



## DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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Statement of  
**LUIS P. SALAVERIA**  
**Director**  
Department of Business, Economic Development, and Tourism  
before the  
**SENATE COMMITTEE ON TRANSPORTATION AND ENERGY**

Wednesday, April 4, 2018  
1:30 p.m.  
State Capitol, Conference Room 225

in consideration of  
**HB 1864, HD2, Proposed SD1**  
**RELATING TO RENEWABLE ENERGY TECHNOLOGIES.**

Chair Inouye, Vice Chair Espero, and Members of the Committee.

The Department of Business, Economic Development, and Tourism (DBEDT) **supports** HB 1864, HD2, Proposed SD1, which amends Hawaii's solar water heater (SWH) mandate by clarifying (1) the definition of renewable energy technology system and (2) when variance applications are accepted for demand water heater devices.

The Hawaii State Energy Office (HSEO), an office of DBEDT, 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 Proposed SD1 is consistent with the original intent of the SWH mandate (Act 204 SLH 2008), to reduce dependence on fossil fuels by installing a SWH for new single-family dwellings whenever it is cost effective.

Thank you for the opportunity to offer testimony on HB 1864, HD2, Proposed SD1.



## ORGANIZING *for* ACTION

To: The Senate Committee on Transportation and Energy  
From: Brodie Lockard, OFA Hawaii Climate Lead, 808-262-1285  
Date: Wednesday, 4/4/18

### **In support of HB 1864 HD2**

Dear Chair Inouye, Vice Chair Espero and Committee members,

I am the Hawaii Climate Lead for Organizing for Action, a progressive group that played a lead in electing President Barack Obama twice. OFA Hawaii supports HB1864 HD2.

Ocean Thermal Energy Conversion is a very promising technology that has not been widely used. It is very well-suited to Hawaii because of our latitude, our warm climate, and the proximity of so many large buildings to water, particularly in downtown Honolulu.

OTEC can produce electricity or directly air condition large buildings, at a fraction of the current cost in Hawaii. One study estimates power generation would cost as little as \$0.07 per kilowatt-hour [1], compared with \$0.26 to \$0.34 through HEI [2]. OTEC works best where the temperature difference between surface and deep water is greatest, generally within 20° of the equator (Hawaii is at 19.9°) [3].

OTEC produces no waste products, requires minimal fuel, has no appreciable environmental impact, and is one of the continuously available renewable energy resources that could contribute to base-load power supply [4].

OTEC may also be the best method for air conditioning downtown Honolulu, Hawaii Kai and the Ko Olina area. Its use makes just as much sense as solar water heaters, which have been required on new Hawaii homes by state law since 2010.

The first operational OTEC plant in the world opened in Hawaii in 2015. The revenues generated from the plant, which supply the NELHA facility where it is located, are reinvested to fund more research and development in OTEC technology [5].

Companies researching OTEC deserve at least as much tax benefit as companies and individuals installing the mature technologies of solar and wind power.

Please support this bill so OTEC can eventually take its place, if appropriate, next to other renewable energy technologies.

Thank you for the opportunity to testify.

[1]

[https://web.archive.org/web/20070626183941/http://www.pichtr.org/luis\\_vega\\_otec\\_summary.pdf](https://web.archive.org/web/20070626183941/http://www.pichtr.org/luis_vega_otec_summary.pdf)

[2] <https://www.hawaiianelectric.com/billing-and-payment/rates-and-regulations/average-price-of-electricity>

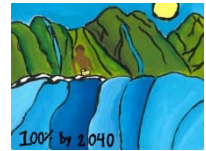
[3] <https://web.archive.org/web/20051126110351/http://www.nrel.gov/otec/markets.html>

[4] [https://en.wikipedia.org/wiki/Ocean\\_thermal\\_energy\\_conversion](https://en.wikipedia.org/wiki/Ocean_thermal_energy_conversion)

[5] <https://www.scientificamerican.com/article/hawaii-first-to-harness-deep-ocean-temperatures-for-power/>

Brodie Lockard

Hawaii Climate Lead, Organizing for Action



## SENATE COMMITTEE ON TRANSPORTATION AND ENERGY

April 4, 2018, 1:30 P.M.

Room 225

(Testimony is 4 pages long)

### TESTIMONY IN STRONG SUPPORT OF HB 1864 HD2 Proposed SD1

Aloha Chair Inouye, Vice Chair Espero, and Committee members:

Blue Planet Foundation **strongly supports** House Bill 1864 HD2 Proposed SD1, which seeks to tighten 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."**

According to state records,<sup>1</sup> **5,874 variance requests have been received as of April 2, 2018**, with a single architect responsible for submitting over 2,300 of those variance requests. What's more, **over 98% of all variance requests received have been approved.**

The Proposed SD1 version of House Bill 1864 can 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 1864 by adding statutory language to clarify that the coordinator does indeed have discretion to deny variance applications that do not meet the criteria for the rare exceptions specified in the law.** This will 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.

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<sup>1</sup> See DBEDT Summary Chart of Solar Water Heater Variance Requests, April 2, 2018, *available at* [http://energy.hawaii.gov/wp-content/uploads/2018/04/List-April\\_2\\_2018.pdf](http://energy.hawaii.gov/wp-content/uploads/2018/04/List-April_2_2018.pdf).

## Intent Behind Hawaii's Solar Water Heater Law is Clear

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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 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. House Bill 1864 rightfully recognizes the urgent need to close this loophole and prevent further misuse.

## Clarification on the Process for Variance Requests is Urgently Needed

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The legislature's concern about the potential for abuse was well founded. The number of variances requested and approved since the law took effect 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>2</sup> **5,874 variance requests have been received as of April 2, 2018**, with a single architect responsible for submitting over 2,300 of those variance requests. What's more, **over 98% 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).

House Bill 1864 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).

## Conclusion

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Blue Planet Foundation strongly supports the Proposed SD1 version of House Bill 1864 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. Blue Planet respectfully requests that the

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<sup>2</sup> See DBEDT Summary Chart of Solar Water Heater Variance Requests, April 2, 2018, *available at* [http://energy.hawaii.gov/wp-content/uploads/2018/04/List-April\\_2\\_2018.pdf](http://energy.hawaii.gov/wp-content/uploads/2018/04/List-April_2_2018.pdf).

