



Written Statement of  
**David H. Molinaro**  
Acting Director  
Hawaii Center for Advanced Transportation Technologies  
before the  
**Senate Committee on Energy, Economic Development, and Tourism**  
Monday, January 31, 2022  
3:00pm  
State Capitol, Conference Room 224  
In consideration of  
**SB2283**  
**RELATING TO THE HAWAII HYDROGEN STRATEGIC PLAN**

Chair Wakai, Vice Chair Misalucha and Members of the Committee.

HCATT strongly **supports** SB2283 requiring Hawaii Natural Energy Institute to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy resources and develop the Hawaii Hydrogen Strategic Plan utilizing the results of its study, which shall be reviewed and updated every four years.

This Bill provisions Hawaii Revised Statute §196-10, Hawaii renewable hydrogen program legislative guidance to design, implement, and administer hydrogen demonstration projects, including infrastructure for the production, storage and refueling of hydrogen vehicles.

Widespread deployment of hydrogen fuel cell technologies requires hydrogen fueling stations, changes to infrastructure, permitting and regulation modifications, access to water, cost benefit analysis, and significant community involvement and support. This study will address those issue and will serve as a renewed effort in adopting hydrogen technologies in support of Hawaii's 2045 RPS mandate and foster a new renewable energy industry in this State.

Thank you for the opportunity to present these comments

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 SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND  
TOURISM  
ON  
SENATE BILL NO. 2283

**January 31, 2022**  
**3:00 p.m.**  
**Room 224 & Videoconference**

RELATING TO THE HAWAII HYDROGEN STRATEGIC PLAN

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

Senate Bill No. 2283 requires the Hawai'i Natural Energy Institute to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy sources and develop the Hawai'i Hydrogen Strategic Plan; requires a report to the Legislature; and appropriates an unspecified sum of general funds for FY 23 for the development of the Hawai'i Hydrogen Strategic Plan.

B&F notes that 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.



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Testimony Presented Before the  
Senate Committee on Energy, Economic Development, and Tourism  
Monday, January 31, 2022 at 3:00 p.m.

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

### SB 2283 – RELATING TO THE HAWAII HYDROGEN STRATEGIC PLAN

Chair Wakai, Vice Chair Misalucha, and members of the committee:

SB 2283 requires the Hawai'i Natural Energy Institute (HNEI) to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy resources and develop the Hawaii Hydrogen Strategic Plan utilizing the results of its study, which shall be reviewed and updated every four years. SB 2283 also requires a report to the Legislature and appropriates funds

HNEI supports the need to more fully evaluate the potential for hydrogen to contribute to Hawaii's energy system or other economic sectors but has concerns that developing a hydrogen plan that is not fully integrated into the overall energy planning that is taking place would not allow costs, benefits, and impacts to be adequately assessed; nor would it lead to actionable items.

To resolve this HNEI suggests the following changes:

SECTION 1. Move the following elements of Section 1 to Section 2a (1).

(3) Cost, benefits, and impacts;

(6) Use of hydrogen as a transportation fuel and grid-level resource;

(7) Technical and economic feasibility and environmental benefits of using hydrogen in key areas to resolve resiliency issue; and

(11) Economic impact as an export commodity or other revenue generating opportunity.

SECTION 2. Change 2a(1) to read:

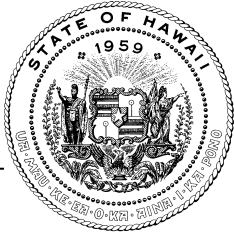
“Develop a long-term hydrogen plan for 2024 through 2050 that is clearly integrated with other long term energy planning in the state. This plan shall include:

- (a) Costs, benefits, and impacts;
- (b) An evaluation of the use of hydrogen as both a transportation fuel and grid-level resource;
- (c) Technical and economic feasibility and environmental benefits of using hydrogen in key areas to resolve resilience issues; and
- (d) Economic impact as an export commodity or other revenue generating opportunity.”

SECTION 4. HNEI is concerned that a report of this magnitude cannot be completed in time to meet the 2023 legislature deadline and requests the schedule be extended to the 2024 legislature with an Interim Progress Report be submitted to the 2023 legislature.

SECTION 5. HNEI has sufficient funds from its Barrel Tax allocation to conduct this study and does not need a separate appropriation.

