

# HAWAII RENEWABLE ENERGY ALLIANCE

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## TESTIMONY OF WARREN BOLLMEIER ON BEHALF OF THE HAWAII RENEWABLE ENERGY ALLIANCE BEFORE THE HOUSE COMMITTEE ON FINANCE

### SB 988 SD2 HD2, RELATING TO PHOTOVOLTAIC ENERGY

March 31, 2008

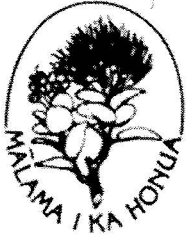
Chair Oshiro, Vice-Chair Lee and members of the Committee, I am Warren Bollmeier, testifying on behalf of the Hawaii Renewable Energy Alliance (HREA). HREA is a nonprofit corporation in Hawaii, established in 1995 by a group of individuals and organizations concerned about the energy future of Hawaii. 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 988 SD2 HD2 is to authorize the public utilities commission to establish a ratepayer-funded photovoltaic rebate program. HREA offers the following comments **in support** of this bill:

1. Proposed PUC Study. HREA supports the proposed Commission study. We suggest that the Commission be authorized to consider a least two options: (a) a rebate program as a DSM ("Demand-Side Management") measure, and (2) given the interest in supporting especially residential PV installation, a rebate program that is NOT tied to a DSM measure;
2. Leveraging Taxpayer and Ratepayer Incentives. Given the high cost of PV and the desire to provide incentives to all consumers, HREA supports the concept that individual consumers be given the option of choosing "buydown" incentives and/or "tax credits." Conventionally, tax credits have been shown to work for those consumers that have a "tax credit" appetite, but not for others, e.g., retired and low-income individual families. For some, it may be desirable to be able to convert a tax credit to a buydown incentive, or as is proposed in HB 3064, a refundable tax credit. The proposed ratepayer buydown would benefit all consumers
3. Who Pays the Bill – Taxpayer or Ratepayer or Both? Initially, SB 988 was drafted as a rebate program to be paid for by **BOTH** ratepayers and taxpayers. It was later amended (SD1) to be funded by **ONLY** taxpayers, and the HD1 is the third option – "ratepayer" **ONLY**. We believe HD1 is the best option for the Commission to consider.

Finally, we believe both taxpayers and ratepayers will benefit from more PV in their diet, and we encourage the Committee to pass out this bill.

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

## HOUSE COMMITTEE ON FINANCE

March 31, 2008, 3:30 P.M.  
(Testimony is 1 page long)

### TESTIMONY IN SUPPORT OF SB 988 SD2 HD2

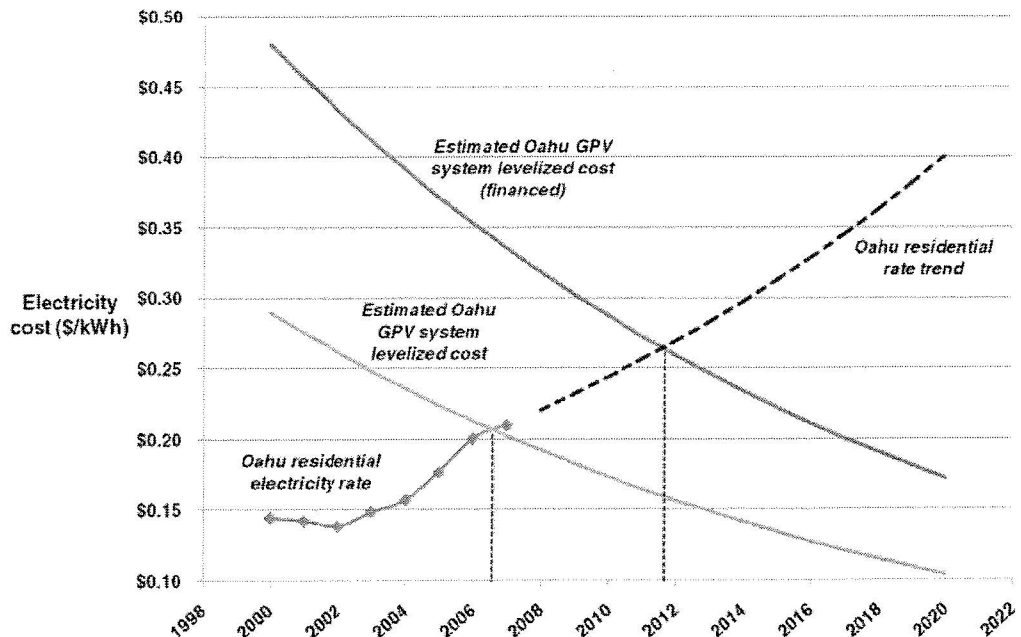
Chair Oshiro and members of the Committee:

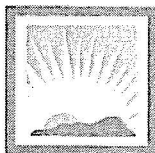
The Sierra Club, Hawai'i Chapter, with 5500 dues paying members statewide, supports SB 988 SD2 HD2, allowing the Public Utilities Commission (PUC) to establish a photovoltaic (PV) rebate program. Such rebate (or "buy down") programs have been successful in other states in reducing the upfront purchase "hurdle" for individuals interested in investing in our clean energy future. Although we would prefer that the legislature simply enact such a program, the PUC is an appropriate venue to investigate the need for such a program and proceed with its creation.

Currently, income tax credits (up to \$5000 for residential) and net energy metering are available to photovoltaic buyers to improve the economics of this relatively new technology. Even with these incentives, the current price of residential PV puts it out of reach of most homeowners. The cost of installed PV, however, has been decreasing, and the cost of grid utility electricity from fossil sources has been increasing. The chart below shows the current trend in the two sources, with the costs roughly comparable around 2012 (that is, the average homeowner would pay the same monthly price for fossil electricity from the utility as they would from a financed PV system on their home). SB 988 SD2 HD2 is smart policy as it helps close the gap

between these two trends in the interim to foster greater adoption of clean energy by reducing the initial hurdle barrier that prevents widespread adoption.

Thank you for the opportunity to testify.





**Hawaii Solar Energy Association**  
*Serving Hawaii Since 1977*

**TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION  
IN REGARD TO S.B. 988, S.D. 2, H.D. 2 RELATING TO SOLAR ENERGY  
BEFORE THE  
HOUSE COMMITTEE ON FINANCE  
ON  
MONDAY, MARCH 31, 2008**

Chair Oshiro, Vice-Chair Lee and members of the committee, my name is Richard Reed and I represent the Hawaii Solar Energy Assn. (HSEA). HSEA is a professional trade association established in 1977, and affiliated with the Solar Energy Industries Association (SEIA). HSEA represents manufacturers, distributors, contractors, financial entities and utility companies active in the solar energy industry.

**The HSEA strongly supports the passage of S.B. 988, S.D. 2, H.D. 2.**

Photovoltaic solar electricity systems (PV) have a number of ratepayer related-benefits that we have been slow to capture as a society because of the initial high cost of these systems. In Hawaii our approach to date, which has seen moderate success, has been limited to providing tax credits the installation of PV systems. Since the inception of net-energy metering in Hawaii in 2001, our electric utility companies report that a total of 414 grid-interconnected PV systems have been installed through 2007, with a total capacity of slightly less than two megawatts (2MW).

California, which increased its ratepayer funded PV rebate in 2001 to \$4.50/watt, had 32,934 grid-connected PV systems totaling 265 MW installed through 2007 (Report attached).

S.B. 988 originated from the desire to redress this disparity in PV market activity between California and Hawaii since 2001. In previous hearings the discussion has centered on who should fund this initiative (taxpayer or ratepayer or both), who benefits (which is directly related to who should pay), and how to best understand and characterize the nature of the benefits provided.

HSEA believes that ratepayer based funding is the proper approach. All ratepayers benefit from the utilization and deployment of renewable energy technologies that reduce our dependence upon polluting fossil fuels to generate electricity, mitigate climate change, enhance energy resource diversity and security, harden the electric grid, strengthen our transmission and distribution systems, and lessen the wear and tear on conventional utility generation equipment.

H.D.2 provides the PUC with the latitude to establish a ratepayer funded PV rebate program subsequent to an assessment of the costs and benefits. If the analysis determines

the program to be in the public interest, the Commission would then establish the program requirements, conditions, specifications and rebate levels.