Committee amend HB 1864 by adding statutory language to clarify that the coordinator does indeed have discretion to deny variance applications that do not meet the criteria for the rare exceptions specified in the law.

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

Thank you for the opportunity to testify.



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

SENATE COMMITTEE ON WAYS & MEANS  
Wednesday, April 4, 2018 — 1:15 p.m. — Room 225

**UluPono Initiative Strongly Supports HB 1864 HD 2, Relating to Renewable Energy Technologies**

Dear Chair Inouye, Vice Chair Espero, 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 better management of waste and fresh water. 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 1864 HD 2**, which amends the criteria for granting a solar water heater variance, 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*

999 Bishop Street, Suite 1202 | Honolulu, Hawai'i 96813 ☎ 808.544.8960 📠 808.432.9695 | [www.ulupono.com](http://www.ulupono.com)





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

**TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION  
IN REGARD TO HB 1864 HD2 SD1, RELATING TO ELECTRIC GRID  
RESILIENCY  
BEFORE THE  
SENATE COMMITTEE ON TRANSPORTATION AND ENERGY  
ON  
MONDAY, APRIL 4<sup>TH</sup>, 2018**

Chair Inouye, Vice-Chair Espero, and members of the committee, my name is Will Giese, and I represent the Hawaii Solar Energy Association, Inc. (HSEA)

**HSEA strongly supports HB 1864 HD2 SD1.** 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.

**This bill protects consumer choice.**

In short, the amendments proposed in HD2 SD1 of this bill *do not prevent individuals from choosing an instant gas water heater in situations where that choice makes sense.* The life cycle cost analysis for a water heating system built in a low sun hour zone would reveal that an instant gas heater would be an ideal choice for a consumer economically over the life of a system.

**This bill makes a significant piece of legislation stronger.**

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*

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<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*

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

To date, over **5,700** variances have been requested and over **5,600** variance requests have been approved. Of those requests, over **5,300** 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>

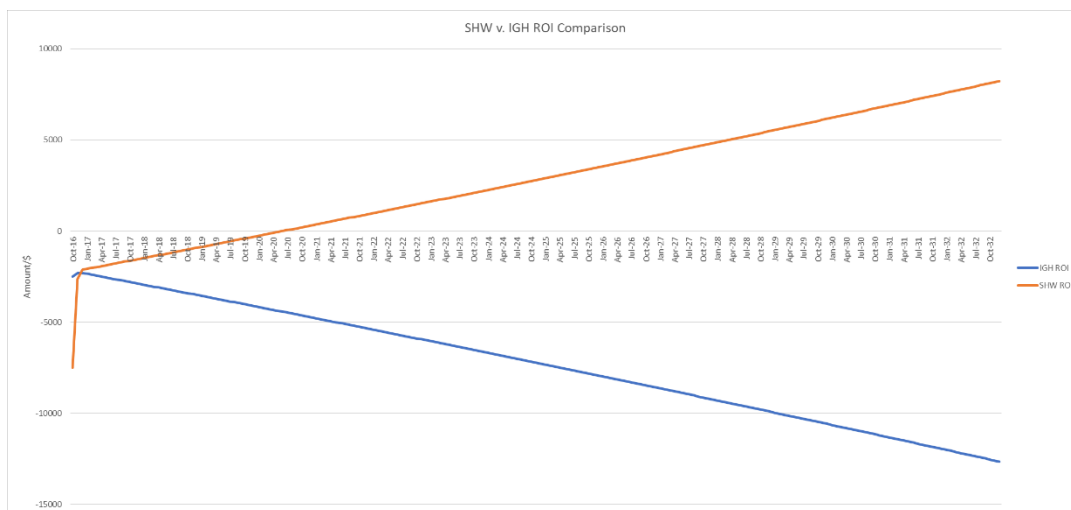
In testimony submitted on previous versions of this bill, some testifiers pointed out that the *initial capital cost* of a solar hot water is higher than that of an instant gas water heater. The upfront cost savings are realized by the *developer*, and over the life of a water heater the cost/therm far exceeds the savings on initial capitol cost when compared to a solar hot water heater.

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<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.



**Hawaii Solar Energy Association**  
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Furthermore, the testifiers assert that “as water heaters also offer the potential to allow residents to have hot water, in the event of a power outage.” ***This is actually false***, as a majority of instant gas water heaters installed today do not have a standing pilot available during a power outage and would be just as likely to not function during a power outage event as a standard grid connected AC-pumped solar hot water system. However, solar hot water systems have been and are installed today with connections through either off-grid capable inverters or through standalone PV modules providing DC power, which add resiliency and stability during power outages.

Solar hot water systems are also able to store 80-120 gallons of hot water, enough for 24 hours of hot water use in the case of a power outage. Instant gas heaters do not have water tanks, thus customers are left without hot water for the duration of the outage.

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 1864 HD2 SD1 ***empowers*** the Department of Business, Economic Development, and Tourism to give consumers efficient and cost saving choices, protects consumer choice, and simultaneously brings the state closer to it’s goal of 100% RPS by 2045.

We **strongly urge the committee to support** of HB 1864 HD2 SD1.

Thank you for the opportunity to testify.

<sup>1</sup>Order No.32052, Docket No. 2012-0036, 16–29



# 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 Senate Committee on Transportation and Energy  
Wednesday, April 4, 2018, 1:30 PM, Conference Room 225  
HB1864 HD2 SD1: Relating to Renewable Energy Technologies

Chair Inouye, Vice-Chair Espero, and Members of the Committee:

Thank you for the opportunity for to testify in strong **support** for HB1864 HD2 SD1.

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.

Thank you for the opportunity to testify in strong **support** of HB1864 HD2 SD1.

Brian Kealoha  
Executive Director

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:05:04 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b>                     | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---|-------------------------------|-------------------------------|
| David Mulinix       | Testifying for Our<br>Revolution Hawaii | Support                       | No                            |

Comments:

I strongly support this HB1864.

Please pass HB 1864.

