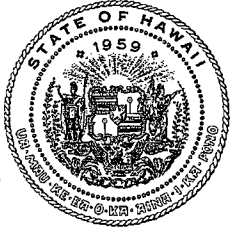


HB 2550 HD2



**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
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Statement of
THEODORE E. LIU
Director

Department of Business, Economic Development, and Tourism
before the

SENATE COMMITTEE ON ENERGY & ENVIRONMENT

Tuesday, March 18, 2008

3:15 p.m.

State Capitol, Conference Room 414

in consideration of

HB2550 HD2
RELATING TO PUBLIC UTILITIES.

Chair Menor, Vice-chair Hooser, and Members of the committee.

DBEDT supports HB 2550, HD2 to enhance Hawaii's energy and economic security by amending various Sections of Chapter 269 of the Hawaii Revised Statutes (HRS) to remove barriers to the development of solar electric resources and increasing the accessibility of net energy metering. The bill proposes to amend some sections of the Net Energy Metering law to increase the maximum capacity size of eligible customer generator, and to increase the total amount of net metered on the grid and at the same time allowing the Public Utilities Commission to modify this limit based on independent evaluation of the costs and benefits of net energy metering to all customers.

We also recommend adding one Part to the bill, to increase Hawaii's renewable portfolio standard from the current twenty per cent in 2020 to twenty-five per cent, and raise the percentage of the renewable portfolio standard to be met by electrical energy generation from renewable resources from the current level of fifty per cent to eighty per cent. These suggested amendments to Chapter 269-92 are detailed below.

These proposed amendments to the renewable portfolio standard will further enhance the intent of HB2550, HD2 and are necessary and important in decreasing Hawaii's dependence on imported fossil fuel. The increased use and development of renewable energy resources will greatly benefit Hawaii's economy, environment, energy security and sustainability, in many ways including:

1. Reduced reliance on imported oil supplies and fewer dollars leaving Hawaii's economy;

2. Reduced cost of fuel for electricity generation, and reduced exposure to the volatile oil prices in the world market;

3. Increased diversification of the electricity generation portfolio, reducing Hawaii's risk to the impact of oil supply shortage and uncertainty;

4. Economic benefits including increased economic activity, economic development and diversification, and job creation; and

5. Reduced greenhouse emissions and the attendant negative impact on climate change and global warming, and on Hawaii's environment.

Additionally, the Hawaii Clean Energy Initiative, a joint endeavor with the U.S. Department of Energy and the State of Hawaii, has a vision of 70% of Hawaii's energy coming from renewable

resources within a generation (2030). The importance of energy security and self-sustainability for our State cannot be overemphasized, and the long-term path and effort to achieve these objectives can no longer be delayed.

The significance of the proposed revisions to Section 269, HRS, in achieving Hawaii's energy goals cannot be overstated. In 2006, the Hawaii utilities used fossil fuel to generate over ninety per cent of the total electricity they sold, which represented almost twenty-five per cent of Hawaii's total oil imports. Only about eight per cent of the electricity sold was generated from renewable resources. Furthermore, the price risks of Hawaii's heavy dependence on imported fossil fuel for electricity generation are currently borne entirely by Hawaii's consumers.

There will be challenges in weaning the utilities from their heavy dependence on imported fossil fuels for electricity generation. However, the utilities are already moving in that direction. The new 110 MW peaking unit planned in Campbell Industrial Park by 2009, will use biofuels. The utilities' Renewable Portfolio Standard (RPS) Reports for 2006 indicated other renewable energy projects that the utilities are engaged in or working on in their efforts to achieve a more sustainable future.

The proposed changes in the net energy metering law and in the renewable portfolio standard can help Hawaii achieve energy independence and security. Hawaii is blessed by an abundance of renewable energy resources from the sun, wind, ocean, and earth. The sun provides abundant and free energy resource for solar water heating and for generation of electricity. Assessment of opportunities to harvest our ample wind resources have been

identified and continued to be updated. The use of wave energy for electricity generation is being tested and explored. We have large untapped geothermal resources on the Big Island. The potential for expanding the waste-to-energy capacity on Oahu is being considered and explored by the City and County of Honolulu.

The proposed amendments to Section 269-92, HRS, are as follows:

"§269-92 Renewable portfolio standards. (a) Each electric utility company that sells electricity for consumption in the State shall establish a renewable portfolio standard of:

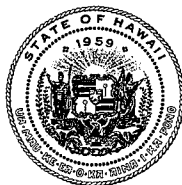
- (1) Ten per cent of its net electricity sales by December 31, 2010;
- (2) Fifteen per cent of its net electricity sales by December 31, 2015; and
- (3) [~~Twenty~~] Twenty-five per cent of its net electricity sales by December 31, 2020.

(b) The public utilities commission may establish standards for each utility that prescribe what portion of the renewable portfolio standards shall be met by specific types of renewable [~~electrical~~] energy resources; provided that:

- (1) At least [~~fifty~~] eighty per cent of the renewable portfolio standards shall be met by electrical energy generated using renewable energy as the source;
- (2) Where electrical energy is generated or displaced by a combination of renewable and nonrenewable means, the proportion attributable to the renewable means shall be credited as renewable energy; and
- (3) Where fossil and renewable fuels are co-fired in the same generating unit, the unit shall be considered to generate

renewable electrical energy (electricity) in direct proportion to the percentage of the total heat value represented by the heat value of the renewable fuels.”

Thank you for the opportunity to offer these comments.



