

**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**
KA 'OIHANA HO'OMOHALA PĀ'OIHANA, 'IMI WAIWAI
A HO'OMĀKA'IKĀ'I

JOSH GREEN, M.D.
GOVERNOR

CHRIS J. SADAYASU
DIRECTOR

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Statement of
CHRIS J. SADAYASU
Director

Department of Business, Economic Development, and Tourism
before the

SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

Thursday, April 13, 2023
1:05 PM

State Capitol, Conference Room 229 & Videoconference

In consideration of
HCR 35

**SUPPORTING THE HAWAII STATE ENERGY OFFICE IN THE ESTABLISHMENT OF
AN INTEGRATED HAWAII PACIFIC HYDROGEN HUB.**

Chair DeCoite, Vice Chair Wakai, and Members of the Committee. The Department of Business, Economic Development and Tourism (DBEDT) supports HCR 35, in support of the Hawai'i State Energy Office (HSEO) and the Hawai'i Pacific Hydrogen Hub.

This resolution recognizes the work that is being done by HSEO and the many partners in the hydrogen hub application; sets forth the reasons for HSEO to be taking on this task; and describes several reasons for interest and support of hydrogen in Hawai'i's energy future.

If the Legislature passes this resolution, it will demonstrate to the partners in the hydrogen hub consortium and to the Department of Energy that the Legislature is interested in hydrogen and supportive of Hawai'i's application.

Therefore, DBEDT encourages the Committee to support this resolution.

Thank you for the opportunity to testify.



Written Statement of
Len Higashi
Executive Director
Hawaii Technology Development Corporation
before the
Senate Committee on Energy, Economic Development and Tourism
Thursday, April 13, 2023
1:05 p.m.
Conference Room 229 & Videoconference

In consideration of
HCR 35
**SUPPORTING THE HAWAII STATE ENERGY OFFICE IN THE ESTABLISHMENT OF
AN INTEGRATED HAWAII PACIFIC HYDROGEN HUB.**

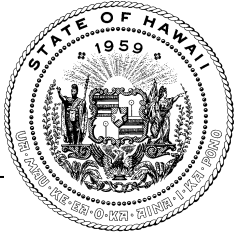
Chair DeCoite, Vice Chair Wakai, and Members of the Committee.

The Hawaii Technology Development Corporation (HTDC) **supports** HCR35 that supports the Hawai'i State Energy Office in the Establishment of an Integrated Hawai'i Pacific Hydrogen Hub.

HTDC supports initiatives that promote economic diversification through technology. HTDC's Hawai'i Center for Advanced Transportation Technologies (HCATT) program has led dozens of hydrogen demonstration projects in Hawai'i. HTDC is part of the Hawaii consortium and is fully committed to make this application and project successful.

Last year, HTDC secured \$7.2 million in federal funds from the Air Force and National Guard Bureau to complete the first phase of the Pacific Energy Assurance and Resiliency Laboratory (PEARL) microgrid at Pearl Harbor. HTDC continues to pursue additional federal funds to add hydrogen storage to the project. This effort is being done in parallel to the Hydrogen Hub application. HTDC looks forward to working with all stakeholders in moving Hawai'i forward.

Thank you for the opportunity to offer these comments.



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

JOSH GREEN, M.D.
GOVERNOR

MARK B. GLICK
CHIEF ENERGY OFFICER

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Testimony of
MARK B. GLICK, Chief Energy Officer

before the
SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

Thursday, April 13, 2023
1:05 PM
State Capitol, Conference Room 229 and Videoconference

In SUPPORT of
HCR 35

SUPPORTING THE HAWAII STATE ENERGY OFFICE IN THE ESTABLISHMENT OF AN INTEGRATED HAWAII PACIFIC HYDROGEN HUB.

Chair DeCoite, Vice Chair Wakai, and Members of the Committee, the Hawai'i State Energy Office (HSEO) strongly supports HCR 35, which expresses support for the Hawai'i Pacific Hydrogen Hub (H2Hub) application, which HSEO led on behalf of the State of Hawai'i.

The approval of the Hawai'i State Legislature is greatly appreciated as HSEO submitted the H2Hub application to the United States Department of Energy on April 7, 2023. As noted in the resolution, a number of Hawai'i's energy and environmental policy objectives would be supported by success of the H2Hub. We believe the expression of support by the Legislature will be a positive factor when the application is reviewed and evaluated in the highly competitive national grant review process.