Mahalo,

Dave Mulinix

47-185-A Hui Akepa Place

Kaneohe, Hawai'i 96744

**HB-1864-HD-2**

Submitted on: 4/4/2018 7:44:04 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By       | Organization                         | Testifier Position | Present at Hearing |
|--------------------|--------------------------------------|--------------------|--------------------|
| Leslie Cole-Brooks | Testifying for DER Council of Hawaii | Support            | No                 |

Comments:



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



**SENATE COMMITTEE ON TRANSPORTATION AND ENERGY**

Wednesday, April 4, 2018 1:30PM Conference Room 225

**In SUPPORT of HB 1864 HD2** Relating to renewable energy technologies

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Aloha Chair Inouye, Vice Chair Espero and members of the Committee,

On behalf of our 20,000 members and supporters, the Sierra Club of Hawai'i **supports HB 1864 HD2**, which seeks to expand the income tax credit for renewable energy technologies to include ocean thermal conversion systems in addition to solar and wind renewable energy systems. This means that if ocean thermal conversion systems were installed (e.g., for air conditioning cooling purposes on a large building), the individual or corporation could claim a tax credit up to 35% of the cost of installation on their tax return the following year for projects not exceeding \$1.5 million.

Ocean thermal conversion systems, also known as "SeaWater Air Conditioning", provide an air cooling system that has a fraction of the energy footprint as conventional air conditioning systems<sup>1</sup>. These systems can demonstrate energy savings that approach 90%.<sup>1</sup>

Hawai'i Revised Statutes section 269-92 mandates a 100% renewable energy portfolio standard by year's end 2045. This means that the State must transition away from imported fuels and intend toward renewable sources, preferably local, to provide a source of secure, local energy. This measure broadens the playing field for individuals and corporations to shift to renewable energy alternatives to achieve this goal in part by contributing to the reduction of overall energy consumption.

Thank you very much for this opportunity to provide testimony on this important issue.

Mahalo,

Marti Townsend  
Director

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<sup>1</sup> <http://www.makai.com/pipelines/ac-pipelines/>



## Testimony to the Senate Committee on Transportation and Energy

Wednesday, April 4, 2018 1:30 p.m.  
Conference Room 225, State Capitol  
RE: House Bill 1864 HD2 SD1

Chair Inouye, Vice Chair Espero and Members of the Transportation and Energy Committee

Hawaii Gas **opposes** HB1864 HD2 SD1 and provides the following **comments**

### Proposed Bill

HB1864 HD2 SD1 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 currently allows for a demand water heater; however, the amendment proposes to add an additional requirement for a cost analysis, which is already in the statute in Section a (2).

### Summary of Position

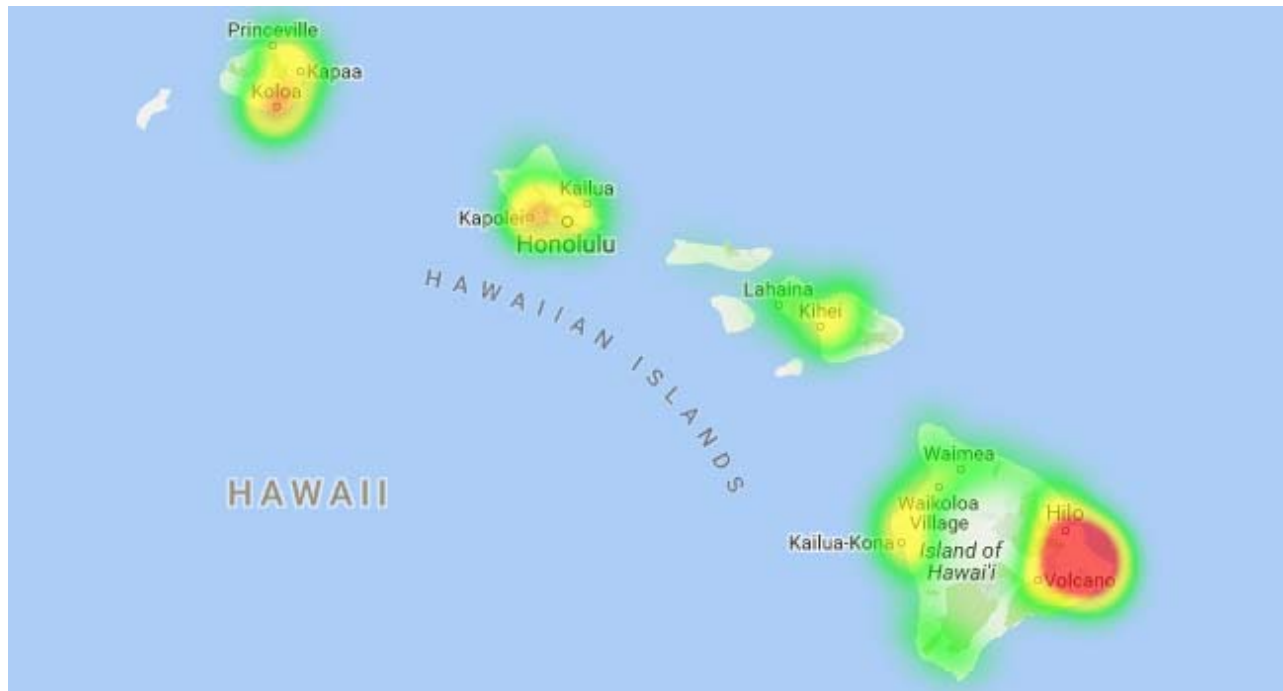
Hawaii Gas **opposes** the amendment in Section a (4). This places an additional administrative and financial burden on citizens who do not have access to the electric grid, specifically those living in rural areas of Kauai, Maui, the Big Island, Molokai and Lanai.

**DBEDT data for variances illustrates that mandate is working as intended with the majority of variances being granted in areas (such as East Hawaii) with poor solar resource and limited or no access to the electric grid.**

Proponents of placing added requirements for a demand water heater variance argue that they are closing a loophole, when in fact, based on figures obtained from the Hawai'i State Energy Office, two thirds of all variances granted since 2010 were for the Island of Hawaii, most notably East Hawaii. These homes are often remote and have many resource challenges, including lack of county water (use catchment tanks), poor solar resource (more rain/cloudy days and often dense tree coverage which can block direct sunlight), lack of access to the electric grid, or intermittent service from the electric grid. Gas-powered, instantaneous water heaters are often the only available water heating source. Solar water heating systems in these areas could provide only a fraction of a household's needs for part of the year, at best. When solar resource is intermittent or poor, and there is also no access to an electric grid, these occupants would have an additional barrier to obtain affordable, clean energy to heat their water. Analysis of the actual data from DBEDT demonstrably illustrates that the solar water mandate is working as intended.



