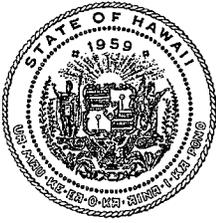


SB 1348



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

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR

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

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

Statement of
THEODORE E. LIU
Director
Department of Business, Economic Development, and Tourism
before the
**SENATE COMMITTEES ON
ENERGY AND ENVIRONMENT
and
COMMERCE AND CONSUMER PROTECTION**
Thursday, February 5, 2009
2:45pm
State Capitol, Conference Room 225

in consideration of

**SB1348
RELATING TO ENERGY RESOURCES.**

Chair Gabbard, Chair Baker, Vice Chair English, Vice Chair Ige, and Members of the Committees.

The Department of Business, Economic Development, and Tourism (DBEDT) supports the intent of SB1348 which amends provisions of the mandatory solar water heating measure passed last session. The amendments transfer accepting and granting of variance approval to the Public Benefits Fee Administrator, clarify variance request procedures and authority, reduce the tax credit for substitute renewable energy systems installed under the mandate, provide guidance for solar water heater system standards, and allow use of demand-side management surcharge moneys for verification inspections. SB1348 also removes tankless gas water heaters as a permissible variance.

DBEDT supports transfer of variance requirements to the Public Benefits Fee Administrator since the Administrator is charged with developing, setting standards, executing, monitoring, and reporting on energy efficiency programs. DBEDT, however, does not support the provision to remove tankless gas water heaters as a permissible variance. Although synthetic natural gas is a fossil fuel, it is a by-product of the refining process and may be used as an efficient substitution for conventional electric resistance water heaters. In addition, gas water heaters will provide consumers a choice to meet their needs.

We defer to the Department of Taxation on tax matters.

Thank you for the opportunity to offer these comments.

LINDA LINGLE
GOVERNOR

JAMES R. AIONA, JR.
LT. GOVERNOR



KURT KAWAFUCHI
DIRECTOR OF TAXATION

SANDRA L. YAHIRO
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF TAXATION
P.O. BOX 259
HONOLULU, HAWAII 96809

PHONE NO: (808) 587-1510
FAX NO: (808) 587-1560

**SENATE COMMITTEE ON ENERGY & ENVIRONMENT AND
COMMERCE & CONSUMER PROTECTION
TESTIMONY REGARDING SB 1348
RELATING TO ENERGY RESOURCES**

TESTIFIER: KURT KAWAFUCHI, DIRECTOR OF TAXATION (OR DESIGNEE)
DATE: FEBRUARY 5, 2009
TIME: 2:45PM
ROOM: 225

Among other things, this measure includes amendments to the renewable energy technologies income tax credit in order to remove the restriction on the single-family residential property solar thermal energy systems installed after January 1, 2010.

The Department of Taxation **prefers SB 871** which better accomplishes the renewable energy policy needed to reduce the State's dependence on oil.

SECTION 3 – Amendments to section 235-12.5 – It is unclear to the Department why a taxpayer should be able to claim this tax credit for installing a mandatory solar thermal energy system under § 196-6.5(a), but not be able to claim this tax credit for installing and placing in service a wind-energy system or photovoltaic energy system that substitutes under § 196-6.5(a)(3) for the mandatory solar thermal energy system.

Instead of the amendments proposed in this measure, the Department suggests removing the language from subsection (a)(1), as was done in this measure, and adding a new section that states:

No taxpayer shall be allowed a credit under this section for any renewable energy technology system required by section 196-6.5 or substituted under section 196-6.5(a)(3) that is installed and placed in service on any newly constructed residence authorized by a building permit issued on or after January 1, 2010.

PREFERENCE FOR ADMINISTRATION'S TAX PACKAGE—The Department prefers the comprehensive energy-related tax package contained in SB 871, which clarifies the renewable energy systems tax credits, as well as tax incentives for net-zero energy efficient buildings. The

Department of Taxation Testimony

SB 1348

February 5, 2009

Page 2 of 2

Administration's measure has been factored into the biennium budget and the financial plan.

