

SB 571

Measure Title: RELATING TO ENERGY EFFICIENCY.

Report Title: Energy Efficiency; Net Zero Energy Capable Construction

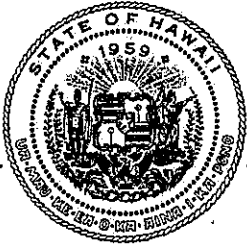
Description: Requires the state building code council to adopt net zero energy capability standards for new single-family residential construction. Requires all new single-family residential construction to be net zero capable by 1/1/2019.

Companion: HB1249

Package: None

Current Referral: HOU/TRE, WAM

Introducer(s): ESPERO, K. RHOADS, Harimoto, K. Kahele, Keith-Agaran, Kidani, Ruderman



**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 HOUSING
AND
TRANSPORTATION AND ENERGY**

Tuesday, February 14, 2017
2:55 PM
State Capitol, Conference Room #225

In consideration of
SB571
RELATING TO ENERGY EFFICIENCY.

Chairs Espero and Inouye, Vice Chairs Harimoto and Dela Cruz, and members of the Committees.

The Department of Business, Economic Development, and Tourism (DBEDT) does not support SB571 as presently written because it requires the Energy Resources Coordinator (ERC) to grant exemptions from the net zero single family residence requirement.

We do not have the resources to process applications for exemptions or to develop criteria to determine impractical and cost-prohibitive analyses required to implement this requirement. We recommend that the ERC be removed from granting exemptions and that the design professional bear the responsibility of justifying why it is impractical or cost-prohibitive design to net zero capable in the application for a building permit. The design professional also should be required to use his/her professional stamp on the certification statement.

Thank you for the opportunity to testify.



DAVID Y. IGE
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SHAN S. TSUTSUI
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CATHERINE P. AWAKUNI COLÓN
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JO ANN M. UCHIDA TAKEUCHI
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TO THE SENATE COMMITTEE ON HOUSING
AND
TO THE SENATE COMMITTEE ON TRANSPORTATION AND ENERGY

THE TWENTY-NINTH LEGISLATURE
REGULAR SESSION OF 2017

TUESDAY, FEBRUARY 14, 2017
2:55 P.M.

TESTIMONY OF DEAN NISHINA, EXECUTIVE DIRECTOR, DIVISION OF
CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND CONSUMER
AFFAIRS, TO THE HONORABLE WILL ESPERO AND
THE HONORABLE LORRAINE R. INOUE, CHAIRS,
AND MEMBERS OF THE COMMITTEES

SENATE BILL NO. 571 - RELATING TO ENERGY EFFICIENCY

DESCRIPTION:

This measure proposes to require the State Building Code Council to adopt net zero energy capability standards for new single-family residential construction and require all new single-family residential construction to be net zero capable by January 1, 2019.

POSITION:

The Division of Consumer Advocacy ("Consumer Advocate") supports the intent of this bill and offers comments.

COMMENTS:

The Consumer Advocate acknowledges the Legislature's concerns related to the economy and importance of residential energy efficiency, and so the Consumer Advocate supports the intent of this bill to direct the State Building Code Council to adopt standards to maximize energy efficiency opportunities in any new single-family residential construction.



Senate Bill No. 571
Senate Committee on Housing
Senate Committee on Transportation and Energy
February 14, 2017
Page 2

The Consumer Advocate is concerned, however, by the bill's assumption that a certain level of energy efficiency always and automatically makes on-site generation more cost-effective than full energy services from a public utility. This cost "tipping point" for on-site generation may be highly dependent on a variety of factors outside of the purview of building codes, such as, but not limited to, approved utility tariffs and business models and the comparative future costs of clean energy technologies at both residential and utility scales. Furthermore, there may be challenges to establish "one size fits all" standards for net zero energy capability.

Thank you for this opportunity to testify.



**Hawai'i
Association of
REALTORS®**

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February 14, 2017

The Honorable Will Espero, Chair
Senate Committee on Housing

The Honorable Lorraine R. Inouye, Chair
Senate Committee on Transportation and Energy
State Capitol, Room 225
Honolulu, Hawaii 96813

RE: S.B. 571, Relating to Energy Efficiency

HEARING: Tuesday, February 14, 2017, at 2:55 p.m.

