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Testimony of
MARK B. GLICK, Chief Energy Officer

before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Tuesday, January 28, 2025
9:00 AM
State Capitol, Conference Room 325 and Videoconference

In Support of
HB 350

RELATING TO ENERGY.

Chair Lowen, Vice Chair Perruso, and Members of the Committee, the Hawai'i State Energy Office (HSEO) supports HB 350 that would update the 2008 solar water heater mandate to also allow certain heat pump water heaters, without use of the variance process, to satisfy the water heating requirements for new single-family residential construction; and would specify that gas tankless water heaters be ENERGY STAR Certified as well.

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 proposed revisions to subparagraph (4) on page 2. There are currently 170 models of ENERGY STAR Certified on demand gas water heaters.⁴

HSEO observes that adding a definition on page 3, lines 1-3 is inconsistent with the other water heater technologies that are not defined. Also, the certification requirement provides constraints to interpretation.

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

January 28, 2025

Representative Nicole Lowen
House Committee on Energy and Environmental Protection

RE: HB350 - Relating to Energy
Hearing: Tuesday January 28, 9:00 a.m.
Position: **OFFERING COMMENTS AND AMENDMENTS**

Chair Lowen, Vice Chair Peruso, and members of the committee:

My name is Will Giese. I am the Senior Director of Government Affairs 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** 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, and thereby reduce future electric bills, was to require solar water heaters as part of all new single-family 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 heat source 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 for single-family new home construction. 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 pump 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. Additionally, most solar water heaters installed in Hawaii have an electric (not gas) backup, aligning with electrification as a means to greenhouse gas reductions.

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 single-family homes with systems already installed as standard. While we recommend removing the requirement that heat pumps be included in the mandate, if 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/>

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.

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

- *...pursuant to section 269-44 or an ENERGY STAR certified heat pump water heater that has a coefficient of performance equivalent to the minimum 90% solar factor required for solar water heaters*

As a general matter, we appreciate this bill removing the 15 year restriction on life cycle analysis for solar water heaters as indicated on page 2, lines 7-8. The Department of Energy has long recognized that solar water heaters, properly maintained, can last at least 20 years³, if not longer. This has been the case in the industry based on our company's long involvement.

While there are limited cases in which solar water heaters do not make sense for the average new single-family 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 works 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 50 years, we **OFFER COMMENTS AND AMENDMENTS HB350** and urge the committee to incorporate our suggested amendments to this measure.

Thank you for your time and consideration,

Will Giese
Senior Director, Government Affairs
Inter-Island Solar Supply

³ See: <https://www.energy.gov/energysaver/solar-water-heaters>



Hawaii Solar Energy Association
Serving Hawaii Since 1977

**Testimony of the Hawaii Solar Energy Association (HSEA) Regarding HB350, Relating Energy,
Before the House Committee on Energy and Environmental Protection**

Tuesday, January 28, 2025

Aloha Chair Lowen, Vice Chair Perruso, and committee members,

The Hawaii Solar Energy Association (HSEA) submits **comments** on HB350, 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.

HSEA believes 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 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.

Mahalo,

/s/ Rocky Mould, Executive Director



Hawaii Solar Energy Association
Serving Hawaii Since 1977

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 House Committee on Energy & Environmental Protection
Tuesday, January 28, 2025 at 9:00 a.m.

Testimony in Support of HB350: Relating to Energy

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

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

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 most efficient option available for a household of four-plus people in Hawai'i, especially when factoring in the lifecycle of the equipment. However, Hawai'i Energy appreciates the intent of the legislature to provide an additional energy efficient water heater system option for new single-family homes, as 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.

Sincerely,
Caroline Carl
Executive Director
Hawai'i Energy