OPPOSITION TO UNBUDGETED REVENUE LOSS— The Department cannot support the tax provision in this measure because it is not factored into the budget. The Department must be cognizant of the biennium budget and financial plan. This measure has not been factored into either. Given the forecasted decrease in revenue projections, this measure would add to the budget shortfall.

REVENUE LOSS—This legislation will result in a revenue loss of approximately \$200,000.



P.O. Box 3000
Honolulu, Hawaii 96802-3000

February 5, 2009

Testimony for SB1348 Relating to Energy Resources

Aloha Chair Gabbard, Vice Chair English and Members of the Committee on Energy and the Environment:

Aloha Chair Baker, Vice Chair Ige and Members of the Committee on Commerce and Consumer Protection:

My name is Jeffrey Kissel, President and CEO of The Gas Company. Thank you for the opportunity to provide testimony on SB1348, related to Energy Resources.

The Gas Company strongly opposes SB1348 which clarifies provisions of Act 204 related to solar water heaters and eliminates the option of backup gas water heating systems.

ACT 204 (2008), as passed last year with the inclusion of energy efficient water heating devices as an option in new residential home construction, had broad base support. The final version of the bill (1) addresses the issue of global warming, (2) promotes renewable energy, (3) clearly establishes energy conservation as a critical component of all new residential construction, and (4) recognizes that homeowners and builders should have access to a variety of energy conserving alternatives, thereby promoting innovation and new solutions to provide more renewable energy for Hawaii. This landmark legislation represents a significant and positive step towards achieving the State's vision to promote renewable energy and energy efficiency and reduce Hawaii's dependence on petroleum.

The Gas Company has consistently supported measures that encourage consumer options in seeking energy efficient alternative solutions. However, SB1348 does the opposite in that it unreasonably limits energy efficient choices by specifying a single technology. Act 204 (2008) is a unique piece of legislation that not only requires solar water heating but rightfully recognizes that renewable and instantaneous gas water heating systems can and should be allowed as an option when proven viable through a variance process. More importantly, it recognizes that the gas distribution system is the most efficient and reliable way to deliver renewable thermal energy for heating water, cooking food and other domestic uses.

SB1348

Testimony of Jeffrey Kissel

February 5, 2009

Page 2

It is important to remember that the gas produced in Hawaii, is made from petroleum by-products already produced here today. It does not require the importation of one drop of additional oil. In addition, The Gas Company, LLC, is actively developing a renewable energy strategy to produce 50 percent of its supply from renewable resources such as landfill gas and bio-methane within five years.

It is important to point out that all of these activities are being solely financed by our Company, without government subsidy or an added burden on our rate payers. This confirms our Company's commitment toward investing in Hawaii's energy future. In fact, we believe that we can successfully replace at least half of our feedstock supply with renewable sources and actually lower our cost of production from present levels.

I would like to call upon my colleagues in the energy business to focus on the greater objectives – those of reducing our dependence on fossil fuel in every possible way – and urge them to join us in collaboration rather than seek to advance one position over another or one technology in favor of another. We believe that there is a greater need to move collectively in the right direction than judge each alternative with a zero tolerance litmus test for carbon impact.

We can work together so that Hawaii will lead the nation in renewable and sustainable energy in the 21st century, or we can frustrate our efforts as we argue with one another that has the best solution and relinquish our leadership to someone else.

We believe Act 204 should be given a chance to work. There are adequate safeguards built into the legislation. SB1348 completely eliminates consumer choice. It ignores the fact that on-demand gas water heaters are an energy efficient alternative that residential homeowners should be given the opportunity to select as an option when deciding how best to heat their water.

With the inclusion of gas in Act 204 (2008), the legislature recognized that homeowners and builders should have access to a variety of energy conserving alternatives. We have attached data to our testimony to support these statements.

The Gas Company is proud of its reputation of providing our island residents and businesses with dependable gas energy. Gas has one-third the carbon footprint as electricity and is available day and night. When teamed with solar, it can reduce cost and carbon consumption by more than 80 percent.

SB1348

Testimony of Jeffrey Kissel

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Page 3

Even after hurricanes, electricity blackouts, and the attack on Pearl Harbor, our customers could always depend on our reliable delivery of gas. It is because of our solid reputation of serving Hawaii as a clean, efficient and reliable energy provider that we believe The Gas Company must continue to have an integral role in Hawaii's sustainable solutions.

