

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. 2510, S.D. 2

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

RELATING TO RENEWABLE ENERGY

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

Senate Bill No. 2510, S.D. 2, requires the Office of Planning and Sustainable Development (OPSD) to update the State Energy Plan; establishes the firm renewable energy generation policy in the Hawai'i State Planning Act to ensure the reliable 100% replacement of fossil fuel electricity generation to increase the sustainability and energy self-sufficiency of the State to improve the quality of life for residents and visitors; includes incentives to encourage the development of firm renewable energy to replace fossil fuel generation; requires the Hawai'i Natural Energy Institute (HNEI) to conduct a study to update the minimum percentage of firm renewable generation for each island and the maximum proportion of any one renewable energy source on each island; appropriates an unspecified amount of special funds from the Energy Systems Development Special Fund for FY 23 for the HNEI to conduct the study; and appropriates an unspecified amount of general funds for FY 23 for OPSD to update the Energy State Functional Plan. The measure also allows for certain exceptions for fossil fuel generation during emergency circumstances.

B&F notes that, with respect to the general fund appropriation in this bill, the federal Coronavirus Response and Relief Supplemental Appropriations Act requires that states receiving Elementary and Secondary School Emergency Relief (ESSER) II funds and Governor's Emergency Education Relief II funds must maintain state support for:

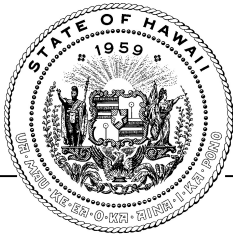
- Elementary and secondary education in FY 22 at least at the proportional level of the state's support for elementary and secondary education relative to the state's overall spending, averaged over FYs 17, 18 and 19; and
- Higher education in FY 22 at least at the proportional level of the state's support for higher education relative to the state's overall spending, averaged over FYs 17, 18 and 19.

Further, the federal American Rescue Plan (ARP) Act requires that states receiving ARP ESSER funds must maintain state support for:

- Elementary and secondary education in FY 22 and FY 23 at least at the proportional level of the state's support for elementary and secondary education relative to the state's overall spending, averaged over FYs 17, 18 and 19; and
- Higher education in FY 22 and FY 23 at least at the proportional level of the state's support for higher education relative to the state's overall spending, averaged over FYs 17, 18 and 19.

The U.S. Department of Education has issued rules governing how these maintenance of effort (MOE) requirements are 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 these ESSER MOE requirements.

Thank you for your consideration of our comments.



**STATE OF HAWAII  
OFFICE OF PLANNING  
& SUSTAINABLE DEVELOPMENT**

**DAVID Y. IGE**  
GOVERNOR

**MARY ALICE EVANS**  
DIRECTOR

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Statement of  
**MARY ALICE EVANS**  
Director, Office of Planning and Sustainable Development  
before the  
**HOUSE COMMITTEE ON ENERGY & ENVIRONMENT**  
Thursday, March 17, 2022  
9:00 AM  
State Capitol, Conference Room 211  
in consideration of  
**SB 2510, SD2**  
**RELATING TO RENEWABLE ENERGY.**

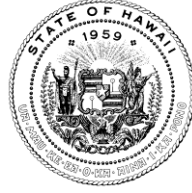
Chair Lowen and Vice Chair Marten, and Members of the House Committee on Energy & Environment.

The Office of Planning and Sustainable Development (OPSD) offers **comments** on SB 2510, SD2, which establishes a firm renewable energy generation policy in the Hawai'i State Planning Act to ensure the reliable one hundred percent replacement of fossil fuel electricity generation to increase the sustainability and energy self-sufficiency of the State to improve the quality of life for residents and visitors.

The OPSD supports the inclusion of firm renewable energy as a component of a diversified portfolio of renewable energy generation for each island to improve grid reliability, but not in fixed percentages. OPSD also supports a state energy plan that includes exceptions for fossil fuel use during emergencies. OPSD also supports balancing decisions on energy resource options with considerations of environmental, social, cultural, and public health costs and benefits that may offset monetary costs.

The OPSD notes that proposed language in Section 6, subsections (d), (e) and (f), amending Ch. 226-55, is contrary to the intent of the law which makes the state agency head primarily responsible for a functional area responsible for updating the functional plan for the area. OPSD prefers its original role of providing guidelines, as required by Chapter 226-56 (b). OPSD defers to the Hawaii State Energy Office on Section 9. OPSD looks forward to working in close cooperation with the Legislature, DBEDT, HSEO, and experts in renewable energy which may include the Public Utilities Commission, the Hawaii Natural Energy Institute, Hawaii's four counties, the electric utilities, energy developers, and community stakeholders in the update of the Energy Functional Plan.

Thank you for the opportunity to offer comments on this measure.



DAVID Y. IGE  
GOVERNOR

JOSH GREEN  
LT. GOVERNOR

**STATE OF HAWAII  
OFFICE OF THE DIRECTOR  
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS**

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CATHERINE P. AWAKUNI COLÓN  
DIRECTOR

JO ANN M. UCHIDA TAKEUCHI  
DEPUTY DIRECTOR

**Testimony of the Department of Commerce and Consumer Affairs**

**Before the  
House Committee on Energy & Environmental Protection  
Thursday, March 17, 2022  
9:00 AM  
Conference Room 325 & Videoconference**

**On the following measure:  
S.B. 2510, SD2, RELATING TO RENEWABLE ENERGY**

Chair Lowen and Members of the Committee:

My name is Dean Nishina, and I am the Executive Director of the Department of Commerce and Consumer Affairs' (Department) Division of Consumer Advocacy. The Department offers comments on this bill.

The purpose of this bill is to: 1) require the office of planning and sustainable development to update; 2) ensure grid reliability by diversifying the State's renewable energy portfolio to include firm and intermittent renewable energy; 3) establish a policy that requires at least 55 percent of renewable energy to be generated by firm renewable energy; 4) establish a State energy policy that requires the State to maintain a diversified renewable energy portfolio; and 5) amend other statutory provisions to achieve at least 55 percent firm renewable energy generation for each island.

The Department appreciates the intent of ensuring that there is diversification of energy resources and the need to maintain a mixed portfolio of resources to maintain reliability to avoid the risks that may be associated with having an over-reliance on a

less diverse portfolio of resources. While the Department generally defers to the Office of Planning as it relates to the implementation of the proposed policy, the Department offers that there have been changes in technologies and resources that have affected long-term planning for electric generation and, with those changes, the ability to meet electric grid needs have significantly moved away from the starting point of 100% of all capacity and energy from firm, dispatchable generation. The Department is concerned that if the generation mix is fixed at any level, such as at least 55% or 60% of firm generation or fixing the amount of contribution from any one type of resource, this may impede the opportunities to find a more cost-effective mix of resources, discourage innovation and new technologies from being pursued, and limit the possible solutions to meet the requirement of 100% renewable portfolio standards requirement. For instance, if the proposed subsection (a)(7) is retained, this would require firm renewable generation to replace existing fossil fuel generating units; this would limit the possible replacement technologies and leave the current mix of technologies fixed where it is at this point. The Department offers that it may be good to allow flexibility in the mix of resources, while still requiring the planning process to ensure a certain level of reliability.

Thus, the Department respectfully requests that this committee not include specific percentages of firm vs. intermittent renewable energy or of how much any one resource may contribute to an island's resource mix. Instead, the updated plan should allow for flexibility to allow cost-effective solutions for each of the island grids that best supports the individual needs for each island that also encourage innovation.

Thank you for the opportunity to testify on this bill.



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Testimony Presented Before the  
House Committee on Energy & Environmental Protection  
Thursday, March 17, 2022 at 9:00 a.m.

By  
Richard Rocheleau, Director  
Hawai'i Natural Energy Institute  
And  
Michael Bruno, PhD  
Provost  
University of Hawai'i at Mānoa

### SB 2510 SD2 – RELATING TO RENEWABLE ENERGY

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

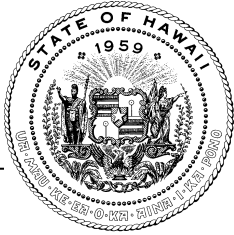
SB 2510 SD2 proposes to establish specific mandates for the minimum percentages of annual firm renewable energy generation and maximum energy contribution of any individual technology on each of the island grids. Such mandates have the stated intention of achieving “greater diversification of renewable energy generation to include intermittent and firm renewable generation to improve reliability and achieve one hundred per cent renewable energy objectives.” These mandates also have the intention of providing “reliable replacement of fossil fuel generation with firm renewable generation.” SB 2510 SD2 also appropriates funds out of the energy systems development special fund for the Hawai'i Natural Energy Institute (HNEI) to conduct a study to update, on a regular basis, the minimum percentage of firm generation and the maximum proportion of any one renewable energy source on each island. HNEI respectfully offers the following comments on this bill.

