

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

TO THE
HOUSE COMMITTEE ON
FINANCE

February 21, 2020
12:00 p.m.

Chair Luke and Members of the Committee:

MEASURE: H.B. No. 1851 HD2

TITLE: RELATING TO GRID-INTERACTIVE WATER HEATER SYSTEMS.

DESCRIPTION: Commencing January 1, 2022, prohibits the issuance of building permits for new multi-unit dwellings that do not include grid-interactive water heater systems. Requires the PUC to establish standards for the systems. Effective 7/1/2050.

POSITION:

The Public Utilities Commission offers the following comments for consideration.

COMMENTS:

The Commission supports the intent of this measure. Grid-interactive water heaters can enable electric utility customers to provide valuable services back to the grid, which can reduce costs and assist utilities in advancing renewable energy and other policy goals.

The Commission appreciates the amendments made by the House Committee on Energy and Environmental Protection, which will better enable the Commission to establish standards for grid-interactive water heater systems. This includes placing the new section in Chapter 269, HRS, and providing the Commission with the flexibility needed to adopt effective standards.

The Commission also supports the language in this measure that ensures grid-interactive water heaters are eligible for participation in demand-side management programs offered by the Public Benefits Fee Administrator and Hawaiian Electric's demand response

programs.

However, the Commission respectfully requests that subsection (a) be relocated to HRS section 196, as the Commission is not equipped to enforce this requirement.

Thank you for the opportunity to testify on this measure.



DAVID Y. IGE
GOVERNOR

JOSH GREEN
LT. GOVERNOR

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

335 MERCHANT STREET, ROOM 310
P.O. BOX 541
HONOLULU, HAWAII 96809
Phone Number: 586-2850
Fax Number: 586-2856
cca.hawaii.gov

CATHERINE P. AWAKUNI COLÓN
DIRECTOR

JO ANN M. UCHIDA TAKEUCHI
DEPUTY DIRECTOR

Testimony of the Department of Commerce and Consumer Affairs

**Before the
House Committee on Finance
Friday, February 21, 2020
12:00 p.m.
State Capitol, Conference Room 308**

**On the following measure:
H.B. 1851, H.D. 2, RELATING TO
GRID-INTERACTIVE WATER HEATER SYSTEMS**

Chair Luke and Members of the Committee:

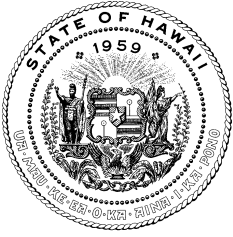
My name is Dean Nishina, and I am the Executive Director of the Department of Commerce and Consumer Affairs' (Department) Division of Consumer Advocacy. The Department appreciates the intent of and offers comments on this bill.

The purposes of this bill are: (1) to require grid-interactive water heater systems for new multi-unit dwelling construction, on or after January 1, 2022, unless a renewable energy technology system, as defined in Hawaii Revised Statutes (HRS) section 235-12.5, is substituted for use as the primary energy source for heating water; and (2) for the Public Utilities Commission (Commission) to establish standards for grid-interactive water heater systems that will include specifications for the performance, materials, components, durability, longevity, proper sizing, installation, and quality to promote the objectives of HRS section 269-124.

The Department supports the bill's intent to facilitate and increase the installation of grid-interactive water heater systems, which could provide grid services to electric utilities, provide customers with an increased opportunity to manage their energy use, and help Hawaii's transition to a clean energy industry. The Department also appreciates the apparent concern relating to possible interoperability issues for the still-developing technologies associated with grid interactive water heater systems by requiring the Commission to establish standards for grid-interactive water heater systems.

The Department notes that H.D. 2 continues to place the provisions in HRS section 269, as opposed to section 196. Including subsection (b), which requires the Commission to adopt standards, in section 269 would be generally consistent with the existing language in HRS section 269-44, which requires the Commission to establish standards for solar water heater systems. Including subsections (c) through (e) would also be generally consistent with matters under the Commission's oversight. However, since the Commission might not be able to enforce subsection (a) in section 269, the Department respectfully suggests placing subsection (a) in section 196 instead.

