



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

DAVID Y. IGE  
GOVERNOR

LUIS P. SALAVERIA  
DIRECTOR

MARY ALICE EVANS  
DEPUTY DIRECTOR

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804  
Web site: [www.hawaii.gov/dbedt](http://www.hawaii.gov/dbedt)

Telephone: (808) 586-2355  
Fax: (808) 586-2377

Statement of  
**LUIS P. SALAVERIA**  
**Director**  
Department of Business, Economic Development, and Tourism  
before the  
**HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION**

Tuesday, January 30, 2018  
8:30 a.m.  
State Capitol, Conference Room 325

in consideration of  
**HB 2109**  
**RELATING TO SOLAR WATER HEATERS.**

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

The Department of Business, Economic Development, and Tourism (DBEDT) provides **comments** on HB 2109, which changes the requirements for variance applications to Hawaii's solar water heater (SWH) mandate.

The Hawaii State Energy Office (HSEO) works with state and county agencies, energy stakeholders, and the local community to encourage and facilitate energy efficiency and conservation, including the oversight of the SWH Variance applications.

The original intent of the SWH mandate (Act 204 SLH 2008) was to reduce dependence on fossil fuels by installing a SWH for new single-family dwellings whenever it is cost effective. The easiest way to achieve this would be to allow variance applications only when either (1) a SWH is not cost-effective or (2) another renewable energy technology source is used to heat water. In the event that one of these variance conditions is met, HSEO does not have a preference for any technology.

From an implementation and enforcement standpoint of the current language in the bill, HSEO has no way to determine the definition of "renewable" on p. 5 line 8, and recommends this is removed.

HSEO also recommends the removal of the Underwriters Laboratories (UL) reference (page 5, lines 4-5) from the statute as UL does not certify gas-tankless water heaters and recommends the language below for clarity.

A demand water heater device [~~approved by Underwriters Laboratories, Inc.,~~] is installed; provided that at least one other gas appliance is installed in the dwelling. For the purposes of this paragraph, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed. The demand water heater must be approved by a North American safety certification organization such as the CSA Group or other Nationally Recognized Testing Laboratory (NRTL) member.

Thank you for the opportunity to offer testimony on HB 2109.

**HB-2109**

Submitted on: 1/29/2018 7:11:39 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Melodie Aduja	OCC Legislative Priorities	Support	No

Comments:

**PRESENTATION OF THE  
OAHU COUNTY COMMITTEE ON LEGISLATIVE PRIORITIES  
DEMOCRATIC PARTY OF HAWAII  
TO THE COMMITTEE ON ENERGY & ENVIRONMENTAL  
PROTECTION**

HOUSE OF REPRESENTATIVES

TWENTY-NINTH LEGISLATURE

REGULAR SESSION OF 2018

Tuesday, January 30, 2018

8:30 a.m.

Hawaii State Capitol, Conference Room 325

**RE: Testimony in Support** of HB 2109, RELATING TO SOLAR WATER HEATERS

To the Honorable Chris Lee, Chair; the Honorable Nicole E. Lowen, Vice-Chair, and Members of the Committee on Energy & Environmental Protection:

Good morning, my name is Melodie Aduja. I serve as Chair of the Oahu County Legislative Priorities Committee of the Democratic Party of Hawaii. Thank you for the opportunity to provide written testimony on House Bill No. 2109, relating to solar water heaters and energy conservation. The OCC Legislative Priorities Committee is in favor of House Bill No. 1837 and support its passage.

House Bill No. 2109, is in alignment with the Platform of the Democratic Party of Hawai'i ("DPH"), 2016, as it promotes renewable sources of energy such as solar energy. The DPH Platform states that "[w]e support energy independence, self-sufficiency, affordability and reliability for Hawai'i through the development of renewable alternative energy sources. Specifically, we need to support policies that foster the development of energy production methods that de-emphasize carbon-based fuels and promote renewable sources such as wind, solar, wave, geothermal and Ocean Thermal Energy Conversion (OTEC). (Platform of the DPH, P. 9, Lines 452-456 (2016)).

Given that House Bill No. 2109 requires that solar water heater variances be signed by the architect or mechanical engineer attesting to the need for the variance; requires that any tankless water heater installed instead of a solar water heater be energy efficient; and requires that the individual who would pay for the energy costs sign the application for a solar water heater variance, thereby closing a "loophole" in the current language in Section 196-6.5 of the Hawaii Revised Statutes, it is the position of the OCC Legislative Priorities Committee to support this measure.

Thank you very much for your kind consideration.

Sincerely yours,

**/s/ Melodie Aduja**

Melodie Aduja, Chair, OCC Legislative Priorities Committee

Email: [legislativepriorities@gmail.com](mailto:legislativepriorities@gmail.com), Tel.: (808) 258-8889



## Testimony to the House Committee On Energy & Environmental Protection

Tuesday, January 30, 2018 8:30 a.m.  
Conference Room 325, State Capitol  
RE: House Bill 2109

Chair Lee, Vice Chair Lowen and Members of the Committee on Energy and Environmental Protection

Hawaii Gas provides the following **comments** for HB2109.

