JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAII | KA MOKUʻĀINA ʻO HAWAIʻI
OFFICE OF THE DIRECTOR
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
KA ʻOIHANA PILI KĀLEPA
335 MERCHANT STREET, ROOM 310
P.O. BOX 541
HONOLULU, HAWAII 96809
Phone Number: (808) 586-2850
Fax Number: (808) 586-2856
cca.hawaii.gov

NADINE Y. ANDO
DIRECTOR | KA LUNA HOʻOKELE

DEAN I HAZAMA
DEPUTY DIRECTOR | KA HOPE LUNA HOʻOKELE

Testimony of the Department of Commerce and Consumer Affairs

Before the
House Committee on Energy & Environmental Protection
Thursday, February 1, 2024
9:30 a.m.
Conference Room 325

On the following measure:
H.B. 1996, RELATING TO RENEWABLE ENERGY

Chair Lowen and Members of the Committee:

My name is Michael Angelo, 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 authorize independent generators of renewable energy to wheel the renewable energy transmitted and used to produce hydrogen, subject to certain conditions determined by the Public Utilities Commission (Commission).

The Department appreciates the bill's intent to advance the development of hydrogen as a renewable energy resource in light of our State's clean energy goals. Since 2007, the Commission has evaluated issues regarding wheeling and, at that time, it was found to be complex and require considerable resources. However, new options have become available. For example, in Docket No. 2020-0204, the Commission is evaluating a pilot that will explore the University of Hawaii's ability to receive the benefits of a remotely sited renewable energy project, which is akin to the benefits realized under

a wheeling program. The Commission also considered the issue of wheeling as part of microgrids in Docket No. 2018-0163. In that docket, the scope of investigating a microgrid services tariff has expanded to include wheeling utilizing the electric utility's infrastructure, this would essentially require a form of wheeling. While procedures in both matters are currently suspended by the Commission, the Department offers that it would be more efficient to move forward with these proceedings than establishing necessary rules regarding the retail wheeling of renewable energy to produce hydrogen as envisioned by this bill.

In addition, aspects of wheeling have been discussed as part of other dockets, such as Docket No. 2019-0323. Through these dockets, appropriate wheeling tariffs can be developed to: (1) enable users to wheel energy from one site to another in a manner that does not adversely affect other customers or the grid; and (2) fairly compensate the utility for using their transmission and distribution facilities to enable wheeling, so that other customers do not have to unfairly subsidize wheeling activities.

In view of the foregoing, the Department respectfully requests that the Committee considers the work the Commission has already initiated and allow the Commission to carefully complete the above dockets to enable wheeling for all customers. As noted above, establishing wheeling is complex and involves various factors. If allowed to complete the ongoing work in existing dockets, the need for additional efforts related to wheeling of renewable energy to produce hydrogen would be mitigated. Requiring the Commission to implement any form of wheeling through rulemaking could not only delay the implementation but also create additional delays in the future when changes may be required to ensure that terms, conditions, prices, and other factors related to wheeling may need to change to reflect future system requirements and the Commission will have to go through rulemaking procedures again.

Thank you for the opportunity to testify on this bill.

TESTIMONY OF
LEODOLOFF R. ASUNCION, JR.
CHAIR, PUBLIC UTILITIES COMMISSION
STATE OF HAWAII

TO THE
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

February 1, 2024
9:30 a.m.

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

MEASURE: H.B. No. 1996
TITLE: RELATING TO RENEWABLE ENERGY.

DESCRIPTION: Authorizes independent generators of renewable energy to wheel the renewable energy transmitted and used to produce hydrogen, subject to certain conditions determined by the public utilities commission.

POSITION:

The Public Utilities Commission ("Commission") offers the following comments for consideration.

COMMENTS:

The Commission appreciates the intent of this measure to promote increased renewable energy production for hydrogen production. The Commission supports examination of diverse measures that would promote the production of clean electricity and understands that generators of renewable energy play an important role in the State's transition to renewable energy.