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GOVERNOR
JAMES R. AIONA, JR.
LT. GOVERNOR

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DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
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LAWRENCE M. REIFURTH
DIRECTOR

RONALD BOYER
DEPUTY DIRECTOR

TO THE SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

THE TWENTY-FOURTH LEGISLATURE
REGULAR SESSION OF 2008

Tuesday, March 18, 2008
3:15 p.m.

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

**HOUSE BILL NO. 2550, HOUSE DRAFT NO. 2 – RELATING TO PUBLIC
UTILITIES.**

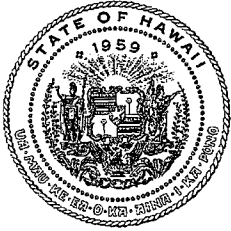
DESCRIPTION:

This measure increases the percentage of an electric utility's total rated generating capacity produced by eligible customer-generators to 1 per cent in 2008, 2 per cent in 2009, and 5 per cent in 2010. In addition, the measure increases the maximum capacity of an eligible customer-generator from 50 kilowatts to 250 kilowatts in 2008, 500 kilowatts in 2009, and 1 megawatt thereafter.

POSITION:

The Division of Consumer Advocacy ("Consumer Advocate") appreciates the intent of this measure, which provides for greater net-energy metering opportunities for customers of regulated utilities. The Consumer Advocate provides some suggested amendments for this Committee's consideration.

HB 2550 HD2



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

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Statement of
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Director
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resources within a generation (2030). The importance of energy security and self-sustainability for our State cannot be overemphasized, and the long-term path and effort to achieve these objectives can no longer be delayed.

The significance of the proposed revisions to Section 269, HRS, in achieving Hawaii's energy goals cannot be overstated. In 2006, the Hawaii utilities used fossil fuel to generate over ninety per cent of the total electricity they sold, which represented almost twenty-five per cent of Hawaii's total oil imports. Only about eight per cent of the electricity sold was generated from renewable resources. Furthermore, the price risks of Hawaii's heavy dependence on imported fossil fuel for electricity generation are currently borne entirely by Hawaii's consumers.

There will be challenges in weaning the utilities from their heavy dependence on imported fossil fuels for electricity generation. However, the utilities are already moving in that direction. The new 110 MW peaking unit planned in Campbell Industrial Park by 2009, will use biofuels. The utilities' Renewable Portfolio Standard (RPS) Reports for 2006 indicated other renewable energy projects that the utilities are engaged in or working on in their efforts to achieve a more sustainable future.

The proposed changes in the net energy metering law and in the renewable portfolio standard can help Hawaii achieve energy independence and security. Hawaii is blessed by an abundance of renewable energy resources from the sun, wind, ocean, and earth. The sun provides abundant and free energy resource for solar water heating and for generation of electricity. Assessment of opportunities to harvest our ample wind resources have been

identified and continued to be updated. The use of wave energy for electricity generation is being tested and explored. We have large untapped geothermal resources on the Big Island. The potential for expanding the waste-to-energy capacity on Oahu is being considered and explored by the City and County of Honolulu.

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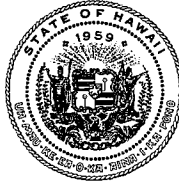
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- (3) Where fossil and renewable fuels are co-fired in the same generating unit, the unit shall be considered to generate

renewable electrical energy (electricity) in direct proportion to the percentage of the total heat value represented by the heat value of the renewable fuels.”

Thank you for the opportunity to offer these comments.



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TO THE SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

THE TWENTY-FOURTH LEGISLATURE
REGULAR SESSION OF 2008

Tuesday, March 18, 2008
3:15 p.m.

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

**HOUSE BILL NO. 2550, HOUSE DRAFT NO. 2 – RELATING TO PUBLIC
UTILITIES.**

DESCRIPTION:

This measure increases the percentage of an electric utility's total rated generating capacity produced by eligible customer-generators to 1 per cent in 2008, 2 per cent in 2009, and 5 per cent in 2010. In addition, the measure increases the maximum capacity of an eligible customer-generator from 50 kilowatts to 250 kilowatts in 2008, 500 kilowatts in 2009, and 1 megawatt thereafter.

POSITION:

The Division of Consumer Advocacy ("Consumer Advocate") appreciates the intent of this measure, which provides for greater net-energy metering opportunities for customers of regulated utilities. The Consumer Advocate provides some suggested amendments for this Committee's consideration.

H.B. No. 2550, H.D. 2
Senate Committee on Energy and Environment
Tuesday, March 18, 2008, 3:15 p.m.

COMMENTS:

Hawaii has an abundance of renewable energy resources that can and should be used to reduce our state's dependence on imported fossil fuels. Net-energy metering programs encourage customers to invest in renewable energy systems by allowing customers who own and operate certain renewable facilities to be paid the utility's retail rate for electricity generated by an eligible customer-generator and fed back to the electric grid.

On March 13, 2008, in Decision and Order No. 24089, the Hawaii Public Utilities Commission ("Commission") ruled in its net-energy metering docket, increasing the allowable customer-generator size to 100 kilowatts and raising the total rated generating capacity to 1 per cent. In addition, the Commission required the electric utilities to design and propose, within 45 days of the Commission's decision and order, a net-energy metering pilot program that will allow the use of a limited number of larger generating units (i.e., at least 100 kilowatts to 500 kilowatts, and may allow for larger units). Therefore, the targets set forth in the measure, may be somewhat premature or unnecessary, given the authority already provided to and being exercised by the Commission.