The areas which have the most variances include some of the lowest income areas in the state. With examples of median household income in Koloa of \$47,404, and Pahoa of \$29,773 (contrasted by the Hawaii state median household income of \$83,823). Each of these areas represent the highest density of water heater variances throughout the state, as depicted below. (The red color indicates the areas where that have the highest density of water heater variances.)



“Heat Map” showing density of location of variance requests.

### **DBEDT’s cost analysis model is flawed with incorrect and outdated assumptions.**

In addition, the form for the cost analysis as required by DBEDT to administer this variance is flawed with dozens of incorrect and outdated assumptions. It does not allow for variable inputs to fairly assess the homeowner’s unique situation and completely ignores basic variables such as solar irradiance at a particular home.

### **Additional administrative burden creates barriers for affordable housing.**

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), restricting the variance option with additional administrative and financial burdens, as well as false barriers 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, typically \$800-\$2000. When solar water heater costs 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 significant motivator with roughly 96% being granted within USDA Rural Development Areas. These areas consist of some of the lowest income census tracts in the state.

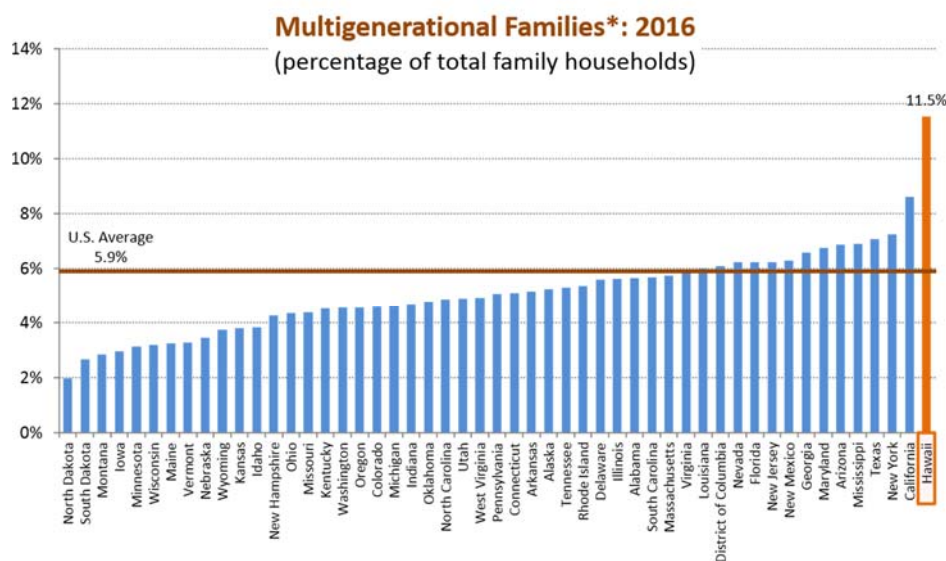
**Consumer choice is key when living in Hawaii given its remoteness, and having a diverse supply portfolio in the event of a natural disaster like Puerto Rico and Texas is part of survival.**

As technology continues to advance, legislators should not pick winners and losers. The freedom for homeowners to choose how they heat their water is especially important given Hawaii is so remote. It's important that Hawaii has a diverse supply portfolio as evidenced recently in Puerto Rico and Texas. Gas water heaters 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".



**Solar water heaters are not truly 100% renewable as they are connected to the grid which remains 70% fueled by oil and coal.**

Lastly, even 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 (See chart below), the system will be powered by the electric grid, often unbeknownst to the user. Those with solar water heating may have unanticipated increases in their consumption and electric bill. Currently, this electric usage is fueled by approximately 70% fossil fuel and is 65% less efficient (consumes 3 times more fuel) than alternative gas options.



Source: U.S. Census Bureau, 2016 American Community Survey 1-Year Estimates

**The solar water heater mandate requires thorough analysis of facts before implementing any amendments.**

Inserting an amendment on the solar water heater variance at this juncture requires more study and input from stakeholders due to the unintended consequences it may have, particularly on affordable housing. We urge you to review and analyze the variance data from DBEDT, understand the reasons for the requested variances, determine the impact (including economic) any changes will have on stakeholders, as well as provide a means of input from stakeholders on the unintended consequences before making any amendment affecting water heaters effective.

Thank you for the opportunity to testify on HB 1864 HD2 SD1.



April 3, 2018

Senator Lorraine R. Inouye, Chair  
Senator Will Espero, Vice Chair  
Senate Committee on Transportation and Energy

**Comments in Opposition to HB 1864, H.D. 2, Proposed S.D. 1, Relating to Solar Water Heaters; Energy Conservation; DBEDT**

**Wednesday, April 4, 2018, at 1:30 p.m., in Conference Room 225**

The Land Use Research Foundation of Hawaii (LURF) is a private, non-profit research and trade association whose members include major Hawaii landowners, developers and a utility company. LURF's mission is to advocate for reasonable, rational and equitable land use planning, legislation and regulations that encourage well-planned economic growth and development, while safeguarding Hawaii's significant natural and cultural resources, and public health and safety.

LURF appreciates the opportunity to provide comments in opposition to this measure.

**HB 1864, H.D. 2, Proposed S.D. 1.** This bill proposes to amend Hawaii Revised Statutes (HRS) Section 196-6.5, which requires a solar water heater system for new single-family residential construction except in certain cases where a variance is allowed. One such variance allows for installation of a demand water heater device; however, the proposed amendment requires the life cycle cost for the device be less than a solar water heater system based on analysis in subsection (a)(2).

**LURF's Position.** LURF acknowledges the intent of this and other/prior similar versions of renewable energy measures aimed at obliterating all alternatives to solar-powered appliances given what proponents consider to be the unquestionable virtue of solar energy coupled with what is erroneously perceived as exploit and greed on the part of developers and construction companies which elect to utilize alternatively powered systems in their projects, however, simply put, these misconceptions and reported justifications for the amendments proposed by this bill have **not** thus far been convincingly proven or supported by credible facts or evidence, particularly when balanced against other currently prioritized and significant challenges being faced by this State, including affordable housing.

