

# HB 1249, HD3

RELATING TO ENERGY EFFICIENCY.

Requires the Department of Business, Economic Development, and Tourism to convene a working group to develop standards for reporting energy consumption to facilitate comparisons of energy consumption and costs by consumers and homebuyers.  
(HB1249 HD3)



**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 COMMITTEES ON  
TRANSPORTATION AND ENERGY  
AND  
ECONOMIC DEVELOPMENT, TOURISM, AND TECHNOLOGY**  
Friday, March 17, 2017  
2:00 p.m.  
State Capitol, Conference Room 414

In consideration of  
**HB1249, HD3**  
**RELATING TO ENERGY EFFICIENCY.**

Chairs Inouye and Wakai, Vice Chairs Dela Cruz and Taniguchi, and Members of the Committees.

The Department of Business, Economic Development, and Tourism (DBEDT) opposes HB1249, HD3. It is an unfunded mandate which requires that DBEDT convene a working group to develop strategies and methods to maximize energy efficiency in residential dwellings, report to the State Building Code Council and the Legislature, and develop energy disclosure standards for new home sales.

We do not have the resources to staff a working group, nor do we have the expertise to conduct research and analyses required to support the working group. Many of the concerns identified in this bill already are addressed by the statutorily established State Building Code Council (SBCC) so that HD3 would replicate much of the work under the SBCC. The SBCC operates under Chapter 92 and is open to the public and accepts comments and recommendations. The SBCC also is composed of representatives such as design professionals, private sector businesses and associations, state and county agency representatives, and county building code

officials. Building code updates under the SBCC require technical review and discussion before each code is updated. In addition, the SBCC provides annual reports to the legislature.

The concerns noted in the bill, as well as additional measures, have been discussed by the SBCC which has approved the updated 2015 International Energy Conservation Code (IECC 2015). The IECC 2015 addresses residential and commercial buildings and is 30 to 33 percent more efficient than the 2006 International Energy Conservation Code now in effect. The US Department of Energy's Pacific Northwest National Laboratory estimates the cost-effectiveness of the 2015 IECC residential code provisions to have a simple payback of 4.3 years.

Thank you for the opportunity to testify.

TESTIMONY OF RANDY IWASE  
CHAIR, PUBLIC UTILITIES COMMISSION  
STATE OF HAWAII  
TO THE  
SENATE COMMITTEES ON  
TRANSPORTATION AND ENERGY  
&  
ECONOMIC DEVELOPMENT, TOURISM, AND TECHNOLOGY

March 17, 2017  
2:00 p.m.

**MEASURE:** H.B. No. 1249, H.D. 3

**TITLE:** Relating to Energy Efficiency

Chair Inouye, Chair Wakai, and Members of the Committees:

**DESCRIPTION:**

This measure requires the Department of Business, Economic Development, and Tourism (“DBEDT”) to convene a working group to develop strategies and methods to maximize the energy efficiency of residential dwellings in the State, while also requiring the working group to make recommendations on building and energy codes and standards intended to ensure that new single-family residential construction maximizes cost-effective energy efficiency opportunities, and to present these recommendations to the legislature and the State Building Code Council. The measure names members of the working group, including the chairperson of the Public Utilities Commission (“Commission”).

**POSITION:**

The Commission opposes this measure as written and offers the following comments for the Committee’s consideration.

**COMMENTS:**

The Public Utilities Commission is a regulatory body that is required to act in a quasi-judicial capacity. The possibility exists that in the future the Commission may have to render decisions in matters relating to energy efficiency and energy consumption standards. Accordingly, the Commission feels that it would be inappropriate for its

chairperson to be a member of a working group on issues that may eventually be material in a docket before Commission. The Commission recommends that this requirement be stricken from this bill or that the public benefits fee administrator, as established pursuant to HRS 269-122, be named instead.

Thank you for the opportunity to testify on this measure.



**SENATE COMMITTEE ON TRANSPORTATION & ENERGY  
SENATE COMMITTEE ON ECONOMIC DEVELOPMENT, TOURISM, & TECHNOLOGY**

March 17, 2017, 2 P.M.