At a minimum, however, the language included in the measure that provides the Commission with the authority to "modify" (instead of merely "increase") the total rated generating capacity and customer-generator size should be passed, as it will be helpful in the development and implementation of the utilities' net-energy metering programs. The electric utilities and other stakeholders may be less apprehensive about implementing larger increases if the Commission was authorized to also decrease the amounts in certain circumstances, if some harm, previously unforeseen by the Commission and stakeholders, occurred.

The thresholds specified in the measure may not be reasonable or desirable for all islands, given the relatively small size of certain islands' systems. Therefore, if the Committee determines that such targeted thresholds (for customer-generator size and total rated generating capacity) should be established without awaiting the outcome of the Commission's process, the measure should be amended to expressly authorize the Commission to evaluate the applicability of such thresholds on an island-by-island basis and, in its discretion, disallow the application of the thresholds to certain islands or utility grid systems.

Thank you for this opportunity to testify.

**TESTIMONY OF CARLITO P. CALIBOSO
CHAIRMAN, PUBLIC UTILITIES COMMISSION
DEPARTMENT OF BUDGET AND FINANCE
STATE OF HAWAII
TO THE
SENATE COMMITTEE ON
ENERGY AND THE ENVIRONMENT
MARCH 18, 2008**

MEASURE: H.B. No. 2550 H.D. 2
TITLE: Relating to Public Utilities.

Chair Menor and Members of the Committee:

DESCRIPTION:

This bill proposes amendments to portions of chapter 269, Hawaii Revised Statutes (“HRS”) relating to net energy metering (“NEM”). The bill, among other things, substantially increases the maximum allowable capacity of an eligible customer generator, increases the total rated generating capacity produced by eligible customer generators, and requires the Public Utilities Commission (“Commission”) to establish best practices interconnection standards through administrative rulemaking.

POSITION:

The Commission has concerns about this bill and offers the following comments.

COMMENTS:

- **After an extensive technical and collaborative review process, the Commission issued a decision and order on March 13, 2008 in its proceeding relating to NEM. In this decision and order, the Commission, among other things, approved the stipulations filed by the parties, including Hawaiian Electric Company, Inc. (“HECO”), Hawaii Electric Light Company, Inc. (“HELCO”), Maui Electric Company, Limited (“MECO”) (collectively, “HECO Companies”) and Kauai Island Utility Cooperative (“KIUC”). As a result, the maximum allowable NEM cap is increased from 0.5% to 1.0% of the respective utility’s system peak demand. The maximum capacity for individual customer generators is increased from 50 to 100kW, for the HECO Companies’ customers, and remains at 50kW for KIUC customers.**
 - In their respective stipulations with the other parties to the docket, the HECO Companies and KIUC also agreed to allocate 40% to 50%¹ of their system peak demand for small systems that have a NEM generator size of 10KW or less.

¹In its stipulation, KIUC will allocate 50% of its peak demand to the smaller systems. In the stipulation involving HECO, HELCO, MECO; the HECO Companies agreed to reserve 40%, 50% and 50% of the 1.0% system peaks for small systems, respectively.

- The Commission also ordered the HECO Companies and KIUC to 1) expand their IRP planning processes to include studies on the rate and revenue impacts of NEM, reliability, safety, and power quality issues and the effects, if any, of changes in NEM on the utility's interconnection standards, 2) evaluate the economic effects of NEM in future rate case proceedings and 3) establish a NEM Pilot Program that will allow a limited number of larger generating units (of up to 500kW or greater) for NEM purposes.
 - The expanded IRP planning process will provide the Commission a regular review of the NEM limits to ensure a sound basis for future decisions regarding NEM.
 - Future rate case proceedings shall include testimony regarding the total economic impact of NEM. This information will allow the Commission to analyze the effect of NEM in greater detail relating to revenues, rates, expenses, fuel consumption, and peak demands.
 - The NEM Pilot Program will assist the Commission in evaluating the effects of further increasing the NEM unit size and system capacity units beyond those established in the decision and order.
- **Rather than increasing the maximum capacities as set forth in the bill, the Commission would prefer the electric utilities be allowed to implement the requirements under our recent decision and order and, after a period of time, evaluate whether the maximum capacities should be further increased.**
- **This version of the bill would arbitrarily increase the NEM caps without an extensive examination process, similar to that conducted in the Commission's NEM investigation.**
- **With respect to the proposed new Section 269-111(d), requiring the Commission to adopt best practices interconnection standards through rulemaking, the Commission has already reviewed and approved the NEM tariffs of the electric utilities that include interconnection standards or requirements. Accordingly, this added provision is not necessary.**

Thank you for the opportunity to testify.

**Testimony before the
Senate Committee on
Energy and Environment**

H.B. 2550 HD2– Related to Public Utilities

**Tuesday, March 18, 2008
3:15 pm, Conference Room 414**

**By Arthur Seki
Director of Technology
Hawaiian Electric Company, Inc.**

Chair Menor, Vice Chair Hooser, and Members of the Committee:

My name is Arthur Seki – I am the Director of Technology in the Energy Solutions & Technology Department at Hawaiian Electric Company. I am testifying on behalf of Hawaiian Electric Company (HECO) and its subsidiary utilities, Maui Electric Company (MECO) and Hawaii Electric Light Company (HELCO), hereby referred to collectively as the HECO Utilities.

In general, H.B. 2550 HD2 would increase the total rated generation capacity produced by eligible net energy metering (NEM) customer-generators, increase the size of NEM systems, and require the State of Hawaii Public Utilities Commission (PUC) to adopt modified interconnection rules. In light of the stipulated agreement related to net energy metering that was filed with the PUC on September 17, 2007 and the recent PUC decision and order issued on March 13, 2008, we respectfully oppose this measure. This bill is not necessary.