Thank you for the opportunity to provide this testimony on SB 2283.



# HAWAII STATE ENERGY OFFICE STATE OF HAWAII

DAVID Y. IGE  
GOVERNOR

SCOTT J. GLENN  
CHIEF ENERGY OFFICER

235 South Beretania Street, 5th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone:  
Web:

(808) 587-3807  
energy.hawaii.gov

Testimony of  
**SCOTT J. GLENN, Chief Energy Officer**

before the  
**SENATE Committee on ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM**

Monday, January 31, 2022  
3:00 PM

State Capitol, Conference Room 224 & Videoconference

in Consideration of  
**SB 2283**  
**RELATING TO THE HAWAII HYDROGEN STRATEGIC PLAN.**

Chair Wakai, Vice Chair Misalucha, and Members of the Committee, the Hawaii State Energy Office (HSEO) offers comments on SB 2283, which requires the Hawaii Natural Energy Institute (HNEI) to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy resources and develop the Hawaii Hydrogen Strategic Plan utilizing the results of its study, which shall be reviewed and updated every four years, and to report to the Legislature.

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

HSEO agrees that hydrogen has the potential to be an increasingly important component of Hawaii's energy system, including: energy storage for the electrical grid; and for use in the transportation sector, including for light-and heavy-duty vehicles; and in the production of electrofuels, or other liquid and gaseous fuels, for use by all parts of Hawaii's energy system (including aviation energy), in the immediate, mid, and long-term.

While it is appropriate for HNEI "to conduct a study to evaluate the technical feasibility to produce and use hydrogen locally" HSEO, in cooperation with HNEI, is the appropriate agency to develop the Hawaii Hydrogen strategic plan as part of HSEO's

overall energy planning mandate to decarbonize the economy. In 2019 Act 122 established the Hawaii state energy office “with a clear mission... to assist both the public and private sectors in achieving the State’s energy goals” and “achieving a clean energy economy, ” and mandated Hawaii’s Chief Energy Officer to “Identify market gaps and innovation opportunities, collaborate with stakeholders, and facilitate public-private partnerships [...] that will support the State’s energy and decarbonization goals.” Additionally, HB1800 mandates HSEO "conduct a study to determine Hawaii’s pathway to decarbonization and identify challenges, opportunities, and actions that will be needed to achieve those goals.” The Hydrogen Study and the Hydrogen Strategic Plan may be most effective if conducted within the overall framework of Hawaii’s energy planning. HSEO looks forward to collaborating with HNEI on the study of hydrogen production in Hawai’ and would look forward to continue the collaboration to incorporate the results of the study with the creation of a Hydrogen Strategic Plan as part of HSEO’s overall planning for the decarbonization of Hawaii’s economy. HSEO would require sufficient resources to conduct the Hydrogen Strategic Plan.

HSEO supports the intent of this bill with these changes, and provided that its passage does not replace or adversely impact priorities indicated in the Executive Supplemental Budget.

HSEO defers to the to the appropriate agency for comment on this matter.

Thank you for the opportunity to testify.



**Testimony to  
The Committee on Energy, Economic Development, & Tourism**

**Monday, January 31, 2022  
3:00 PM  
VIA Video Conference  
Conference Room 224, Hawaii State Capitol**

**SB 2283**

Chair Wakai, Vice Chair Misalucha, and members of the committee,

Hawaii Gas **supports SB 2283**, relating to the Hawaii Hydrogen Strategic Plan.

Hydrogen has established itself on the forefront of promising zero-emissions fuel sources. In the gas industry specifically, global research and development is yielding significant progress in understanding hydrogen's compatibility with gas grids and establishing it as a clean and reliable fuel source for typical household and commercial uses.

As we move towards our 2045 decarbonization goals, Hawaii Gas believes that our collective focus on innovation to accelerate multiple paths forward to achieve our state's goals is essential to meet our deadlines. The national infrastructure bill reflects this approach, allocating billions of dollars in funding **for clean energy demonstrations and research** focused on next generation technologies needed to achieve the nation's goal of net-zero by 2050 including funding for national hydrogen hubs and allocating resources for a national hydrogen plan.