Aloha Chair Espero, Chair Inouye, and Members of the Committees:

I am Myoung Oh, Government Affairs Director, here to testify on behalf of the Hawai'i Association of REALTORS® ("HAR"), the voice of real estate in Hawai'i, and its 8,300 members. HAR raises **concerns** on S.B. 571 which requires the state building code council to adopt net zero energy capability standards for new single-family residential construction and requires all new single-family residential construction to be net zero capable by 1/1/2019.

According to the Department of Business, Economic Development and Tourism, nearly 66,000 housing units are needed to meet long-term demand over the next ten years. Hawai'i needs more homes and rentals, especially affordable ones, to meet today's needs of our working individuals and families.

With the high demand and the supply not keeping up with the needs of our residents, S.B. 571 will only exacerbate the cost of a high construction cost environment. Furthermore, prefab or design construction are not fully-customizable with respect to individual energy usage habits.

However, if the intent is to create generalized readiness for net zero capable codes, it will increase the costs through this measure. They include but are not limited to:


1. staging the home to take advantage of the sun;
2. the wall, floor and ceiling systems using advanced framing techniques;
3. the insulation R-values for walls, ceiling, and floors;
4. the airtightness standard for the building shell;
5. the window type, locations and u-values;
6. the door type, locations and R-values;


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-
7. the hot water system and its efficiency rating;
 8. the ventilation and cooling systems and their efficiency ratings;
 9. the appliances and their efficiency ratings;
 10. the roof size, pitch and orientation to get the most benefit from the solar panels installed;
 11. and other measures that are needed for the home to become a net zero energy home.

While we applaud the initiative to engage homebuyers to be energy conscious, this will add to the costs associated to the construction and finally to the end buyer.

Mahalo for the opportunity to testify.



**Testimony before the Senate Housing Committee and
The Senate Transportation & Energy Committee**

Senate Bill 571 – Relating to Energy Efficiency

Tuesday, February 14, 2017

2:55 pm

Conference Room 225

**By Michael Colón
Director, New Customer Initiatives
Hawaiian Electric Company, Inc.**

Chairs Espero & Inouye and Members of the Committees:

My name is Michael Colón and I am testifying on behalf of Hawaiian Electric Company and its subsidiary utilities, Maui Electric Company and Hawaii Electric Light Company (collectively, the “Hawaiian Electric Companies”).

Senate Bill 571 would require the state building code council to adopt net zero energy capability standards for new single-family residential construction and also requires all new single-family residential construction to be net zero capable by January 1, 2019. The Hawaiian Electric Companies support the general intent to maximize energy efficiency and are committed to achieving a 100% renewable energy future for Hawai‘i. However, the Hawaiian Electric Companies oppose this bill as drafted for several reasons.

First, this bill essentially mandates all new single-family residential construction to include renewable energy generation in order for a new residential property to produce as much power as it consumes. There is an on-going proceeding at the Public Utilities Commission (PUC) – the Distributed Energy Resources (“DER”) Docket No. 2014-0192 – wherein the Commission and stakeholders are in the process of conducting a comprehensive evaluation of the technical, economic and policy issues associated with interconnecting various forms of distributed energy resources (e.g. rooftop solar), which would include generating systems mandated by this bill. However, this bill could negatively impact the PUC’s intent in ensuring that a comprehensive technical and economic review of all system types is conducted in the DER docket as the bill does not

require coordination between the building code council and the PUC, which could lead to conflicting goals and priorities.

Second, integrating increasing levels of distributed generation on the electric system presents significant technical challenges given the unique nature of Hawai'i's isolated island grids. These complex technical issues are also being addressed by the PUC in several open dockets. However, this bill could have unintended consequences because it does not address potential technical outcomes from requiring renewable generation to be included in all new single-family residential construction.

Third, requiring renewable generation, e.g. rooftop solar or wind, may not be feasible or cost effective depending on building constraints (i.e. lot size, geographic location, etc.). While this bill allows a homeowner to apply for an exemption under certain circumstances, the process places an unnecessary burden on a homeowner to prove why meeting the bill's requirements are impracticable or cost-prohibitive.

Fourth, where the use of renewable generation is feasible, meeting a mandatory net-zero requirement could result in an unnecessary cost premium and financial burden for homeowners and could have the unintended consequence of incentivizing homeowners to oversize their renewable generation system to ensure that they meet a net-zero requirement. In addition, there is tremendous variability in energy use between residents, and anticipating energy needs before living in the home could pose compliance challenges. Again, these considerations should be aligned with the ongoing efforts to address such issues in the DER docket.