**LURF's Opposition to HB 1864, H.D. 2, Proposed S.D. 1 is Premised on the Following Reasons and Considerations:**

**1. Disallowance of the Installation of Demand Water Heaters is Inconsistent with the Current Focus on and Prioritization of the Affordable Housing Crisis by the State and the City.**

As this Committee is well-aware, the unsustainable costs and onerous obligations now being cast upon developers by development requirements and standards are already of serious concern, as are the enactment of onerous regulations relating to the maintenance and operation of infrastructure, and development of educational facilities, all of which are proving to be potentially counterproductive to the State's long-term objective of creating more affordable housing.

LURF understands that rooftop solar heating systems constitute an expensive upfront investment cost compared to other water heating options, particularly in the affordable housing bracket since one of the greatest challenges for affordable housing buyers is mortgage qualification.

Attempting to keep projects viable and in line with affordable housing mandates, developers are offering potential home buyers efficient and cost-saving appliance alternatives such as demand water heaters, however, by doing so, are being unfairly and unjustifiably characterized as a subverted effort to utilize a loophole in the law to reduce their upfront costs, leaving buyers with higher energy bills. These types of unfounded allegations are improperly being relied upon as justification for proposed legislation such as the subject bill and amendment.

**2. Credible Facts are Required to Support the Alleged Need for this Unwarranted Legislation.**

LURF's position is that proponents of this measure have failed to credibly present material facts or evidence to prove that the current variance application process is specious or that this proposed amendment is in fact necessary to close an alleged "loophole." The intent and application of HB 1864, H.D. 2, Proposed S.D. 1 is thus arguably unreasonable and unwarranted.

Prior to enacting unnecessary legislation which could potentially conflict with efforts currently being made to address the current affordable housing crisis, LURF believes that it may be advisable and prudent for this Committee to require support for this measure in the form of material facts and/or credible studies which would prove allegations being made by bill proponents. Such inquiry should include, for example, installation cost and future savings comparisons (i.e., upfront vs. sustained costs) between solar and other alternative energy systems; and whether the current solar water heater mandate is working as intended or is in fact being averted to determine whether claims being made by proponents in fact support the alleged need for the amendment to HRS Section 196-6.5.

### **3. Installation of Demand Water Heater Devices is Supported by a Myriad of Practical Reasons and Considerations.**

LURF understands that there are also a number of other judicious, practical reasons to take into consideration to maintain demand water heaters as an approved alternative to solar systems for single-family homes in Hawaii:

- a. Alternatives Necessary to Drive Competitive Market Prices –** Alternative design/construction products and systems drive price competition in the marketplace, which is key to construction affordability. If only solar hot water systems were allowed, the cost of solar systems would undoubtedly rise.
- b. Efficient Suite of Appliances –** Demand water heaters are part of a larger suite of appliances powered by gas, clothes dryers, kitchen ranges/ovens and outdoor lanai appliance hook-ups. Single family home developers may offer this type of suite of products to create an economy of scale in savings to the homeowner.
- c. Use of Appliance during Power Outages –** Unlike electric appliances, gas-powered appliances can all be used during power outages minimizing disruption to daily living functions.
- d. On Demand Cost Only –** Demand water heaters heat water on demand, day or night, so homeowners only pay for the hot water used, not the hot water needed to be stored in a tank.
- e. Rooftop Real Estate –** Affordable and workforce housing demand efficient home floor plans with compact roof designs. Available rooftop space is often limited once required plumbing vents and attic vents are installed. Size 4'x8' solar hot water panels (1 to 2 panels per home depending on size) demand prime rooftop surfaces for optimum efficiency, taking up valuable rooftop space that could otherwise be used for photovoltaic panels. Demand water heaters are wall mounted, yielding maximum rooftop real estate for homeowners seeking net zero PV systems.
- f. Garage Real Estate –** Solar hot water tanks are typically located within the garage of a home, taking up space that could be otherwise used for needed storage space. If located within the home, solar tanks take up prime living space.
- g. Maintenance –** Demand water heaters have a lower maintenance and replacement cost.
- h. Value to Community –** Main gas lines supplying residential homes create a valuable infrastructure that services neighborhood commercial, restaurants and mixed used developments, bringing heightened value to the community.

- i. **Hot Water Tank Increased Requirements** – Over the past several years, an increase in hot water tank requirements such as expansion tanks, seismic strapping and bollard/wheel stops, are ultimately resulting in the increased cost of a home.

**4. Compliance with the Requirements Included in this Measure Would be Confusing and Unreasonable.**

The new provision added to HRS Section 196-6.5 (a)(4) in this H.D. version of the bill requiring attestation by a licensed architect or mechanical engineer that the life cycle cost for the demand water heater device is less than a solar water heater system based on a cost-benefit analysis (as required in subsection (a)(2)) is confusing and unreasonable. Does said added provision now require that two cost-benefit analyses be conducted for installation of a demand water heater device? What is the purpose of unreasonably requiring two cost-benefit analyses in such a situation other than increasing costs, causing delays and placing an undue burden on the developer/builder?

If the new provision was included to make clear that attestation of such an analysis is required when a demand water heater device is installed in lieu of the attestation of cost-benefit analysis pursuant to subsection (a)(2), further clarifying language must necessarily be included in this amendment.

**Conclusion.** LURF's position is that proponents of this measure have failed to credibly present any material facts or circumstances to prove that this proposed legislation is in fact necessary. The intent and application of this bill thus arguably remain unreasonable and unwarranted. LURF therefore believes it would be irresponsible for this Committee to agree to support this bill which may potentially stifle current efforts by the State and the City to address and work through the affordable housing crisis, and in turn, impact the overall economy, without thorough review and analysis of all the facts and information relating to the proposed amendment, as well as its potential consequences.

In view of the above discussion, LURF must **oppose HB 1864, H.D. 2, Proposed S.D. 1**, and respectfully requests that this bill be held in this Committee.

Thank you for the opportunity to provide comments relating to this measure.

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:29:03 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By   | Organization  | Testifier Position | Present at Hearing |
|----------------|---|--------------------|--------------------|
| Alan B Burdick | Testifying for Environmental Caucus of Democratic Party of Hawaii | Support            | No                 |

## Comments:

The Environmental Caucus of the Democratic Party of Hawaii supports provisions in this bill that would require developers to install solar hot water heaters in new housing and to stop circumventing current requirements that they do so.