We encourage you to hold this bill and retain the consumer choice options for energy efficiency provided in Act 204 (2008).

Thank you for allowing The Gas Company to present these comments.

Heating Up: the Debate about Instantaneous Water Heaters

What is an instantaneous water heater? Sometimes called tankless or demand water heaters, instantaneous water heaters (IWHs) don't have storage tanks, and therefore don't have the standby losses of tank-type conventional water heaters (CWHs). Consequently, they must have enough heating capacity to instantly heat water flowing through at various flow rates and temperatures. More sophisticated models modulate electric or gas input to handle widely fluctuating input water temperatures from solar systems.

Are IWHs significantly more efficient than conventional water heaters? IWHs, by avoiding standby losses (heat losses to ambient air from storing hot water), are more efficient than conventional water heaters. The question is how much more efficient. Standby losses depend on water heater design, size of the tank, ambient temperature, set point temperature, and hot water draw rate.

To reduce exaggerated claims, GAMA (Gas Appliance Manufacturers Association) rates residential gas water heaters under a standard test procedure. Based on the results of the testing, each model is assigned an Energy Factor (EF) value. The EF represents the fraction of hot water energy delivered (41,045 BTUs) divided by the total energy consumed, including combustion and standby losses. GAMA then calculates the annual water heating cost (at their assumed gas rate) for a typical family using 64.3 gallons a day of 140°F hot water, and publishes the Energy Factor and energy cost information both on their website, www.gamanet.org, and on the yellow "Energy Guide" tags on new residential water heaters. Energy Factors for tank-type water heaters range from .55 to .67, while EFs for instantaneous heaters range from .80 to .92, with the vast majority hanging in the low 80's.

To give a numerical example, let's assume you're comparing energy costs of a conventional water heater model with an Energy Factor of .60 with an IWH which has an EF of .80. Immediately we know the savings will be $(.80-.60)/.60$, or 33 percent. In dollars per year at an SDG&E gas rate of \$1.20 per therm, this is $(41,045/100,000)/.06 \times .33 \times \$1.20 \times 365 \text{ days} = \100 per year. Keep in mind that this example is comparing new water heaters, using the GAMA 64.3 GPD (41,045 BTUs a day) profile. If your actual daily draw is much higher or lower than 64.3 GPD, the resulting savings will be somewhat proportional. The savings with higher consumption are not strictly proportional (but close) because higher cold water daily flows through a tank-type heater tend to lower the average tank temperature while it recovers. Therefore the standby losses go down and the Energy Factor goes up.

A large US manufacturer, Bradford White, which makes both tank-type water heaters and tankless water heaters, tested two conventional water heaters versus two instantaneous water heaters. They published the results in PM Engineer Magazine, January 7, 2005. The results showed some interesting conclusions:

- first, tank-type water heaters are becoming more efficient so the savings of tankless models is less,
- second, the constant-burning pilot light on one tankless model nearly wiped out the savings in standby losses,
- third, higher draw rates (107 GPD vs. the GAMA 64 GPD) seemed to raise the Energy Factors of the tank-type water heaters,
- finally (San Diegans take note!) water hardness was more detrimental to tankless water heaters than to tank-type water heaters. The tankless water heaters lost nearly

2 percent efficiency in only two weeks! This may be explained by higher intensity combustion in the tankless unit, impacting slow-flowing hard water in a constricted passageway. Bradford White recommends periodic de-liming service or water softening in hard water areas.

Is it good to combine IWHs with solar water heating? It's good if your goal is to squeeze out every last bit of savings, such as for a Zero Net Energy home or to fight global warming. But the economic advantages are marginal. The solar system should be sized to save about 70 percent of water heating energy, which leaves only 30 percent for the IWH to work on. Given the GAMA example above, with \$1.20 per therm, the IWH savings would be reduced from \$100 per year to $0.33 \times \$100 = \33 a year. Given that installed costs for IWHs can be twice those for conventional water heaters (\$1600 vs. \$850), the payback for the additional investment of \$750 would be $\$750/\$33 = 23$ years. If you're a serious global warming battler, go for it!