- 1) Consistent with our statutory role, HNEI collaborates with and provides analysis and technical assistance to key energy stakeholders including the Hawaii Public Utilities Commission, the Hawai'i State Energy Office, and the Hawaiian Electric Company (HECO) to help address these issues. If so directed, HNEI would enthusiastically work in collaboration with these and other stakeholders to develop a suite of energy options that addresses the issues identified in SB2510 SD2.
- 2) HNEI currently has sufficient funds from its Barrel Tax allocation to conduct this study and does not need a separate appropriation. We believe that a direct request for HNEI to utilize funds from its allocation of the barrel tax would be a more efficient process than a separate appropriation.
- 3) HNEI **supports the intent** of this bill and recognizes the need to cost-effectively develop sufficient, locally-sourced firm renewable generation to ensure we can meet our goal of 100% renewable goals while maintaining required grid reliability. HNEI analysis

to date confirms that very significant amounts of firm **capacity** and energy will be required to reach our 100% renewable goals and to ensure grid reliability. The economic dispatch of this firm capacity will vary significantly depending on the quantity and characteristics of all the energy resources on the grid. While recognizing the need to identify and incentivize the development of these firm resources, we are concerned that a legally-binding fixed minimum percentage of renewable energy from firm generation is overly prescriptive at this time and could prevent the development of cost-effective reliable energy systems.

4) Given the desire to include all islands and considering the rapidly changing cost and availability of the various renewable energy sources we respectfully suggest amending the timeline for HNEI's study. We respectfully suggest that a preliminary report be submitted to the legislature twenty days prior to the convening of the regular session of 2023 with a final report to be submitted twenty days ahead of the 2024 legislature with updates to be submitted every two years thereafter.

Thank you for the opportunity to provide this testimony on SB 2510 SD2.



# 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

**OPPOSE  
SB 2510, SD2  
RELATING TO RENEWABLE ENERGY.**

Chair Lowen, Vice Chair Marten, and Members of the Committee, the Hawai'i State Energy Office (HSEO) opposes SB 2510, SD2, in which:

SECTION 2, starting on page 2 of the bill, adds four objectives to the list of items to be considered when planning for Hawai'i's energy systems:

- establishing an objective to differentiate between "intermittent" and "firm" renewable (electricity) generation;
- stating as an objective, the replacement of fossil fuel generation with "firm" renewable generation;
- establishing a fixed minimum percentage of "55% firm," with a legislative concurrent resolution required for any changes;
- establishing a fixed maximum percentage of "45%" for any one type of renewable generation, with a legislative concurrent resolution required for any changes; and
- prohibiting fossil fuel generation after December 31, 2045, with specific exemptions, with a legislative concurrent resolution required for extensions to the deadline.

The definitions of "firm renewable energy" and "intermittent renewable energy" are also in SECTION 2 of the bill, on pages 8 and 9.



SECTION 3, starting on page 9 of the bill, adds renewable energy to Section 226-10, Hawaii Revised Statutes (HRS), “Objective and policies for the economy--potential growth and innovative activities.”

SECTION 4, starting on page 12 of the bill, adds renewable energy to HRS section 226-103, “Economic priority guidelines.”

SECTION 5, starting on page 17 of the bill, adds “incentives to encourage the development of firm renewable energy to replace fossil fuel generation” to HRS section 226-103(f), “Priority guidelines for energy use and development.”

SECTION 6, starting on page 18 of the bill, adds three new items to the section on preparation and update of State functional plans:

- requires state agencies to gain the approval of the Office of Planning and Sustainable Development (OPSD) for their plan;
- requires OPSD to file an annual report to the legislature “regarding the status of the plan and related policies;” and
- assigns to OPSD the responsibility to update the “energy state functional plan” to include “a diversified renewable energy portfolio and firm renewable energy...” for submission to the Legislature prior to the 2023 legislative session.

SECTION 7, starting on page 21 of the bill, directs the Hawai'i Natural Energy Institute (HNEI) to “update the minimum percentage of firm renewable generation for each island and the maximum proportion of any one renewable energy source on each island.”

SECTION 8, starting on page 22 of the bill, appropriates funds for HNEI, and SECTION 9, starting on page 22 of the bill, appropriates funds for OPSD.

HSEO opposes SECTION 2 and SECTION 6 of the bill.

Regarding SECTION 2 of the bill, HSEO is concerned that establishing rigid statutory constraints between “firm” and “intermittent” electricity generation may interfere with the development of an optimized system that balances energy security, grid reliability, and cost control based on available technologies, resources, and needs of Hawai'i's energy systems at the time. Also, adding a step of revising a statute or adopting a concurrent resolution after receiving bids and before approving contracts could result in significant delays and uncertainties in energy projects of all types, further raising the cost of the renewable energy transition.

Regarding SECTION 6 of the bill, HSEO opposes the assignment of HSEO's functions and responsibilities to another agency. No especial reason is presented for treating the energy functional plan differently in the State Planning Act from other functional plans or that OPSD should have a particular oversight authority regarding energy planning. HSEO recommends that the proposed new paragraph (d), beginning on page 20, be removed.

~~(d) The office of planning and sustainable development shall update the energy state functional plan to include a diversified renewable energy portfolio and firm renewable energy for electricity generation to enhance the State's energy security, resilience, and sustainability. The updated energy state functional plan shall be integrated into any future updated functional plans. The updated energy state functional plan shall be submitted to the legislature no later than twenty days prior to the convening of the 2023 legislative session. The office of planning and sustainable development shall submit an annual report to the legislature regarding progress to the energy state functional plan. The energy state functional plan may be updated every five years.~~

As noted in the existing language of HRS Section 226-55(a), "The state agency<sup>1</sup> head primarily responsible for a given functional area shall prepare and periodically update the functional plan for the area." In the case of energy, the state agency head is the Chief Energy Officer, a new position created in 2019 pursuant to Act 122 and assigned energy-related responsibilities from the Director of the Department of Business, Economic Development, and

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<sup>1</sup> "State agency" means any department, office, board, or commission of the State, or the University of Hawaii. HRS §226-2.

Tourism, per Act 122<sup>2</sup>. HSEO is willing to lead the update to the state energy functional plan in close coordination with OPSD, pursuant to existing statute, and requests that any funds or reporting requirements provided by this measure support HSEO in fulfilling its responsibility under the Hawai'i State Planning Act.

Regarding updating of the functional plan for energy, HSEO agrees that a coordinated approach to achieving Hawai'i's energy and decarbonization goals is appropriate. Previous comprehensive integrated planning efforts, including the [Energy Functional Plan](#) (1991), the [Hawaii Energy Strategy](#) (1992-1994), [Hawaii Energy Strategy Update](#) (2000), and the [Hawai'i Clean Energy Initiative](#) (2008-2010), are out of date. Current related planning efforts for specific parts of the energy sector (for example, power supply improvement plan, integrated grid planning, integrated resources planning effort of Hawai'i Gas, triennial plan of Hawai'i Energy) are in-depth efforts that need to be included in the overall strategy.

Also pertaining to SECTION 6 of the bill, HSEO observes the language in the proposed new paragraph (e), beginning on page 21, line 5, significantly changes the role of OPSD. HSEO recommends that this item be removed:

~~[(e) Any agency that does not comply with this plan shall gain approval by the office of planning and sustainable development. Any disputes shall be appealed to the governor.]~~

Regarding SECTIONS 3, 4, and 5 of the bill, HSEO agrees that energy research, technologies, and innovation have great potential for development, application, economic diversification, and energy security for Hawai'i.

Regarding SECTION 7 of the bill, HSEO looks forward to working with HNEI on studies planned or conducted as part of this measure should it move forward.

Thank you for the opportunity to testify.

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<sup>2</sup> Per Act 122 (SLH 2019): "The legislature's intent is to establish in statute an energy agency with a clear mission, established guidance, transparent reporting, and accountable leadership that will assist both the public and private sectors in achieving the State's energy goals. More specifically, the purpose of this Act is to:

(1) Establish the Hawaii state energy office as an attached agency to the department of business, economic development, and tourism and a chief energy officer position within the office;

(2) Transfer the duties and responsibilities of the energy resources coordinator, which are currently assigned to the director of business, economic development, and tourism, along with the functions of the renewable energy facilitator, functions of the existing state energy office, and all employees of the state energy office to the Hawaii state energy office and chief energy officer;" (pp. 443-444).

**SB-2510-SD-2**

Submitted on: 3/14/2022 9:11:13 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
brandon wolff	International Longshore and Warehouse Union	Support	Remotely Via Zoom

Comments:

ILWU L-142 , ILWU L-100 and ILWU- HAWAII LONGSHORE Division, in STRONG SUPPORT of SB2510, SD2.

Establishing a Firm renewable energy generation policy in the state of Hawaii will primarily protect the GENERAL WELFARE and the living standards OF THE PEOPLE statewide. Firm renewable energy ENSURES the PEOPLE and FAMILIES of HAWAII have a ECONOMICALLY FEASIBLE and ATTAINABLE , ON DEMAND RELIABLE ELECTRICITY SUPPLY.

Mahalo for Hearing the people and providing us with a platform to share our thoughts.

Aloha

Brandon Wolff

ILWU Hawaii Representative

# 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 2510: RELATING TO RENEWABLE ENERGY**

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@hawaiiioeconomy.org



TESTIMONY OF TAWHIRI POWER LLC  
ON SB 2510, SD2 BEFORE THE HOUSE COMMITTEE ON  
ENERGY AND ENVIRONMENTAL PROTECTION  
THURSDAY, MARCH 17, 2022 AT 910 a.m.