**HB-1864-HD-2**

Submitted on: 4/3/2018 5:29:35 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By  | Organization  | Testifier Position | Present at Hearing |
|---------------|---|--------------------|--------------------|
| Melodie Aduja | Testifying for Oahu County Committee on Legislative Priorities of the Democratic Party of Hawai'i | Support            | No                 |

Comments:



Dear Chair Inouye, Vice Chair Espero, and members of the Committee

On behalf of our members, we testify in strong support of HB 1864 HD2 SD1. We thank you for offering the proposed SD 1 with the inclusion of language closing solar water heater variance loophole. When the solar water heater law was originally conceived the intent of the natural gas variance was for only a few applicants apply for such an exemption. However, there have been thousands of new homes that have been constructed since then without renewable water heating.

In almost all cases the investment in solar water heaters will reduce the utility costs to homeowners and the cheapest time to add solar water heaters is during construction. In addition the language in this bill allows for the rare case where it is less cost effective to have solar water heating.

Passing this bill would be consistent with Hawaii's 2045 100% renewable energy goals and is the right thing to do for future generations.

Thank you for allowing us to testify.

Cameron Sato

Co-Founder, Chapter Co-Chair

Young Progressives Demanding Action

**HB-1864-HD-2**

Submitted on: 4/4/2018 11:57:52 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization                                     | Testifier Position | Present at Hearing |
|--------------|--|--------------------|--------------------|
| Travis Idol  | Testifying for Hawaii Interfaith Power and Light | Support            | No                 |

## Comments:

This bill is an important fix for a variance to the solar hot water heating requirement for new residential structures. Variances are being granted almost without exception, which violates the spirit of the original law. It is unfortunate that the state cannot properly evaluate requests and enforce the law as written, but that has made it necessary for this bill to fix it. As a faith-based organization that believes we have a moral responsibility to address the challenges of climate change, Hawaii Interfaith Power and Light strongly supports this bill and urges you to do so, as well.

Aloha,

Travis Idol, President  
Hawaii Interfaith Power and Light



**HB-1864-HD-2**

Submitted on: 4/3/2018 5:31:36 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Sarah Toole  | Individual   | Support            | No                 |

Comments:

My name is Sarah Toole, my address is 1128 Ala Napunani St. 96818, and I am a political science student at UH Manoa.

I support this bill.

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:29:08 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Karen M Kimbrell    | Individual          | Support                       | No                            |

Comments:

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:29:38 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By   | Organization | Testifier Position | Present at Hearing |
|----------------|--------------|--------------------|--------------------|
| Maxine Burkett | Individual   | Support            | No                 |

Comments:

I am on \*strong\* support.

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:30:09 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Sierra Dew          | Individual          | Support                       | No                            |

Comments:

I strongly support this bill.

-Sierra Dew

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:34:24 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| John Nix            | Individual          | Support                       | No                            |

Comments:

Aloha,

We strongly support HB1864 HD2 SD1.

Mahalo,

Dr. John and Debra Nix, Kihei, HI



**HB-1864-HD-2**

Submitted on: 4/3/2018 8:35:42 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

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

Comments:

Hello,

My name is Nanea Lo and I'm a lifelong resident of Hawai'i and I am writing to submit in STRONG SUPPORT of this bill.

Thank you,

Nanea Lo

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:36:16 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Kathy Shimata       | Individual          | Support                       | No                            |

Comments:

We are perfectly positioned to reap the benefits of solar energy. Close the loophole allowing LNG water heaters.

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:43:08 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

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

Comments:

Very strong support

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:43:24 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

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

## Comments:

I support this bill strongly and if it wasn't for Hawaiian Gas who made false claims that defeated the previous bill!.

HB1864 HD2 SD1 provides a new opportunity to fix the solar water heater variance abuse problem we've been fighting. This bill now provides necessary language to make it harder for developers to put in water heaters using fracked LNG instead of solar water heaters in places like the Ewa Plain as they are now doing.

HB1864 HD2 SD1 fixes the problems of the present bill and will lead to less abuse by builders and see more solar waterheaters being installed.

Please support this bill!

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:58:11 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Janet Graham        | Individual          | Support                       | No                            |

Comments:

Thank you for allowing me to testify in support of this bill. Simply put, I strongly support this bill because it brings together a number of important ways to protect the aina and address climate justice.

**HB-1864-HD-2**

Submitted on: 4/3/2018 8:58:19 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b>  | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|----------------------|---------------------|-------------------------------|-------------------------------|
| Carolynn Bell-Tuttle | Individual          | Support                       | No                            |

Comments:

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:01:45 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By   | Organization | Testifier Position | Present at Hearing |
|----------------|--------------|--------------------|--------------------|
| Jonathan Boyne | Individual   | Support            | No                 |

Comments:

I strongly support HB1864 HD2.

HB1864 HD2 SD1 provides a new opportunity to fix the solar water heater variance abuse problem we've been fighting. This bill now provides necessary language to make it harder for developers to put in water heaters using fracked LNG instead of solar water heaters in places like the Ewa Plain as they are now doing.

Our previous bill that attempted to do this was killed when Hawaii Gas provided false information to the public that lead to a flood of opposition testimony.

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:04:55 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Andrea Nandoskar    | Individual          | Support                       | No                            |

Comments:

Strongly Support!



**HB-1864-HD-2**

Submitted on: 4/3/2018 9:06:30 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Ann Marie Kirk      | Individual          | Support                       | No                            |

Comments:

Aloha,

I STRONGLY SUPPORT HB 1864 HD2 SD1.

Mahalo,

Ann Marie Kirk

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:07:06 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Lynn Aaberg         | Individual          | Support                       | No                            |

Comments:

Strong support! This has the necessary language to prevent using fracked gas! More solar. Hawaii should be THE LEADER in clean, renewable energy!

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:07:58 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

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

Comments:

STRONG Support

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:10:37 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Mary Hackney, RN    | Individual          | Support                       | No                            |

Comments:

I strongly support HB1864.

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:14:22 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Debra Rosenthal     | Individual          | Support                       | No                            |

Comments:

Strongly support. Solar and renewables are our best future. Mahalo.

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:20:27 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b>     | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|-------------------------|---------------------|-------------------------------|-------------------------------|
| Eric Micha'el Leventhal | Individual          | Support                       | No                            |

Comments:

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:44:26 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Nandita Sharma      | Individual          | Support                       | No                            |

Comments:

I strongly support this bill, with its 11th hour amendment providing the necessary language to make it harder for developers to put in water heaters using fracked LNG instead of solar water heaters in places like the Ewa Plain.