HB2109 proposes to amend Act 104, which provides a variance by which a single-family dwelling could be built without a solar water heater. One variance allows for a demand water heater; however, the amendment proposes to require the demand water heater device to be a “renewable gas-tankless instantaneous water heater that provides hot water only as it is needed and has a uniform energy factor of 0.93 or higher.”

In fact, the tankless instantaneous water heater equipment used in a residential setting fed by the utility gas distribution system is the same whether fueled by gas or renewable natural gas, so there is no need for the amendment. In order to be injected into a pipeline system, both biogas from renewable sources and natural gas must be cleaned to the point where they are indistinguishable, so the renewable natural gas that is incorporated into the gas pipeline system cannot be isolated to the appliance. Also in isolated geographical areas, renewable natural gas fueled water heaters would not even be available as an option.

That said, Hawaii Gas remains committed to procuring fuel that is cleaner and more renewable and has been taking actions to do so with its first renewable natural gas project to come on line in 2018. (Unfortunately, locally sourced renewable natural gas at scale is not yet available, nor at a cost that is economically feasible to ratepayers.) With committed projects to date, Hawaii Gas expects to have reduced the equivalent of over 100,000 barrels per year of imported oil to the state once fully implemented.

Regarding the qualifier language that the demand water heater equipment must have a uniform energy factor of 0.93 or higher, it is recommended that language also be removed and replaced with a standardized term for all equipment no matter what resource (solar, electric, gas) so that it meets the Federal Energy Star Criteria for water heater efficiency, which is detailed on their website at

[https://www.energystar.gov/products/water\\_heaters/residential\\_water\\_heaters\\_key\\_product\\_criteria](https://www.energystar.gov/products/water_heaters/residential_water_heaters_key_product_criteria). As you may be aware, ENERGY STAR® is the federal government-backed symbol for energy efficiency, providing simple, credible, and unbiased information that consumers and businesses rely on to make well-informed decisions. ENERGY STAR is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect the climate



through energy efficiency. It would seem to be more cost-efficient for the State of Hawaii, and easier for the State’s consumers and businesses, to utilize well established, federal and state subsidized programs such as ENERGY STAR to identify appropriate energy efficient equipment than to establish its own set of acceptable criteria. Manufacturers build to these federal standards, and if the standards change, the legislation will stay current without having to amend the statute. This also would encourage consumers to have a high rate of compliance given the amount of education and advertising that has been put into branding and labeling appliances with ENERGY STAR.

---

*Below are the suggested revisions to Section 196—6.5, Hawaii Revised Statutes:*

(4) A demand water heater device approved by Underwriters  
5 Laboratories, Inc., is installed; provided that at  
6 least one other gas appliance is installed in the  
7 dwelling. For the purposes of this paragraph, “demand  
8 water heater” means a ~~renewable~~ gas—tankless  
9 ~~instantaneous~~ water heater also known as instantaneous water heaters, that provides hot water  
10 only as it is needed[--] ~~and has a uniform energy~~  
11 ~~factor of 0.93 or higher.~~

*Insert new sentence so that it applies to all water heater appliances:*

All water heater appliances must be compliant with the U.S. Environmental Protection Agency’s ENERGY STAR program for appliance efficiency.

---

In addition, as the Governor and the State Legislature have highlighted, one of the top challenges in the State is affordable housing. Since rooftop solar heating systems are an expensive investment in comparison to other water heating options (be it gas or electric), removing or restricting the variance option can make housing even more expensive and unaffordable for many people. This is particularly true in the affordable housing bracket, as one of the largest challenges for affordable housing purchasers is mortgage qualification. Mandating expensive up-front costs has the potential impact of lowering the pool of moderate-to low-income residents who can qualify for mortgages. For comparison, a typical residential solar hot water system will cost \$4,000-\$8,000, whereas, a demand water heater costs only a fraction of that. When these amounts are included in a typical 30- year mortgage, the accumulated interest is substantial. On-Demand water heaters are an affordable, reliable and energy efficient option now, particularly



given a resident only uses heat energy when they need it, and the appliances do not receive any additional funding from the State (as compared to an ITC for solar). The variances issued to date reaffirm the upfront cost savings as a prime motivator with roughly 96% being granted within USDA Rural Development Areas.

Similarly, mandating that variance applications be “signed by the applicant who shall be the owner occupant of the dwelling” belies the fact that one-way developers achieve cost savings and speed to market for housing projects, in general, and affordable housing projects is via large scale purchasing of standardized packages of key infrastructure elements in the residence. As the determination of which water heater system to utilize is one of the decisions that must be made early in the construction process (for design, utility infrastructure and other purposes) making the application be signed by the eventual owner occupant places an undue burden on the homebuilding process, increasing cost and causing delays in housing availability.

Proponents of eliminating the demand water heater variance also argue that the current variance exemption allows developers to avert the state’s solar water heating mandate. Based on figures obtained from the Hawai`i State Energy Office for 2017, only about 11% of new home permits were variances related to the demand water heater variance for Oahu. The solar water mandate is working as intended.

