



Sierra Club

Hawai'i Chapter

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HOUSE COMMITTEE ON HUMAN SERVICES & HOUSING HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

March 13th, 2008, 11:00 A.M.

(Testimony is 4 pages long)

TESTIMONY IN SUPPORT OF SB 644 SD3

Chairs Shimabukuro and Morita and members of the committees:

The Sierra Club, Hawai'i Chapter, with 5500 dues paying members statewide, strongly supports SB 644 SD3, mandating that new homes come equipped with solar water heaters where practical. This measure is a critical step in securing Hawaii's energy future, reducing our contribution to global climate change, and improving the affordability of housing in Hawai'i. A solar water heater on each and every new home is absolutely essential to achieve our state's energy and greenhouse gas targets.

Solar hot water should be a basic amenity in any new home in Hawai'i, just like indoor plumbing and electricity. Yet the majority of homes in Hawai'i use fossil fuels to heat their water. Even more surprising, the majority of new homes built in Hawai'i also lack solar water heaters—despite the ease of installing them when the house is under construction. SB 644 SD3 is a common-sense policy to require that developers have the long-term interest of new home buyers in mind. The following sections focus on the need for Senate Bill 644 SD3.

A full tank of gas lands on your roof every day

Hawai'i is blessed with substantial solar resource. The most populated parts of the state receive between 450 and 500 calories of solar radiation per square centimeter every day¹. To put into perspective, an average rooftop space of 1100 square feet receives the energy equivalent of approximately 15 gallons of gasoline daily. We are the Saudi Arabia of sun. While some parts of Hawai'i receive less (some parts of Puna, for instance), there is still ample sun to keep water hot. This measure would put that hot energy to work, reducing fossil fuel use and the cost of living.

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. In fact, the Romans used solar energy to heat the water flowing to baths in aqueducts.

¹ State of Hawai'i (2003). Hawaii Statewide GIS Program Solar Radiation Maps.

We must act today to stabilize carbon emissions

An overwhelming sense of urgency compels action on this and other substantial energy measures before the legislature. Given the rapid acceleration of climate destabilization, scientists are recently calling for near-zero carbon emissions within a matter of decades². Solar water heating forms the foundation of reducing residential carbon emissions. Additionally, the cost of living has increased in Hawai'i due to the escalation of the global oil price. Since this measure was considered last year at this time, the price of oil has DOUBLED³. With 60,000 new homes planned for O'ahu alone over the next 20 years⁴, this measure is critically needed to ensure that we build them energy-smart and minimize the need for additional electricity demand.

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. This measure wisely increases the current solar tax credit to increase the adoption of solar thermal for existing homes.

Israel, Spain, and others mandate solar

While bold, this measure is not without precedent. In 1957, Israel mandated that all new homes in the country come equipped with solar water heaters. They've held on to that policy for over half a century. Since January, 2007, Spain has required solar water heaters on all new residential construction⁵. Here in Hawai'i, the Navy has been building all of its new residential units with solar thermal. In fact, the Army and Air Force are starting to build solar photovoltaic into some of its new residential units. This is construction performed by private contractors—the same type of contractors who would install solar for new civilian residential units. While passage of SB 644 SD3 would make Hawai'i the first state in the nation with such a requirement, solar mandates have been successfully used elsewhere to decrease energy costs and reduce fossil fuel use.

Some 80% of Hawai'i homes lack solar, and the majority of new homes are built with electric hot water heaters installed

While Hawai'i leads the nation in the percentage of installed residential solar water heaters, some 80% 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. Senate Bill 644 SD3 increases the solar tax credit for retrofitting these existing homes to encourage even greater adoption of solar thermal.

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. A quick scan of Google Earth verifies this fact—particularly for

² Matthews, H. D., and K. Caldeira (2008), Stabilizing climate requires near-zero emissions, *Geophysical Research Letters*, 35, L04705, 27 February 2008.

³ U.S. Energy Information Administration (2008), Short-Term Energy Outlook, 11 March 2008.

⁴ Gomes, Andrew(2006), 60,000 new homes planned for O'ahu, *Honolulu Advertiser*, 19 September 2006.

⁵ International Renewable Energy Alliance, <http://www.ren-alliance.org>, accessed 12 March 2008.

developments in the fast-growing (and hot) Ewa and Kapolei regions of O'ahu. Considering that we are adding around 5,000 new homes in Hawai'i annually, this measure would go a long way to reduce fossil fuel use and greenhouse gas emission.