As you may know, the PUC docket (Docket No. 2006-0084) investigated whether the PUC should:

1. increase the maximum capacity of eligible NEM customer-generators to more than 50 kilowatts;

2. increase the total rated generating capacity produced by eligible NEM customer-generators to an amount above 0.5 percent of an electric utility's system peak demand; and
3. adopt, modify, or decline to adopt, in whole or in part, the NEM standard articulated in PURPA as amended by the Energy Policy Act of 2005.

On September 17, 2007, a stipulated agreement was filed with the PUC which was agreed to by all parties (Hawaii Solar Energy Association, Hawaii Renewable Energy Alliance and Consumer Advocate, and HECO) in the docket. The stipulation proposes to:

- Increases the maximum size of the eligible customer-generator that can qualify for a NEM agreement from 50 kW to 100 kW;
- Increases the total rated generating capacity produced by eligible customer-generators from 0.5% to 1.0% of the utility's system peak demand;
- Reserves 40%, 50%, and 50% of the total rated generating capacity produced by eligible customer-generators for HECO, HELCO, and MECO, respectively, for residential and smaller commercial NEM customers (system sizes of 10 kW or less)—similar to the amendments made in H.B.2550 HD1;
- Utilizes the Integrated Resource Planning (IRP) process to evaluate impacts to the Utilities' systems and determine further adjustments to the NEM system size and cap limits (limits re-examined on an annual basis); and
- Recommends that the Commission not adopt or modify the standard for NEM as articulated in the Public Utility Regulatory Policies Act of 1978 (PURPA) as amended by the Energy Policy Act of 2005.

Productive meetings between the parties to Docket No. 2006-0084 were held to reach a stipulation that proposes increased NEM system size and total rated capacity limits as well as provisions to ensure widespread and fair participation in NEM by smaller customers. These recommendations considered the continued evaluation of operational impacts to the HECO Utilities, including the examination of size and participation limits on an annual basis during the IRP Advisory Group meeting process.

On March 13, 2008, the PUC rendered Decision and Order No. 24089 to Docket No. 2006-0084. In general, the PUC agreed with the stipulated agreement and included several additional terms:

- NEM processes, safety, and reliability on the utility system will be reviewed and addressed in the IRP;
- Economic effects of NEM shall be evaluated in future rate case proceedings; and
- Electric utilities shall design and propose a NEM pilot program for a limited number of participants:
 - Outside of current NEM law (not part of NEM count);
 - Include generating units sizes 100 kW to 500 kW (may consider 500+ kW)
 - Provide update in NEM reports;
 - File with the PUC within 45 days of decision and order date; and
 - Parties and participants can provide comments.

H.B 2550 HD2 also calls for the PUC to open proceedings for adoption of an interconnection standard for solar, wind biomass and hydroelectric energy generating facilities. There is no need for these proceedings or adoption of new standards. The PUC approved Rule 18 which has an interconnection standard in place for review by HECO Utilities on NEM systems larger than 10 kW that preserves the ability of HECO Utilities to ensure the safety of its personnel and operational stability of its grid systems. This standard is based on the present HECO interconnection standard (Rule 14) that also has PUC approval. Safety and grid system reliability must remain a high priority.

In conclusion, we request the bill be held in committee. This bill is not necessary given the recent PUC decision and order in Docket No. 2006-0084.

Thank you for the opportunity to present this testimony.



PHOTOVOLTAIC SOLAR ENERGY
SOLAR HOT WATER AND HEATING
ENERGY EFFICIENCY INTEGRATION

HI License # C-26505

March 18, 2008

Testimony in Strong Support of SB2550 SD1 HD2 Relating to Net Energy Metering

Dear Chair Menor, Vice-Chair Hooser, and Members of the Committee on Energy and Environment Committee:

In SB 2550, the committee has an opportunity to address a recurring problem and potentially binding constraint on the deployment of renewable energy generating technology in our state. The provision of the bill that fulfills this promise is the proposal to raise the peak demand share caps governing net energy metering (NEM) to 2 percent in 2009 and 5 percent in 2010.

These provisions enable investment from thousands of homeowners and small businesses to help our state transition from burning carbon intensive fossil fuels, as envisioned in the '20 percent in 2020' RPS and '70 percent in 2030' renewable generation target. Without additional space under the peak demand cap, it is estimated that Maui and the Big Island will reach their cap levels late in 2008. At that point, homeowners and small businesses will face substantial cost increases if they decide to use renewables, or else deploy only a fraction of the generating capacity that they would if they had access to NEM.

In the debate over this issue it is essential to note that, due to the unprecedented pace of alternative energy generating equipment deployment in 2008, the recent decision by the PUC (Docket 2006-0084), despite the best intentions of the participants in the process, has not solved the NEM issue, only postponed it to later this year. It is also worth noting that that process that raised the peak demand cap from 0.5 to 1.0 percent, took nearly two years to play out. If we began a similar process tomorrow, the earliest the cap would be raised is 2010, leaving more than a year in which installations downsized and/or ignored, decelerating the state's transition away from carbon-intensive fuels.

A second point worth noting is that there is no technical or engineering threat to the stability of the grid from so-called 'intermittent' generating sources such as wind and solar until much higher levels of penetration are achieved. As evidence of this claim, the state of Minnesota recently passed a measure to raise their cap to 20 percent.