The Hawai'i proposal aligns existing and new infrastructure to build out a new green regional hydrogen production, distribution, and use network to serve the state and military locations on Guam and Kwajalein Atoll. The H2Hub would produce green hydrogen from a diverse and distributed portfolio of renewable energy sources in accordance with the federal Clean Hydrogen Production Standard,¹ Hawai'i state law, and

¹ 42 U.S.C. 16166(a).

other supportive policies. The hydrogen produced would be consumed in the hard-to-electrify or hard-to-abate sectors first, including heavy-duty ground and marine transportation and aviation.

The mission and purpose of the H2Hub is to seed a transition to hydrogen-powered operations across all sectors of Hawai'i's energy ecosystem and economy for the next decade to:

- Eliminate price volatility and reduce energy costs and greenhouse gas emissions in high-value transportation, energy storage and electric power applications;
- Serve as the linchpin in accelerating Hawai'i's renewable energy and decarbonization strategy, thus contributing to energy security and national security;
- Provide significant net benefits to Hawai'i's diverse communities through green jobs, higher wages, and delivery of reliable, secure, clean, and affordable energy; and,
- Match and phase in appropriate end users from ground-transportation, maritime, and aviation sectors operating locally, to ensure supply and demand balance.

Thank you for the opportunity to testify.



UNIVERSITY OF HAWAII SYSTEM

‘ŌNAEHANA KULANUI O HAWAII

Legislative Testimony

Hō'ike Mana'o I Mua O Ka 'Aha'ōlelo

Testimony Presented Before the
Senate Committee on Energy, Economic Development, and Tourism
Thursday, April 13, 2023 at 1:05 p.m.

By

Della Teraoka

Interim Associate Vice President for Academic Affairs Community Colleges
University of Hawai'i System

HCR 35 – SUPPORTING THE HAWAII STATE ENERGY OFFICE IN THE
ESTABLISHMENT OF AN INTEGRATED HAWAII PACIFIC HYDROGEN HUB

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

The University of Hawai'i supports the intent of HCR 35, which requires the Department of Business, Economic Development, and Tourism to work with the University of Hawai'i on workforce development activities that support the development of the Hawai'i Pacific Hydrogen Hub and other related aspects of the State's hydrogen energy industry.

The University of Hawai'i Community Colleges recently kicked off its [Good Jobs Hawai'i](#) program which includes clean energy as one of four sector focus areas. The Good Jobs Hawai'i initiative seeks to identify and meet current and future needs of Hawai'i's clean energy workforce. The Hawai'i State Energy Office (HSEO) is the lead organization for the Clean Energy and Skilled Trades sector of the Good Jobs Hawai'i program funded by the U.S. Department of Commerce, Economic Development Administration.

Thank you for the opportunity to provide testimony in support of HCR 35.



INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL UNION 1260 EMPOWERING THE PACIFIC

SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT AND TOURISM

HEARING DATE: Thursday, April 13, 2023
TIME: 1:05 p.m.
PLACE: State Capitol
Conference Room 229

RE: Testimony in **SUPPORT** of HCR 35

Aloha Honorable Chair DeCoite, Vice Chair Wakai, and Members of the Committee;

The International Brotherhood of Electrical Workers Local 1260 (IBEW 1260) and its Business Manager and Financial Secretary, Leroy Chincio, Jr. would like to offer the following testimony in support of House Concurrent Resolution 35 (HCR 35).

IBEW 1260, is comprised of nearly 3,500 hardworking union members made up of a diverse workforce that consists of highly skilled and trained individuals working in electrical utility generation, transmission, distribution, and outside construction, as well as government, professional, and broadcast service contracts throughout the State of Hawai'i, in Guam and Wake Island.

IBEW 1260 supports HCR 35 which supports the Hawaii State Energy Office in the establishment of an integrated Hawaii Pacific Hydrogen Hub.

IBEW 1260 is a member of the HSEO's Hydrogen Hub consortium and have been working closely with the HSEO in support of its efforts to explore and establish opportunities for the production and utilization of hydrogen as a clean renewable source of energy, to include but not be limited to its full application to the U.S. Department of Energy in response to the Regional Clean Hydrogen Hub funding opportunity.

Mahalo for the opportunity to testify in support of HCR 35.



