TESTIMONY OF
JAMES P. GRIFFIN, Ph.D.
CHAIR, PUBLIC UTILITIES COMMISSION
STATE OF HAWAII

TO THE
HOUSE COMMITTEE ON
ENERGY AND ENVIRONMENTAL PROTECTION

February 8, 2022
8:50 a.m.

Chair Lowen and Members of the Committee:

MEASURE: H.B. No. 1936
TITLE: RELATING TO ZERO EMISSION VEHICLE FUELING REBATES.

DESCRIPTION: Renames Hawaii's Electric Vehicle Charging System Rebate Program to the Zero-Emission Vehicle Fueling System Rebate Program. Adds the installation and upgrade of hydrogen refueling stations to the Zero-Emission Vehicle Fueling System Rebate Program.

POSITION:

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

COMMENTS:

The Commission appreciates the intent of this measure to facilitate expanded availability of zero emission vehicle infrastructure.

Since 2019, the Commission has managed the Electric Vehicle Charging System ("EVCS") Rebate Program in consultation with electric vehicle stakeholders and in cooperation with the program's administrator, Hawaii Energy. The program has been met with a robust response and has efficiently allocated funds to expand public charging infrastructure in the state. According to Hawaii Energy, the program to date has issued rebates for 43 new Level 2 EVCS installations, 62 Level 2 retrofits, 1 DC fast charger ("DCFC") installation, and 1 DCFC retrofit. The program also has 30 projects in the pipeline, totaling nearly $200,000 in rebates.

The Commission shares Hawaii Energy's concerns that the current funding level would likely be insufficient to support both electric and hydrogen system incentives, primarily due to the cost of hydrogen refueling stations and, thus, the size of a rebate that could adequately encourage investment in these stations. For context, a recent study by the U.S. Department of Energy found that an average hydrogen station requires approximately $1.9 million in capital cost.[1] Hawaii Energy estimates that a low-end rebate for this type of system would equate to $200,000.

Therefore, the Commission notes that a substantial funding increase would likely be necessary to effectively achieve the intent of this measure, in addition to removing the $500,000 annual spending cap outlined in Section 269-72, subsection (d), HRS. Given the cost of hydrogen refueling stations and noting that the program is currently operated on a first-come, first-served basis, it is possible that a very small number of hydrogen refueling station rebates could consume the bulk of the available funds under the current spending limit.

For these reasons, the Commission is concerned that, absent a significant increase in funding, this measure could unintentionally stifle the expansion of electric vehicle charging infrastructure that can be achieved through the existing rebate program.

Thank you for the opportunity to testify on this measure.

[1] U.S. Department of Energy (2021). *Hydrogen Fueling Stations Cost*. https://www.hydrogen.energy.gov/pdfs/21002-hydrogen-fueling-station-cost.pdf.

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 Telephone: (808) 587-3807
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Web: energy.hawaii.gov

Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Tuesday, February 8, 2022
Time 8:50 AM
State Capitol, Conference Room 325 & Videoconference

SUPPORT
HB 1936
RELATING TO ZERO EMISSION VEHICLE FUELING REBATES.

Chair Lowen, Vice Chair Marten, and Members of the Committee, the Hawai‘i State Energy Office (HSEO) supports HB 1936, which renames Hawaii's Electric Vehicle Charging System Rebate Program to the Zero-Emission Vehicle Fueling System Rebate Program and adds the installation and upgrade of hydrogen refueling stations to the Zero-Emission Vehicle Fueling System Rebate Program.

Broadening the scope of the existing rebate program to explicitly incorporate hydrogen refueling stations supports the State’s energy policy objectives to achieve a net-negative carbon economy as soon as practicable but no later than 2045. Incentivizing a broader set of zero emission transportation technologies provides greater flexibility in the decarbonization of ground transportation. A significant barrier to the adoption of zero emission vehicles is access to fueling stations.

HSEO suggests a minor amendment to rename the Hawaii's Electric Vehicle Charging System Rebate Program to the Zero-Emission Vehicle Infrastructure Rebate Program as opposed to Zero-Emission Vehicle Fueling System Rebate Program.

Thank you for the opportunity to testify.

Hawai'i Energy

45 North King Street, Suite 500 • Honolulu, Hawai'i 96817 • HawaiiEnergy.com • P: (808) 839-8880 • F: (808) 441-6068

Before the House Committee on Energy & Environmental Protection
Tuesday, February 8, 2022 at 8:50am

Testimony on HB1936 relating to Zero Emission Vehicle Fueling Rebates.