The Commission notes that electricity wheeling requires analysis of many complex and interrelated issues to ensure reliability and cost-effectiveness, such as interconnection, availability of transmission and distribution capacity, appropriate rates and rate design, back-up power requirements, and others. The Commission observes that an investigatory docket would be an appropriate forum to explore whether implementing retail wheeling in Hawaii is feasible and in the public interest. The investigatory docket process allows the

opportunity for stakeholders to intervene and collaborate on determining the appropriate rates and procedures for retail wheeling.

The Commission's existing authorities allow the ability to open investigatory dockets as resources are available. For example, there are currently multiple ongoing proceedings on related issues, including the distributed energy resources ("DER") docket, the microgrid docket, the community-based renewable energy ("CBRE") docket, and the energy equity and justice docket.

The Commission notes that the measure requires that the Commission establish "policies and procedures to implement retail wheeling, including any appropriate rate" by the end of this year. Given the complexity of the issues associated with wheeling and considering that there are many complementary and interrelated issues currently before the Commission, the Commission respectfully recommends that the requirement to adopt rules to implement retail wheeling by December 31, 2024 be replaced by a requirement that the Commission open a docket to determine whether retail wheeling is feasible and in the public interest in Hawaii and to determine appropriate implementation policies and procedures. This would be followed by a report to the Legislature no later than twenty days prior to the convening of the regular session of 2026, as currently contemplated in a related bill - HB 2098.

Relatedly, the Commission also observes the similarity in scope between this measure and HB 2098, with the primary distinction being the focus of this measure on renewable energy usage for the production of hydrogen. The role of hydrogen in the electric grid and other markets in Hawaii is an important issue that requires further study, particularly regarding the classification of hydrogen as "green" hydrogen. An investigatory docket focused on retail wheeling could also evaluate the end uses of electricity through retail wheeling, such as the production of hydrogen. The Commission recommends that the issue of retail wheeling for hydrogen production be incorporated as part of an investigation into the feasibility of implementing retail wheeling in general.

Thank you for the opportunity to testify on this measure.

Email: communications@ulupono.com

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Thursday, February 1, 2024 — 9:30 a.m.

Ulupono Initiative offers comments on HB 1996, Relating to Renewable Energy.

Dear Chair Lowen 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 choices, and better management of freshwater resources.

Ulupono offers comments on HB 1996, which authorizes independent generators of renewable energy to wheel the renewable energy transmitted and used to produce hydrogen, subject to certain conditions determined the Public Utilities Commission.

While we applaud legislators' willingness to consider all possible solutions, Ulupono shares several concerns regarding the concept of electricity wheeling as it pertains to Hawai'i as an island state and its potential implications on our electricity markets, grid stability, and overall energy policy.

Private wheeling raises significant equity concerns, as it allows companies and other private entities to effectively buy up renewable energy projects (or the energy from such projects) that could otherwise, if purchased by the utility, benefit all ratepayers and the broader public interest.

In addition, Hawai'i's unique geographical and environmental characteristics present significant challenges for large-scale renewable energy projects necessary for hydrogen production. The islands have limited available land, much of which is of cultural, ecological and agricultural importance. Establishing large-scale renewable energy projects, which are necessary for generating the substantial amount of electricity required for electrolysis (the process of splitting water to produce hydrogen), would likely encounter significant land use conflicts. Looking into the near future, these conflicts could arise from competing needs for conservation, agriculture and urban development, leading to a potential imbalance in land resource allocation. Such conflicts are anticipated to increase as the

need to balance these competing interests grow and intensify with each project that gets developed.