Thank you for the opportunity to testify on this bill.



HAWAII STATE ENERGY OFFICE

STATE OF HAWAII

235 South Beretania Street, 5TH Floor, Honolulu, HI 96813 | energy.hawaii.gov

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

(808) 587-3807

Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
HOUSE COMMITTEE ON FINANCE
Friday, February 21, 2020
12:00 PM
State Capitol, Conference Room 308

In SUPPORT of
HB 1851, HD2
RELATING TO GRID-INTERACTIVE WATER HEATER SYSTEMS.

Chair Luke, Vice Chair Cullen, and Members of the Committee, the Hawaii State Energy Office (HSEO) supports HB 1851, HD2, which requires grid-interactive water heater systems for new multi-family dwellings on or after January 1, 2022.

We also appreciate the addition of “heat pump water heater” to the requirements for grid interactive water heater systems. According to a study by the U.S. Department of Energy’s Pacific Northwest National Laboratory, “90 percent of evening peak load power can be reduced by switching from uncontrolled electric resistance water heaters to connected heat pump water heaters.”¹ The study also states that “typical heat pump water heaters can save 60 percent of annual energy consumption.”²

The study concludes, “For benefits to consumers, converting all electric resistant to heat pump water heaters could save American consumers \$7.8 billion annually (\$182 per household) in water heating operating costs.”³ This is in alignment with the HSEO’s mission to promote energy efficiency, renewable energy, and clean transportation to help Hawaii achieve a resilient clean energy economy.

Thank you for the opportunity to testify.

¹ <https://www.energy.gov/eere/buildings/articles/heat-pump-water-heaters-achieve-significant-peak-reduction-and-energy>

² <https://www.energy.gov/eere/buildings/articles/heat-pump-water-heaters-achieve-significant-peak-reduction-and-energy>

³ <https://www.energy.gov/eere/buildings/articles/heat-pump-water-heaters-achieve-significant-peak-reduction-and-energy>



183 Pinana St., Kailua, HI 96734 • 808-262-1285 • info@350Hawaii.org

To: The House Committee on Finance
From: Brodie Lockard, Founder, 350Hawaii.org
Date: Friday, February 21, 2020, 12:00 pm

In strong support of HB 1851 HD2

Dear Chair Luke, and members:

350Hawaii.org's 6,000 members strongly support HB 1851 HD2.

A smarter energy grid will conserve energy by moving power in real time to balance a community's needs. This can only happen if appliances share information.

Electric utilities can use smart appliances like grid-interactive water heaters (GIWHs) to share electrical loads and run "demand response"--systems that manage customers' demands for power with the available supply.

Impressively, GIWHs can actually return the heat they're storing to the grid in the form of electricity to be used as needed. They can also be turned on and off to coincide with fluctuations in the grid's demand for energy, so that power plants can turn on less extra equipment during peak demand times.

Private electric utilities should be fully capable of upgrading their infrastructure to accommodate GIWHs.

GIWHs are a great way to save energy. They should be standard equipment in every new and existing home.

Brodie Lockard
Founder, 350Hawaii.org



Chamber of Commerce HAWAII

The Voice of Business

**Testimony to the House Committee on Finance
Friday, February 21, 2020 at 12:00 P.M.
Conference Room 308, State Capitol**

RE: HB 1851 HD2, RELATING TO GRID-INTERACTIVE WATER HEATER SYSTEMS

Chair Luke, Vice Chair Cullen, and Members of the Committee:

The Chamber of Commerce Hawaii ("The Chamber") is **opposed to** HB 1851 HD2, which commencing on January 1, 2022, would prohibit the issuance of building permits for new multi-unit dwellings that do not include grid-interactive water heater systems. This bill would also require the PUC to establish standards for the system.