A solar mandate will dramatically reduce greenhouse gas emissions

Yet 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, then a solar mandate would prevent nearly 10,000 tons of greenhouse gases additionally from being emitted every year and over 3 million tons after 25 years.

A solar mandate could add \$690 million to our state over 25 years

A residential solar requirement would keep money circulating in the state economy. Oil is expensive and getting more expensive. In the time since this identical measure was heard by these two committees, the price of petroleum has essentially doubled. Hawai'i now spends nearly \$5 billion annually to import petroleum (approximately 47,000,000 barrels annually⁶). If a solar mandate for new residential units were to pass, we could save millions of dollars annually on oil imports. Consider the previous estimate of 5000 new homes added per year. If the average solar home displaces the need for roughly 5 barrels of oil (comparable to 2.5 tons of CO₂) and oil stays at \$100 per barrel (it is currently trading at \$110), then this measure would keep \$1.9 million in the state's economy additionally every year (again, considering only the 75% of homes that would not install solar independent of this mandate). Over 25 years (assuming the price of oil *doesn't* increase), that would amount to a collective savings of \$690 million (compared with status quo 25% solar adoption rate).

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.

Solar built into the house upfront makes living more affordable

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." Owners have to sacrifice very little to obtain the exact same "service" as they would receive with conventional water heating.

⁶ State of Hawai'i (2007). Department of Business, Economic Development, and Tourism, Data Book 2006.

The cost of living is a top-of-mind issue for many in Hawai'i. Senate Bill 644 SD3 makes new home ownership more affordable by reducing the monthly utility burden.

The right policy will preserve the robust solar industry in Hawai'i while expanding the benefits of solar to new customers

The solar industry has legitimate concerns about the potential effects of a mandate on the quality of solar installations. They have long memories and remember the unscrupulous fly-by-night installers who were simply taking advantage of the 50% tax credits offered at the time. These poor installations soured some people on the use of solar and did damage to the reputation of the solar industry—damage that lasts today when some cite concerns about leaking roofs or make ridiculous claims about solar energy's effectiveness.

These concerns are not insurmountable. Senate Bill 644 SD3 wisely incorporates the utility's current complete inspection plan for quality assurance. **We believe that the systems required under this measure should also be approved by a licensed engineer or contractor to ensure some sort of accountability.** By requiring a licensed engineer or contractor, the individual's name, reputation, and license are on the line.

In sum, we fully support SB 644 SD3 as an essential tool to help secure Hawaii's energy future, reduce our contribution to global climate change, and improve the affordability of housing in Hawai'i.

Please move SB 644 SD3 forward.

Thank you for the opportunity to testify.

From: Chuck McKeon [mailto:mckeonc001@hawaii.rr.com]
Sent: Wednesday, March 12, 2008 11:03 PM
To: HSHtestimony
Subject: SB 644 SD3 Requiring solar water heaters for all newly constructed residential properties

COMMITTEE ON HUMAN SERVICES & HOUSING
Chair: Rep. Maile S. L. Shimabukuro
Vice Chair: Rep. Karl Rhoads

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Chair: Rep. Hermina M. Morita
Vice Chair: Rep. Mele Carroll

Date: Thursday, March 13, 2008
Time: 11:00 a.m.
Room: 329

SB644 SD3 Relating to Renewable Energy SUPPORT

Aloha Chairs Shimabukuro and Morita, Vice Chairs Rhoads and Carroll and Members of the Committees,

SB 644 SD3 would require solar water heaters for all newly constructed residential properties. This is a critical bill that needs to be passed. Solar water heaters are the simplest, easiest and most cost-effective way to decrease the use of fossil fuels.

Yes, this will add to the initial cost of new homes, but how else will we stem the tide of ever increasing fossil-fuel use? Hopefully, by requiring all new houses to include solar water heating, the unit cost of solar water heating systems in Hawaii will decrease.

