



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

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Statement of
THEODORE E. LIU
Director
Department of Business, Economic Development, and Tourism
before the
SENATE COMMITTEE ON
COMMERCE, CONSUMER PROTECTION, AND AFFORDABLE HOUSING
Friday, February 22, 2008
9:00 a.m.
State Capitol, Conference Room 229

in consideration of
SB2985,SD1
RELATING TO PAY AS YOU SAVE.

Chair Kokubun, Vice Chair Ige, and Members of the Committee.

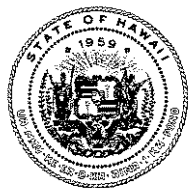
The Department of Business, Economic Development, and Tourism (DBEDT) supports SB2985,SD1, which is an Administration measure to expand the present Pay As You Save to residential electric utility customers and allow them to purchase a photovoltaic system with no upfront payments and to pay the cost of the system or systems over time on the customer's electricity bill.

This proposal amends the present Pay As You Save statute by including photovoltaics for residential use as part of a pilot project established by Act 240, SLH 2006. The present Pay as You Save addresses only residential solar water heating and only recently has been implemented by the various utilities. As with the residential solar water heating Pay as You Save program, the photovoltaics Pay as You Save program requirements will be subject to input by any interveners

in a docket established for this particular proposal and subject to review and oversight by the Public Utilities Commission.

As with solar water heating, the upfront cost for a photovoltaic system can be prohibitive for home owners. With Pay as You Save, these costs can be spread over time to make photovoltaic systems accessible to home owners. With the rising cost of electricity, photovoltaic systems, using Pay as You Save, will allow home owners to purchase and install photovoltaic systems to reduce their monthly utility bills by amortizing payments on a monthly basis. Photovoltaic systems use the sun to generate electricity for direct use by the home owner. Photovoltaic systems are an off-the-shelf and readily available technology that uses solar energy to reduce the State's dependence on fossil fuel.

Thank you for the opportunity to offer these comments.



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TO THE SENATE COMMITTEE ON COMMERCE, CONSUMER PROTECTION,
AND AFFORDABLE HOUSING

THE TWENTY-FOURTH LEGISLATURE
REGULAR SESSION OF 2008

Friday, February 22, 2008
9:00 a.m.

TESTIMONY OF CATHERINE P. AWAKUNI, EXECUTIVE DIRECTOR,
DIVISION OF CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND
CONSUMER AFFAIRS TO THE HONORABLE SENATOR KOKUBUN, CHAIR
AND MEMBERS OF THE COMMITTEE

**SENATE BILL NO. 2985, SENATE DRAFT 1 – RELATING TO
PHOTOVOLTAIC SYSTEMS FOR PAY AS YOU SAVE.**

DESCRIPTION:

This measure expands the "Pay As You Save" solar water heater program to photovoltaic systems that convert sunshine into electricity, allowing users to pay each month through their electricity bill.

POSITION:

The Division of Consumer Advocacy ("Consumer Advocate") supports this Administration measure, which authorizes the Hawaii Public Utilities Commission ("Commission") to implement a pilot "Solar Pay As You Save Program." The Senate Committee on Energy and Environment addressed our concern relating to the timing for implementing the pilot program by providing the electric utilities with an additional six months to submit proposed tariffs for the Commission's review.

S.B. No. 2985, S.D. 1

Senate Committee on Commerce, Consumer Protection, and Affordable Housing
Friday, February 22, 2008, 9:00 a.m.

COMMENTS:

Hawaii has an abundance of renewable energy resources that can and should be used as alternatives to fossil fuels. As the measure accurately notes, the up-front cost of installing solar devices is a barrier preventing many Hawaii residents from purchasing and using solar water heating and photovoltaic systems.

