual	Support	Written Testimony Only

Comments:

I support bill sb2511 because I beleive FIRM renewables are very important to the states energy program and we need to support businesses who bring these projects to our state which ultimately supports are local economy.

SB-2511-SD-2

Submitted on: 3/16/2022 7:17:35 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Alika Maikui	Individual	Support	Written Testimony Only

Comments:

There needs to be more incentives to help pave the way for Hawaii to get out of the fossil fuel business.

SB-2511-SD-2

Submitted on: 3/16/2022 7:20:13 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Georgette Nacis	Individual	Support	Written Testimony Only

Comments:

Please support this bill as it supports the priorities of our state.

SB-2511-SD-2

Submitted on: 3/16/2022 7:24:00 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
aulii fernandez	Individual	Support	Written Testimony Only

Comments:

Please support.

SB-2511-SD-2

Submitted on: 3/16/2022 7:25:56 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Suterra Soares	Individual	Support	Written Testimony Only

Comments:

Aloha,

I support this bill.

SB-2511-SD-2

Submitted on: 3/16/2022 7:27:51 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
aulani hood	Individual	Support	Written Testimony Only

Comments:

Please support.

SB-2511-SD-2

Submitted on: 3/16/2022 7:30:08 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
micah hood	Individual	Support	Written Testimony Only

Comments:

Please support

SB-2511-SD-2

Submitted on: 3/16/2022 10:19:08 AM

Testimony for EEP on 3/17/2022 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Rikey Tobosa	Individual	Support	Written Testimony Only

Comments:

i support

SB 2511 SD 2 TESTIMONY

To: House Committee on Energy and Environmental Protection
Hearing on March 17, 2022 at 9:00 a.m.

From: John Kawamoto

Position: Oppose

The State Legislature has conscientiously committed Hawaii to clean, renewable energy goals, as follows: (1) HRS 225P-5 sets a statewide target of net zero emissions by 2045; (2) HRS 269-92 requires the net electricity sales of electric utility companies to be 100% renewable by 2045.

These clean, renewable energy goals are commendable. Further, climate change is bearing down upon us faster than we had thought. Based on recent data, most climate scientists now say that we are doing far too little to mitigate climate change. That urgency is reflected in SCR 44, which the Legislature adopted last year, declaring a climate emergency. Drastic action must be taken, and we must be willing to make sacrifices to avert a global climate catastrophe.

This bill disregards the climate emergency by encouraging all renewable sources to be used to generate electricity. Not all renewable energy is clean energy. For example, the burning of trees and tree products is considered to be renewable, but it is not clean. The burning of trees emits 50% more carbon dioxide than burning fossil fuel to produce an equivalent amount of electricity. Burning trees is even dirtier than burning coal, and coal is considered to be a dirty source of energy.

Dirty energy should be avoided. Carbon dioxide, which is emitted when trees are burned, stays in the atmosphere for 300 to 1,000 years, according to NASA. Many future generations will be harmed by the carbon dioxide that would be emitted by the dirty energy that this bill allows.

Instead of embracing the urgency of SCR 44, this bill takes a much too casual attitude that is seemingly unfazed by the climate emergency. For example, the bill allows dirty energy to be used by requiring a minimum of 55% of renewable energy generation for each island to be firm renewable energy. Firm renewable energy includes the burning of trees. Hawaii should instead be making a greater effort to transition to clean, renewable energy.

This bill fails to meet the high standards that Hawaii should aspire to, and it detracts from Hawaii's leadership role in mitigating climate change.

The committee should hold the bill.