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

Thank you for the opportunity to provide comments on House Bill 1936. Hawai'i Energy works to empower island families and businesses on behalf of the Hawai'i Public Utilities Commission (PUC) to make smart energy choices to reduce energy consumption, save money, and pursue a 100% clean energy future. Energy efficiency is the cheapest option to help us achieve our 100% clean energy goal by eliminating waste and being more efficient.

Under the Hawai'i Public Utilities Commission's direction, Hawai'i Energy has been managing the electric vehicle charging station (EVCS) rebate program that was initially funded in 2019 by the State Legislature (Act 142), and in 2021, provided continued funding with the passage of House Bill 1142 (Act 75). The incentive was even highlighted by Plug-In America as a main reason why Hawai'i is ranked #14 in its *"Top 25 States Supporting the EV Driver"* report, released last year.[1]

To date, the rebates have only been distributed to qualified charging stations that power full-battery electric or plug-in hybrid vehicles. The rebates are distributed on a first-come, first served basis, upon a project's confirmation of being installed and operational. As of January 11, 2022, the program has issued rebates for the following:

- Level 2 EVCS – 43 new installations and 62 retrofits
- DC Fast Chargers – 1 new installation and 1 retrofit

We also have over 30 projects in the pipeline, totaling nearly $200,000 in rebates. Act 75 (2021) is estimated to provide between $500,000-750,000 in funding to the existing rebate program.

While we have no objections with including hydrogen fueling infrastructure, we are concerned about the impact on the limited program budget. According to a National Renewable Energy Laboratory technical report published in 2013[2], the estimated baseline cost is $2 million. In our experience, rebate levels usually cover between 10-30% of the installed cost. Using the low end of that range, a 10% rebate would equate to $200,000.

This is confirmed by looking at other jurisdictions who have similar programs as the one being proposed in this bill:

- New York:
    - Zero-Emission Vehicle (ZEV) and Fueling Structure Rebates for Municipalities - The New York State Department of Environmental Conservation's (DEC) Municipal ZEV Rebate Program offers rebates to cities, towns, villages, counties, and New York City boroughs for the purchase or lease of eligible ZEVs and the installation of eligible ZEV fueling

[1] *"Top 25 States Supporting the EV Driver,"* Plug-In America, February 2021 - https://pluginamerica.org/policy/top-25-states-supporting-the-ev-driver/

[2] *"Hydrogen Station Cost Estimates,"* NREL, September 2013 - https://www.nrel.gov/docs/fy13osti/56412.pdf

infrastructure. Maximum Rebate Amounts – ZEV Purchase or Lease: $5,000 per vehicle (50 miles or greater electric range); $2,500 per vehicle (10 to 50 mile electric range), **Electric Vehicle Supply Equipment (EVSE): $250,000 per facility, Hydrogen Fueling Infrastructure: $250,000 per facility.** A single municipality may receive up to 50% of the total available funds towards ZEVs and EVSE, and up to 75% of the total available funds for hydrogen fueling infrastructure.

- The program issued two rebates for hydrogen fueling stations: 1) Town of Hempstead received $250,000 for a hydrogen fuel filling station upgrade and 2) Town of Deweitt received $297,700 for two hydrogen fuel cell filling nozzles and 4 Level 2 charging ports

- Pennsylvania:
  - Electric Vehicle Supply Equipment and Hydrogen Fuel Cell Infrastructure Grants - The Pennsylvania Department of Environmental Protection offers competitive grants for the acquisition, installation, operation, and maintenance of DC fast-charging equipment and hydrogen fuel cell infrastructure. The DC fast chargers must be installed at public locations, workplaces, or multi-unit dwellings. The hydrogen fuel cell equipment must be available to the public. The maximum amount for individual grant awards will be **$500,000 for hydrogen fueling projects**, and $250,000 for DC fast charging projects. This grant program is funded by Pennsylvania's portion of the Volkswagen Environmental Mitigation Trust.
    - Funding Levels – DEP will fund up to 33% of eligible project costs for HFCF projects capable of dispensing at least 250 kg/day, and up to 25% of eligible project costs for HFCF projects capable of dispensing at least 100 kg/day, up to a **maximum of $500,000 per award**.
  - Alternative Fuels Incentive Grant (AFIG) Program - The Alternative Fuels Incentive Grant (AFIG) Program provides reimbursement grants for the installation of alternative fuel infrastructure along Pennsylvania interstate highway corridors. Grants are available for reimbursement of 50% of the cost, **up to $500,000**, to install public electric, hydrogen, propane, and compressed natural gas fueling infrastructure along "Signage Ready" or "Signage Pending" highway corridors in Pennsylvania, as defined by the U.S. Department of Transportation. Eligible applicants include Pennsylvania municipal authorities, political subdivisions, non-profit entities, corporations, and limited liability companies or partnerships incorporated or registered in the Commonwealth.