TO THE HONORABLE CHAIR LOWEN, VICE CHAIR MARTEN, and MEMBERS OF  
THE COMMITTEES:

Tawhiri Power LLC (“TPL”)<sup>1</sup> is in strong opposition to SB2510, SD2 which calls for:

1. A State energy policy that requires at least fifty-five per cent of renewable energy to be generated by firm renewable energy; and
2. Statutory provisions that would require that at least fifty-five percent of firm renewable energy for each island and limit the percentage of any one type of renewable energy source to forty-five percent of all generation for each island.

The above proposals in the Bill are based on three false premises. First, it assumes that firm renewable generation is superior to intermittent renewable generation. Second, it assumes that fossil fuel generation can only be replaced by firm renewable generation. Third, it assumes that firm renewable generation will lead to the utilities retiring their fossil fuel units.

History has shown that all these assumptions are incorrect. Moreover, with rapidly changing technology, these assumptions may be even further from the truth in the future.

For the State to be 100% renewable it needs to keep all its options open and consider

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<sup>1</sup> TPL is an Independent Power Producer (“IPP”) that owns and operates Pakini Nui Wind Farm located in the South Point Area on the Island of Hawaii.

all renewable generation options. Request for Proposals for new generation need to be **ALL SOURCE** Requests and subject to the Hawaii Public Utilities' Commission Framework for Competitive Bidding. This allows all options to participate and compete, which results in the best option being selected for the people of Hawaii.

This bill instead attempts to limit the State's options and would be a step backwards for the State and a disservice to the people of Hawaii.

We urge you to please hold SB2510, SD2. Thank you for the opportunity to testify.

**SB-2510-SD-2**

Submitted on: 3/15/2022 4:13:43 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Clint Churchill	Practical Policy Institute of Hawaii	Oppose	Remotely Via Zoom

Comments:

Testimony of the Practical Policy Institute of Hawaii

Thursday, March 18, 2022.

9:00 a.m. State Capitol, Conference Room 325 and via Zoom

Comments in opposition to SB 2510 SD2 relating to renewable energy

Chair Lowen, Vice Chair Wildberger, and members of the committee: My name is Clint Churchill, president of the Practical Policy Institute of Hawaii. While there are positive aspects to the intent of SB 2510, it is our view that the bill has major flaws and thus our opposition.

The purpose of the State’s 100% renewable policy is to replace fossil fuel-generated electricity with renewable energy alternatives. The goal was established, in the words of one legislator, without having done any due diligence as to how it was to be accomplished. While this is a noble goal that we all embrace, there are significant implications and sometimes conflicting priorities--namely dependability, affordability, and land-use.

The first major flaw of the amended bill is the requirement for a minimum of 55% “firm” renewable energy, which we believe will hamper the achievement of the 100% renewable goal. A basic responsibility of the PUC is to ensure 100% dependable electrical service; why would the people of Hawaii expect anything less? The PUC should have the discretion to determine what level of firm energy is required, and from what source, not via legislative mandate. It could well be that a whole new definition of “firm” evolves—one that isn’t necessarily tied directly to the renewable source, but some other intermediate source, such as energy storage and pumped storage.



Implicit in the 55% amendment to the bill is that wind and solar are intermittent and thus not a firm source. Does that mean that 55% must come from bio fuel? What if this is cost prohibitive yet required by law? The amended bill completely overlooks battery storage, coupled with wind and solar, as a viable solution. In the rush to get utility scale solar farms projects in place, very little battery storage has been required of PPA bidders. This amended bill effectively ties the hands of the PUC relative to what, as is becoming apparent, may well be the most viable alternative to achieving 100% renewable. If a utility scale solar project has sufficient coupled battery storage to provide available energy for three consecutive cloudy days after the end of each sunny day's production, is this sufficient to be called "firm?" Should the PUC have an expert study to guide them or a legislative mandate?

The second major flaw in the bill is the amendment requiring that no more than 45% of renewable energy of generation on each island come from any one type of renewable source. This would mean that we would ignore perhaps the most practical combination of renewables that are acceptable to each island, and do something lesser in the name of diversity. Why do we need one size fits all? On Oahu, wind has become problematic due to the visual blight, health concerns, and thus strong pushback from rural communities. Geothermal and hydroelectric are not viable options on Oahu. The bill would effectively make it mandatory that when one source, such as solar, reaches 45%, no more can be built. Maybe this is an attempt to force acceptance from residents who are opposed to windmills, but it's certainly not a way to be responsive to community concerns nor a road to 100% renewable.

The state is making good progress on 100% renewable, ahead of established interim milestones. HECO has had an ongoing, comprehensive Integrated Grid Planning process, overseen by the Public Utilities Commission, that is addressing the key questions raised by this bill. We suggest that this process be allowed to run its course, as well as learn from another initiative by HECO to undertake an RFP process for renewable energy options other than fossil fuel, wind, and solar. That process should be quite instructive as to the cost of other renewable options. There is time to learn from both of these initiatives, time that will enable both HECO and all interested stakeholders to, as stated by HECO: "carefully weigh both qualitative and quantitative benefits against the potentially higher cost of firmer renewable generation options."

There is simply no reason to rush through this bill through, as good progress is being made towards 100% renewable. We respectfully suggest that this bill be shelved for this year and perhaps re-considered in a future legislative session.





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(808) 877-3144  
[www.biodiesel.com](http://www.biodiesel.com)

March 15, 2022

**TESTIMONY ON SB 2510, RELATING TO RENEWABLE ENERGY**

**SUPPORT**

Rep. Nicole E. Lowen, Chair  
Rep. Lisa Marten, Vice Chair  
Committee on Energy & Environmental Protection  
Hearing: Thursday, March 17, 2022 at 9AM, Conf Room 325 and via Videoconference

Aloha Chair Lowen, Vice Chair Marten and Members of the Committee,

Pacific Biodiesel **supports SB 2510**, which establishes a firm renewable energy generation policy to ensure the reliable one hundred per cent replacement of fossil fuel electricity generation to increase Hawaii's sustainability and energy self-sufficiency.

**Today, Hawaii's locally produced biodiesel is supporting energy security in our island state and reducing reliance on imported fossil fuel.**

Biodiesel is a 100% renewable fuel that provides a firm renewable source for power generation that is a reliable backup to intermittent renewables like solar and wind that fluctuate in availability. In Hawaii's electric utilities, fast-start diesel engines — increasingly fueled with clean biodiesel — are enabling higher penetration of intermittent PV and wind assets while maintaining grid stability.

This bill also requires support of "actions that reduce, avoid, or sequester Hawaii's greenhouse gas emissions through agriculture and forestry initiatives" and makes it a "policy of this State to facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawaii's economy, including but not limited to diversified agriculture."

**Community-based agriculture for energy helps diversify the state's economy and is a powerful solution for climate change.**

As part of our carbon negative regenerative farming operation, when we make biodiesel from virgin oils, like sunflower oil, we let the plants do the hard work of converting sunlight into liquid oil as they sequester CO<sub>2</sub> from the atmosphere. We also make this biodegradable, non-toxic fuel out of used cooking oil recycled from Hawaii's restaurants, keeping that potentially hazardous waste out of the landfill. Pacific Biodiesel's "ag and energy" model today is demonstrating a "net carbon negative" renewable fuel system that's a beneficial circular economy model for Hawaii.

**Biodiesel also allows for an immediate reduction of greenhouse gas emissions.**

Biodiesel has one of lowest carbon footprints of any fuel. Biodiesel is a direct replacement for petroleum diesel fuel and can be used right now in any diesel engine without modification, helping to reduce greenhouse gas emissions by 86% compared to petroleum diesel. The diesel engine is NOT the problem. Petroleum diesel FUEL – fossil fuel – used in efficient diesel engines is the problem.

Unfortunately, Hawaii is rushing to support electrification while ignoring the many environmental and economic benefits of biofuels.

Last summer, a California Air Resources Board (CARB) report\* shared findings that **total greenhouse gas (GHG) reductions from biomass-based diesel were 3x the total reductions from electric vehicles**. In Hawaii, where the carbon intensity of our electricity grid is significantly higher than the US average, the assumption would be an even greater GHG reduction with the use of 100% biodiesel compared to EVs charged by an electricity grid that's currently only 30% powered by renewables.

We can not and should not sit back and wait for a 100% zero emission future. The State must get serious, soon, about requiring a lifecycle GHG reduction analysis on its “zero emission” strategies before Hawaii spends millions on new EVs.

The further we move towards our goal of 100% renewable, the more critical these liquid biofuel sources produced from a sustainable ag/energy model will be. At our refinery on Hawaii Island, we produce 5.5 million gallons per year of premium distilled biodiesel – the equivalent of 220 MWh per DAY of 100% renewable energy for Hawaii. But building up the supply is a long process. We must encourage expanded use of high blend biofuels today and support additional local production now to meet the needs later.