Furthermore, from the standpoints of energy efficiency and resource optimization, wheeling renewable energy for hydrogen production may not be the most prudent approach. The process of converting electricity into hydrogen and then back into usable energy is inherently less efficient than using electricity directly to power vehicles and industries. The energy losses in electrolysis, hydrogen storage, transportation, and reconversion to electricity in fuel cells indicate that—with currently available technology—the direct use of renewable electricity is a more efficient and effective way to meet Hawai‘i's energy needs, particularly in a land- and resource-constrained context. Using renewable energy to create hydrogen could possibly make economic sense where abundant renewable energy is being produced *in excess* of our collective electricity/energy demand. In such a situation, excess energy would be priced extremely low, thereby making the inherent inefficiencies associated with the production of hydrogen less of a concern. It is possible that Hawai‘i will someday leverage its abundant natural resources in such a way as to make the production of clean hydrogen possible, but presently—without an economic case for it—wheeling renewable energy to make hydrogen is difficult to justify.

In conclusion, while the pursuit of sustainable and renewable energy sources, including hydrogen, is vital for Hawai‘i's energy future, the specific approach of wheeling renewable energy for hydrogen production in Hawai‘i's land-constrained context raises significant concerns. It is imperative that we consider the unique characteristics of Hawai‘i and explore energy solutions that are environmentally sustainable, economically viable, culturally respectful, and socially inclusive.

Thank you for the opportunity to testify.

Respectfully,

Micah Munekata
Director of Government Affairs

Hawaii Center for Advanced Transportation Technologies
521 Ala Mona Blvd, Suite 255
Honolulu, Hawaii 96813
www.htdc.org/hcatt

Written Statement of
David H. Molinaro
HCATT Manager
Hawaii Center for Advanced Transportation Technologies
before the
House Committee on Energy & Environmental Protection

State Capitol, Conference Room 325
Thursday, February 1, 9:30 AM

In consideration of
HB1996
RELATING TO RENEWABLE ENERGY.

Chair Lowen, Vice Chair Cochran, and Members of the Committee.

The Hawaii Center for Advanced Transportation Technologies (HCATT) **supports** HB1996 authorizing independent generators of renewable energy to wheel the renewable energy transmitted and used to produce hydrogen, subject to certain conditions determined by the public utilities commission (PUC).

Permitting wheeling of renewable energy for use in the production of green hydrogen will help lower the cost of producing carbon-free green hydrogen. Under such a policy, entities will be more compelled to develop the capacity to generate electricity from renewable sources such as solar, wind, and geothermal. With PUC approval, this electricity will be allowed to be wheeled, through open access of the transmission grid, to the hydrogen production facility.

Allowing hydrogen electrolyzers access to inexpensive electricity unlocks the inherent flexibility of these systems. The economics of green hydrogen depend on three factors: capital costs, energy costs, and equipment utilization rates. The more often the electrolyzer accesses cheap electricity, the more price-responsive the electrolyzer can be, and the more it can produce hydrogen at a lower price.

This proposal will aid Hawaii in meeting its future energy needs, RPS mandates, and facilitate the development of green hydrogen and renewable energy industries. It will also reduce dependence on fossil fuels and cut greenhouse gas emissions.

Mahalo for the opportunity to provide this testimony.

TESTIMONY BEFORE THE HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

H.B. 1996

Relating to Renewable Energy

Thursday, February 1, 2024
9:30 am
State Capitol, Conference Room 325 & Videoconference

James Abraham
Associate General Counsel, Legal Department
Hawaiian Electric

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

My name is James Abraham and I am testifying on behalf of Hawaiian Electric **in opposition** to H.B. 1996, Relating to Renewable Energy.

Hawaiian Electric supports programs that aid renewable energy by enabling customers to use their renewable energy systems more effectively; however, the utility also recognizes the importance of equity and ensuring that the benefits of wheeling are balanced with any additional costs or burdens that may be placed on non-wheeling customers. Regulatory policies must take into account these considerations and establish policy and technical requirements that minimize cost shifting and consider the impacts on non-wheeling customers.

These impacts must include the opportunity costs to non-wheeling customers given the limited land resources available for energy production. This bill would allow private, for-profit enterprises to use the limited land viable for renewable energy to make a profit selling to hydrogen producers, meaning that land will no longer be available for future RFPs that would serve all customers. This will make siting of new renewable projects more difficult and increase the pricing for future projects.