In addition, gas water heaters also offer the potential to allow residents to have hot water, in the event of a power outage. This was the case in Kauai after Hurricane Iniki, where residents were still able to have hot water during the time of the recovery. Solar hot water systems (a significant proportion of which utilize electricity for pumping and controls, and many of which have supplemental electrical heating elements) or any grid-connected electrical-based alternative, will invariably be subject to system outages. As noted in HB 2249, “The Hawaii emergency management agency estimates that under a best-case scenario, it would take at least fourteen days after landfall of a category four hurricane on Oahu to restore eighty per cent of grid power. Most public emergency shelters in the State do not have the capacity to provide two weeks of electrical service and relief from the mainland is dependent upon a functioning airport and seaport”.

Lastly, solar hot water heaters are grid connected because the sun does not shine ALL the time. When the hot water tank is not able to be adequately heated by the solar resource, as in cloudy days or when there is high demand for hot water by multiple users as may be the case in many multigenerational homes, the system will be powered by the electric grid, often unbeknownst to the user. Currently this electric usage is approximately 70% fueled by fossil fuels, and those with solar water heating may have unanticipated increases in their electric bill.



Thank you for the opportunity to testify on HB 2109.

Sincerely,

Kevin Nishimura

Director of Oahu Operations

Hawaii Gas





P.O. Box 37158, Honolulu, Hawai'i 96837-0158  
Phone: 927-0709 [henry.lifeoftheland@gmail.com](mailto:henry.lifeoftheland@gmail.com)

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION  
Rep. Chris Lee, Chair  
Rep. Nicole E. Lowen, Vice Chair

Tuesday, January 30, 2018  
8:30 a.m.  
Conference Room 325

HB 2109 Relating to Solar Water Heaters

**SUPPORT**

Aloha Chair Lee, Vice Chair Lowen, and Members of the Committee,

Life of the Land is Hawai'i's own energy, environmental and community action group advocating for the people and `aina for 47 years. Our mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

The Legislature passed Act 204 in 2008 requiring solar water heaters for all new buildings but allowed DBEDT to approve variances for gas heaters. Like the use of variances for land decisions, which is supposed to be relied on very rarely, variances for water heaters is out of control. Thirty percent of new homes are built without solar water heaters. DBEDT has approved about 99 percent of the over 5,000 variance requests that were filed.

This bill would require that the owner, and the architect or mechanical engineer, to swear in writing to DBEDT that solar would not work. The law should be expanded to include all duplexes, triplexes, condos, or other multi-family dwellings.<sup>1</sup>

Mahalo  
Henry Curtis  
Executive Director

---

<sup>1</sup> [http://energy.hawaii.gov/wp-content/uploads/2011/09/FAQs-SWH-Variance-2\\_3\\_2017.pdf](http://energy.hawaii.gov/wp-content/uploads/2011/09/FAQs-SWH-Variance-2_3_2017.pdf)



2801-N2 La-I Road  
Honolulu, HI 96816  
January 28, 2018

Re: Testimony on HB2109

Dear Ladies and Gentlemen:

I am a long time Honolulu resident, very active internationally for the past decade on matters of climate change mitigation and adaptation, participating in the annual UN climate negotiations, or Conference of Parties. I am best known for producing a dual-purpose press conference/TV program known as Climate Matters from these meetings, engaging experts in climate science and other relevant fields. ([UPFSI YouTube Channel](#))

The world is at present on a very drastic climate trajectory. To say that things are much worse than is projected by mainstream media (even before the present denialist presidential administration took office) is an understatement. Climate change has been underplayed for decades. This is mostly due to the collective political reticence to deal with the disruption to 'business as usual' that a more accurate honest narrative would necessitate, opting to 'make money' instead of protecting current and future generations from environmental destruction.

I am writing to urge you to enact proposed bill HB2109. Act 204, which was enacted in 2008, was put in place with the intention of being very positive climate-related legislation. Hawaii has the best potential for solar energy water heating on residences and commercial properties in America. A mandate for all new hot water systems to be solar was most appropriate. But developers wanted to subvert the intention of Act 204 and build homes as cheaply as possible putting future energy costs on home buyers, and the climate change 'cost' on all of society.

The intention of the act was subsequently subverted by allowing an easily obtained variance, with no burden of proof of the veracity of the claims made in applying for the variance. To wit, the variance allowing non-solar alternatives has been applied for over 5,000 times, and been granted by DBEDT in 99.8% of those cases. The variance rendered ACT 204 a sham, and basically gave away the shop to developers who are unconcerned about the impact of the houses they build beyond the near term profit they will make.

As a small, remote island state, Hawaii is more vulnerable to all the effects of climate change than any other state in America, not only sea level rise. We should therefore be more concerned than any other state with utilizing the bountiful renewable resource that sunshine represents, not allowing developers to dodge the act. We should be setting an aggressive legislative example for the rest of America and for the world. HB2109 represents an effort to limit the use of this variance with a real test of need, certified by the architect, developer and intended end user of the building. This is a reasonable way to patch up the cheat that the variance currently represents. The intention of Act 204 could still be subverted, but it would involve collusion and falsification of the application for the variance, curtailing its spurious use.