Mahalo,



Bob King  
Founder and President  
Pacific Biodiesel

\*Biobased Diesel Daily, 5/15/21: <https://www.biobased-diesel.com/post/biobased-diesel-outperforms-electric-vehicles-3-to-1-in-california-ghg-reductions>



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

**In strong opposition to SB2510 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 SB2510 SD2** that would establish a firm renewable energy generation policy in the Hawaii State Planning Act, and that includes a policy of incentives to facilitate and encourage fuel-producing and energy-producing crops.

350Hawaii appreciates the intent of this measure, and supports and encourages the efforts of the legislature to promote truly clean, non-climate harming renewable energy, increasing our sustainability and energy self-sufficiency. However, “firm” renewable energy as currently defined would include burning trees and wood products. Establishing a firm renewable energy policy that includes burning trees and wood products would result in unintended negative consequences to our environment and climate, and would take us in the opposite direction of our energy self-sufficiency goals.

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 which 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.

Furthermore, encouraging fuel-producing crops and energy-producing crops takes valuable land away from growing food crops that could help address our food security and resiliency issues. Currently we import 90% of our food from out of state. One lesson we should have learned from the pandemic is that we need to be more self-sufficient with our food supply. Our current lack of local food production puts us at extreme risk. We need policies that will encourage more local food production, not take away from what little we already have.

In short, establishing a firm renewable energy generation policy and incentives to facilitate and encourage fuel-producing and energy-producing crops and thereby incentivizing burning wood products as an energy source will worsen the climate, negatively impact our economy, and undermine our resiliency efforts. We urge you to not pass this bill.

Mahalo for the opportunity to testify.

Sherry Pollack  
Co-Founder, 350Hawaii.org



**Hawaiian  
Electric**

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

**SB 2510 SD2**

**Relating to Renewable Energy**

Thursday, March 17, 2022

09:00 am, Agenda Item #10

State Capitol, Conference Room 325 & Videoconference

Marc Asano

Director, Integrated Grid Planning

Hawaiian Electric

Chair Lowen, Vice Chair Marten, and Members of the Committee:

My name is Marc Asano and I am testifying on behalf of Hawaiian Electric Company **with comments regarding SB 2510 SD2 and expressing concerns to Section 2**, Relating to Renewable Energy.

SB 2510 SD2 amends Hawaii Revised Statutes, Section 226-18 (and other statutory provisions) to ensure grid reliability by diversifying the State's renewable energy portfolio. Among other provisions, it prescribes percentages of the types of renewable energy that should be included in the energy portfolio.

Hawaiian Electric believes Section 2 and 7 of the bill provides the necessary policies required to achieve the state's clean energy goals in a reliable and affordable manner; and offers comments and amendments, below. Hawaiian Electric does not take a position on the other sections of the bill.

Hawaiian Electric appreciates the intent of this bill and supports the requirement to modify H.R.S. 226-18 to emphasize the importance of a diverse renewable energy portfolio comprised of both firm and intermittent renewable energy to ensure grid reliability while still achieving the RPS goals. However, Hawaiian Electric has concerns

with its prescriptive nature that would limit the State's flexibility in achieving 100 percent renewable energy in a reliable and cost-effective manner. Hawaiian Electric agrees that firm renewable generation is a critical component to decarbonizing the entire State economy, and that diversification of resources is a key element to ensuring a reliable, secure, and resilient electric system; however, achieving the State's clean energy and decarbonization goals will require flexibility amidst the global transformation of the energy sector. Hawaiian Electric's on-going Integrated Grid Planning (IGP) process, overseen by the Public Utilities Commission seeks to answer some of the key questions raised by this bill such as, how much firm renewable energy is needed to achieve the state's renewable energy goals. Under the current Integrated Grid Planning schedule, Hawaiian Electric expects to have updated long-term resource portfolio plans later this year. They will help create a "living" plan that will continue to evolve over the next thirty years as new technologies emerge and market conditions change.

Additionally, consistent with the intent of this bill and as evidence of our position that an energy portfolio must consist of both firm and intermittent renewable resources, Hawaiian Electric, subject to Public Utilities Commission approval, issued a draft request for proposals for firm renewable generation to ensure continued reliable electricity supply, facilitate the retirement of firm, fossil generating units, and add to renewable generation. The proposals we receive through the competitive procurement, will determine the firm renewable energy options available today and assess the benefits and costs compared to the status quo. Hawaiian Electric will carefully weigh both qualitative and quantitative benefits against the potentially higher costs of firm renewable generation options.

To mitigate the concerns described herein, we offer the following suggested amendments (suggested amendments are underlined and bolded):

- Section 1, subsection (3) (starting on page 1, line 7):  
Establish a state energy policy that requires **firm renewable generation capacity equal to** at least fifty-~~five~~ per cent **of each island’s net peak load by December 31, 2045 renewable energy to be generated by firm renewable energy and for renewable energy to reliably** replace fossil fuel ~~energy and achieve one hundred per cent renewable energy~~ generation **in a manner that is beneficial to the state’s economy;**
- Section 1, subsection (5) (starting on page 1, line 15):  
Amend other statutory provisions to achieve **firm renewable generation capacity to be equal to** at least fifty-~~five~~ per cent **of each island’s net peak load by December 31, 2045 firm renewable generation for each island to reliably replace fossil fuel generation that is beneficial to the state’s economy.**
- Section 2 of the bill amends H.R.S. §226-18(a) to add subsections (8), and (9) on page 3 starting on line 5. It also amends H.R.S. §226-18(c) to add subsections (13) and (14) starting on page 8, line 5. Hawaiian Electric recommends the following amendments in order to provide the required flexibility that is needed to determine the least cost yet reliable renewable energy portfolio. Suggested amendments are underlined and bolded.

**(8) Firm renewable generation capacity shall be a minimum of fifty-~~five~~ per cent of each island’s net peak load by December 31, 2045 renewable energy generation for each island except due to reasons beyond reasonable control of the utility as described §269-92(d) . Notwithstanding any law to the contrary, this percentage may be updated by the legislature pursuant to the following:**

**(9) Limit the percentage of any one type of renewable energy source to forty-five per cent of all generation for each island. Notwithstanding any law to the contrary, this percentage may be updated pursuant to paragraph (a)(8) of this section; and**

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**(13) Ensure that the development or expansion of energy systems recognizes and emphasizes the need to increase the proportion of firm renewable energy generation capacity to be equal to a minimum of fifty per cent of each island’s net peak load by December 31, 2045 to a minimum of fifty-five per cent of renewable energy for each island, to reliably replace fossil fuel generation; and**

**(14) Ensure that the development or expansion of energy systems recognizes and emphasizes the need to ensure grid reliability by limiting the proportion of any one type of renewable energy source**



~~as defined in section 269-91, to a maximum of forty-five per cent of energy generation on each island.~~

The modification to set a minimum of 50 percent firm renewable capacity, will ensure a diverse portfolio of resources is reliable; thus, a specific percentage for intermittent renewables is not necessary. Additionally, determining a specific percentage for intermittent renewables is highly dependent on the quantity and type of other intermittent resources on the system.

Modifying the minimum amount of renewable firm generation to be a percent of net peak load rather than percent of renewable energy recognizes the benefit of firm generation providing renewable capacity to meet customer demand during times when the grid is most stressed and in need of generating capacity, and provides the flexibility for other types of low cost renewable energy, including intermittent sources, to be integrated into the grid alongside firm generation. Setting a minimum of fifty percent ensures a reasonable amount of renewable firm generation is available to provide customers with reliable and resilient electricity, especially when intermittent renewables are not available. As testimony by HNEI on this bill previously stated, “significant amounts of firm capacity will be required to reach out 100% goals and to ensure grid reliability.” Our current analysis indicates much higher levels of firm renewable generation (i.e., 80-90% of net peak load) will be needed, and Ulupono’s analysis in the IGP docket indicated that 973 MW – 1,124 MW would be needed which represents 65-75% of peak load. Thus, pending further analysis by HNEI and the results of our IGP process, fifty percent is a minimum that provides sufficient flexibility while ensuring some commitment to firm generation for a reliable and resilient system. Additionally, the proposed language allows for sufficient time (year 2035) to integrate firm renewable technologies including future technologies that may not be commercially available

today; such as advanced geothermal and hydrogen or hydrogen blends that can be used to provide firm, low carbon, renewable generation.

Accordingly, Hawaiian Electric expresses its concerns to Section 2 of the measure and respectfully requests the amendments proposed above be incorporated.

Thank you for this opportunity to testify.



INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS  
LOCAL UNION 1260  
ORGANIZING THE FUTURE

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

HEARING DATE: Thursday, March 17, 2022  
TIME: 9:00 AM  
PLACE: Via Video Conference  
Conference Room 325

RE: TESTIMONY IN SUPPORT OF SB2510 SD2

Aloha Chair Lowen, Vice Chair Marten, and Members of the Committee:

This testimony is being submitted by the International Brotherhood of Electrical Workers Local 1260 (IBEW 1260). IBEW 1260, is comprised of nearly 3,000 hardworking union members. Our members are a diverse workforce that largely consist of highly skilled and trained individuals working 24 hours a day, 7 days a week, to generate and transmit electricity here in the State of Hawai'i.

IBEW 1260 is in **SUPPORT** of SB2510 SD2 which seeks to establish a firm renewable energy policy in the Hawaii State Planning Act to ensure reliable generation to increase the sustainability and energy self-sufficiency of the State to improve the quality of life for residents and visitors, with the exception for fossil fuel generation during emergency circumstances.