As you can see, current funding levels cannot support both EV and hydrogen incentives, and Hawai'i Energy recommends that increased funding also be included. If that is not feasible, we propose a funding cap for the hydrogen station similar to the existing DC Fast Charger amount of $35,000. However, we are not sure this incentive will do much to drive adoption of hydrogen fueling stations.

We also recommend replacing "fueling" in the renaming of the program with "infrastructure."

We appreciate the efforts made by the State Legislature to make improvements to the program in pursuit of our 100% clean energy mandate. Thank you for the opportunity to testify on House Bill 1936.

Sincerely,
Noreen Reimel
External Affairs Manager
Hawai'i Energy

Email: communications@ulupono.com

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Tuesday, February 8, 2022 — 8:50 a.m.

Ulupono Initiative supports the intent of HB 1936, Relating to Zero-Emission Vehicle Fueling Rebates.

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; and better management of freshwater and waste.

Ulupono supports the intent of HB 1936, which renames the Hawai'i Electric Vehicle Charging System Rebate Program to the Zero-Emission Vehicle Fueling System Rebate Program and adds the installation and upgrade of hydrogen refueling stations to the Zero-Emission Vehicle Fueling System Rebate program.

Ulupono supports clean, alternative fuel transportation as ground transportation makes up a significant portion of Hawai'i's reliance on imported oil. Hydrogen can potentially play a critical role as a renewable energy source to combat ground transportation's greenhouse gas emissions, however, we believe that this measure may be a bit premature. While hydrogen's technology continues to improve, there is still some question regarding its current economic feasibility here in Hawai'i. Studies and strategic plans, such as those listed in SB 2283, may help to better inform how best the State can support the implementation of hydrogen as a renewable energy source. For now, we believe that it may be best to maintain the current Hawai'i Electric Vehicle Charging System Rebate Program. State investments into EV charging infrastructure directly support a blossoming EV market for Hawai'i that will only continue to grow as vehicle manufacturers across the world make bold, clean transportation commitments.

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

KauaiEV
Kauai Electric Vehicle Association
302 Makani Rd, Kapaa, HI 96746
808-652-0591

2022/02/06

Strong OPPOSITION to HB1936

Dear Chair Lowen, Vice Chair Marten, and EEP Committee members,

I am writing on behalf of KauaiEV, a grassroots organization with over 100 members on Kauai. Our members are electric vehicle drivers and we believe that EVs are the personal transportation of the future. We are in **strong OPPOSITION to HB1936.**

Bringing liquid hydrogen to Hawaii will probably be very expensive, at the moment there is only one prototype ship that can transport it.

Hydrogen fueling stations are very expensive, so is hydrogen. In places with cheap electricity it might be possible to produce green hydrogen between $3 and $6 per kilogram. In Hawaii, electricity is 2-to-3 times more expensive, and so hydrogen would be uneconomical.

Fuel cells are less efficient, and lots of electricity is wasted producing hydrogen. The battery electric Nissan Leaf gets 123 miles per gallon equivalent, and the hydrogen-powered Toyota Mirai gets 79 miles per gallon equivalent; this does not include the wasted energy when producing green hydrogen.

Fuel cell vehicles are more expensive than comparable BEVs and over 95% of all hydrogen worldwide is being produced from fracked methane or coal. Most of the continued support for hydrogen (including for green hydrogen) stems from the fossil fuel industry. As of 2021 only 2 manufacturers offer hydrogen cars: the **Toyota Mirai** and the Hyundai Nexo. Honda stopped manufacturing the Clarity Fuel Cell in August 2021.