The following chart compares total undiscounted 20-year lifecycle costs for various types of water heaters. It reflects San Diego area gas & electric energy costs, and assumes no inflation of these costs. Note that solar does very well in this comparison because it is highly incentivized through 2008. Also note that if rates rise and if longer periods are evaluated (solar collectors should last 30 years), the comparative benefit of solar is even greater.

Comparing Life Cycle Costs

Water Heater Type	Energy Factor (EF)	Cost	Yearly Energy Cost	Life (Years)	20 Year Total Cost
Conventional Gas Tank-type heater	0.6	\$850	\$300	13	\$7,700
Electric Tank-type heater	0.9	\$750	\$634	13	614,180
Gas Demand heater (no pilot)	0.8	\$1,600	\$225	20	\$6,100
Solar with electric heater (1-tank)	3	\$2,660	\$190	20	\$6,460
Solar with gas heater (2-tank)	2	\$3,360	\$90	20	\$5,160

Notes.

1. Costs are installed costs. Solar gross costs: 2-tank gas backup = \$6,000 Solar 1-tank electric backup = \$5,000
2. Based on 64.3 gallons a day (family of four, 41,045 Btus a day)
3. \$1.20 a therm for gas. \$.13 a kWh for electric
4. **No fuel price escalation**
5. Solar based on 70 percent Solar Fraction
6. Solar cost reduced by 30percent Federal Tax Credit and CCSE rebate of about \$1 200*
7. The average electricity cost for large homes can reach\$0.20/kWh or more

* **SWH rebates and Federal Tax Credits expire Dec. 31, 2008**

Resources

1. www.aceee.org/consumerguide/waterheating.htm
2. www.gamanet.org
3. www.eere.energy.gov/consumer



P.O. Box 3000
Honolulu, Hawaii 96802-3000

Phone 808.535-5933
Fax 808.535-5944

February 5, 2009

Testimony for SB1348 Relating to Energy Resources

Aloha Chair Gabbard, Vice-Chair English and Members of the Committee on Energy and Environment:

Aloha Chair Baker, Vice-Chair Ige and Members of the Committee on Commerce and Consumer Protection:

We are employees of The Gas Company who work on the island of Kauai. We are concerned about Senate Bill 1348 related to Energy Resources, and oppose the amendments being made to Act 204 (2008).

SB1348, as currently written, would limit consumer options in selecting energy efficient technologies for residential water heater devices. We believe that customers should have the opportunity to select an alternative efficient water heater device, such as an on-demand gas water heater. In Hawaii, where space is at a premium, users appreciate this energy efficient and compact appliance to support or back up their water heating requirements.

Gas, whether supplied by tanks or pipeline, is a reliable, clean and efficient energy source. It also helps to reduce the pressure on the electric infrastructure. In addition, gas and propane are made from petroleum by-products and do not increase oil imports to Hawaii. Our company has embarked upon a program to replace 50% of our petroleum-based gas with gas produced from renewable sources within five years.

As employees of The Gas Company, we are proud of our record of providing safe, uninterrupted, and reliable gas energy service to our customers. Our gas distribution system is the most efficient and reliable way to deliver renewable thermal energy for heating water, cooking food, and drying clothes. We are concerned that the elimination of gas as an efficient option in new construction could have an adverse effect on our business, our jobs, and our State's economy.

We urge you to hold SB1348. Thank you for allowing us to present these comments.

1. Glen Takenouchi, 2790 Kanani St., Kauai
2. Darin Yoshioka, 3184 Inouye St, Kauai
3. Cheryl Lien-Fua, 4588A Oxford St., Kauai
4. Jesse Akagi, 4424 Laukona St., Kauai
5. Glenn Matsunaga, 3950 Koloa Rd., Kauai