In conclusion, I urge you to pass HB2109 and exemplify both wisdom and good planning in the face of aggressively accelerating climate disruption.

Sincerely,

A handwritten signature in black ink that reads "Stuart Scott". The signature is written in a cursive, flowing style.

Stuart Scott



To: The Committee on Energy & Environmental Protection (EEP)  
From: Brodie Lockard, 350Hawaii.org

Dear Chair Lee, Vice Chair Lowen and Committee members--

350Hawaii.org supports HB 2109.

The Legislature passed Act 204 in 2008 requiring solar water heaters for all new buildings but allowed DBEDT to approve variances for gas heaters. The variances are supposed to be relied on very rarely, but they're out of control. Thirty percent of new homes are built without solar water heaters. DBEDT has approved 5,416 of 5,429 (99.8%) of the variance requests that have been filed.

HB 2109 would require that the owner, and the architect or mechanical engineer, swear in writing to DBEDT that solar would not work or would be cost—prohibitive. HB 2109 brings responsibility and much-needed oversight to the process.

Water heating uses more energy than any other single item in most homes. It's the most effective and easiest place to save energy in houses. If we're serious about saving energy in Hawaii, water heater variances need to be drastically reduced.

Thank you for this opportunity to submit testimony in support of HB 2109.

Brodie Lockard  
350Hawaii.org



SIERRA CLUB OF HAWAI'I  
MĀLAMA I KA HONUA. *Cherish the Earth.*

**HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION**

Tuesday, January 30, 2018 8:30AM Conference Room 325

**In SUPPORT of HB 2109** Relating to solar water heaters

---

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

On behalf of our 20,000 members and supporters, the Sierra Club of Hawai'i, a member of the Common Good Coalition, **supports HB 2109**, requiring that (1) solar water heater variances be signed by the architect or mechanical engineer attesting to the need for the variance, (2) any tankless water heater installed instead of a solar water heater be energy efficient, and (3) the individual who would pay for the energy costs sign the application for a solar water heater variance.

To understand the intent of HB 2109, we must first review the intent of Act 204 (enacted in 2008) and Act 155 (enacted in 2009) for context.

HB 2109 seeks to amend §196-6.5 of Act 204, regarding the solar water heater mandate for new single-family home construction, which serves to encourage the adoption of inexpensive and energy efficient water heaters in new single-family homes during the construction phase. The measure also seeks to amend several sections of the statute to encourage the implementation of renewable energy and energy efficient devices congruent with state goals.

Act 155, an effort to clarify the administration of the Solar Hot Water Variance Law, states that variances would be "rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a thirty-year mortgage" and further, "Therefore, the legislature intended for a consumer to have the option to use gas appliances with the full knowledge that such a system may be more costly and less efficient. To obviate any attempt to circumvent Act 204, then, the legislature intends that if the potential

variance applicant is not the party who will ultimately pay for the energy cost consumption, then only paragraph (1), (2), or (3) of subsection (a) in section 196-6.5, Hawaii Revised Statutes, should apply.”

To be clear: liquified natural gas (LNG), especially when using hydraulic fracturing (fracking) for extraction, *is not clean energy*. Act 204 was meant to encourage the adoption of energy efficient water heaters on new homes *that are congruent with the state’s goals of 100% by 2045* and, further, any variance request for gas water heaters should rarely, if ever, be granted. Since the enactment of 204, however, *over 5,000 variances have been requested and most of them approved for the installation of gas water heaters*. It does not follow that, in a state that currently has no infrastructure for full-scale natural gas--not to mention in addition to its ambitious renewable energy goals--that thousands of gas water heaters have been installed in news homes and with no evidence of slowing.

Also of importance to note is that the initial implementation costs--when considering available tax credits and rebates--and return on investment over time for solar water heaters is less than for gas heaters, especially in many regions (e.g., Ho’opili, Koa Ridge) where solar irradiance is high. HB 2109 gives the Department of Business, Economic Development, and Tourism (DBEDT) the authority to provide consumers with efficient and cost saving choices, while simultaneously bringing the state closer to it’s goal of 100% by 2045.

Thank you for the opportunity to testify in support of HB 2109.



## HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

January 30, 2018, 8:30 A.M.

Room 325

(Testimony is 6 pages long)

### TESTIMONY IN STRONG SUPPORT OF HB 2109, SUGGESTED AMENDMENT

Aloha Chair Lee, Vice Chair Lowen, and Committee members:

Blue Planet Foundation **strongly supports** House Bill (HB) 2109, which seeks to close the loophole in the state's solar water heater mandate.

Solar water heating is recognized as a hugely efficient—and cost-saving—strategy for most homes. Since 2010, the state has required solar water heating in all new homes. But this law has a variance process for rare exceptions where solar just doesn't work. Unfortunately, this variance has been abused by developers, despite the legislature's intent that **variances "will be rarely, if ever, exercised or granted."**

HB 2109 provides amendments to Hawaii's solar water heating law that close the fossil fuel loophole and protect consumers, while promoting the state's energy security and sustainability. **Closing the loophole is necessary and urgent.** For example, a large production builder is seeking variances to install gas water heaters for thousands of homes being built on the Ewa Plain—one of the most abundant sun zones in the nation. Without a policy to close the loophole, this misuse of the variance process will continue to the detriment of consumers and to the detriment of the state's progress toward renewable energy.