We understand and agree that in order to promote a reliable renewable energy future, it will require an increased promotion of firm renewable generation.

As the representatives of the workforce that operates and maintains the State of Hawaii's electrical grid, we also have a goal to be the leaders into a renewable energy future for Hawaii. We recognize that in order for Hawaii's renewable energy future to be reliable, sustainable, and self sufficient, it's going to require a highly trained and qualified local work force. Which is why we especially agree with Section 4(8)(c)&(d) which promotes:

*(C) An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs at all levels of employment.*

*(D) An industry that would provide reasonable incomes and steady employment.*

We sincerely thank The Committee for their time, consideration, and dedication to a renewable and reliable energy future.

Sincerely,

Leroy Chircio, Jr.  
Business Manager and Financial Secretary  
International Brotherhood of Electrical Workers Local 1260  
700 Bishop Street, Suite 1600  
Honolulu, HI 96813



Testimony Before the House Committee on Energy and Environmental Protection

By David Bissell  
President and Chief Executive Officer  
Kaua'i Island Utility Cooperative  
4463 Pahe'e Street, Suite 1, Līhu'e, Hawai'i, 96766-2000

Thursday, March 17, 2022; 9:00 am  
Conference Room #325 & Videoconference

**Senate Bill No. 2510 SD2 - RELATING TO RENEWBLE ENERGY**

To the Honorable Chair Nicole E. Lowen, Vice Chair Lisa Marten and Members of the Committee:

Kaua'i Island Utility Cooperative (KIUC) is a not-for-profit utility providing electrical service to more than 34,000 commercial and residential members.

**KIUC offers comments on this measure.**

Over the past 10 years, KIUC has significantly increased its renewable generation. In 2020, KIUC's energy mix included 67% renewable: leading the state. Renewable production is expected to be similar for 2021. For the past three years, KIUC has operated the Kaua'i electric grid at 100% renewable for thousands of hours on sunny days. The West Kauai Energy Project (WKEP), currently in development, has the potential to bring Kauai to nearly 90% renewable generation by the end of 2025: well ahead of all existing renewable portfolio standard (RPS) benchmarks. WKEP will contribute significantly to KIUC's firm renewable portfolio.

Even with this accelerated progress, achieving 100% renewable will be a difficult task. Beyond WKEP, solar and storage is the only viable option for KIUC, unless technologies significantly evolve over the next ten years. It is vital that utilities seeking to meet the state mandate of 100% renewable by 2045 be offered the greatest flexibility possible in employing technologies that are compatible with the geographic, social, and environmental characteristics of the areas they serve.

While it is clear that development of firm renewable generation on the established timeline must be a priority, prescribing specific percentages of any type of renewable at this time could create significant challenges for utilities striving to comply with the state mandated RPS. We encourage amendments to this bill which will allow greater flexibility for utilities in meeting these goals.

Mahalo for your consideration.

**SB-2510-SD-2**

Submitted on: 3/16/2022 8:24:58 AM

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

Submitted By	Organization	Testifier Position	Testify
Ted Bohlen	Climate Protectors Hawai'i	Oppose	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: SB2510 SD2 **RELATING TO RENEWABLE ENERGY.**

Hearing: Thursday, March 17, 2022, 9:00 a.m., Rm. 211 and by videoconference

Aloha Chair Lowen, Vice Chair Marten, and Members of the 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** respectfully **OPPOSES the bill.**

The Climate Protectors Hawai'i is concerned that establishing rigid statutory constraints between "firm" and "intermittent" electricity generation may interfere with the development of an optimized system that balances energy security, grid reliability, and cost control based on available technologies, resources, and needs of Hawai'i's energy systems at the time. In particular, assigning rigid percentages in advance is unwise. All sources should be able to bid and the PUC should have discretion to decide what is in the public interest at the time.

Firm renewable power should exclude the burning of trees, as that is very harmful to the environment, a "double-whammy" for the climate, in lost sequestration and emission of greenhouse gases.

Adding a step of revising a statute or adopting a concurrent resolution after receiving bids and before approving contracts could result in significant delays and uncertainties in energy projects of all types, further raising the cost of the renewable energy transition.

Climate Protectors Hawai'i opposes the reassignment of HSEO's functions and responsibilities to another agency.

Please defer this bill!

Mahalo!

Climate Protectors Hawai'i (by Ted Bohlen)



March 17, 2022

**TESTIMONY SUPPORTING THE INTENT OF SB 2510 SD 2  
RELATING TO RENEWABLE ENERGY**

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 2510 SD 2, Relating to Renewable Energy. 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.

This bill seeks to diversify the state's renewable energy sources to ensure we have dependable power supply for grid reliability. There is a growing recognition that while solar and wind offer low-cost energy, these intermittent sources alone cannot meet the state's energy demands, even with battery storage capabilities. Firm energy, which is not dependent on weather conditions, can play a key role in Hawai'i's pathway to greater energy self-sufficiency.

The stability of firm energy will become increasingly important in the decades ahead as Hawai'i transitions to reaching the State's goal of 100 percent renewable by 2045. Par Hawaii is preparing to use proven ways of adapting our refining assets for large-scale, permanent renewable energy production.

As Par Hawaii shifts into the production of clean fuels, this bill would help with our planning for the future.

Mahalo for allowing Par Hawaii to share our perspectives on SD 2510 SD 2.







**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 2510 SD2**

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

Hawaii Clean Power Alliance (HCPA) **supports** SB 2510 SD2, which establishes firm renewable energy generation policy in the Hawaii State Planning Act to ensure the reliable one hundred percent replacement of fossil fuel electricity generation to increase the sustainability and energy self-sufficiency of the State to improve the quality of life for residents and visitors; includes policy of incentives to facilitate and encourage fuel-producing crops and energy-producing crops and bioenergy and standards for achieving renewable portfolio standards.

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.

Updating the state functional plan that was published 31 years ago (1991) and updating policy to align with the recent change in the policy goal of the state to achieve 100% renewable electric energy by 2045 is critically important to create a framework of *how* the state will achieve the goal in an expeditious and thoughtful manner to ensure that the residents and businesses benefit from reliable, resilient, and affordable energy.

Historically, the electric utilities have driven the plans and actions to achieve the RPS goal. Their knowledge of the grid is extremely important in the process. However, the state's update to the plan and policy will help guide and direct an integrated approach to the utilities, state departments who affect the sector, and the industry partners to provide a clear view of what will be required in terms of technology needs and at different points in time. Additionally, once the plan is updated, the policy makers can choose to support the plan through additional policies such as incentives or regulations.

WHY FIRM GENERATION IS IMPORTANT (CAPACITY)

Importantly, one of the main purposes of this bill is to ensure grid reliability by requiring a minimum amount of capacity, which can be relied upon on the grid at any time. The U.S. Energy Information Administration (EIA) refers to capacity as the maximum output of electricity that a generator can produce. A facility with a capacity factor of 100% means it's producing

power all the time. The electric system needs a minimum amount of capacity power to be available all the time to keep the grid running 24X7 reliably, in other words, baseload or firm generation. Nationally, the Federal Energy Regulatory Commission (FERC) mandates reliability standards including reserve margins. Hawaii is not subject to FERC, which regulates interstate transmission and has not implemented reliability standards in a manner similar to other jurisdictions, leaving the utility and the PUC not subject to independent third-party oversight.

Hawaiian Electric recently published their draft Request For Proposals (RFP) to acquire 500-700 megawatts of firm renewable capacity on the Oahu grid to supplement the 1,488 MW of firm fossil fuel capacity on the grid after the decommissioning of the coal plant. (<https://www.hawaiianelectric.com/about-us/power-facts>). That will provide up to 47% of firm renewable energy on Oahu.

With the coal plant decommissioning on 9/1/2022 (180 MW), which delivered 16-20% of the electric grid's firm baseload capacity, and many of the forecasted solar/battery projects delayed (376 megawatts), time is of the essence to procure this renewable firm generation. Today, the Oahu grid consists of 67% firm capacity. 93% of that is fossil fuel generated. The additional firm renewable acquisition will move the percentage close to 75% firm generation.

#### WHY A DIVERSIFIED PORTFOLIO IS IMPORTANT (CAPACITY AND ENERGY)

Energy, or electricity generation is another consideration in the reliability equation. Energy is the amount of electricity a generator produces over a specific period of time. Many generators do not operate at their full capacity all the time, such as solar or wind, (intermittent or non-firm energy). The facilities' output may vary according to the conditions of the resource of the energy. That is why it is important for the system to have a variety of resource types, including those that can start up or dial back quickly in response to sudden changes in consumer demand or to react to the output of other resources on the grid. For instance, a solar farm can be rated at a 10 megawatt capacity available for 6-hours, but if the sun isn't shining for ½ of those hours, then the energy available for that day is only 5 megawatts.

#### REAL WORLD EXAMPLE: CAPACITY SHORTFALL IN NEW ENGLAND

The recent events in the winter of 2017/2018 led to New England's system being challenged due to insufficient capacity when customers needed it. The system was designed with what appeared to be more than enough capacity to satisfy peak demand plus reserve requirements.