I'd like to include 2 articles on the danger - hydrogen is very energy dense and accidents happen.
Bay Area experiences hydrogen shortage after explosion

Hydrogen Fueling Station Explodes: Toyota & Hyundai Halt Fuel Cell Car Sales

Please oppose HB1936.

Mahalo for your consideration,

Sonja Kass

Sonja Kass, President KauaiEV

Hawaii Electric Vehicle Association
hawaiiev.org
info@hawaiieva.com

February 6, 2022

OPPOSITION to HB1936 (RELATING TO ZERO EMISSION VEHICLE FUELING REBATES)

Dear Chair Lowen and Vice-Chair Marten, and members of the Energy and Environmental Protection Committee,

Hawaii Electric Vehicle Association is OPPOSED to HB1936.

This measure implies that the electric vehicle charging station rebate will apply to hydrogen fueling stations. It's unlikely that the rebate will be used broadly, but it creates unnecessary churn that we should avoid. The reasons:

- Hydrogen fueling stations are very expensive (up to $2,000,000 per station[1]). A meaningful hydrogen fueling station rebate will run $200,000 or more.
- Fuel-cell electric vehicles (hydrogen cars) have little traction in the global auto market. Sales and service for these vehicles are very limited.
- Hydrogen is expensive to produce, and the fuel will be costly.
- We cannot afford to waste energy. Hydrogen production, compression, transport, and conversion to electricity are very inefficient. When considering well-to-wheel efficiency, fuel-cell EVs are only about 22%. Regular EVs (battery EVs) are over 70% efficient[2].

We believe there is a place for green hydrogen (produced using renewable energy, not gas or coal). Applications such as transoceanic aviation and marine transport, and electrical grid storage are more appropriate uses for hydrogen, and we recommend that incentives be directed at these possibilities.

The reality is that battery electric vehicles continue to be the most efficient and effective solution for ground transportation. As we strive to accelerate our transition away from fossil fuel, it behooves us to expand our public electric vehicle charging infrastructure aggressively. This will address a key barrier to EV adoption and enable more equitable access to clean transportation.

[1] Fueling Station costs: h2stationmaps.com/costs-and-financing
[2] Hawaii EV Post comparing FCEVs and Battery EVs: hawaiiev.org/blog/fuel-cell-electric-vehicles

Thank you for the opportunity to testify on HB1936.

Sincerely,

President
Hawaii EV Association

Hawaii EV Association is a grassroots non-profit group representing electric vehicle owners in Hawaii. Our mission is to accelerate the electrification of transportation through consumer education, policy advocacy, and electric vehicle charging infrastructure expansion. For more information, please visit hawaiiev.org.

SanHi
GOVERNMENT STRATEGIES
A LIMITED LIABILITY LAW PARTNERSHIP

DATE: February 7, 2022

TO: Representative Nicole Lowen
Chair, Committee on Energy and Environmental Protection

FROM: Tiffany Yajima

RE: **H.B. 1936 – Relating to Energy**
Hearing Date: Tuesday, February 8, 2022 at 8:50 a.m.
Conference Room: Video Conference

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

On behalf of the Alliance for Automotive Innovation ("Auto Innovators") we submit this testimony in **support** of H.B. 1936.

This measure renames Hawaii's Electric Vehicle Charging System Rebate Program to Zero-Emission Vehicle Fueling System Rebate Program and incentivizes the installation and upgrade of hydrogen fueling stations in the state.

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.

This measure would incentivize the build-out of statewide infrastructure to support both electric vehicles and hydrogen vehicles. The automotive industry has made and continues to make a significant investment in hydrogen vehicles and the development of hydrogen fueling infrastructure. At the same time, we also recognize the importance of public, private and government support for infrastructure projects like hydrogen fueling stations. This measure would support the growing number of alternative fuel vehicles on the road today through a broader network of charging infrastructure where these vehicles can refuel.

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

First Hawaiian Center T 808-539-0400
999 Bishop Street, Suite 1400 F 808-533-4945
Honolulu, HI 96813 governmentaffairs@awlaw.com

Testimony to
The Committee on Energy & Environmental Protection

Tuesday, February 8, 2022
8:50 AM
VIA Video Conference
Conference Room 325, Hawaii State Capitol

HB 1936

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

Hawaii Gas **supports HB 1936,** which renames Hawaii's Electric Vehicle Charging System and relates to zero emission vehicle fueling rebates.