In this testimony, our firm is not taking a position on the other key provision of HB 2550, the qualifying system size cap for NEM. As the committee is aware, the current cap is 100 kW, while the bill proposes raising this to 1 MW. We would like to point out that, once the peak demand cap is set, the system size cap strongly influences the types of installations that the state will see and the types of companies that will be doing these installations.

In terms of solar, all else equal, a lower cap skews installations toward rooftop systems installed by small and medium sized companies. Larger system size caps will skew installations toward ground-mounted systems emplaced by large installers.

In conclusion, I would like to make clear that NEM is wholly consistent with the legislature's public policy goals - as embodied most clearly in the 35 percent renewable energy tax credit - of investing the state's resources to spur the transition to cleaner energy sources. At this point, this strategic and far-sighted social choice made by Hawaii's government could easily be undermined by more mundane and obscure issues such as the NEM peak demand caps. On behalf of the people of Hawaii and the alternative energy industry I urge you to address the peak demand cap issue as provided for in SB 2550, and ensure access to NEM for citizens and small business owners.

Thank you for the opportunity to testify.

Sincerely,

Mark Duda
Vice President of Finance



TESTIMONY OF SUNEDISON, LLC IN SUPPORT OF HB2550 HD2,
NET ENERGY METERING FOR RENEWABLE ENERGY TECHNOLOGIES
BEFORE THE SENATE COMMITTEE ON ENERGY AND ENVIRONMENT
TUESDAY, MARCH 18, 2008

Chair Menor, Vice-Chair Hooser and Members of the Committee.

SunEdison is a developer of large solar photovoltaic (PV) systems with seven offices in five states. We simplify the installation of solar electric resources so that the benefits of solar energy, particularly the reduction in oil-fired grid-supplied electricity, can be realized in Hawaii. SunEdison develops PV systems at the lowest possible cost and, as a result, has been the fastest growing solar developer in the nation. We believe that Hawaii's dependence on oil and the resultant high electricity prices create an excellent opportunity for solar resources. Our commitment to Hawaii includes involvement in PUC proceedings, the legislative process and the acquisition of a local solar company. Our projects employ many people, create economic benefits for the host customer and local community, and save all utility ratepayers money.

In our view, Hawaii is at a crossroads. It can create a viable market for larger solar installations by passing HB2550 HD2, or it can move slowly under existing processes. This stark choice must be considered in light of the near *doubling* of oil prices since the beginning of the Net Energy Metering (NEM) process at the PUC almost two years ago. While moving slowly to expand solar energy may seem like a deliberate, conservative approach, oil prices are not subject to similar constraints.

One critical issue to keep in mind throughout this discussion is that NEM addresses only economic issues. Safety, reliability, and technical issues are addressed in interconnection standards. Thus, any increase in NEM standards is still subject to interconnection standards and will not compromise the integrity of the grid.

Option 1: Reject HB2550 HD2, solar market based on NEM settlements at the PUC

The Commission adopted on March 13, with modification, settlements filed six months earlier. The Commission Decision and Order (D&O) does the following:

	HECO old/new	MECO old/new	HELCO old/new	KIUC old/new
System size limit	50kW/100kW	50kW/100kW	50kW/100kW	50kW/50kW
Aggregate limit (% of peak demand)	0.5% / 1.0%	0.5% / 1.0%	0.5% / 1.0%	0.5% / 1.0%
Small system requirement ¹	None / 40%	None / 50%	None / 50%	None / 50%

Future changes to net metering limits can only occur through a lengthy, complex and cumbersome administrative process. In addition, other requirements of the D&O include:

- For the HECO Companies:
 - Further restriction on future NEM changes by requiring attainment of a threshold of 75% of the aggregate cap before a change may even be suggested, and

¹ Small systems are those less than 10 kW.



- Changes to the aggregate cap limit must be justified by a specific potential market evaluation in the IRP process.
- KIUC performs an annual review and makes the final decision.
- Each utility is to design a pilot program for a limited number of participants for generating units between 100 kW and 500 kW.

Option 2: Adopt HB2550 HD2, and grow commercial solar market effectively

The following chart compares the Commission D&O with HB2550 HD2:

2008	HECO D&O/2550	MECO D&O/2550	HELCO D&O/2550	KIUC D&O/2550
System size limit	100kW/250kW	100kW/250kW	100kW/250kW	50kW/250kW
Pilot program	100-500 kW	100-500 kW	100-500 kW	100-500 kW
Aggregate limit (% of peak demand)	1.0% / 1.0%	1.0% / 1.0%	1.0% / 1.0%	1.0% / 1.0%
Small system market ²	40%/no limit	50%/no limit	50%/no limit	50%/no limit

For 2008, HB2550 HD2 is equivalent to the Commission D&O. In subsequent years, HB2550 HD2 establishes reasonable growth in the NEM limits that achieve levels similar to leading net metering states. Indeed, many states have moved to a 2 MW size limit – twice that proposed by this bill at its highest level. Closer to the mark, in 2007, Puerto Rico adopted a cap of one MW, with no aggregate limit – well beyond the policies contemplated by HB2550 HD2.

In addition, HB2550 HD2 provides the Commission with the authority to modify these limits based on a cost/benefit evaluation. Thus, the PUC maintains control over the future implementation of NEM.

