

SB 2111

Measure Title: RELATING TO ENERGY RESOURCES.

Report Title: Kauai County Package; Solar Water Heater Variance Requirements

Description: Requires duplexes to include a solar water heater system when applying for a building permit. Clarifies gas variance requirements to apply only to the ultimate occupant of the dwelling unit.



Hawaii Solar Energy Association
Serving Hawaii Since 1977

Before the Senate Committee on Energy and Environment and the Committee on Public Safety,
Intergovernmental and Military Affairs
Thursday, January 30, 2014, 2:50 p.m., Room 225
SB 2111: Relating to Energy Resources

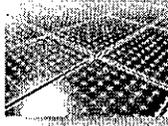
Aloha Chair Gabbard, Vice-Chair Ruderman, Chair Espero, Vice-Chair Baker and members of
the Senate Committees on Energy and Environment and Public Safety, Intergovernmental and
Military Affairs,

On behalf of the Hawaii Solar Energy Association (HSEA), I would like to testify in support for
SB 2111, requires duplexes to include a solar water heater system when applying for a building
permit, and clarifies that gas variance requirements are to apply only to the ultimate occupant of
the dwelling unit. HSEA is a non-profit trade organization that has been advocating for solar
energy since 1977, with an emphasis on residential distributed generation and commercial for
both solar hot water (SHW) and photovoltaics (PV). We currently represent 79 companies, and
our members include installers, contractors, manufacturers, distributors, the utility, and others.
With 37 years of advocacy behind us, HSEA's goal is to work for a sustainable energy future for
all of Hawaii.

Solar hot water heaters have proven to be beneficial in a number of ways. First, for the average
electric bill, 30-35% of the bill goes to pay for the heating of water, and for a family of three or
more the payback for the solar hot water heater is approximately 2 years, depending upon use.
After that, the owner pays nothing to heat water as the solar hot water heater will continue to
work for years to come. In addition, solar hot water does not need grid access as it does not
produce electricity and therefore can be installed without waits or costly upgrade costs. The cost
savings is especially true for those living in duplexes, who might find paying their rising and
unpredictable electric bill especially onerous.

In addition, the language in SB 2111 clarifies how an exemption may be applied for. As the bill
currently stands, the developer may apply for an exemption through an architect or mechanical
engineer who can attest that the installation is impracticable due to poor solar resource or for a
tank-less gas water heater. The problem with the gas variance is that once installed, the resident
will continue to rely upon fossil fuels to heat water, with no payback period at all. Also, if the
resident chooses to change the gas water heater to a solar water heater, the change is costly and
would probably be prohibitive for most residents. HSEA therefore supports the additional
provision in SB 2111 that states that it is the party who will ultimately control the energy
consumption cost who will request the variance, if at all.

Thank you for the opportunity to testify
Leslie Cole-Brooks
Executive Director, HSEA



**SENATE COMMITTEE ON ENERGY AND ENVIRONMENT
SENATE COMMITTEE ON PUBLIC SAFETY,
INTERGOVERNMENTAL AND MILITARY AFFAIRS**

January 30, 2014, 2:50 P.M.

Room 225

(Testimony is 3 pages long)

TESTIMONY IN SUPPORT OF SB 2111

Chairs Gabbard and Espero members of the committees:

The Blue Planet Foundation supports SB 2111, a measure making amendments to Hawaii's historic Solar Roofs Act, with the primary amendments extending the solar requirement to duplex houses and providing clarifying guidance on when variances should be accepted. We support these changes which we believe will provide needed guidance on when a variance to allow a non-solar water heater should be granted.

Blue Planet believes that the variance option should only be exercised in rare circumstances where solar doesn't make sense or is not cost effective. **Therefore, we respectfully request that SB 2111 be amended to allow a variance for gas water heating only if the home has poor solar resource and solar would fail the cost-effectiveness test.** Gas would be an option only if solar is deemed impractical or not cost-effective. *A proposed amendment is provided at the end of this testimony.*

The 2008 Solar Roofs Act, Act 204, was a critical step forward toward Hawaii's clean energy future as it ensures that nearly every new home will be equipped with a solar water heater. Since taking effect in 2010, the law has over doubled the percentage of new homes being built with solar water heaters. While Blue Planet strongly supports the existing law, we believe that it could be significantly improved.

Unfortunately, far too many homes are being built with gas water heaters. Blue Planet Foundation analyzed the variance request information tracked by the Energy Resources Coordinator. Between the time the law took effect in January, 2010, and the beginning of February, 2013, a total of 1420 variances from the solar water requirement have been sought.

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- Of the 1420 variance applications, over 99% (1408) have been approved. The majority of those denied were due to incomplete applications. Three requests were cancelled.
- Three architects were responsible for over 50% (710) of the total variances requested.
- One architect, Robert Smelker, alone was responsible for over 38% (541) of the variances requested. He was only denied once (incomplete application).
- Over two-thirds (947) of the total variances were requested on Hawaii Island.
- Of those variances granted, over 95% were for gas heaters, 3% had another renewable energy device, and about 1% were deemed “impractical” for solar.