Fifth, the net zero requirement in this bill does not prioritize energy efficiency and conservation, nor consider how this bill aligns with existing or future utility incentive programs such as, rooftop solar programs, demand response programs or time of use pricing approved by the PUC.

Finally, this bill requires clarification as it is also vague and ambiguous to the extent that the term "net zero" is not defined with specificity.

Accordingly, the Hawaiian Electric Companies oppose SB 571 as currently drafted.

Thank you for the opportunity to testify.

BIA-HAWAII

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Testimony to the Senate Committee on Housing; and Senate Committee on Transportation & Energy Tuesday, February 14, 2017 2:55 pm Conference Room 225

RE: SB 571 – Relating to Energy Efficiency

Chairs Espero & Inouye, Vice-Chairs Harimoto & Dela Cruz, and members of the Committees:

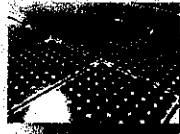
My name is Gladys Quinto Marrone, CEO of the Building Industry Association of Hawaii (BIA-Hawaii). Chartered in 1955, the Building Industry Association of Hawaii is a professional trade organization affiliated with the National Association of Home Builders, representing the building industry and its associates. BIA-Hawaii takes a leadership role in unifying and promoting the interests of the industry to enhance the quality of life for the people of Hawaii.

BIA-Hawaii is in opposition to SB 571, Relating to Energy Efficiency. This bill would require the state building code council to adopt net zero energy capability standards for new single-family residential construction. This bill would also require all new single-family residential construction to be net zero capable by 1/1/2019.

Most homes are not constructed to be fully-customized with respect to the individual energy-using habits of the homebuyer. To achieve net-zero capability in construction, the home would need to be built fully customized. Energy-saving features are based on the end-user. If a person uses lots of energy vs. one who uses very little, the design of the house would need to be radically different.

Further, most homes in Hawaii aren't large enough to potentially achieve true net-zero. This would require a substantial PV system, along with a net metering agreement with the electricity provider (HECO) and high level insulation, along with other energy saving items. In many cases, there would simply not be enough space on the roof for the system size required to attain net-zero. Even if the homebuyer were to use a photovoltaic (PV)/battery-storage system, it would be unrealistic. Assuming a \$340/month electric bill, a sufficient PV system with batteries would cost approximately \$55,000 - \$70,000. That system would not work under prolonged periods of cloud cover, so the user would still need backup power. The useful life of the batteries in such a system would only be about 10 years, so it would not benefit the homeowner economically. The other consideration is again, roof space, because a system with batteries requires more PV capacity than a net-metering system.

We appreciate the opportunity to express our views on this matter.



SENATE COMMITTEE ON HOUSING
SENATE COMMITTEE ON TRANSPORTATION & ENERGY

Feb. 14, 2017, 2:55 P.M.

Room 225

(Testimony is 2 pages long)

TESTIMONY IN STRONG SUPPORT OF SB 571

Aloha Chair Espero, Chair Inouye, Vice Chair Harimoto, Vice Chair Dela Cruz, and Committee Members:

Blue Planet Foundation **strongly supports** SB 571. This bill will direct the State Building Code Council to develop building codes and standards to maximize the use of cost-effective energy efficiency in new single-family homes. As further explained below, this will benefit consumers by lowering the total cost of owning a home.

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

- **SB 571 will not require all new homes to be “net zero energy.”** Home simply must meet the standard of being “**net zero energy capable**.” This is a standard that ensures that homes are built with as much energy efficiency as is cost-effective for the buyer. It does *not* require the installation of solar panels, batteries, or other energy generation or storage equipment.¹
- **SB 571 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, **the total monthly cost of ownership can be lowered from day one.** This phenomenon can also help to expand access to a lower cost of living, by enabling *all* owners of new homes to finance energy efficiency in their mortgage (rather than paying out of pocket).
- **SB 571 will not harm the local workforce.** This bill will *benefit* the local workforce. Building energy efficiency into the standard for new homes essentially **converts energy dollars into dollars spent on local 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

¹ 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 simply adding electricity generation to a home. Thus, it is a standard based on cost-effectiveness; it is not a standard based on the net energy consumption/generation of a home.

by the PUC, invested \$36 million to enable \$435 million in savings over the life of those upgrades. That is a 12x return.