Since the electric utilities' Solar Water Heating Pay As You Save tariffs were effective on June 30, 2007, we do not yet have a large amount of data evidencing the success and effects of the program. Nevertheless, based upon the information obtained while participating in the Solar Water Heating Pay As You Save docket relating to the opportunities for customers to acquire such solar water heating devices, we believe that the expansion of the program to include photovoltaic systems is worthy of exploration by the Commission.

Thank you for this opportunity to testify.



Sierra Club

Hawai'i Chapter

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

**SENATE COMMITTEE ON COMMERCE, CONSUMER PROTECTION,
AND AFFORDABLE HOUSING**
February 22nd, 2008, 9:00 A.M.

(Testimony is 2 pages long)

TESTIMONY IN SUPPORT OF SB 2985 SD1

Chair Kokubun and members of the Committee:

The Sierra Club, Hawai'i Chapter, with 5500 dues paying members statewide, strongly supports SB 2985 SD1, expanding the "Pay as you Save" program to include photovoltaic energy systems. Consumers have proven to be terribly myopic in their purchasing decisions when it comes to energy saving technologies. Despite the environmental and long-term economic advantages of converting to photovoltaic power, a miniscule percentage of Hawai'i homes take advantage of this technology. The upfront cost is the main barrier to more widespread adoption.

An examination of some of the economic barriers present in the diffusion of energy efficiency technologies provides insight into the challenges that the adoption residential photovoltaic energy faces. The adoption of photovoltaic is comparable to investment in energy efficiency in that it reduces the consumer's electricity bill. Of course, the greater magnitude of the savings—and the higher initial cost of the investment—distinguish photovoltaic adoption. Empirical studies examining the purchase of energy-saving devices reveal that high initial investment costs—regardless of the money savings from reduced electricity use—fosters a tendency to avoid energy saving innovations. These decisions can result in outcomes that are economically suboptimal considering likely investment alternatives available to the decision maker.

By foregoing certain energy efficiency investments, individuals demonstrate implied discount rates that are frequently an order of magnitude or higher over the prevailing discount rate. The table below shows a sample of implied discount rates from a literature review compiled by Sanstad, et al. (1995).

A 1983 study on refrigerators is notable for being one of the first to use very specific data and a simple technique. They examined two refrigerator models sold by the same national retailer between 1977 and 1979. The two refrigerators were identical in nearly every way except their energy use and cost: one used 410 kWh per year less electricity but cost \$60 more (Meier and Whittier, 1983). Using a 6% discount rate and a 20-year lifetime, the more efficient refrigerator saved energy at an electricity cost of just over one cent per kWh—lower than electricity prices prevailing in every state at the time (Meier and Whittier, 1983). Despite being widely advertised and being recommended by a prominent consumer magazine, the energy-efficient refrigerator was purchased by customers less frequently than the less expensive inefficient model (Meier and Whittier, 1983). Using regional electricity cost data, Meier and Whittier

calculated the implied discount rate by these purchases, which varied between 34% and 59%, depending on the region's prevailing residential electricity rate.

Average Implicit Discount Rates in Energy Efficient Investments (Sanstad, et al., 1995)

Study	End-use	Average rate
<i>Arthur D. Little (1984)</i>	Thermal shell measures	32%
<i>Cole and Fuller (1990)</i>	Thermal shell measures	26%
<i>Goett (1978)</i>	Space heating system and fuel type	36%
<i>Berkovec, Hausman and Rust (1983)</i>	Space heating system and fuel type	25%
<i>Hausman (1979)</i>	Room air conditioners	29%
<i>Cole and Fuller (1980)</i>	Refrigerators	61-108%
<i>Gately (1980)</i>	Refrigerators	45-300%
<i>Meier and Whittier (1983)</i>	Refrigerators	34-58%
<i>Goett (1983)</i>	Cooking and water heating fuel type	36%
<i>Goett and McFadden (1982)</i>	Water heating fuel type	67%

The issues that give rise to the "energy-efficiency paradox" are likely to be more pronounced in the decision to purchase a photovoltaic system, with high initial investment costs and lengthy payback times. Expanding the "Pay as you Save" program for photovoltaic purchases will help to eliminate this barrier and make photovoltaic more accessible to more local residents.