Sincerely,

Nandita Sharma,

Associate Professor of Sociology  
University of Hawaii at Manoa

**HB-1864-HD-2**

Submitted on: 4/3/2018 9:51:03 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| B.A. McClintock     | Individual          | Support                       | No                            |

Comments:

Strong support for our environment. Please stop the LNG misinformation. Please support this important bill.



**HB-1864-HD-2**

Submitted on: 4/3/2018 9:56:05 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Ted Bohlen   | Individual   | Support            | No                 |

Comments:

Please support a version of the bill that requires solar pv water heaters, and reject those allowing use of natural gas or other fossil fuel powered ones that contribute to climate change.

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:04:58 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By  | Organization | Testifier<br>Position | Present at<br>Hearing |
|---------------|--------------|-----------------------|-----------------------|
| JULIA FUJIOKA | Individual   | Support               | No                    |

Comments:

STRONG SUPPORT!!!

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:13:20 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Kate Thompson       | Individual          | Support                       | No                            |

Comments:

Let's stay focused on solar. It is right thing to do for the future of Hawaii's people and environment.

Refuse imported LNG,

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:14:03 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| tia pearson         | Individual          | Support                       | No                            |

Comments:

Last time Hawaii Gas provided false information to the public that lead to a flood of opposition testimony.

Again, I am in strong support of this bill

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:15:22 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By                 | Organization | Testifier Position | Present at Hearing |
|------------------------------|--------------|--------------------|--------------------|
| Dawn Morais Webster<br>Ph.D. | Individual   | Support            | No                 |

Comments:

This bill makes it harder for developers to put in water heaters using fracked LNG instead of solar water heaters in places like the Ewa Plain as they are now doing. We should be supporting and encouraging renewable energy use, not fossil fuels.

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:16:08 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By  | Organization | Testifier Position | Present at Hearing |
|---------------|--------------|--------------------|--------------------|
| Beth Anderson | Individual   | Support            | No                 |

## Comments:

I urge strong **support for House Bill 1864**. Hawaii should be passing bills that work toward the goal of 100% renewables. We shouldn't be using technology that relies on dirty energy sources.

I am opposed to LNG water heaters because obtaining LNG involves fracking. Fracking is destroying the environment and water tables—LNG obtained from fracking is a dirty energy and bad for our planet. I support this legislation because we should be using solar water heaters in Hawaii, which are more cost effective for the consumer and good for the environment, and operate by using renewable energy. Any new construction should require putting solar water heaters and solar panels in to produce electrical power and heating water.

Thank you for considering my support for HB 1864

Aloha,

Beth Anderson

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:22:11 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Eric Schrager       | Individual          | Support                       | No                            |

Comments:

Aloha!

I Strongly Support HB1864 because I feel it is important to quickly move to real renewable energy sources (solar) and not try to fool ourselves (or others) into thinking that natural gas is a "clean" alternative energy source. It certainly is not an must be considered just as much a fossil fuel as oil.

Please vote yes on this important bill!

Thank You!

Eric Schrager

Ewa Beach

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:28:23 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Stacey Schrager     | Individual          | Support                       | No                            |

Comments:

Aloha!

I strongly support HB1864! We have to REALLY end our reliance on fossil fuels including natural gas. In the past there have been attempts to portray natural gas as a "cleaner" fuel. It is not. Fracking poses an existential threat to our planet. We must move to SOLAR now!

Thank You!

Stacey Schrager



**HB-1864-HD-2**

Submitted on: 4/3/2018 10:33:48 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Elizabeth O'Connor  | Individual          | Support                       | No                            |

Comments:

I strongly support this Bill 1864 HD 2

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:50:50 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Dana Jenkins        | Individual          | Support                       | No                            |

Comments:

Please support this bill. Fracking is dangerous to the environment. Solar is cleaner and safer to use. I support solar energy. I don't want LNG as a part of this state's clean energy efforts.

**HB-1864-HD-2**

Submitted on: 4/3/2018 10:52:26 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By     | Organization | Testifier Position | Present at Hearing |
|------------------|--------------|--------------------|--------------------|
| Christopher Dean | Individual   | Support            | No                 |

## Comments:

Natural gas is actually WORSE than coal. Methane is released into the atmosphere during hydrolic fracturing, a much more potent greenhouse gas. Fracking is poisoning America's ground water. Fracking is causing earthquakes. Burning "natural" gas is putting carbon in the atmosphere. Hawaii is losing it's beaches already. If money is what you care about, then you better be alarmed about sea level rise. No tourist is going to come here to see a dead coral reef and a beach of mud and broken concrete and rebar. Home solar is the only way forward. Individual solar doesn't consume land. Individual solar is immune to grid failure. If everyone was encouraged to generate as much energy as they possibly could, we could use that energy to make hydrogen to sell around the Pacific rim. We could be a net exporter in a commodity that is only going up in value. You know how to make money in a capital economy? Get out in front, inovate. You know how to lose and go broke? Cling to the old way, refuse to change, it's adapt or die. Requiring contractors to use solar hot water is doing everyone a favor, even if those people who oppose this bill are too short sighted to see it.

**HB-1864-HD-2**

Submitted on: 4/3/2018 11:10:13 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Michael Golojuch Jr | Individual          | Support                       | No                            |

Comments:

**HB-1864-HD-2**

Submitted on: 4/3/2018 11:19:34 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Ronald Yasuda       | Individual          | Support                       | No                            |

Comments:

**HB-1864-HD-2**

Submitted on: 4/3/2018 11:52:32 PM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Kim Duffett  | Individual   | Support            | No                 |

## Comments:

I wish to submit my strong support for this bill to provide a new opportunity to fix the solar water heater variance. Hawaii is moving toward a self sustaining independent power grid that is environmentally friendly. Allowing for the use of LNG heaters that use gas obtained through fracking imported from the mainland is continuing to promote a fossil fuel transported using fossil fuels that create a chain of dependency on dirty energy. We need to support the use of solar water heaters and require developers on the islands to use them.