However, an unprecedented cold winter storm forced many generators offline or reduced their energy output because the input of resources was not available. So, while sufficient capacity seemed to be available, the energy coming out of those generators was perilously short to meet the demand.

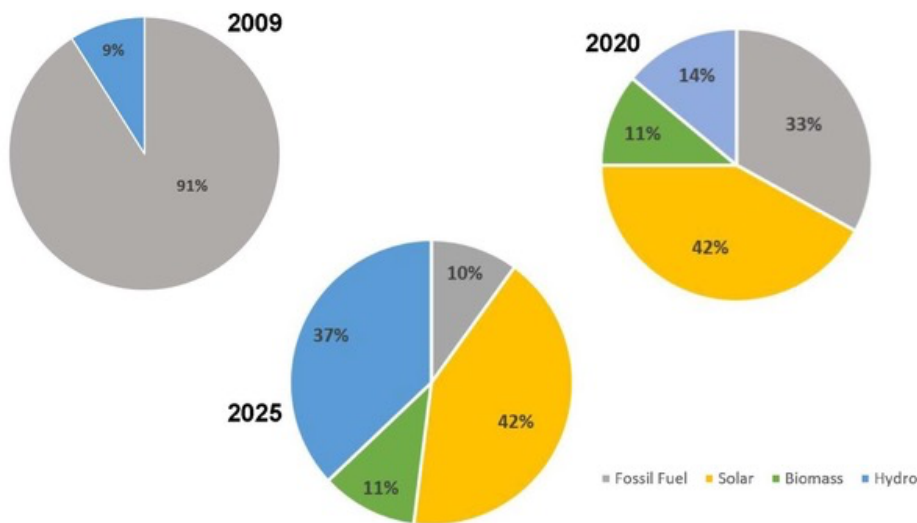
#### HAWAII EXPERIENCED CAPACITY SHORTFALL

A similar experience happened on Oahu as recently as New Year's Eve 2021. The energy provided by generation facilities was compromised by unplanned outages and numerous days

of rain and low wind. That is why both firm and intermittent generation is necessary, and importantly a diversification of technologies, where one is not overly dominant, to mitigate the risk of the grid having blackouts due to an unprecedented weather event.

Kauai Electric has a chart which shows their progress and energy map showing the reduction of fossil fuels by implementing a number of firm renewable and intermittent renewable technologies between 2009 and 2025. Their graph shows the plan to provide 48% firm renewables on the grid as soon as 2025, and no more than 42% of one renewable technology in the plan.

## Where Kaua‘i Gets Its Power



Testifiers may want to insert language into this bill that defines firm renewable technology and which one is "better" or "renewable" or "cleaner" in terms of price or life-cycle analysis greenhouse gas emissions. Respectfully, this bill is not the vehicle to advocate for one technology over the other. When the regulators decide which project is approved or denied, the Public Utilities Commission is guided and mandated by Subsections in HRS§ 269, which have carefully been considered by the legislature and defines renewable energy by source, as well as their decision making criteria to consider the need to reduce the state's reliance on fossil fuels and explicitly consider factors such as price, export of moneys to import fuels, fuel supply availability and greenhouse gas emissions.

We urge the committees to pass the bill.

Thank you for the opportunity to testify.



**INTERNATIONAL LONGSHORE & WAREHOUSE UNION**  
LOCAL OFFICE • 451 ATKINSON DRIVE • HONOLULU, HAWAII 96814 • PHONE 949-4161

HAWAII DIVISION: 100 West Lanikaula Street, Hilo, Hawaii 96720 • OAHU DIVISION: 451 Atkinson Drive, Honolulu, Hawaii 96814  
MAUI COUNTY DIVISION: 896 Lower Main Street, Wailuku, Hawaii 96793 • KAUAI DIVISION: 4154 Hardy Street, Lihue, Hawaii 96766  
HAWAII LONGSHORE DIVISION: 451 Atkinson Drive, Honolulu, Hawaii 96814

## LOCAL 142

The Thirty-First Legislature  
Regular Session of 2022

Committee on Energy & Environmental Protection  
Rep. Nicole E. Lowen, Chair  
Rep. Lisa Marten, Vice Chair  
Conference Room 325 & Videoconference  
Thursday, March 17, 2022, 9:00 a.m.

### STATEMENT OF THE ILWU LOCAL 142 ON S.B. 2510 RELATING TO RENEWABLE ENERGY

The ILWU Local 142 testifies in **strong support of S.B. 2510**. The ILWU Local 142 is a labor union of workers in the Longshore, Tourism, Agriculture, and General Trades industries. Our membership includes workers in the renewable energy industry. The ILWU supports efforts to transition Hawaii's energy infrastructure to 100% renewables under the framework of ensuring that such a transition will provide thousands of dignified student-debt-free jobs that can sustain a family. S.B. 2510 helps to move us onto the framework of a just energy transition.

Firm renewables are an important part of a diversified energy portfolio, that ensure a steady supply of electricity for Hawaii's people. Most importantly, firm renewables help to move us off fossil fuel imports – the leading cause of climate change. Good jobs must be green jobs and green jobs must be good jobs. We continue to labor towards futures where our economy looks after the land and the people of Hawaii. We urge passage of S.B. 2510.



P.O. Box 253, Kunia, Hawai'i 96759  
Phone: (808) 848-2074; Fax: (808) 848-1921  
e-mail info@hfbf.org; www.hfbf.org

March 17, 2022

HEARING BEFORE THE  
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

**TESTIMONY ON SB 2510, SD2**  
RELATING TO RENEWABLE ENERGY

Conference Room 325 & Videoconference  
9:00 AM

Aloha Chair Lowen, Vice-Chair Marten, and Members of the Committees:

I am Brian Miyamoto, Executive Director of the Hawai'i Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,800 farm family members statewide and serves as Hawai'i's voice of agriculture to protect, advocate and advance the social, economic, and educational interests of our diverse agricultural community.

**The Hawai'i Farm Bureau supports SB 2510, SD2**, which establishes firm renewable energy generation policy in the Hawai'i State Planning Act to ensure the reliable one hundred per cent replacement of fossil fuel electricity generation to increase the sustainability and energy self-sufficiency of the State to improve the quality of life for residents and visitors.

Renewable energy is important to the State's energy goals. Firm renewable energy production using biofuels can play a critical role in helping Hawai'i reach the goal of one hundred percent renewable energy by 2045, help to diversify Hawai'i's economy and agricultural sector, reduce greenhouse gas emissions, and reduce our dependence on imported oil.

HFB supports the production of dedicated energy crops, crop residues, and agricultural wastes into economically and environmentally sustainable biofuels and value-added by-products such as livestock feed.

Thank you for this opportunity to testify on this important subject.

**SB-2510-SD-2**

Submitted on: 3/14/2022 5:28:56 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Lindsey Dymond	Individual	Oppose	Written Testimony Only

Comments:

Testimony of Lindsey Diamond

I oppose SB2510

As a small business owner, I've had direct experience trying to make my business at least partly supplied by renewable power (solar). It was quite a task, but I did it. When I read bills like 2510, I can't help but wonder what is going on. It sounds like total confusion. The Legislature needs to step back and let it happen. I don't have batteries, because I also use the grid. But don't you need a lot of very expensive batteries to make sure the lights stay on? Who is in charge of making sure these big solar farms have enough batteries? AND how will this cost be past on to the ratepayers?

I appreciate your listening to my testimony.

**SB-2510-SD-2**

Submitted on: 3/14/2022 6:42:33 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Douglas Perrine	Individual	Oppose	Written Testimony Only

Comments:

This bill is noble in its stated intent, but flawed by the inclusion of sections 1(3), 1(5), (6) and (7), requiring fixed proportions of firm renewable energy production, which denies the utilities the option of combining intermittent production with energy storage by such means as pumped storage, flywheels, batteries, etc., which may conceivably afford the same goal of reliable energy but at a lower cost or a lower environmental cost.

**SB-2510-SD-2**

Submitted on: 3/14/2022 8:19:54 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Alice Kim	Individual	Support	Written Testimony Only

Comments:

An important firm renewable energy source, 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.

In addition to increasing Hawaii's energy security, geothermal can benefit the people of Hawaii through accomplishing the following:

- Lower the cost of electricity in the state with the highest electricity price in the nation
- Greatly reduce carbon emissions involved with creating energy
- Generate revenues for the betterment of the State
- Increase the self-sustainability of the Hawaiian islands and reduce the importation of oil
- Use the least amount of land out of all power sources
- Create local professional jobs

The Hawaiian Electric Co. (HECo) even credited a full year of geothermal production for HECo's increase in producing renewable energy for the year 2021 and plans to expand geothermal resources to cut carbon emissions.

Please support SB 2510 to ensure reliability of the State's electricity grid, reduce the use of fossil fuels and carbon emissions, develop a viable local industry, and make the State's goal of reaching 100 percent renewable energy by 2045 possible and more affordable.





**SB-2510-SD-2**

Submitted on: 3/14/2022 10:21:10 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Camile Cleveland	Individual	Support	Written Testimony Only

Comments:

I strongly support this bill. Decarbonizing the power sector to reduce the state's greenhouse gas emission levels is crucial. Mahalo for the opportunity to testify.