6. Eddie Taniguchi III, 4261 Kailewa St., Kauai

Eddie Taniguchi III

7. Stanley Viquelia, 4373 Laukona St., Kauai

Stanley Viquelia

8. Rolando Agustin, 4175 Mamo St., Kauai

Rolando Agustin

9. Lance Fujimura, 807 Laulea St., Kauai

Lance Fujimura

10. Neil Fagarang, 4373 Laukona St., Kauai

Neil Fagarang

11. Eric Unciano, 735 Laulea St., Kauai

12. Napela Napoleon, 1025 Kealoha Rd, Kauai

Napela Napoleon

13. Philbert Butac, 4303 Kilauea, Rd., Kauai

Philbert Butac

14. Moses Keale, 3815 Kawelo St., Kauai

15. Alice Sasaki-Yamamoto, 2814 Hoolako St., Kauai

Alice Sasaki-Yamamoto

16. Melba Jacinto, 3960 Mamaki St., Kauai

Melba Jacinto

17. Dianne Tabura, 5531-D Hauaala Rd., Kapaa

Dianne Tabura



P.O. Box 3000
Honolulu, Hawaii 96802-3000

Phone 808.535-5933
Fax 808.535-5944

February 5, 2009

Testimony for SB1348 Relating to Energy Resources

Aloha Chair Gabbard, Vice-Chair English and Members of the Committee on Energy and Environment:

Aloha Chair Baker, Vice-Chair Ige and Members of the Committee on Commerce and Consumer Protection:

We are employees of The Gas Company who work on the Big Island of Hawaii. We are concerned about Senate Bill 1348 related to Energy Resources, and oppose the amendments being made to Act 204 (2008).

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We urge you to hold SB1348. Thank you for allowing us to present these comments.

Marvin Min
R. O. Talbot
Dennis J. ...
Huyon Eckert
V. H. ...
Key ...
Candy ...
Priscilla ...

John ...
Judy ...
George ...
Ray ...
John ...
Charles K. ...
Alexander K. ...
Robert ...

Luana ...
Dan ...
James ...
John ...
...



P.O. Box 3000
Honolulu, Hawaii 96802-3000

Phone 808.535-5933
Fax 808.535-5944

February 2, 2009

Testimony for SB1348 Relating to Energy Resources

Aloha Chair Gabbard, Vice-Chair English and Members of the Committee on Energy and Environment:

Aloha Chair Baker, Vice-Chair Ige and Members of the Committee on Commerce and Consumer Protection:

We are employees of The Gas Company who work at the SNG Plant and LPG Supply and Distribution Center located in the Campbell Industrial Park Complex. Several of us also live in the Leeward community. We are concerned about Senate Bill 1348 related to Energy Resources, and oppose the amendments being made to Act 204 (2008).

SB1348, as currently written, would limit consumer options in selecting energy efficient technologies for residential water heater devices. We believe that customers should have the opportunity to select an alternative efficient water heater device, such as an on-demand gas water heater. In Hawaii, where space is at a premium, users appreciate this energy efficient and compact appliance to support or back up their water heating requirements.

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We urge you to hold SB1348. Thank you for allowing us to present these comments.

James A. Harrison

Angel Velazquez *Franklin Carter* *Sam Wai* *Jeff Adams*
Deborah *Springer* *Wendell K. Wong*
Lance Chun *Blair* *Melvin Carter* *Jimmy*
Todd Manda *J. Calvato* *Steven Adams*
[Signature] *Abel Mucado* *Rodriguez J. David*
[Signature] *Carl [Signature]* *Wendell Waterhouse*
[Signature] *Randall K. Kaiwa*

Joe Hart

My Kohrt

J. Hilt

Shy Mhaguna

David Hoover

John Glia



P.O. Box 3000
Honolulu, Hawaii 96802-3000

Phone 808.535-5933
Fax 808.535-5944

February 5, 2009

Testimony for SB1348 Relating to Energy Resources

Aloha Chair Gabbard, Vice-Chair English and Members of the Committee on Energy and Environment:

Aloha Chair Baker, Vice-Chair Ige and Members of the Committee on Commerce and Consumer Protection:

We are employees of The Gas Company who work on the island of Oahu. We are concerned about Senate Bill 1348 related to Energy Resources, and wish to express our opposition with the amendment being made to Act 204 (2008) which eliminates a gas appliance as a variance.

SB1348, as currently written, would limit consumer options in selecting energy efficient technologies for residential water heater devices. We believe that customers should have the opportunity to select an alternative efficient water heater device, such as an on-demand gas water heater. In Hawaii, where space is at a premium, users appreciate this energy efficient and compact appliance to support or back up their water heating requirements.