The adoption of S.B. 988, S.D. 2, H.D. 2 likely ensures that the PUC will open a docket to investigate the need for such a rebate program, and to explore related issues such as rate impacts, revenue requirements, appropriate rebate levels, utility scale benefits of PV systems (and distributed generation (DG) in general), and the public benefits associated with the reduction in demand for fossil fuel generated electricity.

The HSEA supports the conventional regulatory process, but notes that it generally takes a number of years to conclude a complex docket proceeding.

Based upon the general success of the California program discussed above, the buydown approach – **with sufficient and guaranteed long-term incentive levels** - will jump-start the market for grid-connected PV systems in Hawaii. The administration of any PUC sponsored rebate program must be simple, inexpensive for both the Commission and market participants, and transparent.

The California PV rebate programs, until 2006, were dependent upon a relative small and uncertain pot of ratepayer money administered by both the California Energy Commission and the California Public Utilities Commission. In 2007, the California state legislature passed the California Solar Initiative (CSI) which provides nearly \$3 **billion** of long-term ratepayer funding for the installation of 3,000 MW of grid-connection PV by 2017. The ratepayer benefits of these systems are manifest – at least in California.

The passage of S.B. 988, S.D. 2, H.D. 2 allows the PUC, ratepayers, industry and other stakeholders to at least have a similar conversation in Hawaii.

Thank you for the opportunity to testify on this important legislation.

## Grid Connected PV Capacity (kW) Installed in California

	kW Installed	Percent of Total
California Energy Commission*	117,112	44.19%
California Public Utilities Commission*	118,232	44.61%
Los Angeles Department of Water and Power	12,666	4.78%
Sacramento Municipal Utility District	10,678	4.03%
Pre-1998	1,918	0.72%
City of Riverside Public Utilities	657	0.25%
City of Palo Alto Utilities	667	0.26%
Imperial Irrigation District	643	0.24%
City of Roseville Electric	604	0.23%
City of Anaheim Public Utilities	390	0.15%
City of Burbank Water and Power	198	0.07%
City of Pasadena Water and Power	267	0.10%
City of Lodi Electric Utility	134	0.05%
City of Glendale Water and Electric	174	0.07%
City of Santa Clara Electric Utility	207	0.08%
Modesto Irrigation District	66	0.03%
City of Ukiah Public Utilities	68	0.03%
Pacific Power	41	0.02%
Truckee-Donner Public Utilities District	33	0.01%
Turlock Irrigation District	73	0.03%
Healdsburg Municipal Electric Department	36	0.01%
Azusa Light and Water Department	23	0.01%
City of Lompoc Electric Department	15	0.01%
City of Redding Electric Utility	88	0.03%
City of Alameda Power and Telecom	5	0.00%
Plumas-Sierra Rural Electric Cooperative	-	0.00%

**TOTAL 265,018 kW**

**265.02 MW**

**Number of Systems: 32,934**

This analysis tracks the capacity of grid-connected PV installations in California from 1981 until the present. The vast majority of the early installations can be attributed to the work done by the Sacramento Municipal Utility District (SMUD). Beginning in 1998, the Energy Commission's Emerging Renewables ("Buydown") Program began offering rebates for grid-connected "emerging" systems in the service territories of the three largest Investor Owned Utilities (IOUs) - PG&E, SCE and SDG&E. In 2001, the Public Utilities Commission began the Self-Generation Incentive Program. The "Self-Gen" Program also offers rebates, but the program is administered by the utilities (PG&E, SCE, SDG&E and SCGC) directly. The Los Angeles Department of Water and Power (LADWP), as well as many of the smaller utilities, offer their own incentive programs.

\* The Energy Commission's Emerging Renewables Program was open to the ratepayers of PG&E, SCE and SDG&E. The Public Utilities Commission's Self-Generation Incentive Program was open to the ratepayers of PG&E, SCE, SDG&E and the SCGC. However, with the recent implementation of the California Solar Initiative and the New Solar Homes Partnership, both programs have closed to photovoltaic technology.