Despite this remarkable cost-effectiveness of energy efficiency, **it remains even 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 ft² of conditioned floor area."² 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 ft² or more).

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.

To ensure that homes are built with the consumer's bottom line in focus, we ask that the Committee pass this bill and direct the State Building Code Council to adopt net zero energy capable design standards for all new single-family homes.

Thank you for this opportunity to testify.

² 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.



Hawai'i Energy

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Before the Senate Committees on Housing and Transportation & Energy
Tuesday, February 14, 2017, 2:55 P.M., Room 225
SB 571: Relating to Energy Efficiency

Chair Espero, Vice-Chair Harimoto, and members of the Housing Committee and Chair Inouye, Vice Chair Dela Cruz and members of the Transportation & Energy Committee, thank you for the opportunity to submit testimony on SB 571. On behalf of the Hawai'i Energy program, I would like to testify in strong **support** for SB 571. 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 for the State of Hawai'i.

The energy world has accelerated rapidly in the last decade. In 2009, through the Hawai'i Clean Energy Initiative (HCEI), the state adopted a 40% renewable energy goal, along with a 30% energy efficiency target. Thus, the Energy Efficiency Portfolio Standard (EEPS) was established into law. In 2015, Hawai'i adopted the nation's first 100% clean energy mandate. The EEPS targets envision that more effective codes and standards would be a significant contributor, along with the Hawai'i Energy programs, to achieving the efficiency mandate.

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 SB 571 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.

This bill does NOT require homes be built to achieve net zero capability, and it does not require the installation of solar or other types of generation. This bill does require the investment into maximizing cost-effective energy efficiency measures that make much more sense during construction where the incremental cost is lower, rather than having homeowners perform a retrofit in the future. The incremental cost difference for things such as upgrading appliances to ENERGY STAR certified appliances would be recovered through the energy savings from these measures.

Thank you for the opportunity to testify on SB 571.

Brian Kealoha
Executive Director
Hawai'i Energy

Testimony

To: Senate Committee on Housing
Sen. Will Espero, Chair
Sen. Breene Harimoto, Vice Chair
Senate Committee on Transportation and Energy
Sen. Lorraine R. Inouye, Chair
Sen. Donovan M. Dela Cruz, Vice Chair

Re: SB 571 Relating to the Energy Efficiency

Date: Tuesday, February 14, 2017

Time: 2:55 P.M.

Place: Conference Room 225

State Capitol

415 South Beretania Street

Thank you for the opportunity to submit testimony on SB 571. My name is Lauren Howerton and I am a long-time resident of Maui. I am testifying in favor of SB 571 which would require all new single-family residential construction to be net zero capable by 2019.

I believe this requirement would be in the long-term interest of the state and it's residents. According to the Hawai'i Clean Energy Initiative, Hawaii is the most oil-dependent state in the United States with 95% of its energy supplied by fossil fuels. This leaves the state's economy extremely vulnerable to fluctuations in oil prices, on top of Hawaii's already high cost of living.

As someone who has grown up in the islands, the changes I've seen even in my relatively short life-time are shocking. A growing population brings with it the need for both commercial and residential properties and we need to ensure that new construction does not create an added burden on our island home. Requiring that new residential construction meets net zero capabilities is a step in the right direction and for this reason I support SB 571 and ask that you do too.

Thank you again for your time and the opportunity to testify.

Lauren Howerton
PO Box 1433
Wailuku, HI 96793

From: mailinglist@capitol.hawaii.gov
Sent: Saturday, February 4, 2017 10:23 PM
To: HOU Testimony
Cc: ahuntemer@aol.com
Subject: Submitted testimony for SB571 on Feb 14, 2017 14:55PM

SB571

Submitted on: 2/4/2017

Testimony for HOU/TRE on Feb 14, 2017 14:55PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Angela Huntemer	Individual	Support	No

Comments: Aloha Committee Chair and Members, Please support this SB571 The state building code council needs to adopt net zero energy capability standards for all new single-family residential construction. It makes sense for our pocket books and the environment. Our homes currently are not required to be very efficient. Please have us move into the 21st century in this regard. Thank you Senators.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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