Hawaiian Electric appreciates this bill's attempt to seek innovative ways to reduce fossil fuel dependency by bringing on more renewable energy, but the Company has concerns with applying a retail wheeling model to Hawai'i. Isolated island electric grids in Hawai'i are vastly different from the bulk power system of the mainland, where the wheeling model proposed in this bill originated. Unlike California and many other places we're compared to, we can't plug into the mainland grid, either to buy or sell electricity to neighboring utilities or for reliability purposes.

Enabling retail wheeling would potentially exacerbate financial and geographic equity issues by encouraging the construction of renewable energy projects on one part of the island to supply power exclusively to customers on another part of the island, using Hawaiian Electric's transmission and distribution system to connect them. Even assuming the Company is compensated for this use, this arrangement could shift costs to customers who do not benefit from wheeling arrangements yet must still pay to maintain the grid. It could also aggravate community concerns that have emerged around the siting of renewable energy projects, especially if the benefits accrue only to end users located miles away. The Public Utilities Commission is currently investigating these and other energy equity issues in Docket No. 2022-0250, but the concepts being discussed in that proceeding do not include wheeling or the unregulated private energy producers who would be allowed to wheel under this bill.

We welcome continued discussion of how wheeling concepts can be adapted to fit the realities of the Hawai'i energy system, with the understanding that the Company must play a primary role in structuring such wheeling transactions to ensure safety, reliability, and financial equity. Indeed, technology and the energy market have evolved to the point where Hawaiian Electric now enables customers to enjoy many of the

benefits of wheeling through existing programs such as shared solar and the Microgrid Services Tariff. We must address the State's energy future as a whole and not with techniques that simply sound reasonable as stand-alone concepts, especially those used in larger grids on the mainland with large manufacturing and commercial loads.

Hawaiian Electric supports programs that will aid in continued progress towards 100% RPS by 2045, but has concerns that wheeling, as proposed, may hinder rather than support such progress and aggravate community concerns. Inclusive, thoughtful policies that work for Hawaii's unique energy environment are necessary to move us all forward together to a renewable future in Hawai‘i.

Accordingly, Hawaiian Electric opposes H.B. 1996. Thank you for this opportunity to testify.

Kauaʻi Island Utility Cooperative
Your Touchstone Energy® Cooperative

Testimony Before the House Committee on Energy & Environmental Protection

By David Bissell
President and Chief Executive Officer
Kauaʻi Island Utility Cooperative
4463 Paheʻe Street, Suite 1, Līhuʻe, Hawaiʻi, 96766-2000

Thursday, February 1, 2024; 9:30 am
Conference Room #325 & Videoconference

House Bill No. 1996 - RELATING TO RENEWABLE ENERGY

To the Honorable Chair Nicole E. Lowen, Honorable Vice Chair Elle Cochran and Members of the Committee:

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

KIUC opposes this measure.

Over the past 10 years, KIUC has significantly increased its renewable generation. In 2010, KIUC's energy mix included 10% renewable. Renewable production now stands at roughly 60%. This large growth in renewable generation is not only well-ahead of established goals, it has significantly stabilized KIUC's rates: since May 2022, KIUC has posted the lowest residential electricity rates in the state and is currently lower than rates recorded in several localities on the mainland, such as San Diego.

Rate stabilization on Kauaʻi is largely attributable to KIUC securing long-term power purchase agreements for utility-scale renewable projects. Solar facilities and battery storage systems connected to utility-scale solar facilities account for roughly two-thirds of our renewable production and are among our lowest priced energy sources. We believe that utility-scale projects owned or contracted by KIUC best serve our members, as they deliver electricity at prices that smaller, privately-owned projects could not achieve.