Update with reported data through 12/31/07 by James Lee  
Created by Todd Lieberg

Testimony before the  
House Committee on  
Finance

S. B. 988 SD2 HD2– Relating to Photovoltaic Energy

Monday, March 31, 2008 (3:30 p.m.)  
Conference Room 308

by Alan Hee  
Energy Services Department  
Hawaiian Electric Company, Inc.

Chair Oshiro, Vice Chair Lee, 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).

HECO supports increased renewable energy, and supports SB 988 SD2 HD2. The bill authorizes the Public Utilities Commission to establish a photovoltaic (PV) rebate program if it determines that the program is in the public interest.

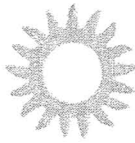
Should the Commission make that determination, it is likely that the electric utilities will be tasked with implementing the program. Therefore, HECO asks that the bill be amended with language that permits the utilities to recover the reasonable costs for starting up and implementing the program.

Such language might be as follows:

“The Commission shall ensure that all reasonable costs incurred by electric utilities to start up and implement the photovoltaic rebate program are recovered as part of the utility’s revenue requirement.”

Thank you for this opportunity to testify.

**TESTIMONY SUBMITTED BY**



**ISLAND PACIFIC  
ENERGY**

Joseph Saturnia  
President

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(808) 220-0081

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To be given in person to the

**COMMITTEE ON FINANCE**

Rep. Marcus R. Oshiro, Chair  
Rep. Marilyn B. Lee, Vice Chair

Rep. Karen Leinani Awana	Rep. Sharon E. Har	Rep. Bob Nakasone	Rep. Kymberly Marcos Pine
Rep. Della Au Belatti	Rep. Jon Riki Karamatsu	Rep. Karl Rhoads	Rep. Gene Ward, Ph.D.
Rep. Tom Brower	Rep. Michael Y. Magaoay	Rep. Roland D. Sagum, III	
Rep. Mele Carroll	Rep. Joey Manahan	Rep. James Kunane Tokioka	
Rep. Faye P. Hanohano	Rep. John Mizuno	Rep. Colleen Rose Meyer	

**SB 988, SD2, HD2 - RELATING TO PHOTOVOLTAIC ENERGY**

March 31, 2008 3:30pm  
State Capitol  
Conference Room 308  
415 South Beretania Street  
Honolulu, HI 96813

## Support for SB 988, SD2, HD2 – RELATING TO PHOTOVOLTAIC ENERGY

### Executive Summary

My name is Joseph Saturnia and I am President of Island Pacific Energy, a local renewable energy finance company. I am testifying in support of SB 988, SD2, HD2 - RELATING TO PHOTOVOLTAIC ENERGY. I support this bill because rebates have been proven to be an effective means to encourage the development of solar energy systems. A rebate incentive is needed in Hawaii in order to achieve the State's renewable energy goals. However, controls are needed in order to avoid the negative effects a rebate incentive might have to the local economy.

### Hawaii State Tax Credit Incentives

Nearly all solar energy projects rely on government incentives to be financially viable. Without these incentives, it is nearly impossible to financially justify installing a solar energy system. There will always be a small group of early adopters who will install solar energy for altruistic environmental reasons. However, it requires effective economic incentives to encourage the deployment of solar energy on a broader scale. Since solar energy projects rely so heavily on government incentives, a project's payback is critically dependent upon the owner's ability to *monetize* these incentives. Many times a potential owner of a solar project in Hawaii has the desire for renewable energy but lacks the "tax credit appetite" to justify the project financially. Without the ability to effectively monetize tax incentives, there is little financial incentive to move forward with the project.

In Hawaii, state tax credits have not been sufficient incentive to encourage the broad adoption of solar energy. According to Reinhard Haas in his research *Building PV markets: the impact of financial incentives*, "There is no evidence that either investment or production tax credits anywhere have led to a substantial increase in market penetration of PV." Given the relatively small number of PV systems installed in Hawaii to date, the situation in Hawaii supports Haas' research. While a 35% tax credit appears to be a significant incentive, from our experience in Hawaii, we have seen this is not the case.