**SB-2510-SD-2**

Submitted on: 3/14/2022 10:57:38 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
David Chew	Individual	Support	Written Testimony Only

Comments:

The war in Russia and Ukraine makes it very clear that Hawaii needs to be self sustaining in energy production. Biomass gives us that solution. Rising cost of Oil will make it unaffordable for the working class to stay here. Biomass provides an opportunity for us and our kids to stay home, and not have to move away cause we can't afford it.

**SB-2510-SD-2**

Submitted on: 3/14/2022 11:04:59 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Donton Meinel	Individual	Support	Written Testimony Only

Comments:

Biomass is a proven renewable resource that can substitute fossil fuels. If you are against biomass, you are for fossil fuels.

**SB-2510-SD-2**

Submitted on: 3/14/2022 11:08:43 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Kaai Bruhn	Individual	Support	Written Testimony Only

Comments:

My electric bill is the highest cost behind my rent (or mortgage). I do not support your view that biomass should not be allowed in promoting firm renewable energy. You are not representing the people of Hawali, or the people on my island with your views.

**SB-2510-SD-2**

Submitted on: 3/15/2022 1:09:30 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Lawrence DeCosta III	Individual	Support	Written Testimony Only

Comments:

I am in full support of this bill!

mahalo

Lawrence DeCosta III

**SB-2510-SD-2**

Submitted on: 3/15/2022 7:40:04 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
blayne dikito	Individual	Support	Written Testimony Only

Comments:

Biomass is a proven renewable resource that can substitute fossil fuels. If you are against Biomass, you are for fossil fuels.

**SB-2510-SD-2**

Submitted on: 3/15/2022 8:49:35 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
KAIKA SASAOKA	Individual	Support	Written Testimony Only

Comments:

I support this bill. Rising cost of Oil will make it unaffordable for the working class to stay here. Biomass provides an opportunity for us and our kids to stay home, and not have to move away cause we can't afford it.



Testimony of Edward MacNaughton as a concerned citizen  
Opposing SB2510 SD2

While I applaud the efforts of this bill to require that at least some of the future renewable energy projects (55%) be what are classified as “firm” renewable energy providers, it fails to address the entire issue which is to have Hawaii 100% off fossil fuel electric generation by 2045.

I am opposed to the bill as written and subsequently amended for the issues that it does not address:

- As Oahu does not have and reliable sources suitable for either Geothermal or Hydroelectric power generation, why will the bill allow 45% of renewable energy created to be other than “firm” energy (capable of providing electricity 24/7/365 as is currently required of Hawaiian Electric and their (or contracted) fossil fuel burning generation facilities)?
  - What happens when the power generation stops due to the whims of Mother Nature (lack of sunlight or wind) for any extended period?
    - Is the remaining available “firm” power rationed to all power users on Oahu?
    - Do we face “rolling blackouts” to account for the lack of sufficient supply?
    - Who decides who gets the available power and who does not?
- To be considered a “Firm” power source, both solar and wind generated power will require substantial back-up which currently can only be accomplished through extensive and expensive battery back-up systems. The bill fails to address at the very least a couple of things that should be considered when addressing the issue of “Firm” power:
  1. How many hours of the generation system’s rated output must the back-up system provide?
    - This needs to be sufficient to account for the whims of Mother Nature – several days of overcast weather or our notorious “Kona winds”.
  2. Assuming that back-up can only be accomplished with batteries rather than burning fossil fuels, the bill needs to address:
    - Knowing that batteries lose efficiency over time, how frequently must batteries be replaced to maintain full back up capabilities?
      - This may not be a set time but can be set to maintain overall battery efficiency
    - When batteries are replaced, what is the plan for disposing of the used batteries?
      - They contain massive quantities of hazardous material therefore cannot be recycled or burned.

The bill makes an attempt at pursuing renewable energy but falls short of being complete and at times (diversifying renewable resources) falls well short of being a good road map for achieving the specified goal of being 100% off fossil fuels by 2045.



**SB-2510-SD-2**

Submitted on: 3/15/2022 1:20:07 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Felicia Graham	Individual	Support	Written Testimony Only

Comments:

I reside full time on the Big Island and I am very concerned about our ability to maintain our energy needs without renewable energy.

**SB-2510-SD-2**

Submitted on: 3/15/2022 2:41:42 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
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-2510-SD-2**

Submitted on: 3/15/2022 3:19:24 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Debra Gavelek	Individual	Support	Written Testimony Only

Comments:

I support this bill and the state's push for renewable energy by 2045. We need to stop importing costly and greenhouse gas-emitting fossil fuels. The recent crisis in the Ukraine and ban on Russian oil is an example of why we should be producing our own fuels. Thank you

**SB-2510-SD-2**

Submitted on: 3/15/2022 3:35:50 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Andrea Quinn	Individual	Support	Written Testimony Only

Comments:

Dear Honorable Committee Members:

Please support SB2510.

Thank you for the opportunity to present my testimony.

Andrea Quinn

Kihei, Maui

**SB-2510-SD-2**

Submitted on: 3/15/2022 4:13:42 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Michael Carion	Individual	Support	Written Testimony Only

Comments:

With the rising cost of energy and dependance on fossil fuels, Hawaii needs to move toward renewable energy in as many ways as possible!

**SB-2510-SD-2**

Submitted on: 3/15/2022 4:23:51 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Lydia Hoepner	Individual	Support	Written Testimony Only

Comments:

As an Island State, we should be promoting the creation of energy from within our state.

This bill provides a way for Hawaii to become a self-sustaining state in energy.

As our energy costs will be rising very soon - Vote YES for the island residents



**SB-2510-SD-2**

Submitted on: 3/15/2022 5:16:27 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Joyce Barbarich	Individual	Support	Written Testimony Only

Comments:

We have to diversify our energy make it renewable.

Kauai has a diversified mix of energy and firm renewable energy, and they are so much farther along than the other islands in achieving 100% renewable energy.

This bill can lead to Hawaii's independence from the importing of fuel from afar.

**SB-2510-SD-2**

Submitted on: 3/15/2022 5:37:45 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Pam Latinis	Individual	Support	Written Testimony Only

Comments:

Aloha Commisioner Chairman Griffin,

I am writing again to show support for Honua Ola.

We need to reduce importing fossil fuels. Honua Ola will use state-of the-art technology and will reduce greenhouse gases. HECO predicts the cost of energy on Hawaii Island to increase by 20%. We need to move towards creating our own cleaner renewable energy.

**SB-2510-SD-2**

Submitted on: 3/15/2022 6:53:38 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Brian Barbata	Individual	Oppose	Remotely Via Zoom

Comments:

Testimony of Brian Barbata, in oppsition to SB2510 SD2

March 17, 2022

Honorable co-Chairs and Members of the Committee

Thank you for hearing my testimony. I will be brief.

I ask that you vote no on SB2510. I have read it several times and it makes no sense to me. Getting us to 100% renewable energy by 2045 is going to be hard enough without legislative micromanaging of the process this bill seems to imply. We are certainly not going to get there if we arbitrarily limit any one renewable source to 45%, which simply means that a perfectly applicable renewable will be abandoned because we reach that limit. Under SB2510, this will definitely happen with solar on Oahu. Diversity is a nice concept, but it doesnt apply here.

There are many issues with reaching 100% renewable power by 2045. The major one is firm power which must not only replace, but REPLICATE what fossil fueled power does: Provide reliable power to every household, visitor, and business, available 24/7/365. This is the PUC mandate to utilities, and should not be subverted. The Legislature needs to pay more attention to how that is going to happen, and particularly to battery storage requirements, so the lights don't go out when we have a week of rain or no wind.

Please vote no on SB2510. It is dysfunctional.

**SB-2510-SD-2**

Submitted on: 3/15/2022 10:14:07 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Thomas H. Daniel	Individual	Support	Written Testimony Only

Comments:

1. This act is essential if we are to even approach Hawaii's reduced carbon emissions goals. Hawaii has been dependent on outside fossil fuel imports for too long. Let's stop debating what renewable technology is better than the other. All of them can get us off fossil fuels and we need every form of renewable fuel we can create ourselves. Each island has different natural resources. This bill helps us use our own resources to be self-sustaining.

**SB-2510-SD-2**

Submitted on: 3/15/2022 11:05:10 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Cat Mikkelsen	Individual	Support	Written Testimony Only

Comments:

It is personally one of my top priorities and should also be one of the top priorities of every legislator for this island to help us be free of fossil fuels going forward, and this bill will help.

I urge you to help Hawaii become self-sustaining with power. This is very important.

thank you

**SB-2510-SD-2**

Submitted on: 3/16/2022 4:27:03 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Keoni Pikini	Individual	Support	Written Testimony Only

Comments:

I support bill SB2510 because I believe that FIRM energy from a truly renewable source is important to Hawaii's future, economy and sustainability

**SB-2510-SD-2**

Submitted on: 3/16/2022 7:16:29 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Alika Maikui	Individual	Support	Written Testimony Only

Comments:

The cost of electricity is hurting all of us in our state.

