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Testimony of **MARK B. GLICK, Chief Energy Officer**

before the **SENATE COMMITTEES ON ENERGY AND INTERGOVERNMENTAL AFFAIRS AND HOUSING**

Tuesday, March 11, 2025
3:01 PM
State Capitol, Conference Room 016 and Videoconference

In Support of
HB 350, HD2

RELATING TO ENERGY.

Chairs Wakai and Chang, and Vice Chairs Chang and Hashimoto, and Members of the Committees, the Hawai'i State Energy Office (HSEO) supports HB 350, HD2, that expands the types of water heater systems that may satisfy the relevant requirement for the issuance of a building permit for new single-family dwellings to include ENERGY STAR certified heat pump water heaters.

Today's modern, ENERGY STAR Certified heat pump water heaters are highly energy efficient and able to participate in demand-response and time-of-use programs.¹ The ability to efficiently and flexibly use electricity makes them an excellent match for the use of excess on-site or grid-provided solar energy. This has the potential to provide grid support and cost savings now, with even greater benefits in the future.^{2,3}

Therefore, allowing the choice of an ENERGY STAR Certified heat pump water heater is consistent with Hawai'i's energy goals.

¹ US Environmental Protection Agency, <https://www.energystar.gov/productfinder/download/certified-heat-pump-water-heaters/> : Low-Usage Uniform Energy Factor (UEF): 2.52-3.45; Medium-Usage UEF: 3.0 – 3.88; High-Usage UEF: 2.85-4.07.

² Hawaii Energy, <https://hawaiienergy.com/for-homes/water-heating/heat-pump/>

³ Kauai Island Utility Cooperative, <https://kiuc.coop/great-water-heater-debate-heat-pump-or-solar>

HSEO also supports the requirement that only ENERGY STAR certified demand water heaters be included as acceptable alternatives if solar or heat pump water heaters are not feasible. There are currently 170 models of ENERGY STAR Certified gas-fueled demand water heaters.⁴

Thank you for the opportunity to testify.

⁴ U.S. Environmental Protection Agency, <https://www.energystar.gov/productfinder/download/certified-gas-water-heaters/> Medium-Usage Uniform Energy Factor (UEF): 0.97; High-Usage UEF: 0.95-0.98



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March 11, 2025

The Honorable Glenn Wakai, Chair

Senate Committee on Energy and Intergovernmental Affairs

The Honorable Stanley Chang, Chair

Senate Committee on Housing

State Capitol, Conference Room 016 & Videoconference

RE: House Bill 350, HD2, Relating to Energy

HEARING: Tuesday, March 11, 2025, at 3:01 p.m.

Aloha Chair Wakai, Chair Chang, and Members of the Joint Committees:

My name is Lyndsey Garcia, Director of Advocacy, testifying on behalf of the Hawai'i Association of REALTORS® ("HAR"), the voice of real estate in Hawaii and its over 10,000 members. HAR **supports** House Bill 350, HD2, which expands the types of water heater systems that may satisfy the relevant requirement for the issuance of a building permit for new single-family dwellings to include ENERGY STAR certified heat pump water heaters. Effective 7/1/3000.

Under current law, new single-family homes must include a solar water heater system to obtain a building permit. However, some homes may have limited sunlight exposure, which would make solar water heating less effective. HAR supports allowing ENERGY STAR certified heat pumps as a viable alternative.

Mahalo for the opportunity to testify on this measure.



HB-350-HD-2

Submitted on: 3/10/2025 9:35:40 AM

Testimony for EIG on 3/11/2025 3:01:00 PM

Submitted By	Organization	Testifier Position	Testify
Steve Parsons	Testifying for Kauai Climate ACTION Coalition, Small Biz Owner	Support	Written Testimony Only

Comments:

Aloha Trusted Lawmakers,

Kauai Climate Action Coalition, Would like to see a sunset date on the On-Demand Gas variance of 2030 or earlier. Other than that, we strongly support this HP350 that is super for consumers by saving them A LOT of money and would help fight inflation, stimulate good green local jobs and stop the off island flow of money to fossil fuel companies. The benefits of efficiency cannot be overstated, especially for the most financially vulnerable! For example, folks that replace their regular electric water heater with a Heat pump water heater (FYI these are 1/3 of the cost of solar and operating costs are less to), can save enough electricity to drive an EV for a year, thereby losing their gasoline or DIEsel saving them thousands a year on gas. A super way to fight inflation, stimulate good green local jobs and reduce climate pollution that is taking our way of life and leaving a mess for the next generation! .