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We urge you to hold SB1348. Thank you for allowing us to present these comments.

Ray H. Yoshinaka

Kimberly Hamed
Charmaei Cante
Mulliecut Paramoro
je MD Wilhoits
Aloman, L. Solito
Chad J.
Eva B.
K. Parake
Pallindipala
Alice Webb



P.O. Box 3000
Honolulu, Hawaii 96802-3000

Phone 808.535-5933
Fax 808.535-5944

February 5, 2009

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We urge you to hold SB1348. Thank you for allowing us to present these comments.

Alan H. H. Hihana
Robert W. [Signature]
Diana Ramon
Colbert J. [Signature]
Yun Yu
Karen Shinagawa

Douglas K. Heshide
[Signature]
Michael J. [Signature]
[Signature]



P.O. Box 3000
Honolulu, Hawaii 96802-3000

Phone 808.535-5933
Fax 808.535-5944

February 5, 2009

Testimony for SB1348 Relating to Energy Resources

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Aloha Chair Baker, Vice-Chair Ige and Members of the Committee on Commerce and Consumer Protection:

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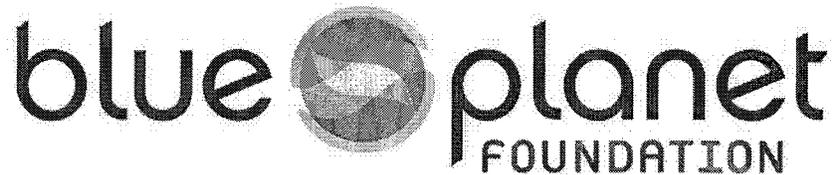
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We urge you to hold SB1348. Thank you for allowing us to present these comments.

Jeffrey Wa
Bo Cop
W. Yamada
Edmund H. Davis
Paul A.
Rush

Clinton Muesel *A. Wain*
Michael Non *Chaf. Ige*
Daley Smith, DeLeon *Pat Ory*
Spencer
1348



SENATE COMMITTEE ON ENERGY AND ENVIRONMENT
SENATE COMMITTEE ON COMMERCE AND CONSUMER PROTECTION

February 5th, 2008, 2:45 P.M.
Room 225

(Testimony is 4 pages long)

TESTIMONY IN SUPPORT OF SB 1348 WITH AMENDMENTS

Chairs Gabbard and Baker and members of the committees:

The Blue Planet Foundation supports Senate Bill 1348, making clarifying amendments and improvements to Hawaii's historic Solar Roofs Act. 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. We do not support, however, expanding the solar tax credit to include new homes that are mandated to install solar—those limited tax credits should be used to incentivize retrofitting existing homes with solar.

Specifically, Blue Planet supports the following changes to the existing solar requirement:

1. **Blue Planet supports charging the new public benefits fund administrator with the duty to accept and issue variances** instead of the energy resources coordinator at the Department of Business, Economic Development, and Tourism. We understand that there is some discussion about the legality of tasking a private entity with this somewhat regulatory responsibility, but if it is allowed, aligning the existing demand side management entity with this duty makes sense. The public benefits fund administrator should have an up-to-date understanding of the solar technology and the basis for granting or denying waivers.
2. **Blue Planet strongly supports removing the on-demand gas heater variance option.** Such an option should only be allowed (and perhaps required) if the first and second variances are met—that is, the home has poor solar resource and solar would fail the cost-effectiveness test.
3. **Blue Planet strongly supports clarifying that the solar tax credits for homes built prior to January 1, 2010, remain in place.** We believe this was the clear intent of the original Act, but making this policy abundantly clear is critical to provide comfort and certainty in the industry.
4. **Blue Planet supports using a portion of the demand side management surcharge for maintaining a post-installation inspection process.** Such an inspection would

verify that the solar water heater was installed in accordance with the quality and performance standards established in §269-44.

Blue Planet has no strong opinions regarding the other amendments suggested in this measure, but again, we don't support expanding the solar tax credit to reward new homeowners who are required to install solar.

Our testimony in support of the Solar Roofs Act in general follows.