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Senator Lynn DeCoite, Chair
Senator Glenn Wakai, Vice Chair
Committee on Energy, Economic Development, and Tourism

**RE: HCR 35 - SUPPORTING THE HAWAII STATE ENERGY OFFICE IN THE
ESTABLISHMENT OF AN INTEGRATED HAWAII PACIFIC HYDROGEN HUB
– IN SUPPORT
Thursday, April 13, 2023; 1:05 P.M.**

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

Servco is in support of HCR 35, which supports the Hawaii State Energy Office in the establishment of an integrated Hawaii Pacific Hydrogen Hub.

The demand for alternative forms of renewable fuel will continue to grow in support of Hawaii's 100% energy goals, and the Hawaii Pacific Hydrogen Hub will play a key role in realizing a sustainable energy economy.

Servco has invested millions of dollars into hydrogen production facilities and will continue to invest as we believe in its future. The long-term production, processing, and 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



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Pepeekeo, HI 96783-1058**
www.sustainableenergyhawaii.org

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

DATE: Thursday, April 13, 2023

TIME: 1:05 PM

Conference Room 229 & Videoconference
State Capitol
415 South Beretania Street, Honolulu, HI 96813

**In consideration of HCR 35/HR 37
SUPPORTING THE HAWAII STATE ENERGY OFFICE IN THE ESTABLISHMENT OF AN
INTEGRATED HAWAII PACIFIC HYDROGEN HUB**

Aloha Chair Lowen, Vice Chair Cochran and Members of the Committees,

SEH is a 501(c)3 non-profit dedicated to improving the quality of life for Hawaii Island residents. Our mission is to enable an economic, social, and environmental revival in Hawaii through a just transition to sustainable, locally sourced renewable energy and to that end, the creation of a thriving clean hydrogen economy.

Sustainable Energy Hawai'i (SEH) supports HCR35/HR37 - Our support for HCR35/HR37 stems from our belief that hydrogen production in the State of Hawai'i is essential to our collective, long-term energy security. We would like to add that we are convinced Hawai'i's overall energy regulatory environment needs to be modernized in order to facilitate vs. hinder the aspirational quality of HCR35/HR37 becoming 'Essential Hawaii State Energy Policy' within the timeframe real-world events require.

Renewable Energy, Hydrogen Production

Hawaii, via RPS 2045, is pursuing the goal to become the first US state to achieve 100% renewable energy. SEH believes that, in this pursuit the State must consider additional factors that have material impact on our ability to achieve the RPS 2045 standard as well as the Act 238 goal for statewide greenhouse gas emissions. Liquid transportation fuels warrant as much attention as does grid-power production.

Among those are:

- Hydrogen is the global consensus resource to produce those liquid fuel alternatives. Supporting a viable Hydrogen Hub in Hawaii will require more than a resolution. It will require funding and supporting infrastructure and, again, regulatory modernization.

- For example, Hawaii consumes 44 million barrels of oil per year. The raw energy content (joules) of 44 million barrels of oil is equivalent to the raw energy found in 2.27 million metric tons of Hydrogen per year or 6,221 metric tons of hydrogen per day.
 - This means that for Hawaii to become a Hydrogen Hub, in the true sense of the word ‘hub’ we will need at minimum, an additional Gigawatt of renewable electricity, exclusively dedicated to producing green hydrogen in Hawaii. If we have designs for supporting energy markets above and beyond our local needs, it’s reasonable to consider these numbers an understatement by half of what is really needed.
- The sustainability, long-term reliability & affordability of the renewable energy systems being built today is reasonably in question. Those systems must be capable of providing electricity for our existing grid-supported needs as well as powering the production of alternatives to our liquid fuel needs. Current trends in the upstream supply chain for intermittents are unreliable and inadequate to meet global demand over the next 20 years:
 - All intermittent systems require critical raw materials (CRM) for their manufacture, much of which is mined within the borders of Russia and China.
 - Demand outstrips supply consistently driving prices up year over year.
 - These systems have life cycles of between 15 & 25 years resulting in the need for continuous replacement.
 - It is reasonable to expect the replacement cost of these systems will far exceed their original price as the entire developed world competes for the limited CRM needed to achieve our needed climate goals. This means the natural resources necessary to economically rely on these systems for more than a single generation is very much in question.

We encourage an expansion of this resolution to include a thorough assessment of our future energy needs combined with a verifiable analysis of our ability to fulfill our own legislatively set goals.

Mahalo for the opportunity to testify,



Peter Sternlicht
Member, Board of Directors
Sustainable Energy Hawaii
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