The Chamber is Hawaii's leading statewide business advocacy organization, representing 2,000+ businesses. Approximately 80% of our members are small businesses with less than 20 employees. As the "Voice of Business" in Hawaii, the organization works on behalf of members and the entire business community to improve the state's economic climate and to foster positive action on issues of common concern.

The Chamber has consistently been opposed to government mandates. This bill takes away consumers choice and does not identify the costs to comply with this new mandate, creating concerns of unintended consequences should this be implemented.

Rather than imposing mandates, we would prefer to see the Legislature provide consumers with incentives to move in a certain direction. When the Legislature mandated the installation of solar water heaters in all new single-family residential units, it removed the incentive for existing homeowners to convert to solar. With over 500,000 existing homes on Oahu, and only a few thousand new single-family residences permitted each year, incentivizing existing homeowners would have a much greater impact than mandating compliance on new home construction.

Thank you for this opportunity to share our concerns about HB 1851 HD2.

HB-1851-HD-2

Submitted on: 2/19/2020 8:39:49 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Climate Protector	Climate Protectors Coalition	Support	No

Comments:

NOTICE OF HEARING

DATE: Friday, February 21, 2020

TIME: 12:00 P.M.

Conference Room 308

State Capitol

PLACE:

415 South Beretania Street

Aloha Chair Luke, Vice Chair Cullen and members of the Committee on Finance.

The Climate Protectors Coalition strongly supports HB 1851 HD2

We are a new group inspired by the Mauna Kea Protectors but focused on reversing the climate crisis. As a tropical island State, Hawaii will be among the first places harmed by the global climate crisis, with more intense storms, loss of protective coral reefs, and rising sea levels. We must do all we can to reduce our carbon footprint and become at least carbon neutral as soon as possible.

We need capture energy savings and grid efficiencies by requiring grid-interactive systems for multi-unit properties as set forth in this bill. Please pass this bill. Mahalo!



**Hawaiian
Electric**

**TESTIMONY BEFORE HOUSE
COMMITTEE ON FINANCE**

H.B. 1851, HD2

Relating to Grid-Interactive Water Heater Systems

February 21, 2020
12:00 am Agenda #2
State Capitol, Conference Room 308

Yoh Kawanami
Director, Customer Energy Resources Operations
Hawaiian Electric

Dear Chair Luke, Vice-Chair Cullen and Members of the Committee,

My name is Yoh Kawanami and I am testifying on behalf of Hawaiian Electric Company, Inc. (Hawaiian Electric). Hawaiian Electric **offers comments regarding H.B. 1851, HD2**, Relating to Grid-Interactive Water Heater Systems.

HB 1851, HD2 proposes that no building permit shall be issued after January 1, 2022 to a new multi-unit dwelling that does not include a grid-interactive water heater system. The bill also requires that the Public Utilities Commission (PUC) adopt or establish by rule, tariff, order, or program, standards of grid-interactive water heater systems to promote the objectives of Hawaii Revised Statutes, section 269-124.

Hawaiian Electric in principle supports this bill as if enacted, new multi-unit dwelling homes would be grid-participation-ready. That means lower electricity bills with bill credit incentives for the tenants, should they choose to participate in the utilities' grid service initiatives. A larger participation of these grid service initiatives should also, collectively lower cost grid services, resulting in lower bills for non-participating customers.

Hawaiian Electric would like to acknowledge the Building Industry Association of Hawaii's (BIA) concerns raised in their testimony of January 28, 2020 before the House Committee on Energy and Environmental Protection. Typically, the utility would bear the cost to procure the device that would enable a normal water heater to become grid-interactive. This bill would indeed be additional cost to the developers that is not typical in their budget. With that said, the required cost of such add-on device is estimated to be cheaper than the alternative of installing a solar water heater system for multi-unit dwelling homes. Another option may be to offer waiver language similar to solar water heater requirement in the instance that grid-interactive water heater is not available or feasible for installation at that time of the permit.