**SB-2510-SD-2**

Submitted on: 3/16/2022 7:19:41 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Georgette Nacis	Individual	Support	Written Testimony Only

Comments:

I support this bill



**SB-2510-SD-2**

Submitted on: 3/16/2022 7:22:11 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
aulii fernandez	Individual	Support	Written Testimony Only

Comments:

This bill will help us use our own resources to be self sustatining. Please support!

**SB-2510-SD-2**

Submitted on: 3/16/2022 7:27:20 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
aulani hood	Individual	Support	Written Testimony Only

Comments:

Please support all forms of renewable energy for our state.

**SB-2510-SD-2**

Submitted on: 3/16/2022 7:29:44 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
micah hood	Individual	Support	Written Testimony Only

Comments:

Please support

**SB-2510-SD-2**

Submitted on: 3/16/2022 7:37:58 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Suterra Soares	Individual	Support	Written Testimony Only

Comments:

Aloha,

I support this bill. It provides a way for Hawai'i to become a self-sustaining state in energy.

**SB-2510-SD-2**

Submitted on: 3/16/2022 8:56:45 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Rick DuVoisin	Individual	Support	Written Testimony Only

Comments:

We need renewal energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 10:18:46 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Rikey Tobosa	Individual	Support	Written Testimony Only

Comments:

i support

## SB 2510 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.

For the foregoing reasons the committee should hold the bill.

**SB-2510-SD-2**

Submitted on: 3/16/2022 12:54:46 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
JON WHITE	Individual	Support	Remotely Via Zoom

Comments:

I support firm energy



**SB-2510-SD-2**

Submitted on: 3/16/2022 1:51:56 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Cisco Valeho	Individual	Support	Remotely Via Zoom

Comments:

I support firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:54:00 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
joshua demello	Individual	Support	Written Testimony Only

Comments:

I am in support of this bill.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:54:24 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
anthony padilla	Individual	Support	Written Testimony Only

Comments:

In support

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:55:33 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
koday saizon	Individual	Support	Written Testimony Only

Comments:

Iam in support of this bill

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:56:00 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Keenan Luke	Individual	Support	Remotely Via Zoom

Comments:

I support SB2510.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:56:09 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Kekoa Bruhn	Individual	Support	Written Testimony Only

Comments:

I am in support of this bill.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:56:25 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
William Campbell	Individual	Support	Written Testimony Only

Comments:

I support SB2510 Mahalo

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:56:34 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Levi Archuleta	Individual	Support	Written Testimony Only

Comments:

I am in support of this bill.



**SB-2510-SD-2**

Submitted on: 3/16/2022 1:56:51 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Edward Klaneski	Individual	Support	Remotely Via Zoom

Comments:

I support firm renewable energy.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:58:09 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Zorich Palimoo	Individual	Support	Remotely Via Zoom

Comments:

I support SB2510.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:58:50 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Alana Kaili	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:58:52 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Kahekili Fuchs	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy.

**SB-2510-SD-2**

Submitted on: 3/16/2022 1:59:16 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Chauncey Dunhour	Individual	Support	Remotely Via Zoom

Comments:

My name is Micah Dunhour I am representing myself and I am in support of this bill. I support firm renewable energy. Mahalo

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:00:32 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Keoni Mendiola	Individual	Support	Written Testimony Only

Comments:

I support SB2510.

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:00:35 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Sy Delizo	Individual	Support	Written Testimony Only

Comments:

I support this bill

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:02:17 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Clayton Glass	Individual	Support	Written Testimony Only

Comments:

I support sb2510



**SB-2510-SD-2**

Submitted on: 3/16/2022 2:02:20 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Blair Nahale	Individual	Support	Remotely Via Zoom

Comments:

I am in support of sb2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:04:05 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Dave Teriirere	Individual	Support	Written Testimony Only

Comments:

I support this bill SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:04:33 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Hubert Pruett	Individual	Support	Written Testimony Only

Comments:

I support bill sb2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:08:34 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Ka'ena Paikai	Individual	Support	Remotely Via Zoom

Comments:

I support firm Renewable Energy and support bill SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:12:49 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Kekoa Masutani	Individual	Support	Remotely Via Zoom

Comments:

I support bill SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:12:53 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Conan K Donahue	Individual	Support	Written Testimony Only

Comments:

I support SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:14:26 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Noah Campbell	Individual	Support	Remotely Via Zoom

Comments:

I support firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:15:06 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Jay Amina III	Individual	Support	Remotely Via Zoom

Comments:

I support firm energy



**SB-2510-SD-2**

Submitted on: 3/16/2022 2:15:51 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
John Rabanal	Individual	Support	Written Testimony Only

Comments:

I support this bill.

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:18:53 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Manny Kulukulualani	Individual	Support	Remotely Via Zoom

Comments:

I support SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:19:34 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Richard Gideon	Individual	Support	Remotely Via Zoom

Comments:

I support bill SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:20:40 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Ted Scott	Individual	Support	Written Testimony Only

Comments:

I SUPPORT SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:21:28 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Burton Chun	Individual	Support	Written Testimony Only

Comments:

I support this bill.

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:24:32 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
kainalu paikai	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy.

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:25:56 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Pomai Kalama	Individual	Support	Written Testimony Only

Comments:

I am in support of this bill!

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:33:04 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Tyler Yuu	Individual	Support	Written Testimony Only

Comments:

I support SB2510



**SB-2510-SD-2**

Submitted on: 3/16/2022 2:37:13 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Seth Holck	Individual	Support	Remotely Via Zoom

Comments:

In support of SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:48:24 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Montgomery Meyer	Individual	Support	Written Testimony Only

Comments:

I am in support of firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:49:29 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
shore padilla	Individual	Support	Remotely Via Zoom

Comments:

In support of sb2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:49:38 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Wade Terlep	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 2:54:53 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Robert Enriquez	Individual	Support	Written Testimony Only

Comments:

I support SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:00:37 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Travis rabellizsa	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:05:35 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Gabriel	Individual	Support	Remotely Via Zoom

Comments:

I support firm energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:05:53 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Chris Tanaka	Individual	Support	Remotely Via Zoom

Comments:

I am in Support of bill SB 2510.



**SB-2510-SD-2**

Submitted on: 3/16/2022 3:09:46 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Adrian Kaleo Nakashima	Individual	Support	Written Testimony Only

Comments:

I support bill SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:15:29 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Clinton Blackman	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:19:47 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Brennon Pias	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy.

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:31:43 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Jonovan Tuinei	Individual	Support	Written Testimony Only

Comments:

I support SB2510.

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:35:50 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Trey	Individual	Support	Remotely Via Zoom

Comments:

I support firm energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:38:32 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Chaz Bajet	Individual	Support	Written Testimony Only

Comments:

I support SB2510.

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:39:03 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
seth ilae	Individual	Support	Remotely Via Zoom

Comments:

I strongly support firm energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:39:55 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Douglas Hiu	Individual	Support	Remotely Via Zoom

Comments:

I support sb2510



**SB-2510-SD-2**

Submitted on: 3/16/2022 3:43:54 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
chad Failma	Individual	Support	Written Testimony Only

Comments:

I support firm renewable energy

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:44:56 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Dane Kaluhiwa	Individual	Support	Written Testimony Only

Comments:

I am in support of this bill

**SB-2510-SD-2**

Submitted on: 3/16/2022 3:48:01 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Louis Mansanas jr	Individual	Support	Remotely Via Zoom

Comments:

I support this bill

**SB-2510-SD-2**

Submitted on: 3/16/2022 4:05:33 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Chad Amasiu	Individual	Support	Remotely Via Zoom

Comments:

I support SB2510

**SB-2510-SD-2**

Submitted on: 3/16/2022 4:19:49 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Seen Morimoto	Individual	Support	Written Testimony Only

Comments:

I strongly support SB2510. Rising cost of oil will make it unaffordable for the working class to continue to live here. Biomass provides an opportunity for us to stay home, and not have to move away because we can no longer afford to live here. Thank you

**SB-2510-SD-2**

Submitted on: 3/16/2022 4:30:01 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Burt Chun	Individual	Support	Remotely Via Zoom

Comments:

I support the bill.

**SB-2510-SD-2**

Submitted on: 3/16/2022 8:20:22 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
zachary matsunaga	Individual	Support	Written Testimony Only

Comments:

i support this bill

**SB-2510-SD-2**

Submitted on: 3/16/2022 8:41:41 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Kale Ornellas	Individual	Support	Written Testimony Only

Comments:

I strongly support this bill.



**SB-2510-SD-2**

Submitted on: 3/16/2022 9:08:43 PM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Gavin Concepcion	Individual	Support	Written Testimony Only

Comments:

I support SB2510

**SB-2510-SD-2**

Submitted on: 3/17/2022 5:45:32 AM

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

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Mona Bomgaars	Individual	Support	Written Testimony Only

Comments:

This minimum wage bill is my preference among the many that have been proposed. We need to increase wages at the lower levels of employment as soon as possible. I have friends working two or more jobs such to feed themselves and their even small families. The basic costs of living in Hawaii are increasing and wages need to catch up with costs and go beyond to make Hawaii a sustainable environment for all.

Please pass this bill. Mahalo