**Blue Planet respectfully requests that the Committee amend HB 2109 to align the variance process with the clear legislative intent behind Hawaii's solar water heater mandate,** as a preferred alternative to the language presented in the current draft of HB 2109. These suggested amendments seek to ensure that when variances are granted (albeit "rarely"), only grid-interactive water heaters or heat pump water heaters are to be used in place of a solar water heater. In other words, only water heaters that further our clean energy goals and add value to our increasingly renewable electric grid will be deemed viable replacements that align with the original intent of law.

Our suggested language is at the end of this testimony.

### INTENT BEHIND HAWAII'S SOLAR WATER HEATER LAW IS CLEAR

As summarized in the preamble, in 2008 the legislature passed Act 204, which for the benefit of consumers required that new homes shall utilize solar water heating except in very narrowly

[info@blueplanetfoundation.org](mailto:info@blueplanetfoundation.org)

55 Merchant Street 17<sup>th</sup> Floor • Honolulu, Hawai'i 96813 • 808-954-6142 • [blueplanetfoundation.org](http://blueplanetfoundation.org)

limited circumstances through a variance process. In 2009's Act 155, the legislature took the extraordinary step of expressly addressing concerns with potential implementation of the solar water heating law and its variance process. Act 155 explained that it "present[ed] a range of measures to reach aggressive energy goals while balancing the interests of various stakeholders."

Part VII of Act 155 focused on the solar water heater law and explained that in passing Act 204, the legislature "found that retrofitting a home for a solar water heater after [the home] was constructed was more costly, and that such upfront costs . . . were substantial barriers for the average consumer. The financial barriers can be addressed, however, by including the installation of a solar water heater into the purchase price and mortgage of a home, where the cost of the system may pay for itself immediately."

The current solar water heater mandate includes a variance process by which a single family dwelling can be built without a solar water heater if (1) "installation is impracticable due to poor solar resource," (2) "installation is cost-prohibitive based upon a life cycle cost-benefit analysis," (3) a "renewable energy technology system [e.g. solar photovoltaic system] is substituted for use as the primary energy source for heating water," or (4) a "demand water heater device approved by Underwriter Laboratories, Inc., is installed; provided that at least one other gas appliance is installed in the dwelling."

In contemplating variance no. 4, the legislature identified the potential for abuse and sought to further clarify its intent. In Act 155, the legislature found "that it [was] necessary to clarify the intent of the variance provision that allows for a demand water heater device [i.e. gas water heater]. **There is a potential that this provision may be used to allow a developer/builder, the purchaser of a water heating device, of a single-family dwelling, to circumvent the policy objectives of Act 204.**" (Emphasis added). The legislature noted that it "intended for a consumer to have the option to use gas appliances with the full knowledge that such a system may be more costly and less efficient. To obviate any attempt to circumvent Act 204, then, the legislature intends that if the potential variance applicant is not the party who will ultimately pay for the energy cost consumption, then only [variance exceptions (1), (2) or (3)] should apply."

The legislature was unambiguous: **the legislature intended for the solar water heater law variance process to bar any attempt by developers/builders to build housing tracts using gas water heaters.** Such housing tracts, including huge tracts presently undergoing development on Oahu, are not eligible for the gas water heater variance (i.e. variance no. 4) because the application for a variance is not sought by the consumer (who will "ultimately pay for the energy cost consumption") but rather by the developer/builder.

**An interpretation to the contrary would mean that new homeowners are locked in to homes with fossil fuel water heaters and are unwittingly subjected to higher energy costs over years of home ownership.** Yet this misinterpretation prevails in the state's current

implementation of the solar water heater variance process. HB 2109 rightfully recognizes the urgent need to close this loophole and prevent further misuse.

## CLARIFICATION ON THE PROCESS FOR VARIANCE REQUESTS IS URGENTLY NEEDED

The legislature's concern about the potential for abuse was well founded. As noted in the preamble to HB 2109, the number of variances requested and approved is in the thousands. In Act 155, the legislature explained that it intended **“that the variances provided for in [Act 204] will be rarely, if ever, exercised or granted** because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost-effective in the context of a thirty-year mortgage term.” (Emphasis added).

According to state records,<sup>1</sup> **5,627 variance requests have been received as of January 11, 2018**, with a single architect responsible for submitting over 2,200 of those variance requests. What's more, **over 99% of all variance requests received have been approved**. These numbers far exceed the *“rarely, if ever, exercised or granted”* variances envisioned by the legislature when passing the law. Arbitrary approval of essentially all requests simply because the forms have been filled out is contrary to the law's intent.

In addition, the vast majority of variance requests are for gas water heaters. These facts paint a stark picture. Building out new fossil fuel infrastructure would be plainly at odds with the state's commitment to transition to 100% renewable energy and the state's effort to comply with its climate change obligations enacted with 2017's Act 32 (committing the state to the Paris Climate Agreement).