KIUC recognizes that developing hydrogen resources is valuable in our collective goal of reaching 100% renewable by 2045. However, wheeling runs the risk of creating a "have" and "have not" system of energy service where the majority would end up paying more in utility bills in the pursuit of this endeavor. KIUC questions the need for wheeling on Kauaʻi given the success of the cooperative in promoting and expanding renewable energy production. If there are good, cost-effective renewable projects that KIUC is not pursuing, we are always open to receiving developer proposals and if the project has merit, we believe the energy should be made available to the full grid and all ratepayers, not just a few.

Franchised utility companies have a duty to serve all customers, the flip side is the utility needs to have the opportunity to serve all customers to avoid subsidization. We encourage a cautious and comprehensive approach to wheeling involving any non-franchise public utility operators. It is essential that any allowed wheeling include proper costing of services from the franchise utilities, which should include consideration of potentially stranded investments. KIUC also supports the preservation of the Public Utilities Commission's ability to disallow wheeling projects if they are detrimental to an electric utility or the public interest (i.e., other utility customers).

Mahalo for your consideration.

Environmental Caucus of
The Democratic Party of Hawai'i

Energy & Climate Action Committee

Thursday, February 1, 2024, 9:30 pm

House Committee on Energy and Environmental Protection

HOUSE BILL 1996 – RELATING TO RENEWABLE ENERGY

Position: Strongly Oppose

Me ke Aloha, Chair Lowen, Vice-Chair Cochrane, and members of the House Committee on Energy and Environmental Protection:

HB1996 authorizes independent generators of renewable energy to wheel it to produce hydrogen.

The Energy & Climate Action Committee takes exception to the use of any valuable renewable energy for the misplaced interest in developing hydrogen. While we generally support decentralized grid generation of electricity, we have a long ways to go before we have surplus renewable energy to waste on such an expensive technology. Producing hydrogen is machine-heavy and a big consumer of energy, with low energy intensity, so would be needed in large quantities. It also has safety risks in expensive storage. It is expected to play a marginal role in the energy transition, facing a future similar to "biofuels" – just impractical.

It certainly has technologists starry-eyed, sounding good on paper. The big draw is federal money to go experimenting, but the only reasonable location is where there is surplus natural gas and ready pipe access to major industrial users.

There is only one location here in Hawaii where ocean water is practical to use, and there is the problem of safely disposing brine, requiring costly pumping systems and careful management to prevent damage to marine ecosystems. Freshwater is also not plentiful enough to justify such an expensive use.

Please hold such proposals.

Mahalo for the opportunity to address this matter.

/s/ Charley Ice, Chair, Energy and Climate Action Committee
Environmental Caucus of the Democratic Party

EST. LIFE OF THE LAND 1970

P.O. Box 37158, Honolulu, Hawai`i 96837-0158
Phone: 927-0709 henry.lifeoftheland@gmail.com

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Rep. Nicole E. Lowen, Chair
Rep. Elle Cochran, Vice Chair

DATE: Thursday, February 1, 2024
TIME: 9:30 a.m.
PLACE: Conference Room 325

HB 21996 RELATING TO ENERGY Please Hold

Aloha Chair Lowen, Vice Chair Cochran, and members of the Committee

Life of the Land is Hawai`i's own energy, environmental and community action group advocating for the people and `aina for 54 years. Life of the Land`s mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

HB 1996 authorizes independent generators of renewable energy to wheel the renewable energy transmitted and used to produce hydrogen, subject to certain conditions determined by the public utilities commission.

Wheeling sounds simple but is complex to implement especially to ensure that other customers are not losers in the process.

On April 30, 2004, the Legislature adopted Senate Concurrent Resolution No. 180. Among other things, the Legislature requested that the commission explore ways to implement intra-governmental wheeling to facilitate government wheeling of electricity. The Legislature defined wheeling as "the process of transmitting electric power from a seller's point of generation across a third-party-owned transmission and distribution system to the seller's retail customer."

Wheeling isn`t really moving the electrons, rather it is just accounting, with supply offsetting demand even though they may occur at different times and in different places. The relative cost of supply and demand may be further differentiated due to time-of-use rates.