Please pass SB 2985 SD1.

Thank you for the opportunity to testify.

**Testimony Before the Senate Committee
On
Commerce , Consumer Protection, and Affordable Housing**

S.B. 2985 SD1 - RELATING TO PHOTOVOLTAIC SYSTEMS FOR PAY AS YOU SAVE

**Friday, February 22, 2008
9:00 a.m., Conference Room 229**

**By: Alan Hee
Energy Services Department
Hawaiian Electric Company, Inc.**

Chair Kokubun, Vice Chair Ige, and Members of the Committee:

My name is Alan Hee, and I represent Hawaiian Electric Company (HECO), Hawaii Electric Light Company (HELCO), and Maui Electric Company (MECO).

We believe that the development of renewable solar energy such as PV should be encouraged in the State since it can reduce the State's dependence on fossil fuels. However, we ask that the committee consider examining the current PAYS Program, which has been renamed the SolarSaver Pilot Program and is still in its first year of implementation, before considering any new proposals to add to the current PAYS Program.

The SolarSaver Program is a pilot program which is still in its infancy stage, having begun just a little over 6 months ago. Under the existing SolarSaver Pilot Program, customers are able to get a solar water heater installed with no up-front cost. A customer, whose application is approved, is able to get a solar water heating system installed by a licensed contractor. The system is paid for over time as part of their monthly electricity bill. These systems that are currently being installed under the SolarSaver Program are financed entirely by all residential customers.

The purpose of this SolarSaver Pilot Program is to test the three essential elements of the Pay-As-You-Go[®] concept:

1. Participants pay for the system over time through their monthly electricity bill without any upfront cost.
2. The system has to be cost effective. Benefits must exceed the cost; in other words, there must be a monthly positive cash flow and the loan period must be significantly less than the life of the water heater.
3. Repayment obligation follows the premise and not the customer.

So far, the program has seen moderate success. Through the middle of January, we have received 103 applications for solar water heating systems, approved 94 applications, and have installed 40 solar water heating systems. We have found that this particular program requires much more time due to administrative paperwork and processing since financing documents are involved and proper recordation through the Bureau of Conveyances is also required.

We would appreciate the opportunity to first focus on solar water heating to ensure that the existing pilot program is running smoothly and to work out any issues before considering any new proposals. We have not fully tested the pilot program with respect to transfers of ownership of a solar water heating unit between occupants, nor do we have a full picture of the total cost of administering the program given the short time the program has been in existence. As mentioned above the upfront cost for these system installations and the cost to administer

the program are financed entirely by residential ratepayers and we would like to insure that the program is as efficient as can be.

We would like to offer these comments for your consideration with respect to the inclusion of PV to the program.

- 1) PV systems are much more expensive relative to solar water heating systems. A typical solar water heating system for a family of four costs around \$5,000 whereas a typical residential PV installation of 2 kw costs around \$18,000.
- 2) PV systems will have a much longer loan repayment period under the program. The typical repayment period for a solar water heater is 12 years. The loan repayment period for a PV system would be nearly 29 years.
- 3) PV may not meet the cost-effective criteria of the program which requires the repayment period be significantly less than the service life of the system. The service life for a PV system is estimated at 25 to 30 years (as long as a 30 year mortgage).
- 4) The higher relative cost and the longer repayment period for PV will increase the financing responsibility on residential ratepayers and also increase their exposure to payment default risk.

Thank you for this opportunity to testify.