<https://cleantechnica.com/2023/10/06/a-heat-pump-water-heater-will-save-all-the-electricity-youll-need-to-power-your-electric-vehicle/#:~:text=This%20is%20a%20testament%20to,waste%20in%20heating%20our%20water.&text=About%20half%20of%20the%20US,to%20power%20their%20electric%20vehicles>. Furthermore, gas water heaters cause pollute the air in and around homes and this must be stopped: <https://cleantechnica.com/2024/11/14/air-quality-becomes-major-lever-to-phase-out-fossil-fuels/>

Heat pumps are so much cheaper too! Solar water heaters start at \$10,000 on Kauai, are very inefficient at night and on cloudy days and in winter (25%-50% less efficient in winter) at the worst times for power companies. Where DIY HPWH can be installed for as little as \$1500!!!

Furthermore, there are 110v HPWH units now that do not require 220v electrical drops making them great candidates for replacing unhealthy polluting gas units. Recap, HPWH Save money, give us cleaner air and oceans, stimulate good Green jobs, Keep homes cooler and drier as they dehumidify and expel cold ac'd air.... This Bill is GOOD and is truly a no-brainer.

MAHALO for Voting YES on this one!

Steve Parsons, Kauai Climate Action Coalition-Lead

March 11, 2025

Senators Glenn Wakai and Stanley Chang

Senate Joint Committee on Energy and Intergovernmental Affairs and Housing

RE: HB350 HD2- Relating to Energy

Hearing: Tuesday March 11 2025 3:01 p.m.

Position: **OFFERING COMMENTS AND AMENDMENTS**

Chairs Wakai and Chang and members of the committee:

My name is Brian Gold. I am the President of The Solaray Corporation. Solaray was founded in 1975 and does business in Hawai'i as Inter-Island Solar Supply. Solaray also wholly owns Pacific Panel Cleaners ("PPC"), Generator & Power Systems ("GPS"), both Hawai'i Corporations, SunEarth, Inc., a California Corporation, and Alternate Energy Technologies (AET), a Florida Corporation. SunEarth & AET are domestic manufacturing companies producing American made clean energy products, much of which is installed and operated throughout Hawaii for 50 years. GPS is the Generac Industrial generator distributor for Hawai'i. Solaray Corp., and its wholly owned subsidiaries, are proudly 100% employee owned.

I am testifying **OFFERS COMMENTS AND AMENDMENTS to HB350 HD1** relating to Energy.

This bill expands the types of water heater systems that may satisfy the relevant requirement for the issuance of a building permit for new single-family dwellings to include ENERGY STAR certified heat pump water heaters.

COMMENTS

Solar water heaters are an essential part of Hawaii's energy landscape and provide millions of gallons of hot water heated by the sun to thousands of homes and businesses throughout Hawaii each year, while supporting a diverse local installer network. In fact, Hawaii has one of the most successful solar water heating industries in the United States, with almost 1 in 3 single family homes having installed solar water heaters for over 40 years. Because of the abundant solar resources available in the state, Hawaii rightly recognized over 15 years ago that the most cost effective and efficient way to heat water *and* reduce or almost entirely eliminate one of the largest single energy loads in a home was to require solar water heaters as part of all new home construction.

Unfortunately, this law was circumvented by the fossil fuel industry for years in order to install inefficient instant gas heaters, in a state where there is no reliable or readily available supply of natural gas or propane. Up until 2019 the Hawaii State Energy Office, within DBEDT,

approved 99.8% of all variance requests, with 94% of them being for gas water heaters.¹ In that same year the court ruled that the state was not following the legislative intent of this law, requiring the state to carefully review every variance request to ascertain whether the request made sense economically in the context of a home mortgage. The result is that, by law and by fact, solar water heaters remain the most cost-effective way to heat water in the state.

HB350 expands this variance to include heat pump water heaters, a type of water heat that utilizes a refrigeration cycle to produce thermal energy to heat water. While heat pumps are an efficient way to heat water in many parts of the country, they are not the MOST efficient and effective way of heating water in the state of Hawaii, for numerous reasons.