The history of variance granting by the State Energy Resources Coordinator suggests that the intent behind the Solar Roofs policy is being frustrated. In clarifying amendments in 2009 (HB 1464 CD1), the legislature was unambiguous about the original policy’s intent:

It is the intent of the legislature that the variance s provided for in Act 204, Session Laws of Hawaii 2008, (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.

Further, the developer is often installing the gas heaters without the knowledge of the preferences of the ultimate homeowner. The amendments proposed in SB 2111 will extend the solar roof requirement to duplexes as well as ensure greater accountability in the variance process currently in place.

Solar water heating is a foundation block in building Hawaii’s clean energy future. A solar water system is the most basic renewable energy device to harness the clean energy from the sun. The technology is mature, tested, and works (the Romans, in fact, used solar energy to heat the water flowing to baths in aqueducts). Solar water heaters provide the greatest energy savings per dollar for reducing substantial residential energy demand. The Solar Roofs Act ensures that the vast majority of new homes come equipped with this clean energy device, and helps to smooth the transition toward zero-energy homes of the future.

Solar water heating is the single best “clean” energy alternative for residences in Hawai’i. The Solar Roofs law increases the efficiency and affordability of new homes built in Hawai’i. Solar water heaters are among the most effective means of reducing the high electricity cost burden that residents now endure. The solar roofs bill makes the cost of living more affordable by slashing the electric utility bill of an average new home by 30 to 40 percent—saving upwards of \$1000 annually for an average household statewide.

With average household use, most solar water heaters will pay for themselves in energy savings between 3 and 7 years. When systems are built into a home during construction—and when many systems are installed simultaneously in a larger subdivision and economies of scale are realized—solar water heaters are less expensive than an electric heater retrofit. When rolled into a 30-year mortgage, homeowners with solar will start saving money on day one. Even with other financing schemes, solar is a no-brainer investment that brings down the monthly cost of living. If current trends continue, the cost of residential electricity will continue to grow, making electric water heating even more expensive—and solar water heating more of a “no-brainer.”

The cost of living is a top-of-mind issue for many in Hawai'i. The Solar Roofs law makes new home ownership more affordable by reducing the monthly utility burden. The amendments in SB 2111 ensure that the more benefit from the solar requirement and transfers the decision to exempt developers or homeowners from this requirement to the county building permit departments.

Thank you for the opportunity to testify.

SUGGESTED AMENDMENT

§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 or duplex 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~~] Applications for the following variances shall only be accepted if submitted by an architect or mechanical engineer licensed under chapter 464, who attests 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) 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 and the first or second variances in subsection (a) (1) and (a) (2) of this section are met. 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.



Thursday, January 30, 2014 at 2:50 p.m.
State Capitol, Conference Room 325
COMMITTEE ON ENERGY AND ENVIRONMENT (ENE)

Testimony in Opposition of SB2111

Chair Gabbard, Vice Chair Ruderman, Members of the Senate Committee on Energy and Environment, my name is Joe Boivin and I am the Senior Vice President for Public Affairs and Communications at Hawaii Gas testifying in opposition to SB2111.

Hawaii Gas is a critical part of Hawaii's energy environment providing the cleanest and lowest-cost source of firm energy for water heating, cooking, drying and other uses to nearly 70,000 residential and commercial customers throughout the state.

Hawaii Gas opposes SB2111 for the following reasons and recommends no changes be made to Hawaii Revised Statutes (HRS) §196-6.5.

- **This Bill unfairly mandates that residential construction companies install solar hot water systems when they may not be the best water heating option.** The amount of sunny days available to heat hot water varies across the state. Home builders should have the choice to install system that is best suited to that home's location.
- **This Bill limits choice and puts an unnecessary burden on the consumer.**
- **This Bill is not solving a significant problem.** Only about 1/4th of new homes built each year apply for the variance.¹

Residential on demand gas water heaters, ranges and dryers provide Hawai'i families with the cleanest, most reliable and cost-effective source of energy available and should be encouraged as an effective energy solution in our homes.

Thank you.

¹ In 2012 approximately 1,700 building permits for single family homes and duplexes were issued, and only 463 solar water heater variances were granted.

SB2111

Submitted on: 1/28/2014

Testimony for ENE/PSM on Jan 30, 2014 14:50PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Ed Wagner	Individual	Comments Only	No

Comments: Does this bill exclude the use of heat pump hot water heaters as an alternative to using solar? What if the home has a PV system that runs the heat pump?

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January 29, 2014

**TESTIMONY OF JOANN A. YUKIMURA
COUNCILMEMBER, KAUAI COUNTY COUNCIL
ON**

**SB 2111, RELATING TO ENERGY RESOURCES
Committee on Energy and Environment
Committee on Public Safety, Intergovernmental & Military Affairs
Thursday, January 30, 2014
2:50 p.m.
Conference Room 225**

Dear Chair Gabbard, Chair Espero, and Committee Members:

Thank you for this opportunity to submit my comments supporting SB 2111, which seeks to amend Act 204, SLH 2008, which instituted the State mandate requiring solar water heaters for all new single family construction. My testimony is submitted in my capacity as a councilmember of the Kaua'i County Council.