The bottom line for developers of large PV systems is whether or not there will be a viable market in Hawaii. Without higher NEM limits, best practice interconnection policy, and a usable tax credit, it is unlikely that there will be any significant use of solar electric systems by larger customers, despite the fact that these systems would by lower cost, provide more ratepayer benefits, and more quickly reduce the state’s dependence on volatile imported oil. Artificially limiting access to larger PV systems for the commercial, industrial, and government sectors at best increases the costs of such installations, such as the Department of Transportation’s Request for Proposals for about 34 MW of photovoltaic systems.

We urge the Committee to adopt HB2550 HD2 in its current form.

Thank you for the opportunity to present our viewpoint.

Keith Cronin, President
SunEdison Hawaii

Rick Gilliam
Managing Director, Western States Policy
SunEdison, LLC

² Small systems are those less than 10 kW.

Testimony Before the Senate Committee on
Energy and Environment

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

Tuesday, March 18, 2008, 3:15 p.m.
Conference Room #414

House Bill No. 2550 H.D. 2 – Relating to Public Utilities

To the Honorable Ron Menor, Chair; Gary Hooser, 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 HB 2550 H.D. 2 relating to Public Utilities regarding Net Energy Metering (“NEM”) limitations (aka, NEM Limits).

KIUC acknowledges and commends the Legislature’s desire to create incentives to promote and, when practical, increase the role of renewable generation. However, KIUC respectfully opposes H.B 2550 H.D. 2 as the Hawaii Public Utilities Commission (“Commission”) has already addressed many of the NEM Limits issues noted in this measure in Docket No. 2006-0084. In this NEM Limits proceeding, KIUC has been diligently working with the Commission, the Consumer Advocate, Hawaii Solar Energy Association (“HSEA”), and Hawaii Renewable Energy Association (“HREA”) to develop reasonable and appropriate NEM Limits for the island of Kauai, particularly in light of KIUC’s unique, electric cooperative structure. A summary of this proceeding is noted below as follows:

- On April 10, 2006, the Commission initiated an investigatory proceeding to determine, among other issues, whether, and to what extent, the Commission should increase (1) the maximum capacity of eligible customer-generators to more than fifty (50) kilowatts (“kW”); and (2) the total rated generating capacity produced by eligible customer-generators to an amount above 0.5 percent of an electric utility’s system peak demand, under Hawaii’s NEM Law, codified as Hawaii Revised Statutes §§ 269-101 to 269-111.
- On September 17, 2007, KIUC, the Consumer Advocate, HSEA and HREA submitted their Stipulated Settlement Letter in connection with modifying the existing thresholds or NEM Limits as it pertains to KIUC, as well as their agreements to propose a new mechanism and review process by which KIUC will ensure the regular and ongoing review of these thresholds or NEM Limits via the existing integrated resource planning process established by the Commission (“KIUC’s Stipulation”).

- On March 13, 2008, the Commission issued Decision and Order No. 24089 approving, among other things, KIUC's Stipulation to change the NEM Limits (e.g., increase KIUC's total rated generating capacity limit from 0.5% to 1.0% subject to certain stipulated allocations), and to regularly examine any future changes in NEM Limits in KIUC's existing integrated resource planning process. In addition, to allow the Commission to consider the impact of incorporating more NEM generation and facilitate future Commission decisions concerning NEM, the Commission directed all electric utilities including KIUC to institute a NEM Pilot Program subject to certain parameters, as stated in said Decision and Order.

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.

Testimony of ERIK KVAM
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In SUPPORT of HB 2550 HD 2 RELATING TO PUBLIC UTILITIES

Before the
SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

March 18, 2008 3:15 pm

Good afternoon, Chair Menor, Vice-Chair Hooser and members of the Committee.

My name is Erik Kvam. I am the CEO of a Hawaii solar power developer called Zero Emissions Leasing LLC ("Zero Emissions").

HB 2550 HD 2 provides (1) amending the definition of "eligible customer-generator" to include utility customers who lease or purchase electricity from renewable energy generating facilities, (2) increasing the net energy metering (NEM) customer capacity limit to 1 MW, and increasing the NEM total capacity limit to 5% of utility system peak demand, over 3 years, and (3) directing the public utilities commission (PUC) to establish best practices interconnection rules. Zero Emissions SUPPORTS enactment of HB 2550 HD 2.

Hawaii Taxpayers Will Be The Biggest Winners If HB 2550 HD2 Passes and Will Be the Biggest Losers If It Fails to Pass

Two weeks ago, the State of Hawaii awarded a contract for the development of 12 MW of large (> 100 kW) grid-connected photovoltaic solar power projects at Hawaii's public airports and other Department of Transportation facilities. Under long-term power purchase agreements between the project developer and the Hawaii state government, the solar power from these projects will be sold to the Hawaii state government at a rate that will probably be about 25% lower than the cost of electric power supplied by the utility. These projects will cost about \$100 million to build and will *triple* total solar power generating capacity in Hawaii. By this time next year, the Hawaii state government is going to be the biggest potential customer-generator in the state of Hawaii and Hawaii taxpayers are going to be the biggest potential beneficiaries of NEM.

I say "potential" because, as state law and PUC policy now stand, *none of those 12 MW of solar power projects will be eligible for NEM*. Any excess solar power delivered to the utilities from these projects will be valued at an avoided cost rate that is way less than the retail rate under NEM. More importantly, the Hawaii state government will be vulnerable to stiff "standby charges," assessed by the utilities, that will wipe out the electricity cost savings to the Hawaii state government and Hawaii taxpayers under the

solar power purchase agreements. None of those 12 MW ever will be eligible for NEM unless the legislature acts now to pass HB 2550 HD2.