HB 2109 is a critical measure to ensure that this trend does not balloon as large production builders continue to seek a steady stream of variances to install gas water heaters for thousands of homes being built on some one of the most abundant sun zones in the nation (e.g., the Ewa Plain).

## SUGGESTED AMENDMENT

Blue Planet respectfully requests that the Committee amend HB 2109 to align the variance process with the clear legislative intent behind Hawaii's solar water heater mandate, as a preferred alternative to the language presented in the current draft of HB 2109. The suggested amendments provided below seek to ensure that when variances are granted (albeit “rarely”), only grid-interactive water heaters or heat pump water heaters are to be used in place of a solar water heater. In other words, only water heaters that further our clean energy goals and add value to our increasingly renewable electric grid will be deemed viable replacements that align

---

<sup>1</sup> See DBEDT Summary Chart of Solar Water Heater Variance Requests, Jan. 11, 2018, *available at* [http://energy.hawaii.gov/wp-content/uploads/2018/01/List-Jan\\_11\\_2018.pdf](http://energy.hawaii.gov/wp-content/uploads/2018/01/List-Jan_11_2018.pdf)



with the original intent of law. The suggested amendments also clarify that discretion may be used in denying any variance application deemed incomplete or insufficient to ensure that any variances granted are in accordance with the intent of the law and further our progress toward a fossil fuel free future for the state.

Our suggested amendments to Section 2 of HB 2109 are as follows:

**§196-6.5 Solar water heater system required for new single-family residential construction.** (a) 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, unless the coordinator approves a variance. A variance application shall only be accepted if ~~if submitted~~ signed by an architect or mechanical engineer licensed under chapter 464, who attests and demonstrates that:

(1) ~~Installation is impracticable due to poor solar resource;~~

~~(2) Installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed fifteen years;~~

~~(3)~~(2) A renewable energy technology system, as defined in section 235-12.5, is substituted for use as the primary energy source for heating water. ~~;~~ ~~or~~

~~(4) A demand water heater device approved by Underwriters Laboratories, Inc., is installed; provided that at least one other gas appliance is installed in the dwelling. For the~~

~~purposes of this paragraph, "demand water heater" means a gas tankless instantaneous water heater that provides hot water only as it is needed.~~

(b) If a variance is granted for a property that will be connected to an electric utility grid, a grid-interactive water heater or a heat pump water heater shall be used in place of a solar water heater. For the purposes of this paragraph, "grid-interactive water heater" means an electric resistance water heater fitted with grid-integrated controls that are capable of participating in an electric utility load controls or demand response program.

~~(b)~~ A request for a variance shall be submitted to the coordinator on an application prescribed by the coordinator and shall include a description of the location of the property and detailed justification for the approval of a variance using the criteria established in subsection (a), and the type of replacement water heater being used in accordance with subsection (b). The coordinator may exercise discretion in denying any variance application deemed incomplete or insufficient to satisfy the criteria in subsections (a) and (b). A variance shall be deemed approved if not denied within ~~thirty working~~ sixty calendar days after receipt of the variance application. The coordinator shall publicize:

(1) All applications for a variance within seven days after receipt of the variance application; and

(2) The disposition of all applications for a variance within seven days of the determination of the variance application.

(~~e~~d) The director of business, economic development, and tourism may adopt rules pursuant to chapter 91 to impose and collect fees to cover the costs of administering variances under this section, and to impose appropriate penalties or fines for false attestations in variance applications. The fees, fines, or penalties, if any, shall be deposited into the energy security special fund established under section 201-12.8.

(~~e~~e) Nothing in this section shall preclude any county from establishing procedures and standards required to implement this section.

(~~e~~f) Nothing in this section shall preclude participation in any utility demand-side management program or public benefits fee program under part VII of chapter 269.

## CONCLUSION

Blue Planet Foundation strongly supports HB 2109 with our suggested amendment to better align the variance process with the clear legislative intent and clarify that discretion can be exercised when reviewing variance requests. **Closing the loophole is necessary and urgent to avoid backtracking on our commitment to reaching 100% renewable energy and meeting our climate commitments.**

We look forward to working with the legislature on this key policy.

Thank you for the opportunity to testify.



**Hawaii Solar Energy Association**  
*Serving Hawaii Since 1977*

**TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION  
IN REGARD TO HB 2109, RELATING TO SOLAR WATER HEATERS  
BEFORE THE  
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION  
ON  
TUESDAY, JANUARY 30<sup>TH</sup>, 2018**

Chair Lee, Vice-Chair Lowen, and members of the committee, my name is Will Giese, and I am the Executive Director of the Hawaii Solar Energy Association, Inc. (HSEA).

The HSEA was founded in 1977 to further solar energy and related arts, sciences and technologies with concern for the ecologic, social and economic fabric of the Hawaiian Islands. Our membership includes the majority of locally owned and operated solar installers, contractors, distributors, manufacturers, and inspectors across all islands.