BIA Hawaii also provides that the target should be the 500,000 existing homes and not the few thousand new home permits. Hawaiian Electric agrees with the position regarding targeting of existing homes and under PUC approval are actively working with subcontractors known as aggregators to install their devices to make the existing home water heaters into grid-interactive water heaters. Hawaiian Electric is expected to enable 2,000 grid-interactive water heaters this calendar year. Hawaiian Electric is committed to working with the interested customers of existing homes to convert their water heaters into grid-interactive water heaters.

Finally, Hawaiian Electric would like to emphasize the importance of the requirement development by the PUC to ensure that the grid-interactive water heater is able to integrate with the utility's platform to offer the required grid service and its benefit. Thank you for this opportunity to testify.

February 20, 2020

Honorable Sylvia Luke, Chair
House Committee on Finance

Honorable Ty Cullen, Vice Chair
House Committee on Finance

State Capitol
415 South Beretania Street
Honolulu, HI 96813

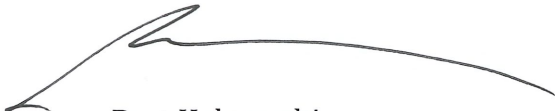
RE: HB1851
Hearing of February 21, 2020 Testimony Offering Comments
Relating to Grid-Interactive Water Heater Systems

Chair Luke, Vice Chair Cullen and Committee Members,

Thank you for the opportunity to offer comments on this measure. The affordable housing shortage will only increase in the coming years. According to the 2018 Affordable rental housing report and ten-year plan, Hawai'i will need an additional 64,693 housing units by 2025 with nearly seventy percent of these units designated as low-income households, earning eighty percent or less of the area median income. To address this current and future absence, certain steps must be taken to assist the development of affordable housing.

While I support the intent of HB 1851 and support the movement of the State towards a more energy efficiency, I would like the Committee to consider an Affordable Housing exemption from this mandate. In its current form, this mandate will make it harder and more expensive for affordable housing developers to address the housing crisis.

Sincerely,



Bert Kobayashi
Senior Advisor
Kobayashi Group LLC.

HB-1851-HD-2

Submitted on: 2/19/2020 7:42:59 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Andrea Quinn	Individual	Support	No

Comments:

Dear Honorable Committee Members:

Please support HB1851. Our coral reefs are dying due in large part to warming oceans, and valuable coastline is eroding due to sea level rise. Climate change is already occurring and we need to do what we can to help militate against it.

Thank you for the opportunity to present my testimony.

Sincerely,

Andrea Quinn

Kihei, Maui

HB-1851-HD-2

Submitted on: 2/20/2020 4:12:43 AM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Nanea Lo	Individual	Support	No

Comments:

Dear Chair Luke, and members:

As one of 350Hawaii.org's 6,000 members, I strongly support HB 1851 HD2.

A smarter energy grid will conserve energy by moving power in real time to balance a community's needs. This can only happen if appliances share information.

Electric utilities can use smart appliances like grid-interactive water heaters (GIWHs) to share electrical loads and run "demand response"--systems that manage customers' demands for power with the available supply.

Impressively, GIWHs can actually return the heat they're storing to the grid in the form of electricity to be used as needed. They can also be turned on and off to coincide with fluctuations in the grid's demand for energy, so that power plants can turn on less extra equipment during peak demand times.

Private electric utilities should be fully capable of upgrading their infrastructure to accommodate GIWHs.

GIWHs are a great way to save energy. They should be standard equipment in every new and existing home.

me ke aloha 'Ä• ina,

Nanea Lo

HB-1851-HD-2

Submitted on: 2/20/2020 6:20:38 AM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Caroline Kunitake	Individual	Support	No

Comments:

Dear Chair Luke and Members of the Committee on Finance,

As one of 350Hawaii.org's 6,000 members, I strongly support HB 1851 HD2.