Current law and PUC policy puts up three obstacles preventing the Hawaii state government (and Hawaii taxpayers indirectly) from receiving the benefits of NEM. Those benefits are: (1) guaranteed acceptance by the utility of deliveries of renewable electricity from such projects, (2) valuing such electricity at retail utility rates, and (3) avoidance of utility standby charges. HB 2550 HD2 addresses all three obstacles.

Obstacle 1: the owner-operator requirement

Under current law, NEM is only available to a customer-generator that "owns and operates" a renewable energy project. Although the 12 MW of solar power projects located on Hawaii state government facilities will generate electricity primarily for those facilities, the Hawaii state government is not eligible for NEM with respect to those projects because the Hawaii state government will not own and operate those projects. Instead, those projects will be owned and operated by third parties that keep the tax benefits from such projects and sell the solar power from such projects to the Hawaii state government under long-term power purchase agreements.

HB 2550 HD2 eliminates the owner-operator obstacle by making a utility customer, like the Hawaii state government, eligible for NEM if the customer purchases electricity from a renewable energy project owned by a third party, provided that the project was intended primarily to offset the customer's electricity requirements.

Obstacle 2: the customer capacity limit

Under current law and PUC policy, NEM is only available for renewable energy projects that are 100 kW or smaller in size, except on Kauai where NEM is only available for renewable energy projects that are 50 kW or smaller in size. Most, if not all, of those 12 MW of solar power projects at Hawaii's airports are going to be larger than 100 kW. Thus, even if the owner-operator obstacle is eliminated, the Hawaii state government still would not be eligible for NEM on those projects because those projects exceed the 100 kW (50 kW on Kauai) customer capacity limit.

HB2550 HD2 raises the customer capacity limit to 1 MW over three years. That would bring at least some of those 12 MW of airport projects into NEM, provided that the other obstacles are also overcome.

The initial draft of HB2550 would have raised the customer capacity limit to 2 MW over three years. That would bring more of those 12 MW of airport projects into NEM, provided that the other obstacles are also overcome.

The legislature can raise the customer capacity limit to 2 MW with no risk to the safety or reliability of the grid because the PUC's 2006 decision in the Distributed Generation docket (the "DG Docket") made the NEM customer capacity limit obsolete. The

customer capacity limit was originally justified to protect the integrity of the grid because, when NEM was enacted in 2001, procedures to ensure the safety and reliability of interconnection of distributed generation systems (including NEM systems) had not been established.

On January 27, 2006, the PUC issued Decision and Order No. 22248 in the DG Docket. In its Decision and Order, the PUC required utilities:

- To establish requirements that require all necessary safety equipment and operational procedures as a condition for connecting distributed generation to the distribution system
- To establish reliability and safety requirements, by proposed tariff for approval by the commission, for distribution that is connected to the electric utility's distribution system

The customer capacity limit could be raised to 2 MW, as provided in the initial draft of HB 2550, without compromising the safety and reliability of the grid because, under the Decision and Order in the DG Docket, the utility has the ability (and obligation) to prevent interconnection of any NEM system, regardless of its capacity, that might threaten the safety or reliability of the grid. The PUC Decision made the NEM customer capacity limit obsolete because a net energy metered system of any size – whether 5 kW or 5 MW – simply is not going to be interconnected with the grid unless the system passes the utility's own rigorous safety and reliability requirements.

California, Colorado, Connecticut, Delaware, Florida, Maryland, Nevada, New Jersey, New Mexico, Oregon, Pennsylvania, Puerto Rico and Rhode Island – places that have electricity prices lower than Hawaii's with nothing like Hawaii's 79% dependence on imported oil for electricity generation – have adopted or are preparing to adopt customer capacity limits of 1 MW or more to encourage customer investment in renewable energy generation. These states (and Puerto Rico) have gone to 1 MW and larger customer capacity limits out of recognition that NEM systems up to these sizes pose no particular safety and reliability issues, if they ever did.

There is no evidence that customer capacity limits of 1 MW or more have led to interconnection of net energy metered systems that impaired the safety and reliability of the grid. Other states have figured out that customer capacity limits can be raised to 1 MW and higher to encourage renewable energy without compromising the safety and reliability of the grid. Hawaii can do the same.

Far from impairing the reliability of the grid, interconnection of distributed generation systems, such as NEM systems, enhances the operation of the grid through avoided grid losses, reactive power savings, transmission capacity benefits, transformer deferral benefits and reliability benefits that are worth at least 7¢ per kWh.

Obstacle 3: the total capacity limit

Under current law and PUC policy, NEM is not available to any new renewable energy project if the total generating capacity of all existing NEM projects exceeds 1% of utility peak system demand. The total generating capacity of those 12 MW of airport projects probably would be about .7% of utility peak system demand. Thus, even if the owner-operator and the customer capacity obstacles are overcome, the Hawaii state government probably would not get NEM for these solar power projects because the generating capacity of these new projects, when added to the generating capacity of existing NEM projects, would exceed the 1% total capacity cap.

HB2550 HD 2 raises the total capacity limit to 5% over three years. That would be sufficient to bring most of the 12 MW of airports projects within NEM, if the other obstacles are overcome by passage of HB2550 HD2 in its entirety.

The legislature can raise the total capacity limit to 5% without any adverse effect on utility ratepayers because NEM is not a ratepayer subsidy. When distributed generation benefits (conservatively valued at 7¢ per kWh based on studies performed for PG&E and Austin Energy) to the utility and its ratepayers of NEM are added to the utility's avoided fuel costs (about 10¢ per kWh for HECO for the 2nd quarter of 2007), the true economic value of NEM (about 17¢ per kWh) to the utility and its ratepayers is about equal to the retail rate (about 17¢ per kWh for the 2nd quarter of 2007) at which the utility is obliged to value such electricity.