Room 414

(Testimony is 5 pages long, including 2 page attachment)

**TESTIMONY IN STRONG SUPPORT OF HB 1249 HD3**

Aloha Chair Inouye, Chair Wakai, Vice Chair Dela Cruz, Vice Chair Taniguchi, and Senators:

Blue Planet Foundation strongly **supports** this bill, which will convene a working group to develop recommendations on maximizing the use of cost-effective energy efficiency, leading to lower total housing costs for consumers. The bill will also require that anticipated energy consumption of a home will be disclosed to new buyers.

**This bill is necessary for three reasons:**

- (1) Current law requires the disclosure of energy costs to the buyer when a home is sold. However, the law appears to have a loophole exempting such disclosure for new homes. **This bill will close that loophole for new single-family homes.**
- (2) Failing to maximize energy efficiency in new homes costs consumers. It is cheaper to build energy efficiency into new homes than it is to retrofit a home. Moreover, when efficiency is built into a new home, the cost of installation can be included in the mortgage. The result is that we calculate that **the buyer of a typical new home could save \$120-\$660 per year in the total cost of home ownership**, if energy and building codes require that maximum cost-effective energy efficiency. In other words, consumers can save from their first mortgage payment.
- (3) **Thousands of new homes are planned for the state; without this bill, there is a risk that they will needlessly waste energy and increase the use of fossil fuels.** This is contrary to the state's energy policy, and contrary to the economic interests of consumers. The attached Star-Advertiser article illustrates this risk for the 11,000+ homes planned for the Ho'opili development on Oahu. Even where a development promises 21<sup>st</sup> century energy efficiency, that promise is potentially fragile. Energy standards must ensure that all homes are built to this standard.

At the end of this testimony, we **suggest amendments** to: (i) leverage Hawaii Energy's willingness to use its resources to manage the working group process; and (ii) to use the phrase "maximizing cost-effective energy efficiency" consistently in the bill.

It is important to be clear about what this bill will *not* do:

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- **Will *not* require all new homes to be “net zero energy.”** The original draft of bill used the phrase “net zero energy *capable*” as a standard for ensuring that new homes are built with as much energy efficiency as is cost-effective for the buyer. This bill does *not* require the installation of solar panels, batteries, or other energy generation equipment.<sup>1</sup> In HD3, the phrase “net zero energy capable” has been removed, in favor of the phrasing “maximizing cost-effective energy efficiency.”
- **Will *not* drive up housing costs for consumers.** When a typical consumer buys a new home, the cost of ownership is the cost of the monthly mortgage payment, plus monthly operating costs like energy bills. By maximizing cost-effective energy efficiency, that total monthly cost of ownership can be lowered from day one. This phenomenon can also help to expand access to reduced living costs, by enabling *all* owners of new homes to finance energy efficiency in their mortgage (rather than paying out of pocket).
- **Will *not* harm the local workforce.** This bill will *benefit* the local workforce. Building energy efficiency into the standard for new homes essentially converts dollars that would have been spent on energy, into dollars spent on labor and materials for new homes.

It is well documented that energy efficiency is extraordinarily cost-effective. For example, in its most recent program year, the state’s energy efficiency program (Hawaii Energy), administered by the PUC, invested \$36 million to enable \$435 million in savings (12x return) over the life of those upgrades.

Despite this remarkable cost-effectiveness of energy efficiency, it remains cheaper to build efficiency into homes and buildings from the start, rather than to install retrofits. According to a 2012 study completed for the Pacific Gas and Electric Company’s Zero Net Energy Program, for residential construction conventional energy efficiency “upgrades to a code-compliant new home (e.g. improved windows and insulation levels; high efficiency space conditioning, water heating, and lighting systems) to achieve about 40% reductions in home thermal and lighting energy consumption will cost roughly \$2 - \$8 per ft<sup>2</sup> of conditioned floor area.”<sup>2</sup> Obviously, the cost of construction (excluding land) for a new single-family home is an order of magnitude higher (e.g. \$150 to \$250 per ft<sup>2</sup> or more). In the context of monthly mortgage payments, savings from cost-effective efficiency are expected to far outweigh any additional construction cost.