A smarter energy grid will conserve energy by moving power in real time to balance a community's needs. This can only happen if appliances share information.

Electric utilities can use smart appliances like grid-interactive water heaters (GIWHs) to share electrical loads and run "demand response"--systems that manage customers' demands for power with the available supply.

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Private electric utilities should be fully capable of upgrading their infrastructure to accommodate GIWHs.

GIWHs are a great way to save energy. They should be standard equipment in every new and existing home.

Mahalo,

Caroline Kunitake

HB-1851-HD-2

Submitted on: 2/20/2020 2:49:14 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Dale Jensen	Individual	Support	No

Comments:

Chair Luke and Members,

I am writing to support HB1851. Grid-interactive water heaters (GIWHs) can communicate with electric utilities to spread electrical loads efficiently and participate in demand response programs. Such demand response programs are a necessary part of a smart grid that maximizes the use of renewable energy supplies and minimizes the need for keeping oil-fired generators constantly turning to respond to sudden changes in the electrical supply and/or loads. Please support and pass this bill; it is a move in the right direction.

Sincerely,

Dale Jensen Prof. Engineer

HB-1851-HD-2

Submitted on: 2/20/2020 3:07:04 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Lynn Aaberg	Individual	Support	No

Comments:

Dear Chairman Luke and others,

I strongly support HB 1851 as a means for more effecient use of energy use. Grid-interactive water heaters can help.

Sincerely,

Lynn Aaberg

HB-1851-HD-2

Submitted on: 2/20/2020 3:16:11 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Janet Pappas	Individual	Support	No

Comments:

Dear Chair Luke and FIN committee members,

I strongly support HB1851 HD2, a critically important bill that will help Hawaii redistribute energy efficiently through the smart grid. Grid-interactive water heater systems (GIWH) can be turned off or on depending on where power is needed, therefore reserving energy for future use. These systems are now cheaper than battery storage and can bring energy savings to Hawaii residents, particularly (with this bill) to lower income individuals living in multi-unit dwellings.

This bill is a necessity for our clean energy future. Please pass HB1851 HD2 this session.

Thank you,

Jan Pappas

Aiea, Hawaii

HB-1851-HD-2

Submitted on: 2/20/2020 3:59:05 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Laura Gray	Individual	Support	Yes

Comments:

We must stop using gas. It is not PONO. We can use the sun.



LATE

**HOUSE COMMITTEE ON FINANCE
State Capitol, Conference Room 308
415 South Beretania Street
12:00 PM**

February 21, 2020

RE: HOUSE BILL NO. 1851 H.D. 2, RELATING TO GRID-INTERACTIVE WATER HEATER SYSTEMS

Chair Luke, Vice Chair Cullen, and members of the committee:

My name is Dwight Mitsunaga, 2020 President of the Building Industry Association of Hawaii (BIA-Hawaii). Chartered in 1955, the Building Industry Association of Hawaii is a professional trade organization affiliated with the National Association of Home Builders, representing the building industry and its associates. BIA-Hawaii takes a leadership role in unifying and promoting the interests of the industry to enhance the quality of life for the people of Hawaii. Our members build the communities we all call home.

BIA-Hawaii is opposed to H.B. 1851 H.D. 2, which would prohibit the issuance of building permits for new multi-unit dwellings that do not include grid-interactive water heater systems. The bill also would require the PUC to establish standards for the system.

BIA-Hawaii is opposed to H.B. 1851 H.D. 1, which would prohibit the issuance of building permits for new multi-unit dwellings that do not include grid-interactive water heater systems. The bill also would require the PUC to establish standards for the system.