We ask the committee to consider amending the language slightly to include gas utilities in the stakeholders named in SECTION 3 as follows:

SECTION 3. In conducting the study and developing the Hawaii hydrogen strategic plan required by sections 1 and 2 of this Act, respectively, and any updates thereto, the Hawaii natural energy institute shall, as appropriate, consult with the department of business, economic development, and tourism; the state energy office; public utilities commission; or any other applicable state or county agency, which shall cooperate and provide necessary resources as requested by the Hawaii natural energy institute. The Hawaii natural energy institute shall further consult with other electric and gas utilities and industry stakeholders, who are encouraged to cooperate and provide information or input.

Thank you for the opportunity to testify.





**Testimony to the Committee on Energy, Economic Development, and Tourism**

**Monday, January 31, 2022**

**3:00 PM**

**VIA Video Conference**

**Conference Room 224, Hawaii State Capitol**

**SB 2283**

Chair Wakai, Vice Chair Misalucha, and members of the committee,

Hawaii Clean Power Alliance (HCPA) **supports** SB 2283, which requires the Hawaii Natural Energy Institute to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy resources and develop the Hawaii Hydrogen Strategic Plan utilizing the results of its study, which shall be reviewed and updated every four years and requires a report to the Legislature. Appropriates funds.

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.

Hydrogen is widely considered one of the most promising zero-emissions fuel sources in the clean energy arena, so much so that the national infrastructure bill allocates billions for clean fuel R&D, with a special emphasis on hydrogen hubs and a hydrogen plan. Hydrogen is especially valuable due to its efficiency and versatility in both grid power and vehicle power. While still in its early stages, research to date demonstrates that hydrogen is likely to play a major role in the nation's move to clean energy, thus making it a central figure in our clean energy work nationally and here in Hawaii. Hawaii will be at the forefront of renewable energy once again by creating a hydrogen strategic plan.

We ask the committee to pass this bill.

Thank you for the opportunity to testify.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Bell".



Frederick Redell, PE  
*Executive Director*  
(949) 701-8249

[www.hawaiicleanpoweralliance.org](http://www.hawaiicleanpoweralliance.org)



**SERVCO PACIFIC INC.**  
2850 PUKOLOA ST. STE. 300  
HONOLULU, HI 96819 USA

**O. 808.564.1300**  
**F. 808.564.1393**

[SERVCO.COM](http://SERVCO.COM)

Senator Glenn Wakai, Chair  
Senator Bennette Misalucha, Vice Chair  
Committee on Energy, Economic Development, and Tourism

**RE: SB 2283 - Relating to the Hawaii Hydrogen Strategic Plan – In Support  
January 31, 2022; 3:00 P.M.**

Aloha Chair Wakai, Vice Chair Misalucha and members of the committee:

Servco is in support of SB 2283, which requires the Hawaii Natural Energy Institute to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy resources and develop the Hawaii Hydrogen Strategic Plan utilizing the results of its study, which shall be reviewed and updated every four years.

The demand for energy is growing and the benefits of producing hydrogen locally can play a key role in realizing a sustainable energy economy. Hydrogen is part of the portfolio of clean energy technologies to reduce Hawaii's dependency on imported fossil fuels. Servco has invested millions of dollars into hydrogen production facilities and will continue to invest as we believe in its' future. We are pleased that the study includes an economic impact as an export commodity. The long-term export potential of hydrogen across the globe is not only a revenue generating opportunity but also yields environmental benefits.

Thank you for the opportunity to provide comments in support.

Peter Dames  
Executive Vice President



**SanHi**

GOVERNMENT STRATEGIES

A LIMITED LIABILITY LAW PARTNERSHIP

DATE: January 30, 2022

TO: Senator Glenn Wakai  
Chair, Committee on Energy, Economic Development and Tourism

FROM: Tiffany Yajima

RE: **S.B. 2283 – Relating to the Hawaii Hydrogen Strategic Plan**  
**Hearing Date: Monday, January 31, 2022 at 3:00 p.m.**  
**Conference Room: 224**

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Dear Chair Wakai, Vice Chair Misalucha and Members of Committee on Energy, Economic Development, and Tourism:

On behalf of the Alliance for Automotive Innovation (“Auto Innovators”) we submit this testimony in **support** of S.B. 2283. This measure requires the Hawaii Natural Energy Institute to examine the State's ability to produce hydrogen from local renewable energy resources and develop a strategic plan to advance this fuel for Hawaii.