Solar water heaters are highly effective at heating water for residences throughout the state, providing 90% or greater thermal energy throughout the year owing to Hawaii's unique climate and solar irradiance. Solar hot water also excels at providing heat for residences with 4 or more occupants, a major reason that the mandate was passed in the first place. Current guidelines regarding the variance process requires that a majority of the energy used to heat water is offset by a renewable source, unless there are specific reasons that the home is incapable of installing a solar water heater, such as poor solar resources. In fact, the current variance process allows for heat pumps and solar PV water heaters to be selected as an alternative. Over half of all variances applied for and approved by the Hawaii State Energy Office were either PV or heat pumps.²

Finally, while heat pump water heaters are efficient compared to standard gas or electric water heaters, they are half as efficient as a solar water heater installed in the same application in most cases. Residents installing heat pump water heaters will see an average savings of 30-50% on their energy cost to heat water, as opposed to 90%+ for solar water heaters. Heat pumps also utilize refrigerant compounds, some of which may contribute to greenhouse gas emissions, especially if the refrigerant leaks or is replaced. Most solar water heaters installed in Hawaii, in contrast, do not use refrigerant, rarely utilize a backup heating source, and are typically 100% recyclable and last for at least 20 years if properly maintained.

While we are not opposed to heat pump water heaters being used, it is clear that the law is working as intended and that mandating both solar hot water and heat pumps equally would not result in the most efficient and cost-effective technology being installed. Solar water heating is the most efficient way to heat water in Hawaii, offering enormous cost savings for residents purchasing new homes with systems already installed as standard. This is doubly so in new homes development, which can drastically reduce the average unit cost of a solar water heating system through economies of scale and, ultimately, the end-user benefits from this cost reduction. While we recommend removing the requirement that heat pumps be included in the

¹ <https://www.civilbeat.org/2019/02/court-ruling-on-water-heaters-will-help-protect-the-climate/>

² See HSEA SHW Variance Data here: <https://energy.hawaii.gov/what-we-do/energy-efficiency/solar-water-heat-variance/>

mandate, if the legislature intends to include this technology, we ask that only heat pumps that can meet or exceed the average efficiency factor of solar water heaters installed in the same application be used.

Additionally, large home developments, or “tract homes” benefit from economies of scale. Home developers in Hawaii are able to leverage larger developments to reduce labor and materials costs, which means that while solar water heaters in the retrofit market can be a more expensive option, in the new housing market, especially for tract housing developments, their cost is reduced by as much as 50%, making them cost competitive with other water heating options. From a consumer protection standpoint, and all other costs being nominal, there is no reason that a tract housing development should not have the most efficient water heating option installed as standard, especially when the housing developer can leverage economies of scale to receive better unit pricing.

Thus, we suggest the following amendment to account for these economies of scale:

We request that the following language be added to HB350 on page 1, line 10:

- *On or after January 1, 2010, no building permit shall be issued for a new single-family dwelling that does not include a solar water heater system that meets the standards established pursuant to section 269-44 or an ENERGY STAR certified heat pump water heater that has a coefficient of performance or similar efficiency measure equivalent to the minimum 90% solar factor required for solar water heaters unless the chief energy officer of the Hawaii state energy office approves a variance. Additionally, no building permit shall be issued for any housing development of five or more homes by a single developer that does not include a solar water heater system that meets the standards established pursuant to section 269-44.*

While there are limited cases in which solar water heaters do not make sense for the average new home build, in most cases solar water heating is the most cost-effective and resilient way for the average home in Hawaii to heat water. This is why there is a variance process, and also why variances should “rarely, if ever” be granted. The variance process work as intended and residents are able to enjoy the most efficient water heating technology available to them on the market.

As a local, employee-owned solar business owned and operated in Hawaii for over 40 years, we **OFFER COMMENTS AND AMENDMENTS HB350 HD1** and urge the committee to incorporate our suggested amendments to this measure.

Thank you for your time and consideration,

Brian Gold
President
The Solaray Corporation



Hawaii Solar Energy Association
Serving Hawaii Since 1977

**Testimony of the Hawaii Solar Energy Association (HSEA) Regarding HB350 HD2, Relating
Energy, Before the Senate Committees on Energy and Intergovernmental Affairs and Housing**

Tuesday, March 11, 2025

Aloha Chairs Wakai and Chang, Vice Chair Hashimoto, and committee members,

The Hawaii Solar Energy Association (HSEA) submits **comments** on HB350 HD2, which would add ENERGY-STAR certified heat pump water heaters as a preferred technology under Hawaii's solar water heater requirement for new construction.