BIA-Hawaii has consistently opposed any type of government mandate which takes away consumers choice and does not identify the cost to comply. In addition, the bill is silent on the cost to install the system, as well as the amount of the expected pay-back for typical multi-family dwelling in Hawaii. With housing affordability remaining a major problem in Hawaii, the legislature should focus on keeping these types of legislation "revenue neutral" by providing rebates or tax credits for multi-family developers who install these types of systems. There are over 500,000 existing homes on Oahu, and only a few thousand new single-family residence permitted each year. Incentivizing existing homeowners will have a far greater impact than mandating compliance on new home construction.

We are opposed to H.B. 1851 H.D. 1 and appreciate the opportunity to express our views on this matter.



February 21, 2020

Re: House Bill 1851 – Interactive Water Heater Systems – Oppose as Written

Distinguished members of the House Committee on Finance:

On behalf of Bradford White Corporation (BWC), I am writing to address concerns that BWC has with the current version of HB 1851, which we understand is scheduled for a hearing before the committee today. Particularly, BWC is concerned with the lack of definition in the legislation for the term “multi-unit dwelling.” This term can be used to describe many different types of installations from a high-rise residential facility to a mixed-use facility that would include both commercial and residential units. These varieties cause the plumbing and water heating systems to be designed in unique ways in order to maximize energy efficiency and consumer utility for the different applications. We respectfully request the bill be revised to include a specific definition of “multi-unit dwelling” that will make the intent of the legislation clearer to installers and manufacturers of these products. BWC is prepared, and eager, to work with stakeholders in defining the types of structures the legislature would like to include in the scope of this bill.

Secondly, we believe the bill should be limited to only consumer water heaters located within multi-dwelling units and include language that would indicate this. Grid-interactive water heaters are still in their infancy from both a product development and market penetration standpoint. As such, BWC is concerned about a lack of availability of commercial grid-interactive water heating products that are designed to satisfy the hot water needs of multiple dwellings within a single building. This distinction is very important, and would ensure that HB 1851 would apply only to consumer water heaters within a multi-unit dwelling.

As such, we recommend that the term “grid interactive water heater system” be redefined in the bill and state:

“Grid interactive water heater system” means a grid-connected consumer product that uses electricity as the energy source to heat domestic potable water, has a nameplate input rating of twelve kilowatts or less, contains nominally forty gallons but no more than one hundred twenty

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gallons of rated hot water storage volume, and supplies a maximum hot water delivery temperature less than one hundred eighty degrees Fahrenheit.

If you have any questions, or would like any additional information regarding the concerns raised in this testimony, please feel free to contact me directly.

Regards,

Eric Truskoski
Senior Director of Government and Regulatory Affairs

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LATE

HB-1851-HD-2

Submitted on: 2/20/2020 10:02:07 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Audrey Enseki-Tom	Individual	Support	No

Comments:

Please support HB1851 HD2.

LATE

HB-1851-HD-2

Submitted on: 2/20/2020 10:36:48 PM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
tlaloc tokuda	Individual	Support	No

Comments:

To: The House Committee on Finance

From: **Tlaloc TOKUDA**

Date: Friday, February 21, 2020, 12:00 pm

In strong support of HB 1851 HD2

Dear Chair Luke, and members:

As one of 350Hawaii.org's 6,000 members, I strongly support HB 1851 HD2.

A smarter energy grid will conserve energy by moving power in real time to balance a community's needs. This can only happen if appliances share information.

Electric utilities can use smart appliances like grid-interactive water heaters (GIWHs) to share electrical loads and run "demand response"--systems that manage customers' demands for power with the available supply.

Impressively, GIWHs can actually return the heat they're storing to the grid in the form of electricity to be used as needed. They can also be turned on and off to coincide with fluctuations in the grid's demand for energy, so that power plants can turn on less extra equipment during peak demand times.

Private electric utilities should be fully capable of upgrading their infrastructure to accommodate GIWHs.

GIWHs are a great way to save energy. They should be standard equipment in every new and existing home.