As an illustration, using the above information, maximizing energy efficiency would mean annual housing cost savings of \$120 to \$660 per year for each new single-family home.<sup>3</sup> **In other words, consumers can save from their first mortgage payment.**

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<sup>1</sup> The phrase “net zero energy capable” is admittedly somewhat confusing. It is intended to indicate that a home has reached the point where adding more energy efficiency would be more expensive than *theoretically* adding electricity generation to a home. Thus, it is a standard based on cost-effectiveness; it is not a standard based on the actual energy generation in a home.

<sup>2</sup> Davis Energy Group, California Zero Net Energy Buildings Cost Study at 4 (2012), *available at* [https://newbuildings.org/sites/default/files/PGE\\_CA\\_ZNE\\_CostStudy\\_121912.pdf](https://newbuildings.org/sites/default/files/PGE_CA_ZNE_CostStudy_121912.pdf).

<sup>3</sup> These dollar values are derived from the following assumptions: \$2 to \$8 per square foot marginal

This power of energy efficiency drove California to target zero net energy design for all new residential buildings by 2020, and all new commercial structures (and 50% of existing commercial structures) by 2030. Hawai'i can deliver the same benefits and protections to its consumers with energy and building codes that ensure that new single-family homes maximize the use of cost-effective energy efficiency.

### **SUGGESTED AMENDMENTS**

We suggest two improvements to HD3.

First, we suggest that the **the state's energy efficiency program (Hawaii Energy, the Public Benefits Fee Administrator) should be named to the working group**. This is consistent with the suggestion of the PUC in prior testimony. Additionally, if DBEDT is concerned about serving as the convener of the working group, the State Building Code Council (SBCC) could serve as the convener. Undoubtedly, the SBCC (which unlike DBEDT, has no full-time staff) will require support to serve that role. Such support could be in the form of funding from the legislature. Alternatively **the state's energy efficiency program (Hawaii Energy, the Public Benefits Fee Administrator) has offered to use its resources to manage the working group process under the direction of the convener**.

Second, we suggest one revision to ensure that the bill uses the phrase "maximizing cost-effective energy efficiency" consistently.

SECTION 3.

. . .  
For the purposes of this subsection, "maximizing cost-effective energy efficiency" means reaching efficiency levels such that it would generally become more cost-effective to theoretically add generation to the home, rather than further increasing the efficiency of the home.

Thank you for this opportunity to testify.

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construction costs to achieve 40% energy efficiency; 1500 square foot home; \$175 per month average energy bill for home without maximum energy efficiency; 4% mortgage interest rate. This would result in monthly energy savings of \$70, and monthly mortgage payments of \$15 to 60 per month.



## SOLAR HEATERS IN NEW HOMES

# Ho'opili poised to join many exempted from law

By Kathryn Mykleseth  
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In 2010, Hawaii became the first state to require new single-family homes be built with solar water heaters.

Republican Gov. Linda Lingle signed the measure, saying it was a key step toward breaking the state's dependence on imported oil.

But in the six years since passage, more than 30 percent of the 14,375 new homes built were completed without solar water heaters.

The state has approved 99 percent of builders' requests for exemptions from the law.

Now the largest Hawaii development in at least two decades, the 11,750-home Ho'opili community on Oahu's Ewa Plain, is set to add to the number of exemptions.

D.R. Horton, owner of Ho'opili, is advertising its first phase of homes will have tankless gas water heaters. Hawaii Gas has been working with Ho'opili on supplying gas to the new development.

Some supporters of Hawaii's renewable energy goals object to the use of gas at Ho'opili.

Please see **WATER HEATERS**, A18

## WATER HEATERS

Continued from A1

"Building out new fossil fuel infrastructure would be starkly at odds with the state's commitment to transition to 100 percent renewable energy," said Richard Wallsgrave, policy director at Blue Planet Foundation.

D.R. Horton declined to comment on its plans for gas water heaters at Ho'opili.

Typically, builders favor gas water heaters to keep costs down. The average gas tankless water heater is \$1,500. A solar water system can add up to \$6,000 to the price of a new home, even though over time it may prove to be cheaper.