The Alliance for Automotive Innovation is the singular, authoritative and respected voice of the automotive industry. Focused on creating a safe and transformative path for sustainable industry growth, the Alliance for Automotive Innovation represents the manufacturers producing nearly 99 percent of cars and light trucks sold in the U.S. Members include motor vehicle manufacturers, original equipment suppliers, technology, and other automotive-related companies and trade associations.

Auto Innovators are supportive of the state's pursuit of hydrogen as a feasible alternative fuel for Hawaii and are interested in the development of a strategic plan to implement hydrogen as a transportation fuel. The automotive industry has made and continues to make a significant investment in hydrogen as a feasible fuel for motor vehicles and recognizes the importance of government support for infrastructure projects like hydrogen fueling stations.

Thank you for the opportunity to submit testimony in support of this measure.



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

SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, & TOURISM  
Monday, January 31, 2022 — 3:00 p.m.

**Ulupono Initiative supports SB 2283, Relating to the Hawai'i Hydrogen Strategic Plan**

Dear Chair Wakai and Members of the Committee:

My name is Micah Munekata, and I am the Director of Government Affairs at Ulupono Initiative. We are a Hawai'i-focused impact investment firm that strives to improve the quality of life throughout the islands by helping our communities become more resilient and self-sufficient through locally produced food; renewable energy and clean transportation; and better management of freshwater and waste.

**Ulupono supports SB 2283**, which requires the Hawai'i Natural Energy Institute (HNEI) to conduct a study to examine the State's ability to advance hydrogen production from local renewable energy resources and develop the Hawai'i Hydrogen Strategic Plan utilizing the results of its study, which shall be reviewed and updated every four years.

Ulupono supports the approach of this bill to perform a study and develop a strategic plan on the technical and economic feasibility of hydrogen production from renewable energy resources. The study will help to guide the development of the Hawaii Hydrogen Strategic Plan to provide a road map of how hydrogen can play a role in our state meeting its renewable energy goals. Establishing the study and strategic plan are important first steps in determining hydrogen's role in meeting the State's 2045 100% renewable portfolio standard goal.

As Hawai'i's energy issues become increasingly complex and challenging, we appreciate this committee's efforts to look at policies that support the continued implementation of renewable energy resources throughout the islands.

Thank you for this opportunity to testify.

Respectfully,

Micah Munekata  
Director of Government Affairs

*Investing in a Sustainable Hawai'i*



**Hawaiian  
Electric**

**TESTIMONY BEFORE THE SENATE COMMITTEE ON  
ENERGY, ECONOMIC DEVELOPMENT AND TOURISM**

**SB 2283**

**Relating to the Hawaii Hydrogen Strategic Plan**

Monday, January 31, 2022

3:00 PM

State Capitol, Conference Room 224 & Videoconference

Darren Ishimura, P.E.  
Director, Grid Technologies  
Hawaiian Electric Company, Inc.

Chair Wakai, Vice Chair Misalucha, and Members of the Committee:

My name is Darren Ishimura and I am testifying on behalf of Hawaiian Electric Company, Inc. (“Hawaiian Electric”) in support of SB 2283.

Hawaiian Electric has committed to reduce carbon emissions from power generation in 2030 by as much as 70% below 2005 levels and have net zero carbon emissions by 2045. In concert with these commitments, Hawaiian Electric continues to modernize its grids and integrate more renewable energy to achieve the State’s 100% renewable energy goal by 2045 while providing safe, reliable, and resilient power to its customers.

One action under Hawaiian Electric’s Climate Change Action Plan is to pursue cost-effective, low-emission or zero-emission fuels, such as green hydrogen, and other emerging technologies. As such, Hawaiian Electric strongly supports the development of a comprehensive Hydrogen Strategic Plan for Hawai’i that considers land and land-use impacts, utilization of green hydrogen to achieve decarbonization and renewable energy goals, and the potential for hydrogen to provide resilience benefits.

Accordingly, Hawaiian Electric supports SB 2283. Thank you for the opportunity to testify.