Tlaloc TOKUDA

Kailua Kona HI 96740

LATE

HB-1851-HD-2

Submitted on: 2/21/2020 6:21:02 AM

Testimony for FIN on 2/21/2020 12:00:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Michele Nihipali	Individual	Support	No

Comments:

To: The House Committee on Finance

From: **Michele Nihipali**

Date: Friday, February 21, 2020, 12:00 pm

In strong support of HB 1851 HD2

Dear Chair Luke, and members:

As one of 350Hawaii.org's 6,000 members, I strongly support HB 1851 HD2.

A smarter energy grid will conserve energy by moving power in real time to balance a community's needs. This can only happen if appliances share information.

Electric utilities can use smart appliances like grid-interactive water heaters (GIWHs) to share electrical loads and run "demand response"--systems that manage customers' demands for power with the available supply.

Impressively, GIWHs can actually return the heat they're storing to the grid in the form of electricity to be used as needed. They can also be turned on and off to coincide with fluctuations in the grid's demand for energy, so that power plants can turn on less extra equipment during peak demand times.

Private electric utilities should be fully capable of upgrading their infrastructure to accommodate GIWHs.

GIWHs are a great way to save energy. They should be standard equipment in every new and existing home.

Mahalo,

Michele Nihipali

54-074 A Kam Hwy.

Hauula, HI 96717

HOUSE COMMITTEE ON FINANCE

February 21, 2020, 12:00 P.M.
Room 308
(Testimony is 2 pages long)

TESTIMONY IN SUPPORT OF HB 1851 HD2

Aloha Chair Luke, Vice Chair Cullen, and Committee members:

Blue Planet Foundation **supports HB 1851 HD2** requiring that new multi-family buildings come equipped with smart, interactive water heaters—if a renewable energy source isn't being used to heat water. Grid-interactive water heaters (GIWH) are a critical tool to help us achieve our clean energy and climate goals by balancing energy use on the grid and helping to maximize the use of renewable energy. They also enable families who live in condos or high-rises to participate in and contribute to our clean energy future—and directly benefit from it.

A GIWH is a smart water heater that uses intelligent controls that are capable of interacting with and participating in utility load control or demand response programs. This allows the water heater to assist the utility in smoothing out electricity usage and increasing the use of variable renewable energy on the grid. This added intelligence converts the water heater into an asset for the power grid instead of a liability. A local company, Shifted Energy, has already deployed hundreds of GIWH systems across Oahu. An image of one of their water heater controllers is shown to the right.

Grid-interactive water heaters can help to reduce the overall cost of energy in Hawaii. By enabling the utility to tap into more low-cost renewable energy and by better balancing demand and supply, GIWHs will reduce electricity prices. When water heaters across the islands all turn on in the evening, it increases the load on the overall electricity system—at a time when the solar energy is dropping. This is the most expensive time for the utility to provide energy—the larger this “peak load”



is, the more electricity costs for everyone. Shifting this peak with smart technology like GIWHs will reduce the utility's burden to supply power for this expensive peak time.

Grid-interactive water heaters are an important tool to ensure that everyone can participate in Hawaii's clean energy evolution. Families who live in multi-family buildings such as condos and apartment complexes may not be able to directly access renewable energy options. Grid-interactive water heaters allow them to participate in energy storage and load shifting—critical services to support renewable energy on the grid. In providing these services through their smart GIWH, they may be able to benefit financially. Shifted Energy, the local company, is currently deploying GIWHs to over 2,500 residents across Oahu and Maui. Collectively, these GIWHs will provide 2.5 megawatts of energy storage capacity. **Participating residents will receive between \$180-\$300 over the next five years**, while they contribute to our collective clean energy future.

Given our urgent climate crisis, aggressive clean energy goals, and high cost of living, it doesn't make sense to install old-fashioned, disconnected, water heaters. **We urge the committee to advance HB 1851 HD2 to ensure that future buildings come equipped with modern, smart water heaters to help us achieve our climate goals and lower the cost of living in Hawaii.**

Thank you for the opportunity to testify.