David Sands, chief architect and co-founder of Bamboo Living, has built several homes without solar water since 2010. He said his clients decided to apply for a variance because of the cost, and many already had a gas appliance.

"As much as anything, it has been a budget issue," Sands said. "If they are already putting propane gas for a stove, then it's an inexpensive way for them to get into the house. Most of my clients want to be fully solar anyway, but some of the time they're starting with a limited budget. So they'll opt to wait to do the thermal panel until later, once they're in the house."

### 'A broken promise'

The solar water law, as amended, says variances

"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."

As of January, 4,484 homes were approved to be exempt from the law, out of 4,509 applications submitted to the Department of Business, Economic Development & Tourism.

From 2010 to 2016, there were 14,375 building permits issued for single-family homes, according to data compiled by DBEDT. Some 4,428 of those have been exempt from the law.

The applicant with the highest number of variances is architect Robert Smelker, who submitted 1,770 applications, most for homes on Hawaii island. Smelker declined to comment.

Environmentalists said they were concerned with the overuse of the variance, as the state works to meet renewable energy goals.

"The gas water heater loophole has been used far more frequently than lawmakers intended," said Wallsgrave. "We simply cannot afford to see this trend expand to the 11,000-plus homes planned for Ho'opili, and other developments across the state."

Wallsgrave said Ho'opili seeking to use gas water



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heaters contradicts the developer's original promises.

"Consumers were led to believe that Ho'opili is committed to green design elements, including cutting monthly household energy usage by 15 to 30 percent with solar hot water and other smart energy efficiency solutions. The developer even said that 'all of these features should be standard in any 21st century project.'"

The requirement for solar water heaters was mentioned in Ho'opili's environmental impact statement in 2008.

"To switch at the last moment, and now use water heaters powered by fossil fuels, would look a lot like a broken promise," Wallsgrave said. "And building out new fossil fuel infrastructure would be starkly at odds with the state's commitment to transition to 100 percent renewable energy."

But because of the loose law, the switch is legal.



DBEDT has granted D.R. Horton variances for the solar water heating mandate for 91 properties. Ten properties in D.R. Horton's first phase of the Ho'opili development have been approved for a solar water heater variance.

### Efficiency dispute

D.R. Horton has brought Hawaii Gas into the project. In a request for proposals issued by Hawaii Gas in December, the gas utility said it was seeking a supplier of 170 tankless gas water heaters for the gas utility to lease to the homeowners of Ho'opili. Hawaii Gas' request said it was to provide an option for the homeowners living in the first phase. Hawaii Gas said recently it hasn't selected a supplier for tankless heaters and the request for proposals was just to gather information.

"Tankless water heaters are one of the most cost-efficient ways to heat water," said Nathan Nelson, vice president, general counsel and secretary at Hawaii Gas. "We're pleased to be working with D.R. Horton on the Ho'opili development, and are confident that they will be obtaining all appropriate variances that may be required."

The tankless water heater is up to 34 percent more efficient than a storage water heater, according to the U.S. Department of Energy. The 20-year life of the tankless water heater also beats the storage water heater's 10- to 15-year life.

According to the law, homes can be built without

solar water heaters if the installation is impractical because the home isn't in a sunny area, installation is too expensive based on a life cycle cost-benefit analysis, a demand water heater device approved by safety consulting firm Underwriter Laboratories Inc. is installed, or at least one other gas appliance is installed in the home.

Solar water heating systems usually have higher upfront costs than conventional water heating systems, but residents usually save money in the long run with solar.

Adding a solar water heater to a new 30-year mortgage usually results in homeowners paying between \$13 and \$20 a month extra, according to the U.S. Department of Energy. The federal income tax deduction for mortgage interest if a home has a solar system reduces that by about \$3 to \$5 a month.

The U.S. Department of Energy said that if a homeowner's fuel savings are more than \$15 a month and the cost of the solar system is folded into the mortgage, solar saves homeowners money immediately.

Marti Townsend, director of the Sierra Club Hawaii Chapter, said Ho'opili seeking to use gas water heaters is a misuse of the variance to the solar hot water mandate.