Sincerely, Kim Duffett, a voting resident of Kaimuki, Honolulu, Hawai'i

**HB-1864-HD-2**

Submitted on: 4/4/2018 12:05:18 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| R. Kinslow   | Individual   | Support            | No                 |

Comments:

Submitted by Rob Kinslow,

While OTEC has been state of the art for some years, capital & operational costs to scale and an economic incentive to capitalize on firm steady demand from a city such as Honolulu, and other considerations have hobbled building such a system here.

As a systems engineer, with an expertise in sustainable design, do not support a focus on OTEC for Honolulu. As our islands renewable power planning & development is seemingly proceeding in a hodge-podge manner due to economic and political headwinds, I ponder the disruptive effects- of locally produced power elements, such as micro-grids, the rapidly diminishing costs of alternatives, the ability to both purchase, sell and distribute renewable energy across the internet, through-out neighborhoods, and a shift from utility scale to customer scales- on these well laid lagging indicators called investment capital tax credits?

I do support developing the technology for export to a compatible location by demonstrating it at scale as a way to incentivize ocean energy technology development in Honolulu. The principal investigators, scientists, consultants and businesses who have put so much of their lives on the line in support of OTEC over the years, will be bolstered by this addition to current tech investment tax credits. In the long run, we shall see whether OTEC is going to survive in Honolulu?

Yet, I firmly support mandating solar water heaters for use in all state funded housing projects as well as **new single-family residential construction**. The amendment to mandate solar water heaters should be passed.

Thank you for your kind consideration of these perspectives,

**HB-1864-HD-2**

Submitted on: 4/4/2018 6:43:36 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Sylvia Ching        | Individual          | Support                       | No                            |

Comments:



**HB-1864-HD-2**

Submitted on: 4/4/2018 7:20:46 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier<br>Position | Present at<br>Hearing |
|--------------|--------------|-----------------------|-----------------------|
| Lois Crozer  | Individual   | Support               | No                    |

Comments:

**HB-1864-HD-2**

Submitted on: 4/4/2018 7:22:26 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Stuart Coleman      | Individual          | Support                       | No                            |

Comments:

I strongly support this bill and hope you will too.

Aloha, Stuart Coleman

2927 Hibiscus Pl., Hon., HI. 96815

**HB-1864-HD-2**

Submitted on: 4/4/2018 8:03:47 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| John NAYLOR         | Individual          | Support                       | No                            |

Comments:

Strong Support for Solar ! No fracking in Hawaii means No fracked "Natural" gas!

**HB-1864-HD-2**

Submitted on: 4/4/2018 8:37:30 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By     | Organization | Testifier Position | Present at Hearing |
|------------------|--------------|--------------------|--------------------|
| Severine Busquet | Individual   | Support            | No                 |

Comments:

Hi

HB1864 HD2 SD1 supports renewable energy development and especially would help to make it harder for developers to put in water heaters using fracked LNG instead of solar water heaters. For these reasons I strongly support this bil.

Thanks for your considerations

Severine Busquet

Hawaii Kai

**HB-1864-HD-2**

Submitted on: 4/4/2018 8:45:05 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier<br/>Position</b> | <b>Present at<br/>Hearing</b> |
|---------------------|---------------------|-------------------------------|-------------------------------|
| Anne Lorenzo        | Individual          | Support                       | No                            |

Comments:

**HB-1864-HD-2**

Submitted on: 4/4/2018 9:08:32 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Randy Ching  | Individual   | Support            | No                 |

Comments:

Chair Inouye, Vice Chair Espero and members of the committee,

I am in strong support of HB1864 HD2 proposed SD1. Please pass this bill and make gas water heater variances more difficult to obtain. Solar hot water should always be the default.

Mahalo for the opportunity to testify.

Randy Ching / Honolulu



**HB-1864-HD-2**

Submitted on: 4/4/2018 9:44:27 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By    | Organization | Testifier Position | Present at Hearing |
|-----------------|--------------|--------------------|--------------------|
| Nancy Davlantes | Individual   | Support            | No                 |

Comments:

Strong support for this bill



**HB-1864-HD-2**

Submitted on: 4/4/2018 9:45:00 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Joan Gannon  | Individual   | Support            | No                 |

Comments:





**HB-1864-HD-2**

Submitted on: 4/4/2018 10:31:03 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Alan Ewell   | Individual   | Support            | No                 |

## Comments:

I strongly support this bill. We need more clean renewable eneergy, not more expensive LPG from environmentally destructive fracked gas wells.



**HB-1864-HD-2**

Submitted on: 4/4/2018 10:40:47 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By  | Organization | Testifier Position | Present at Hearing |
|---------------|--------------|--------------------|--------------------|
| Roberta Baker | Individual   | Support            | No                 |

Comments:

Strongly support this bill. Please make solar water heating necessary for all new building.



**HB-1864-HD-2**

Submitted on: 4/4/2018 10:54:03 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By  | Organization | Testifier Position | Present at Hearing |
|---------------|--------------|--------------------|--------------------|
| Robin Gregory | Individual   | Support            | No                 |

## Comments:

Please don't allow dirty fracking oil to power the water heaters in the new Ewa housing area. Let's keep Hawaii moving toward cleaner alternatives such as solar. Solar water heaters are best for Hawaii. We have the sun. We don't need to import dirty fracking oil into our State. Mahalo for your consideration! Robin R. Gregory



**HB-1864-HD-2**

Submitted on: 4/4/2018 10:59:27 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Andrea Anixt | Individual   | Support            | No                 |

Comments:

STRONGLY SUPPORT.



**HB-1864-HD-2**

Submitted on: 4/4/2018 11:25:41 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By | Organization | Testifier Position | Present at Hearing |
|--------------|--------------|--------------------|--------------------|
| Dave Kisor   | Individual   | Support            | No                 |

## Comments:

I support the use of solar water heaters and oppose anything fracked. Industrial hemp fields would be much better all around, as it doesn't require fracking, no pipelines required and it grows anywhere. A hemp spill wouldn't be an environmental disaster as would be a spill of LNG. Besides, that stuff is far too dangerous.



**HB-1864-HD-2**

Submitted on: 4/4/2018 11:28:57 AM

Testimony for TRE on 4/4/2018 1:30:00 PM

| Submitted By  | Organization | Testifier Position | Present at Hearing |
|---------------|--------------|--------------------|--------------------|
| Sandra Fujita | Individual   | Support            | No                 |

Comments:

I strongly support HB1864.