Hawaii Gas is a national leader in the transmission and distribution use of hydrogen in our clean energy mix, and it is our vision to continue to lead the gas industry in its ability to safely, affordably, and reliably increase the amount of this zero-emission fuel source in our utility pipeline and as a reliable zero-emission fuel source for vehicles.

Beyond its use in our clean energy mix, hydrogen is seen as a reliable, long-ranging zero-emission fuel source for commercial and personal vehicles. Clean energy fuel is an essential element of the zero emission vehicle future, which is critical to meeting our 2045 clean energy goals. Hydrogen fuel cells for vehicles are a reality today, with Toyota offering a vehicle in Hawaii as an alternative to fossil fuel dependent vehicles. In fact, the government of Japan has pledged to increase the current number of fueling stations from 150 to 1,000 while also boosting the domestic supply of hydrogen to as much as 3 million tons by 2030, with the goal of expanding this to 20 million tons by 2050.

The promise of hydrogen as a fuel for alternative zero emission fuel vehicles brings together all stakeholders in this arena, who agree that a sufficient runway is needed to make this valuable fuel source widely available to consumers.

We agree that the inclusion in statute that zero-emission vehicles (ZEV) is vital and a crucial technology of the future. This bill provides for new technology, including hydrogen, as we march towards our emissions mandate of 2045.

We urge the committees to pass HB 1936.

Thank you for the opportunity to testify.

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HB-1936
Submitted on: 2/3/2022 5:08:42 PM
Testimony for EEP on 2/8/2022 8:50:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Barbara Barry	Individual	Support	No

Comments:

Aloha,

I support HB 1936,

Mahalo,

Barbara Barry

HB-1936
Submitted on: 2/3/2022 9:02:04 PM
Testimony for EEP on 2/8/2022 8:50:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Douglas Perrine	Individual	Support	No

Comments:

Clean hydrogen fuel can support certain operations that cannot currently be economically viable or practical using battery electric technology. This bill adds welcome support to the addition of clean hydrogen energy to our renewable energy toolkit in Hawaii.

HB-1936
Submitted on: 2/6/2022 8:03:15 PM
Testimony for EEP on 2/8/2022 8:50:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Andrew Richard Kass	Individual	Oppose	No

Comments:

Dear Legislators,

I oppose this bill to subsidize hydrogen fueling stations in Hawaii because it diverts efforts from vehicle electrification. Battery-electric vehicles are a proven technology, with dozens of models for sale, unlike the nearly unavailable single Toyota Mirai for hydrogen. Battery-electric cars can be charged at home, at work, and out shopping at hundreds of chargers across the state.

But despite their advantages, electric cars aren't mainstream yet. The neighbor islands need more chargers and vehicles are still more expensive than gas-guzzling, carbon-emitting counterparts. Let's focus our efforts and resources on the realistic and proven technology of battery-electric vehicles.

Thank you for your consideration,

Andrew Kass

HB-1936
Submitted on: 2/6/2022 9:55:57 PM
Testimony for EEP on 2/8/2022 8:50:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Paul Bernstein	Individual	Oppose	No

Comments:

Aloha Chair Lowen and Vice Chair Marten:

I'm writing in opposition to HB1936. If enacted, this bill would expend money to most likely **increase** Hawaii's emissions since at this point, hydrogen would likely be produced from fossil fuels. In addition, the expenditures for hydrogen refueling stations would most likely benefit upper income households at the expense of lower and middle income households who would be less able to afford fuel cell vehicles. Last assuming the state's goal is to decarbonize the light duty vehicle sector, electric vehicles seem to be a better route given that these vehicles are widely available, have greater efficiency, and have an existing refueling infrastructure on which to build.

Respectfully,

Paul Bernstein

HB-1936
Submitted on: 2/7/2022 9:03:40 PM
Testimony for EEP on 2/8/2022 8:50:00 AM

Submitted By	Organization	Testifier Position	Remote Testimony Requested
Sharon Geiken Westerberg	Individual	Oppose	No

Comments:

Dear Chair Lowen, Vice Chair Marten, and EEP Committee members,

I oppose HB 1936 because Hydrogen fuel is not an efficient energy source. The production of hydrogen fuel takes energy to be processed and more energy to be converted into electricity. it ends up that "only 38 watts out of 100 are used" (Tom Baxter, University of Aberdeen)

This bill would slow down the fight against climate change.

Thank you for considering my testimony.

Sharon Geiken Westerberg