HSEA **supports HB 2109**. This bill would amend §196-6.5 regarding the solar water heater mandate for new single-family home construction. This bill seeks to amend several parts of the statute to encourage the deployment of renewable energy and energy efficient devices in line with state goals.

Act 204 of the 2008 regular legislative session<sup>1</sup> first established §196-6.5 as a means to encourage the adoption of inexpensive and energy efficient water heaters in new single-family home construction. Subsequently, in 2009 the legislature passed Act 155 which, specifically in Part VII, sought to clarify the administration of the Solar Hot Water Variance Law. Act 155 asserted that variances would be “rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a thirty-year mortgage.”<sup>2</sup> Act 155 also specifically states (emphasis added):

“Therefore, the legislature intended for a consumer to have the option to use gas appliances with the full knowledge that such a system may be more costly and less efficient. To obviate any attempt to circumvent Act 204, then, the legislature intends that **if the potential variance applicant is not the party who will ultimately pay for the energy cost consumption, then only paragraph (1), (2), or (3) of subsection (a) in section 196-6.5, Hawaii Revised Statutes, should apply.**”

The intent of the legislature was clear: Act 204 was meant to encourage the adoption of energy efficient water heaters on new homes wherever possible and in line with state’s

---

<sup>1</sup> See Act 204 and Gov. Msg. No. 947 on June 26, 2008 during the twenty-fourth state legislature in the state of Hawai‘i.

<sup>2</sup> See Act 155, Part VII, Twenty-fifth State Legislature, State of Hawaii, July 1, 2009.



**Hawaii Solar Energy Association**  
*Serving Hawaii Since 1977*

goals *and* any variance request for instant gas water heaters should *rarely if ever* be granted.

To date, **5,627** variances have been requested and **5,599** variance requests have been approved. Of those requests, **5,290** of the requests have been for the installation of an instantaneous gas water heater as allowed in §196-6.5 (a)(4). Just this year, there have been instantaneous gas heater variances applied and approved in as many days. How can it be, in a state that currently has no infrastructure to support large amounts of natural gas and such ambitious renewable energy goals, that almost 5,300 gas water heaters have been installed on new homes? Was it the intent of Act 204 and Act 155 to allow for the application and approval of this many variances?

While the initial capitol cost for an inefficient gas water heater may be less than a solar water heater when tax credits and rebates are not considered, over the life time of the systems this is simply not true. Developers who abuse §196-6.5 by constantly applying for instantaneous gas heater variances instead past the cost burden onto the consumer and the state. Consumers who utilize instantaneous gas heaters over the lifetime of their appliance will spend an additional \$8,000 on therms compared to a savings of over \$8,200 for a solar hot water heater of comparable size. In fact, when credits and rebates are taken into account for instantaneous gas heaters and solar hot water heaters, the return on investment for the energy consumer of a solar hot water heater is within two years of installation.<sup>3</sup>

In certain rare situations it makes sense for the installation of an instantaneous gas water heater. Vacation homes that are occupied for only a few months in a year or homes with very poor solar irradiance would be suitable candidates of IGH. However, homes being built in residential areas like Ho'opili and Koa Ridge, where residents will live year-round and where solar irradiance is higher than on almost any other place in the state, **do not make sense.**

HB 2109 empowers the Department of Business, Economic Development, and Tourism to give consumers efficient and cost saving choices, while simultaneously bringing the state closer to it's goal of 100% RPS by 2045.

We strongly urge the committee to **support** of SB 2109.

Thank you for the opportunity to testify.

---

<sup>3</sup> The HSEA staff has conducted an analysis of the payback of SHW and IGH systems with or without credits and rebates and considering current and future cost-per-therm of residential utility gas. Please contact Will Giese at (808) 232-8371 or by email at [wgiese@hsea.org](mailto:wgiese@hsea.org) for more information.



# Hawai'i Energy

YOUR CONSERVATION & EFFICIENCY PROGRAM

1132 Bishop Street, Suite 1800 • Honolulu, Hawai'i 96813 • HawaiiEnergy.com • P: (808) 839-8880 • F: (808) 441-6068

Before the House Committee on Energy & Environmental Protection  
Tuesday, January 30, 2018, 8:30 A.M., Conference Room 325  
HB2109: Relating to Solar Water Heaters

Chair Lee, Vice-Chair Lowen, and Members of the Committee

Thank you for the opportunity to submit comments on HB2109. The Hawai'i Energy program would like to testify in strong **support** for HB2109.

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 by reducing energy consumption, saving money, and pursuing a 100% clean energy future.

In 2008, the Hawai'i legislature passed Acts 204 and 105 as the legislature had "found that retrofitting a home for a solar water heater after [the home] was constructed was more costly and that such upfront costs...were substantial barriers for the average consumer." The legislature further explained that "the financial barriers can be addressed . . . by including the installation of a solar water heater into the purchase price and mortgage of a home, where the cost of the system may pay for itself immediately."