NEM is not a ratepayer subsidy because the true economic value of NEM renewable energy to utility ratepayers is at least equal to the NEM retail rate at which the utility (and its ratepayers) are obliged to value such renewable energy. If other benefits such as reduced greenhouse gas emissions are given economic values and added to the distributed generation benefits, the total economic value of NEM renewable energy substantially exceeds its cost to the utility and its ratepayers.

Because NEM is not a ratepayer subsidy, the total capacity limit could be eliminated entirely as an obstacle to the greater use of renewable energy in Hawaii. That is what many other states have done. Of 8 states that have raised the customer capacity limit to 2 MW, 6 states (Colorado, Connecticut, New Jersey, New Mexico, Oregon and Pennsylvania) have no total capacity limits for some or all of the state's utilities, and 1 state (Maryland) has a total capacity limit of 1500 MW (enough to power all of Oahu). These states – with nothing like Hawaii's 79% dependence on imported oil for electricity generation – have concluded that the benefits of encouraging greater renewable energy use through elimination of the total capacity limit outweigh any ratepayer subsidy effects from such elimination. These states are serious about encouraging greater use of renewable energy. Hawaii can be, too.

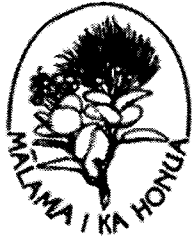
The PUC Should Be Directed to Establish Best Practices Interconnection Rules.

In *Freeing The Grid*, published in September 2007 by the Interstate Renewable Energy Council (IREC), in collaboration with the Network for New Energy Choices, Solar Alliance and Vote Solar Initiative, Hawaii's interconnection rules were scored on a dozen criteria including eligible technologies, individual system capacity, "breakpoints" for interconnection process, timelines, interconnection charges, engineering charges, external disconnect switch, certification, technical screens, spot/area network interconnection, insurance requirements and dispute resolution. Hawaii's grade was "F," ranking 32nd out of the 34 states graded. Hawaii got ½ point on a scale where the top-rated state – New Jersey – scored 12½ points.

The "F" grade meant "Interconnection rules retain many barriers to interconnection. Few to no generators will experience expedited interconnection and few to no state best practices are adopted. Many to most DG systems will be blocked from interconnecting because of the rules." HB 2550 HD2 addresses the multiple deficiencies in Hawaii's interconnection rules by directing the PUC to initiate a rulemaking proceeding to adopt best practices interconnection rules like those promulgated by FERC and best practices organizations like IREC.

Conclusion

With Hawaii burning imported oil for 79% of its electricity and oil going for \$100 a barrel, the legislature should act now to encourage greater use of renewable energy by (1) extending NEM benefits to customer-generators that lease renewable energy facilities or purchase renewable energy from third parties, (2) raising the NEM customer capacity limit to 2 MW and either eliminating the total capacity limit or raising the total capacity limit to at least 5% of utility system peak demand, and (3) directing the PUC to establish best practices interconnection rules.



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SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

March 18th, 2008, 3:15 P.M.
(Testimony is 1 page long)

TESTIMONY IN SUPPORT OF HB 2550 HD2, WITH AMENDMENTS

Chair Menor and members of the Committee:

The Sierra Club, Hawai'i Chapter, with 5500 dues paying members statewide, supports HB 2550 HD2, expanding Hawaii's net metering law to foster more home-grown, clean energy.

While we understand that the PUC has recently issued a ruling in their net metering docket, we believe the legislature can accelerate the adoption of photovoltaic and other clean energy devices by increasing the system penetration cap. We do not support increasing the allowed system size at this time, however, as such commercial systems are receiving substantial support and we want to encourage more smaller, residential applications.

After wisely being passed in 2001, net energy metering slowly began with a handful of renewable energy generators. As more homeowners learn about the program and its impacts on the payback period for renewable energy devices, the subscription rate will increase. In fact, we may be nearing a "tipping point" where many residential customers invest in renewable energy devices because of their relative cost and environmental advantages. House bill 2550 should pick up where prior legislation left off—increasing the total amount of net metered energy on the grid. While we understand that the Public Utilities Commission has a docket open that examines the possibility of increasing the caps, this legislation could remove uncertainty and set out a clear policy on net metering.

The benefits of expanding net energy metering are numerous:

- Private individuals invest in the power plants of tomorrow—instead of ratepayers. Each new installed system can reduce the need to construct massive, expensive power plants, with all of their associated siting, environmental, and financial impacts. Private investors take on the risk of such investments, not ratepayers such as families and businesses.
- Diversified and decentralized power strengthens the power grid, providing more buffering from blackouts, oil price spikes, and accidents.
- Decentralized power reduces the need for ugly powerlines.
- The allowable net energy systems in this program are clean and have less impact on Hawaii's environment than coal and oil-fired powerplants.
- Growth in the renewable energy industry in Hawai'i creates jobs and high-tech business opportunities—diversifying Hawaii's economy.
- A clean kilowatt from photovoltaic systems or other clean energy devices is worth much more for Hawai'i than a dirty kilowatt from one of Hawaiian Electric's oil-fired powerplants. We should ensure that it is given at least as much value on the market.

Please forward an amended HB 2550 HD2 to expand our statewide net metering program. Thank you for the opportunity to testify.