Chuck McKeon

Chuck McKeon
e-mail: mckeonc001@hawaii.rr.com
v-home: 808-395-5193
v-mobile: 808-256-7199

From: charmaine@igc.org [mailto:charmaine@igc.org]
Sent: Wednesday, March 12, 2008 9:51 PM
To: HSHtestimony
Cc: Hermina Morita
Subject: Pass the Solar Water Heating bill please HB

COMMITTEE ON HUMAN SERVICES & HOUSING

Chair: Rep. Maile S. L. Shimabukuro
Vice Chair: Rep. Karl Rhoads

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

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Date: Thursday, March 13, 2008
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Room: 329

SB644 SD3 Relating to Renewable Energy SUPPORT

Good Morning Chairs Shimabukuro and Morita, Vice Chairs Rhoads and Carroll and Members of the Committees,

This is the moment where we have to be forward thinking if not out of the box to solve the problems of global warming and fossil fuels. SB 644 SD3 should be passed; otherwise we lose another opportunity to wean ourselves from our addiction to oil. We simply cannot afford to lose any more opportunities, we need to grab bills like this, pass them immediately and set the tone for a sustainable future. I am a credit card away from buying a one way air fare out of here because i feel disasters are around the corner and not enough is being done to become self reliant and self sustaining. Please do the right thing for all the citizens of Hawaii and move in a positive direction. Passing SB 644 SD3 is a positive step. Making solar water heaters a requirement for all newly constructed residential properties is the way to go.

Charmaine Crockett

1576 Elua Street, Honolulu, Hi 96819 853-2218

-----Original Message-----

From: jsikorsk@wiley.com [mailto:jsikorsk@wiley.com]

Sent: Thursday, March 13, 2008 3:28 AM

To: HSHtestimony

Subject: Testimony

As a visitor to and a lover of Maui, I want this place to be remain as beautiful as it is now.

Maui and Hawaii can lead the world in energy conservation and green architecture and be a showplace for environmental tourism.

Please mandate solar heating.

Thanks

and Best,

Joy

Joy Sikorski

Hoboken, NJ 07030

phone (201) 748-6737

House Committees on
Human Services & Housing and Energy & Environmental Protection
Thursday, March 13, 2008
11:00 a.m.
State Capitol, Conference Room 329

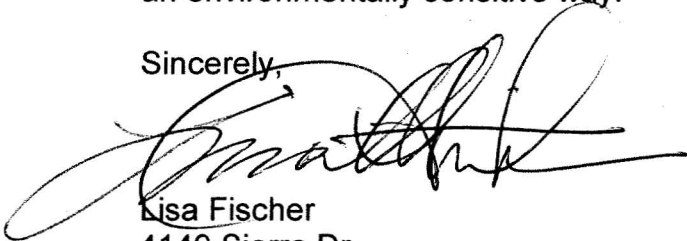
Aloha Chair Shimabukuro, Vice Chair Rhoads, Chair Morita, Vice Chair Carroll
and Members of the Committees

I **support** SB644SD3, Relating to Energy Resources, that would require the
installation of solar water heaters on newly constructed single-family homes,
condos and townhouses.

Installing solar water heaters in new homes makes sense, both economically and
for the environment. The additional costs to the new homeowner will be nominal
when bundled into the mortgage and will be offset by the savings in electricity. At
a minimum, the bill should mandate that all new homeowners be offered the
option to install solar panels while it is being constructed. In 2007, California
enacted the Million Solar Roofs bill that requires developers to offer the option.

Since the need for housing is a number one concern of Hawaii's residents, we
may not be able to stop the building of new homes, but we should build them in
an environmentally sensitive way.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lisa Fischer', written over a horizontal line.

Lisa Fischer
4149 Sierra Dr.
Honolulu HI 96816

LATE TESTIMONY FOR SB 644 SD 3

HSH/EEP MARCH 13, 2008

1100AM

ROOM 329

To: Rep. Maile Shimabukuro, HSH Chair
Rep. Hermina Morita, EEP Chair

From: Vince, Alyce & Fred Dodge
Manny Miles
Karen Young
Summer Shimabukuro

SB644 SD3 Relating to Renewable Energy
SUPPORT

Aloha Chairs Shimabukuro and Morita, Vice Chairs Rhoads and Carroll and Members of the Committees,

SB 644 SD3 would require solar water heaters for all newly constructed residential properties. This is a critical bill that needs to be passed. Solar water heaters are the simplest, easiest and most cost-effective way to decrease the use of fossil fuels. Currently most new homes are built without solar water heaters, and the members of the Hawaii Solar Energy Association are then able to convince a small percentage of these new homeowners to install solar water heater systems. This results in most new homes going bare and requiring unneeded electrical energy. This wasteful practice must be stopped.