Testimony Before the Senate

Committee on Commerce, Consumer Protection, and Affordable Housing

By: Michael V. Yamane, P.E.
Senior Electrical Engineer
Kauai Island Utility Cooperative
4463 Pahee Street, Suite 1, Lihue, Hawaii, 96766-2000

Friday, February 22, 2008, 9:00 a.m.
Conference Room # 229

Senate Bill No. 2985, SD1 – Relating to Photovoltaic Systems for Pay as You Save

To the Honorable Russell S. Kokubun, Chair; David Y. Ige, Vice-Chair,
and members of the Committee:

Thank you for the opportunity to testify on this measure. My name is Mike Yamane, representing Kauai Island Utility Cooperative. I am here today to testify on SB 2985, S.D.1 that would expand the "Pay As You Save" solar water heater program to photovoltaic systems.

KIUC acknowledges and commends the Legislature's desire to create incentives to promote and, when practical, increase the role of renewable generation. However, KIUC has some reservation about this bill and would like to offer comments for your consideration.

- Allow for flexibility in program design and implementation from island to island acknowledging that a "One Size Fits All" program design approach is likely to be less successful. KIUC should have the ability to implement programs that reflect current market conditions for their island/service territory, meet customer needs and will garner support and participation from Trade Allies.
- Allow PUC to have the option to either grant a waiver of the regulatory requirement set forth in this section or an extension for meeting the prescribe requirement. Program mandates will place additional burden on KIUC staff to manage new programs along with KIUC's existing programs such as our Solar Loan program, Solar Rebate program, and Solar Water Heating Savings Pilot Program (PAYS Act240).

As you are aware KIUC is a member-owned electric cooperative. Unlike for profit corporations, cooperatives are non-profit and member run. Without the need for profits and shareholder dividends, cooperatives are free to invest what would normally be profits (cooperatives call them "margins") in the business by allocating margins to the cooperative's members as capital credit contributions, or, eventually, by making patronage capital refunds to its members.

Thank you for the opportunity to testify today representing KIUC.

HAWAII RENEWABLE ENERGY ALLIANCE

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TESTIMONY OF WARREN BOLLMEIER ON BEHALF OF THE HAWAII
RENEWABLE ENERGY ALLIANCE BEFORE THE SENATE COMMITTEE ON
COMMERCE, CONSUMER PROTECTION AND AFFORDABLE

SB 2985 SD1, RELATING TO PHOTOVOLTAIC SYSTEMS FOR PAY AS
YOU SAVE

February 22, 2008

Chair Kōkubun, Vice-Chair Ige and members of the Committee I am Warren Bollmeier, testifying on behalf of the Hawaii Renewable Energy Alliance (HREA). HREA is a nonprofit corporation in Hawaii, established in 1995 by a group of individuals and organizations concerned about the energy future of Hawaii. HREA's mission is to support, through education and advocacy, the use of renewables for a sustainable, energy-efficient, environmentally-friendly, economically-sound future for Hawaii. One of HREA's goals is to support appropriate policy changes in state and local government, the Public Utilities Commission and the electric utilities to encourage increased use of renewables in Hawaii.

The purpose of SB 2985 SD1 is to expand the successful "Pay As You Save" solar water heater program to photovoltaic systems that convert sunshine into electricity, allowing users to pay each month through their electricity bill. HREA strongly supports this bill with the following comments.

1. The application of PAYS-type programs has just started in Hawaii with the goal of encouraging certain consumers to purchase solar water heating systems on their utility bill. These consumers include renters and others that have not participated to date in the utility's DSM programs. We hope that these programs will become successful in assisting those customers;
2. We support the extension of the PAYS approach to PV, and immediately observe that it will require some innovation to implement given the high-costs of PV relative to solar water. We recommend that the PAYS program for PV be designed to "cover" the cost-effective portion of PV costs, with the remainder of PV costs to be covered by other incentives, e.g., state and federal tax credits and net energy metering benefits. This way, we believe this approach will allow individual PAYS-PV programs to be implemented a similar time period as the PAYS-solar water (up to approximately 12 years); and
3. Finally, we would encourage the committee to revise the PAYS law to include all of the PAYS® provisions. From our perspective, we believe this is the best way to ensure success for the PAYS programs.

Thank you for this opportunity to testify.