Solar water heating remains the most efficient and cost-effective way to utilize Hawaii's exceptional solar resource for heating water. Since 2008, the Legislature has correctly prioritized solar water heating for new single-family homes, recognizing it as the most direct and reliable way to reduce energy costs and greenhouse gas emissions. Solar thermal systems have been successfully deployed across Hawaii for decades, offering residents an affordable and sustainable solution.

While ENERGY STAR-certified heat pump water heaters are a viable alternative, solar water heating systems remain better suited to Hawaii's abundant solar resource. Solar thermal systems directly convert sunlight into heat, eliminating the energy losses and grid dependency associated with heat pumps and resulting in higher efficiency ratings.

The current variance process effectively addresses cases where solar water heating is impractical or cost-prohibitive. We continue to work with the Hawaii State Energy Office to ensure this process is fair, efficient, and aligned with the State's energy goals. **We support amendments offered by Solaray Corp (an HSEA member)** as they offer a common-sense compromise that allows homes designed for lower-volume water-use the option to use the variance for heat pumps.

We urge the Committee to preserve the original legislative intent of prioritizing solar water heating while recognizing heat pumps as an appropriate alternative where justified. Maintaining this preference ensures Hawaii continues its leadership role in providing affordable and efficient clean energy solutions for its residents.

Mahalo for the opportunity to provide comments.



Hawaii Solar Energy Association
Serving Hawaii Since 1977

Mahalo,

/s/ Rocky Mould, Executive Director

About HSEA

Since 1977, HSEA has been advocating for policies that help Hawaii achieve critical climate, energy security, and resilience goals by enabling residents and businesses to invest in and benefit from the transition to clean energy. These investments provide reliable and affordable power, reducing energy cost burdens and contributing to Hawaii's economic sustainability as we decarbonize our economy and electric grid.

HSEA's membership includes the majority of locally owned and operated solar and energy storage companies doing business in Hawaii, along with leading global cleantech manufacturers and service providers active in our market. Together, we employ thousands of Hawaii residents in diverse green economy jobs that drive innovation, design, and construction of Hawaii's renewable energy infrastructure.

Hawaii is a global leader in renewable energy deployment, particularly in customer-sited rooftop solar and energy storage. Customer-sited rooftop solar accounts for 47% of renewable energy added to grids in Hawaiian Electric service areas (Oahu, Maui County, and the Big Island) and 21% in the Kauai Island Utility Cooperative area. Additionally, Hawaii leads the nation in pairing rooftop solar with battery storage, with 96% of new residential installations including storage. These achievements underscore Hawaii's role as a pioneer in clean energy transformation.



Before the Senate Committees on Energy and Intergovernmental Affairs, and Housing
Tuesday, March 11, 2025 at 3:01 p.m.

Testimony in Support of HB 350 HD2: Relating to Energy

Chairs Wakai and Chang, Vice Chairs Chang and Hashimoto, and Members of the Committees:

Thank you for the opportunity to testify in support of and provide comments on House Bill 350 HD2.

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 – the energy we do not use – is the cheapest option to help us achieve our 100% clean energy goal by eliminating waste and being more efficient.

Solar water heaters can save Hawai'i residents up to 40% on their overall electric bills, which is why Hawai'i codified HRS § 196-6.5 in 2008 to ensure that most new single-family homes come equipped with a solar hot water system. Because the energy savings opportunity is so massive, Hawai'i Energy has actively supported the installation of solar hot water systems since the Program's inception.

ENERGY STAR certified heat pump water heaters are also a viable, energy saving option for Hawai'i residents given that they are two-to-three times more efficient than conventional water heaters. For this reason, our program also rebates qualified heat pump water heaters for Hawai'i residents.

This bill would expand the types of water heater systems that meet the requirement for the issuance of a building permit for new single-family homes to include ENERGY STAR certified heat pump water heaters in addition to solar water heating systems.

Solar water heating systems remain the best option available for a household of four-plus people in Hawai'i in terms of energy efficiency, especially when factoring in the lifecycle of the equipment. It is also true that for larger new home developments, or "tract homes," the inherent economies of scale bring down up front costs for solar water heating systems by as much as half.

Hawai'i Energy appreciates the intent of the legislature to provide an additional energy efficient water heater system option for new single-family homes in heat pump water heaters. Both heat pump water heaters and solar water heating systems are proven to be significantly more energy efficient than conventional water heaters.

We support House Bill 350 HD2.

Sincerely,
Caroline Carl
Executive Director
Hawai'i Energy