Mahalo

-----Original Message-----

From: Daniel Grantham [mailto:dannygr@hawaiiantel.net]
Sent: Thursday, March 13, 2008 8:15 AM
To: HSHtestimony
Subject: Testimony

COMMITTEE ON HUMAN SERVICES & HOUSING
Chair: Rep. Maile S. L. Shimabukuro
Vice Chair: Rep. Karl Rhoads

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Chair: Rep. Hermina M. Morita
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Date: Thursday, March 13, 2008
Time: 11:00 a.m.
Room: 329

SB644 SD3 Relating to Renewable Energy SUPPORT

Aloha Chairs Shimabukuro and Morita, Vice Chairs Rhoads and Carroll
and Members of the Committees,

SB 644 SD3 would require solar water heaters for all newly
constructed residential properties. This is a critical bill that
needs to be passed. Solar water heaters are the simplest, easiest and
most cost-effective way to decrease the use of fossil fuels.

Currently most new homes are built without solar water heaters, and
the members of the Hawaii Solar Energy Association are then able to
convince a small percentage of these new homeowners to install solar
water heater systems. This results in most new homes going bare and
requiring unneeded electrical energy. This wasteful practice must be
stopped.

Energy Chair, Maui Sierra Club
Daniel Grantham
P.O. Box 610
Haiku, HI 96708
808-572-4571

-----Original Message-----

From: Cynthia Hathaway [mailto:doorways@aloha.net]

Sent: Thursday, March 13, 2008 8:36 AM

To: HSHtestimony

Subject: SB644 SD3 Relating to Renewable Energy SUPPORT

Aloha Chairs Shimabukuro and Morita, Vice Chairs Rhoads and Carroll and Members of the Committees,

Here is an opportunity to be proactive. We need laws that guide us toward conservation and a healthier future for our next generation. Use your power to implement such things as mandatory solar water heaters. Thank you for honoring my values.

Please support SB644 SD3.

Cynthia Hathaway

HCR1 Box 5377

Keaau, HI 96749

From: Nick Striebich [mailto:sifunick@yahoo.com]

Sent: Thursday, March 13, 2008 9:29 AM

To: HSHtestimony

Subject: Testimony

I support the bill to have solar systems installed in new construction. It is a great way to cut electric bill costs, reduce our dependence on fossil fuels. A solar system is easiest to install in new construction,; it is "painless". I do not feel that installations only by HSEA member solar companies should get the solar tax credits/rebates. Any capable contractor (or even a homeowner themself) can install a solar system; and the owner of the new solar system should get the credits. HSEA must have a strong lobby, and "own" some of our political leaders. Let the work go out to the lowest bidder. I have had a solar system for about 15 years; it is very energy efficient. My electric bill is greatly reduced; as heating water for your home is about the most expensive part of the electric bill for a normal family. I am an electrical supervisor, work on new construction, renovations, commercial electrical projects.

Do not let the HSEA ,or any other special interest group,keep Hawaii consumers from getting all the help they can get to reduce the cost of living; and reduce our dependency on fossil fuel.

Nicholas Striebich, Supervising Electrician, Hawaii License ES-5410 .

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-----Original Message-----

From: Richard Pratt [mailto:pratt@hawaii.edu]
Sent: Thursday, March 13, 2008 9:38 AM
To: HSHtestimony
Subject: testimony on SB644SD3

House Committees on
Human Services & Housing and Energy & Environmental Protection
Thursday, March 13, 2008
11:00 a.m.
State Capitol, Conference Room 329

Chair Shimabukuro, Vice Chair Rhoads, Chair Morita, Vice Chair Carroll and
Members of the Committees

I support SB644SD3, Relating to Energy Resources, that would require the
installation of solar water heaters on newly
constructed residential properties.

Hawaii has a history of public regarding legislation - public access to
beaches, first public education system west of the
Mississippi, employer mandated health care, and more - and the addition of a
mandate to install solar water heaters on new
homes should be added to the list. Solar energy is the one of the few
natural resources that Hawaii can harness for energy, so
we should maximize its usage in order to reduce the State's dependency on
oil.

No single measure will solve our energy issues, but this is a step in the
right direction

Sincerely,

Richard Pratt
4155 Sierra Dr.
Honolulu HI 96816