The Public Utilities Commission opened a proceeding on intra-governmental wheeling in 2007. Life of the Land was accepted as an intervenor.[1] The Commission closed the docket in October 2019, "without taking substantive action herein."

The Commission noted that they had recently opened a microgrid services tariff proceeding. Life of the Land was an intervenor in phase 1 of the microgrid services tariff proceeding. [2]

---

[1] Docket No. 2007-0176. Other parties and participants are/were the Consumer Advocate, Kauai Island Utility Cooperative, County of Hawaii, Hawaii Renewable Energy Alliance, Castle & Cooke Resorts, City and County of Honolulu, Department of Business, Economic Development, and Tourism, Department of Defense, County of Maui, Realgreen Power, Puna Geothermal Venture, and Lanai Sustainability Research

[2] Docket No. 2018-0163. Other parties and participants are/were the Consumer Advocate, Microgrid Resources Coalition, Distributed Energy Resources Council of Hawaii, Ulupono Initiative LLC, and Energy Island

The microgrid services docket distinguished two types of microgrids: Customer microgrid where a customer's infrastructure is exclusively used to supply all their own electricity needs during emergencies. Hybrid microgrid in which an operator may combine utility infrastructure and customer infrastructure to supply electricity to microgrid members during an emergency. In essence, during islanding, a microgrid operator would wheel electricity across the utility infrastructure.

Wheeling has also been discussed in the Distributed Energy Resources proceeding.[3]

More recently, HECO opened a Green Tariff proceeding whereby the University of Hawaii would produce solar in Ewa and get credit for it at UH Manoa to help the university become net zero.[4]

Hawaiian Electric and the University of Hawai`i filed a letter with the Commission on July 14, 2023, supplemented by a Hawaiian Electric letter filed on September 19, 2023. HECO requested a delay in the proceeding requested a delay in the proceeding "due to the complexity of this endeavor, the number of issues, and the unprecedented situation on Maui." Among the issues were the "financial impacts to UH, Hawaiian Electric, and its customers."

A wheeling bill was considered by the 2023 Legislature.

The Consumer Advocate testified, "The Department respectfully requests that the Committee consider the work the Commission has already initiated and allow the

[3] Docket No. 2019-0323. Parties and participants are/were the Consumer Advocate, Distributed Energy Resources Council of Hawaii, Hawaii PV Coalition, Hawaii Solar Energy Association

[4] Docket No. 2020-0204. Other parties and participants are/were the Consumer Advocate,

Commission to carefully complete its above dockets to enable wheeling for all customers. As noted above, establishing wheeling is complex and involves various factors. If allowed to complete the ongoing work in existing dockets, the need for an additional docket to investigate wheeling would be mitigated, if not obviated."

Life of the Land gave several examples of different types of wheeling. "It is important to recognize that in each of these examples of wheeling, the cost to non-participants cannot be negatively impacted. The Consumer Advocate and the Public Utilities Commission are very concerned about cost impacts to non-participants."

Hawaiian Electric recognized "the importance of equity and ensuring that the benefits of wheeling are balanced with any additional costs or burdens that may be placed on non-wheeling customers. Regulatory policies must take into account these considerations and establish policy and technical requirements that minimize cost shifting and consider the impact on non-wheeling customers."

Mahalo

Henry Curtis
Executive Director

HB-1996
Submitted on: 1/31/2024 10:09:02 PM
Testimony for EEP on 2/1/2024 9:30:00 AM

Submitted By	Organization	Testifier Position	Testify
Cory Harden	Individual	Comments	Written Testimony Only

Comments:

Aloha legislators,

Please keep in mind that hydrogen is flammable, leaks easily, and is difficult to transport. It is far less energy efficient to use renewable power to make hydrogen than to use renewable power directly.

We should focus instead on supporting distributed solar and wind energy with advanced storage solutions (battery, pumped hydro, etc) for a sustainable, resilient power supply with minimal dependence on shipping supplies over thousands of miles.

mahalo, Cory Harden