The 2008 Solar Roofs Law will provide far-reaching environmental and economic benefits for Hawai'i and is the type of transformative policy that will help define our clean energy future. Based on current solar adoption rates, this new policy will reduce the need for thousands of barrels of oil annually and reduce greenhouse gas emissions by thousands of tons from the residential sector. For the first time, the Act established in law the creation of quality and performance standards for new solar water heaters. Starting in 2010, with solar water heaters a standard feature on new homes, residents will be more accustomed to the benefits of solar, turning more of them into potential customers for photovoltaic and other renewable energy devices.

Last year's historic Solar Roofs Act has broad support. People get it. It rings true. Houses should be built with solar up front. To spend more to retrofit a home later just doesn't make as much sense. Last year's bill passed with the support of numerous organizations (including the AIA), many individuals, and the editorial boards of both Honolulu dailies. The law also put Hawai'i on the map as a national leader in clean energy. Being the first state in the nation with such a progressive energy requirement launched Hawaii into the pages of the *New York Times* and *USA Today* and onto MSNBC and CNN.

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.

With 60,000 new homes planned for O'ahu alone over the next 20 years, the Solar Roofs Act is critically needed to ensure that we build them energy-smart and minimize the need for additional electricity demand. The first step toward zero-energy homes is the use of solar water heaters (the next step is to reduce electricity demand with efficient appliances and lighting, and the final step is to meet the remaining electricity demand with solar photovoltaic or other clean energy device). New homes, of course, are only part of the picture—hundreds of thousands of existing housing units in Hawai'i need to be retrofit with solar water heaters as well.

While Hawai'i leads the nation in the percentage of installed residential solar water heaters, some 75% of homes still lack this basic amenity. That means hundreds of thousands of housing units in Hawai'i rely on fossil fuel to keep their showers hot. Some local builders are starting to offer solar water heating as an option for new home buyers, but the majority of new homes built in Hawai'i do not use solar. Even with the established solar industry in Hawai'i and ample incentives, the most new homes are not converting to solar. Considering that we are adding around 5,000 new homes in Hawai'i annually, the Solar Roofs Act will go a long way to reduce fossil fuel use and greenhouse gas emissions.

Solar water heating is the single best "clean" energy alternative for residences in Hawai'i. A typical family home with solar water heating avoids over 2.5 tons of carbon dioxide from being emitted annually (about 3000 kilowatt-hours avoided). If approximately 5000 new homes are built annually and only 25% eventually have water heaters installed, the Solar Roofs Act prevent nearly 10,000 tons of greenhouse gases additionally from being emitted every year and over 3 million tons after 25 years. What's more, the energy from the sun is stored in the form of hot water, offsetting the electrical system peak that occurs in the evening. This helps offset the need for expensive new power plants—another societal benefit from increased residential solar energy use.

The Solar Roofs Act will greatly increase 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 over \$1000 annually for an average household on Kaua'i.

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 Act makes new home ownership more affordable by reducing the monthly utility burden.

Thank you for the opportunity to testify.



Hawaii Solar Energy Association
Serving Hawaii Since 1977

February 5, 2009
Room 211
9:30 A.M

Senate
Committee on Energy and Environment
SB1348

Mark Duda
President

Testimony in Strong Support

Chair Gabbard, Vice Chair English and Members of the Committees:

Hawaii Solar Energy Association (HSEA) is comprised of more than 30 installers, distributors, manufacturers and financiers of solar energy systems, both hot water and PV, most of which are Hawaii based, owned and operated. The organization's primary goals are: (1) to further solar energy and related arts, sciences and technologies with concern for the ecologic, social and economic fabric of the area; (2) to encourage the widespread utilization of solar equipment as a means of lowering the cost of energy to the American public, to help stabilize our economy, to develop independence from fossil fuel and thereby reduce carbon emissions that contribute to climate change; (3) to establish, foster and advance the usefulness of the members, and their various products and services related to the economic applications of the conversion of solar energy for various useful purposes; and (4) to cooperate in, and contribute toward, the enhancement of widespread understanding of the various applications of solar energy conversion in order to increase their usefulness to society.

HSEA members manufacture and install the majority of solar water heating systems, and install the majority of solar PV systems in the State of Hawaii. Our comments on this measure are based on this expertise, and our related experience in other renewable energy technologies.