"It is undisputed that solar hot water heaters are cheaper than water heaters that rely on fossil fuels," Townsend said. "Because these massive loopholes are

being exploited, new homeowners will be paying more in electric and gas bills, and will have to spend even more to convert to solar hot water in the future. This is not the promise Ho'opili developers made to the community. This loophole directly contradicts our commitment to a 100 percent clean-energy future and should be immediately amended."

### Environmental battle

This isn't the first time D.R. Horton has come head-to-head with Hawaii's environmentalists.

The 11-year battle to begin development on the land sandwiched between Kapolei and Ewa consisted of opponents arguing that the new development would impact traffic and use prime agricultural lands. Supporters argued that the Ho'opili project is needed to ease Oahu's housing shortage and, to a lesser extent, create jobs.

Sen. Stanley Chang (D, Hawaii Kai, Kuliouou, Niu Valley, Aina Haina, Waialae-Kahala, Diamond Head) proposed a bill this session, SB 1121, to close the loophole in the solar water heater law. Chang says the need to amend the law is "particularly sharp at a time when substantial new residential tracts are being developed."

"We just wanted to make sure the original intent of the program was going to be upheld," Chang said.

As of late last week, the bill hadn't been scheduled for a hearing, a key first step for any bill to progress.



Before the Senate Committee on Economic Development, Tourism and Technology & the Senate Committee on Transportation and Energy  
Friday, March 17, 2017, 2:00 P.M., Room 414  
HB 1249 HD3: Relating to Energy Efficiency

Chair Wakai, Chair Inouye, Vice-Chair Taniguchi, Vice-Chair Cruz, and members of the committees, thank you for the opportunity to submit testimony on HB 1249 HD3. The Hawai'i Energy program would like to testify in strong **support** for HB 1249 HD3. Energy efficiency is the most cost-effective energy resource available in the state, costing a fraction of electricity that is generated, either through renewables or fossil fuels.

Hawai'i Energy works to empower island families and businesses on behalf of the Hawai'i Public Utilities Commission (PUC) to make smart energy choices to reduce energy consumption, save money, and pursue a 100% clean energy future. In collaboration with the Hawai'i State Energy Office, Hawai'i Energy has strongly supported the State Building Code Council's (SBCC) proposal to amend the state's energy conservation code by: (i) repealing the 2006 International Energy Conservation Code (IECC), Hawai'i Administrative Rules (H.A.R.) Chapter 3-181; and (ii) adopting H.A.R. Chapter 3-181.1, based on the IECC 2015 Edition published by the International Codes Council, with amendments applicable to Hawai'i. We see this bill as an extension of our continued support in improving energy codes.

One sector of our society that uses a lot of energy is buildings – refrigeration, cooling, and lighting the places where we all live and work. Reducing wasteful energy use needs to be prioritized, which HB 1249 HD3 does by maximizing the investment in cost-effective energy efficiency measures and removes the split incentive that often exists between builder/developer and the owner who ultimately must pay the electricity bill.

Hawai'i Energy would also like to offer the following modifications to the bill:

Instead of directing DBEDT to convene the working group, one suggestion would be to have the SBCC convene this group. The State Building Code Council may be a more appropriate to convene the working group as the SBCC ultimately establishes relevant energy codes and standards with broad representation from the State, Counties, and industry. The SBCC is comprised of representatives of the Counties, DBEDT, DLIR, the Building Industry Association, the Subcontractor's Association, the Structural Engineers Association, the American Institute of Architects, the State Fire Council, and the Comptroller.

Secondly, the terminology of "net zero energy capable design" and other references to net zero can be confusing and send the wrong message that the requirements would include the installation of renewable energy generation and/or energy storage, which is not the intent of this bill. The U.S. Department of Energy uses this terminology and is a trend that is occurring nationally, however much of the testimony against prior drafts of this bill has shown either confusion or opposition to this terminology rather than the intent of the bill. The committee may want to consider removing all references of net zero language to gain broader support.

Lastly, we recommend the addition of the Public Benefits Fee Administrator and the utilities as part of the working group. Thank you for the opportunity to testify on HB 1249 HD3.