Hawai'i Energy agrees with the legislature and advocates for the installation of cost-effective energy efficiency measures at the time of construction as this presents the lowest cost to the consumer. Additionally, residents will see a significant benefit over the next 20 years with most, if not all, of their water heating costs eliminated through the installation of solar water heaters. According to the U.S. Department of Energy, this results in homeowners paying between \$13 - \$20 more per month in a 30-year mortgage. Hawai'i Energy has found solar water heaters reduce electrical consumption in a home between 20 – 40%, depending on the size of the home and the number of occupants. This translates to savings of \$20 to \$60 in savings on the occupant's electric bill each month. This significant savings can help homeowners cover all of their expenses and ensure their ability to stay in their homes.

The Hawai'i Energy program offers rebates for existing homes to retrofit their electric water heater to solar water heating due to the tremendous savings. However, the program does not offer rebates on new construction as solar water heating is mandated by law.

A recent development project on the west side of Oahu (with a high solar insolation) is poised to see 11,750 variances for the entire development. The developers are seeking to utilize a loophole in the law to reduce their upfront costs which potentially leaves the occupants with a significantly higher electric bill. HB2109 addresses this loophole by requiring the architect or licensed engineer to attest that the installation of solar water heating would be impracticable and cost-prohibitive in accordance to what is stipulated in the law. The bill also grants the coordinator receiving the variance the ability to deny any variance application that the coordinator deems incomplete or insufficient.

Thank you for the opportunity to testify in strong **support** of HB2109.

Brian Kealoha  
Executive Director  
Hawai'i Energy





Email: [communications@ulupono.com](mailto:communications@ulupono.com)

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION  
Tuesday, January 30, 2018 — 8:30 a.m. — Room 325

**Ulupono Initiative Strongly Supports HB 2109, Relating to Solar Water Heaters**

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

My name is Murray Clay and I am Managing Partner of the Ulupono Initiative, a Hawai'i-based impact investment firm that strives to improve the quality of life for the people of Hawai'i by working toward solutions that create more locally produced food; increase affordable, clean, renewable energy; and reduce waste. Ulupono believes that self-sufficiency is essential to our future prosperity and will help shape a future where economic progress and mission-focused impact can work hand in hand.

**Ulupono strongly supports HB 2109**, because it aligns with our goal of increasing the production of clean, renewable energy in Hawai'i.

Solar water heaters are one of the most cost effective investments a homeowner can make if they would like to reduce their electricity usage. This investment seems most appropriate for new housing developments as the new owner can maximize their energy and cost savings from the start. However, variances to the solar water heater mandate have been approved over 99% of the time, which was not the intent of the Legislature at the time of the mandate's passage. This has led, in effect, to a lot less solar water heater investments than should have been executed.

As Hawai'i's energy issues become more complex and challenging, we appreciate this committee's efforts to look at policies that support renewable energy production.

Thank you for this opportunity to testify.

Respectfully,

Murray Clay  
Managing Partner

*Investing in a Sustainable Hawai'i*



**HB-2109**

Submitted on: 1/28/2018 1:37:53 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Janet Pappas		Support	No

Comments:

Dear Legislators,

I support HB 2109 which requires that solar water heater variances be signed by the architect or engineer who attests to the need for a variance. Additional measures in this bill will also help ensure that Hawaii reaches its renewable energy goals.

Thank you for your consideration.

Jan Pappas

Aiea, Hawaii 96701

**HB-2109**

Submitted on: 1/28/2018 5:30:50 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Patricia Blair		Support	No

Comments:

**HB-2109**

Submitted on: 1/28/2018 2:02:23 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Taurie Kinoshita		Support	No

Comments:

I support HB 2109. Thank you for your consideration.

**HB-2109**

Submitted on: 1/28/2018 4:18:39 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Joseph Kohn MD	We Are One, Inc. - www.WeAreOne.cc - WAO	Support	No

Comments:

**HB-2109**

Submitted on: 1/28/2018 10:35:48 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sherry Pollack		Support	No

Comments:

The Legislature passed Act 204 in 2008 requiring solar water heaters for all new buildings but allowed DBEDT to approve variances for gas heaters. The variances are supposed to be relied on very rarely, but they're out of control. Thirty percent of new homes are built without solar water heaters. DBEDT has approved 5,416 of 5,429 (99.8%) of the variance requests that were filed. The legislature must close the loopholes that allow applicants to circumvent the objectives for solar water heating systems to ensure we are on track and do not undermine our clean energy goals.

**HB-2109**

Submitted on: 1/29/2018 7:23:43 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mary Lacques		Support	No

Comments:

**HB-2109**

Submitted on: 1/29/2018 8:25:06 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Joan Gannon	West Hawaii CHC	Support	No

Comments:

I support HB2109

**HB-2109**

Submitted on: 1/27/2018 1:46:31 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Javier Mendez-Alvarez		Support	No

Comments:



**HB-2109**

Submitted on: 1/29/2018 8:53:25 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Severine Busquet		Support	No

Comments:

Hi:

Water heating uses more energy than any other single item in most homes. It's the most effective and easiest place to save energy in houses. If we're serious about saving energy in Hawaii, water heater variances need to be drastically reduced.

For these reasons, I support HB2109.

Thanks for your attention

Severine