SB 2111 was part of the 2013 Kaua'i County Legislative Package. It requires variance applications to be based on consumer choice and energy efficiency rather than an outright allowance of on demand gas as an alternative which is the status quo. This is in accordance with the Hawai'i Clean Energy Initiative Act.

Solar water heating is the most efficient and cost effective way to provide energy for a major household need, hot water. At least forty to fifty percent more efficient than photovoltaic energy for heating water, solar water heaters can reduce a household energy budget by approximately thirty percent. After the initial investment is paid off, a solar water heater can save a family roughly fifteen thousand dollars (\$15,000) over its life. A variance to the requirement of a solar water heater should be a rare event granted only where circumstances (e.g. low sunlight in a location deep in the valley) can be demonstrated that the lifecycle cost of solar water heating is too onerous, but this is not so under the existing law.

Statistics show that under the existing law, variances are being granted in large numbers, and that the provision allowing on-demand gas is being used as a loophole (See attached statistics on variances granted since Act 204, SLH 2008 was passed). SB 2111 modifies the existing law to make the on-demand gas variance function more properly as a variance while continuing to support energy independence and consumer choice.

Senator Mike Gabbard & Committee Members
Senator Will Espero & Committee Members
RE: SB 2111 Relating to Energy Resources
January 29, 2014
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This proposed bill correctly aligns the intent of Act 204, SLH 2008; however, in the event that the Committee chooses not to support the bill, please amend SB 2111 to restore tax credits for solar water heaters on new single family construction. Present law disallows tax credits for solar water heaters on new construction. The tax credits were withdrawn when Act 204 was enacted based on the assumption that Act 204 was creating a mandate. The variance statistics show that Act 204 is not acting as a mandate; therefore tax credits which are allowed for solar water heater installation on existing houses should also be available for new construction.

Again, thank you for this opportunity to offer my comments on this subject matter.

Sincerely,



JOANN A. YUKIMURA
Councilmember, Kaua'i County Council

AB:cy
Attachment

**Solar Water Heating Variance Statistics
Single Family, New Construction
as of July 31, 2013**

2010	Kaua'i	O'ahu	Maui	Hawai'i
Number of Solar Water Variances	93	51	7	302
Total Permits Issued*	147	816	215	640
Percent Requesting Variance	63.27%	6.25%	3.26%	47.19%

2011	Kaua'i	O'ahu	Maui	Hawai'i
Number of Solar Water Variances	70	37	36	301
Total Permits Issued*	100	687	204	584
Percent Requesting Variance	70.00%	5.39%	17.65%	51.54%

2012	Kaua'i	O'ahu	Maui	Hawai'i
Number of Solar Water Variances	65	36	47	311
Total Permits Issued*	137	935	253	586
Percent Requesting Variance	47.45%	3.85%	18.58%	53.07%

January-July 2013	Kaua'i	O'ahu	Maui	Hawai'i
Number of Solar Water Variances	47	23	34	223
Total Permits Issued*	82	651	154	377
Percent Requesting Variance	57.32%	3.53%	22.08%	59.15%

Total (January 1, 2010-July 31, 2013)	Kaua'i	O'ahu	Maui	Hawai'i
Number of Solar Water Variances	275	147	124	1137
Total Permits Issued*	466	3089	826	2187
Percent Requesting Variance	59.01%	4.76%	15.01%	51.99%

*New Single Family Dwellings

	<u>Total Variances</u>	<u>Total Permits</u>
Kaua'i:	275	466
O'ahu:	147	3089
Maui:	124	826
Hawai'i:	1137	2187
	<u>1683</u>	<u>6568</u>

$$\frac{1683}{6568} = 25.62\%$$

of permits for new construction (SF) received variances statewide

SB2111

Submitted on: 1/29/2014

Testimony for ENE/PSM on Jan 30, 2014 14:50PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Anthony B. Borge	Individual	Comments Only	No

Comments: Chairs Gabbard and Espero, and Vice Chairs Ruderman and Baker, and members of the committees: I am OPPOSED to S.B. 2111 which states that no building permit shall be issued for a new single-family or duplex 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. The marketplace should dictate if solar water heaters are preferred over tank-less gas water heaters or any other water heating system whichever suits their preference/needs and budgets. This is not an issue of public safety and health. The cost of new homes will continue to increase with the direct cost of labor, building materials and indirect costs incurred by builders/contractors. By legislatively mandating one system from a host of other viable, efficient, less costly systems e.g. tank less gas water heater system, will add even more to the cost of a new home. Please, let the marketplace decide on this one. I believe prospective homeowners will make the intelligent/right choice after conducting their due-diligence. Thank you. Respectfully submitted by Anthony Borge