**LATE**



# Environmental Caucus of The Democratic Party of Hawai'i

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## Energy & Climate Action Committee

Monday, January 31, 2022, 3:00 pm

Senate Committee on Energy, Economic Development, and Tourism

SENATE BILL 2283 – RELATING TO THE HAWAII HYDROGEN STRATEGIC PLAN

Position: Support

Me ke Aloha, Chair Wakai, Vice-Chair Misalucha, and Members of the Committee on Energy, Economic Development, and Tourism:

The Energy and Climate Action Committee finds that a study to examine the State's ability to advance hydrogen production from local renewable energy sources is a little problematic, in that the production of hydrogen fuels typically uses fossil fuels, none of which are available locally, nor are they renewable.

Other renewable sources, such as solar and wind may not have the energy intensity (potency) or efficiency, and may be more strategically made part of the portfolio for more immediate use in an electricity grid. A similar situation may be true for hydropower, which is less available. Geothermal energy may be a good candidate, so the next focus would be the source of hydrogen. It is abundant in the ocean, and we will be most interested to learn whether technologies have advanced to take advantage of this abundant resource.

A major concern of our committee is that biomass not be used for this production, as biomass burning is a throwback to a time before coal and then oil. The world cannot live with such a backward step, as the emissions caused are an existential threat to our existence. Elsewhere it has been explained that consideration of biomass as a "renewable" source is an anachronism we cannot afford.

Our Committee supports this examination to determine a possible future for this technology.

Mahalo for the opportunity to address this matter.

Charley Ice & Ted Bohlen, Co-Chairs, Energy and Climate Action Committee  
Environmental Caucus of the Democratic Party

**SB-2283**

Submitted on: 1/28/2022 8:36:13 AM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Keith Neal	Individual	Support	No

Comments:

I support Hydrogen as a “zero emission” power source. I support the Hawaii Natural Energy Institute studying/developing Hydrogen production from non-fossil fuel sources.



**SB-2283**

Submitted on: 1/28/2022 10:46:11 AM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Roberta Baker	Individual	Oppose	Yes

Comments:

SB 2283 this bill needs to be amended to **exclude** hydrogen produced using *fossil fuels* therefore NOT "zero emmissions"

**SB-2283**

Submitted on: 1/28/2022 11:24:48 AM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Ron Reilly	Individual	Oppose	Yes

Comments:

Dear Senator Wakai and Members of the Energy, Economic Development, and Tourism,

I am opposed to SB 2283.

The bill must be amended to exclude dirty hydrogen that is made from fossil fuels.

Hydrogen is a renewable source of energy only if it is made from clean renewable energy such as geothermal, wind or solar.

The time for burning fossil fuels is behind us. I note that the Mauna Loa Atmospheric Observatory recorded an atmospheric CO2 concentration on Jan 25, 2022 of 420.23ppm. The highest ever recorded at MLO since measurements began there in 1958.

See <https://keelingcurve.ucsd.edu/>

Please do all you can to prevent further Hawaii emissions of green house gases by voting to amend this bad dirty hydrogen bill.

Thank you, Ron Reilly  
Volcano Village, Hawaii

**SB-2283**

Submitted on: 1/28/2022 1:02:05 PM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Andrea Nandoskar	Individual	Oppose	No

Comments:

Oppose.

**SB-2283**

Submitted on: 1/28/2022 2:17:26 PM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Emily Garland	Individual	Oppose	No

Comments:

**Please amend SB2283 to exclude hydrogen made using fossil fuels. Hydrogen is not a “zero emissions fuel” if it was made using fossil fuels. Please Mālama Honua and do not pass SB2283.**

**SB-2283**

Submitted on: 1/28/2022 11:27:17 PM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Dylan Ramos	Individual	Comments	No

Comments:

Aloha Chair Wakai, Vice Chair Misalucha, and EET Committee members,

While I support the intent of this bill and commend this Committee's interest in making good on Hawaii's commitment to hydrogen and renewable energy, I must also caution against funding research into or support for hydrogen projects heavily dependent on fossil fuels, for obvious reasons. Please consider amending this bill to clarify the desired scope of the Hawaii Hydrogen Strategic Plan.

Mahalo,  
Dylan Ramos

**SB-2283**

Submitted on: 1/29/2022 9:49:23 PM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Koohan Paik	Individual	Comments	No

Comments:

Please amend to exclude hydrogen derived from fossil fuels, which is NOT "zero emissions."