HSEA makes the following comments regarding this measure:

1. SB1348 addresses all of HSEA's concerns with Act 204. This includes addressing what HSEA viewed as administrative problems with the implementation of the mandate; adding quality inspections; and lodging responsibility for the variance granting with the public benefits fee administrator.
2. SB1348 also attempts to harmonize standards and specifications for mandated systems (*i.e.*, new homes) with those for retrofits (*i.e.*, those that are govern the utility rebate program). This has a number of advantages, the two most important of which are: (a) it would subject mandated systems to a set of standards that is crafted specifically for the Hawaii market rather than applying a national standard, and (b) it would make life easier for solar contractors who will be installing both types of systems.

3. SB1348 also achieves incentive parity across qualifying renewable technologies. It does this by allowing tax credits on solar water systems, just as PV and wind qualify for tax credits if they are used to heat water.
4. SB1348 also eliminates the gas variance, which goes against the spirit of the 'solar mandate' legislation.

**Testimony Before the Senate Committee
On
Energy and Environment
and
Commerce and Consumer Protection**

February 5, 2009 (2:45 PM)

S.B. 1348 RELATING TO ENERGY RESOURCES

**By: Joanne Ide
Energy Services Department
Hawaiian Electric Company, Inc.**

Chair Gabbard, Chair Baker and Members of the Committee:

My name is Joanne Ide, and I represent Hawaiian Electric Company (HECO) and its subsidiary utilities, Hawaii Electric Light Company (HELCO) and Maui Electric Company (MECO). I appreciate the opportunity to present testimony on S.B. 1348.

HECO supports language in this bill to clarify the continued eligibility of retrofit installations of solar water heating systems for renewable energy technology tax credits. However we would like to call attention to lines 10 through 18 on page 9 which allow for all single-family homes with solar water heating systems placed in service after June 30, 2003 to be eligible for the tax credit, including new homes with building permits issued on or after January 1, 2010.

HECO also supports the elimination of the option for gas tankless instantaneous water heaters to replace solar water heaters. The inclusion of that option in Act 204 contradicts claims that the Act supported renewable energy.

HECO also appreciates the effort in the bill to strengthen solar water heating system quality assurance as buyers of new homes deserve to receive effective and reliable renewable energy systems. Thus, HECO supports post-installation inspections of the systems to verify that the standards have been met or exceeded and that to the extent practicable, the standards for solar water heating systems shall conform with those adopted or established by the Public Utilities Commission.

Thank you for this opportunity to testify on this measure.



Sierra Club Hawai'i Chapter

PO Box 2577, Honolulu, HI 96803
808.537.9019 hawaii.chapter@sierraclub.org

SENATE COMMITTEE ON ENERGY & ENVIRONMENT
SENATE COMMITTEE ON COMMERCE AND CONSUMER PROTECTION

February 5, 2009, 2:45 P.M.

(Testimony is 1 page long)

TESTIMONY IN SUPPORT OF SB 1348

Chair Gabbard, Chair Baker, and members of the Committees:

The Sierra Club, Hawai'i Chapter, with 5500 dues paying members statewide, generally supports HB 1464, making clarifying amendments and improvements to the Solar Roofs Act.

The Sierra Club has worked with the Hawaii Solar Energy Association ("HSEA") to reach an agreement as to the refinements that could be made to this historic act. We have reviewed HSEA's testimony and agree with it in principle. We emphasize separately, however, the following points that we believe should be changed:

- **Remove the Gas Variance.** The Sierra Club strongly supports removing the on-demand gas heater option inasmuch as it runs counter to the general principle of the Solar Roofs Act, to wit, to reduce our dependence on fossil fuels and lower our carbon emissions. Only if the the first and second variances are met should a developer be permitted -- and perhaps required -- to install an on-demand gas heater.
- **Clarifying the Solar Tax Credit.** We believe the Solar Roofs act is fairly clear, however to remove any ambiguity, a clarification could be made that the solar tax credit for homes constructed prior to January 1, 2010 remain in place.
- **Inspections.** The Sierra Club supports having some form of inspections to ensure quality solar water heater installations occur.

The Sierra Club has no position regarding the tax credits for new homes built under the Solar Roofs Act.

Thank you for the opportunity to testify.