**SB-2283**

Submitted on: 1/30/2022 7:48:50 AM

Testimony for EET on 1/31/2022 3:00:00 PM

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

Comments:

Testimony: SB2283 Relating to the Hawaii Hydrogen Strategic Plan

This testimony concludes with proposal for amendment to this bill SB2283 which adds one further 'consideration' to the twelve elements of the proposed study in the Hawaii Hydrogen Strategic Plan.

**Section**

**1**

**(13) A**

**Greenhouse Gas Life Cycle Analysis shall be performed for the production of Hydrogen utilizing each renewable energy resource being considered.**

Though we must admire the author’s intent to promote the use of Hydrogen as fuel source for Transportation or as grid level resource, we must place this proposal in context. The use of the phrase ‘renewable energy resources’ brings up a range of issues which should be considered.

Let’s recall recent developments in the Saga of Hu Honua, the ill fated proposed wood burning power facility on the Big Island. In 2015 the definition of Renewable Energy fuels in HRS 269-91 was amended to add biomass (wood burning) as a renewable fuel and as carbon neutral. Therefore Hu Honua proposed its bioenergy produced to be ‘carbon neutral’ and ‘renewable energy’. This was the case even though the Greenhouse Gas Analysis submitted by Hu Honua in 2019 to the Public Utilities Commission specified that per Kilowatt Hour of Electricity it produced, the Greenhouse Gas emissions were over twice those of the power generating facilities which it would replace. [https://drive.google.com/file/d/1tLYoCgzly5y7e\\_TrYpxqtC6cAnrJ8Y80/view?usp=sharing](https://drive.google.com/file/d/1tLYoCgzly5y7e_TrYpxqtC6cAnrJ8Y80/view?usp=sharing)

It is well known that burning wood (chipped green trees from Hu Honua’s clear cut harvest plan) releases 1.5x more GHG emissions than coal and 2.2x more GHG than oil per unit of electricity produced. The re-sequestration of CO2 by regrowth of the forest is a process known to take multiple decades to well over a century.

The Hawaii Supreme Court in 2020 decided that Hu Honua had failed to consider its Greenhouse Gas emissions as required by Hawaii statute in its presentation before the PUC in spite of its contention of GHG neutrality as above. The case was remanded to the PUC for presentation of Greenhouse Gas life cycle analysis of its process of bioenergy generation.

Blue Planet Research on the Big Island has signed a letter of intent (or interest) to purchase electricity from Hu Honua for Hydrogen production should the Hu Honua facility 'come online'. This commercial Hydrogen production will come under the same purview of the PUC and GHG analysis will be required.

It is the reasoning behind the use of Hydrogen that it will lower the GHG emissions from transportation and energy production. So if Life Cycle Analysis show that it will in fact increase emissions beyond simply using fossil fuels for transportation and energy production then the Hydrogen proposal should be abandoned. We know in the case of burning wood to supply electricity to create hydrogen as fuel, the life cycle emissions will be far worse than simply using the fossil fuels (gasoline, oil or coal) as is currently done. We know that the same is true for the burning of industrial and municipal waste.

It is therefore important that the study which is being proposed in section 1 of this Bill have added to its 12 'considerations' a 13th consideration which would constitute a Green House Gas Life Cycle Analysis for the production of quantities of Hydrogen from each each of the renewable energy resources considered. The Supreme Court has clarified that qualifying for the State definition of Renewable Energy and greenhouse gas neutrality does not satisfy the statutory need for Greenhouse Gas Analysis in the form of GHG Life Cycle Analysis.

Thus, the amendment to Section 1 of Bill SB2283 is proposed as follows:

**Section 1.**

**(13) A Greenhouse Gas Life Cycle Analysis shall be performed for the production of Hydrogen utilizing each renewable energy resource being considered.**

Mahalo for your  
consideration,

Tawn Keeney MD



**SB-2283**

Submitted on: 1/30/2022 10:40:23 AM

Testimony for EET on 1/31/2022 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
jeanne wheeler	Individual	Oppose	No

Comments:

This bill needs to be amended to exclude hydrogen made using fossil fuels. Mahalo, JW

**SB-2283**

Submitted on: 1/30/2022 3:01:11 PM

Testimony for EET on 1/31/2022 3:00:00 PM



<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Remote Testimony Requested</b>
Sherri Thal	Individual	Oppose	No

Comments:

I oppose SB 2283 as written because I have questions regarding the true sustainability of Hydrogen fuels especially during its production.

Mahalo,

Sherri Thal, 96749