Tax credit incentives are generally ineffective because they are difficult to utilize and not universally applicable. In order to benefit from tax credits, potential owners must owe state taxes in the first place. This eliminates all governmental and non-profit organizations, as well as, individuals and businesses that lack sufficient taxable income or have already exhausted their tax credit appetite through other means such as Act 221/215 investments. State tax credits are further hampered by the relatively low state income tax rate. At the current income tax rate of 6.4%, an entity must have a taxable income in excess of \$500,000 to fully utilize the tax credits on a relatively modest 10 kW photovoltaic solar energy system. With these limitations, the resulting number of qualified potential owners is very small.



## Alternative Incentives

If tax credits are ineffective, what incentives are effective? Janet Sawin in her paper for the International Conference for Renewable Energy titled *Policy Lessons for the Advancement & Diffusion of Renewable Energy Technologies Around the World* clearly states, “payments and rebates are preferable to tax credits”. The reasons rebates are superior to tax credits are they do not require the end user to have tax credit appetite. They give the end user cash to offset the cost of the system. Rebates are universally applicable and can also be used equally by governmental and non-profit organizations. Individuals and businesses can use rebates regardless of their tax credit appetite.

An added bonus to rebates is that if funded correctly, they can have a double incentive to solar energy development. By funding rebates through a surcharge on electric rates, existing solar energy owners are rewarded because they use less utility power and thereby avoid the surcharge. Conversely, non-solar energy owners are encouraged to install new systems in order to lower their utility costs. To eliminate the problem of low income consumers (who can't afford solar systems) from subsidizing high income consumers, the surcharge could be effective only on electric usage above some minimum amount such as 1,000kW per month. An added benefit of funding rebates with a surcharge on electric rates is avoiding the negative effects the tax credit has of reducing the State's income tax receipts.

It is important to note that rebates are not new to Hawaii. Rebates are currently used to great success in Hawaii in the promotion of solar hot water systems. Rebates have been instrumental in enabling over 25% of all homes in Hawaii to install solar hot water systems. Without rebates, the adoption of solar hot water systems in Hawaii would not be nearly as widespread as it is today.

## Unintended Consequences of Rebates

While rebates would be a welcome change to the solar energy incentives in Hawaii, they can have unintended consequences. Rebates may have a negative effect on the Hawaiian economy at a time when we can least afford it. If sufficient controls are not put in place, rebates will accomplish the goal of encouraging renewable energy systems but at the cost of a financial drain from Hawaii's economy. Uncontrolled rebates will shift the financing and ownership of solar energy systems away from local firms to mainland firms. With this shift in financing and ownership of solar energy systems to the mainland, there will be a corresponding shift in island money and island jobs to the mainland as well.

Rebates will make financing solar energy systems in Hawaii much easier than it is today. The biggest impediment to third party financing in Hawaii is the difficulty in finding an investor who can monetize the State tax credits. By eliminating this hurdle, financing will proliferate. Funding will no longer need to come from local businesses but from a variety of sources on the mainland. These mainland sources will use their size and position to effectively eliminate the need to use local funding.

To understand this shift in financing and ownership, we need to understand third party financing of solar energy systems. Third party financing of solar energy systems in the form of Power Purchase Agreements (PPA) allows organizations that do not have the financial resources or tax credit appetite to

enter into agreements to host and consume power from solar energy systems. The host customers provide the facility for the system and agree to purchase the power generated from the system, usually at a discount to current utility rates. PPA's are an essential means of allowing organizations that lack the financial resources or tax credit appetite to utilize solar energy systems.

To date, all third party financing of solar energy projects in Hawaii has been from local funding sources. The current state incentives require local funding sources to monetize the State tax credits. This situation makes it more difficult to find funding but it has the benefit of ensuring the money used to finance these systems comes from local sources and the revenue produced from these systems stays in the local economy. Rebates will allow my company, Island Pacific Energy, and other third party developers to more easily finance solar energy projects. However, left uncontrolled, rebates will have the unintended consequence of reducing the need for local funding. Rebates will increase the pool of investors able to fund solar energy projects in Hawaii to include mainland investors. The result will be the vast majority of funding sources for local projects will then come from mainland sources. In these cases, the solar energy systems will be owned by mainland firms and the money paid for electricity generated from these systems will go out of the local economy to the mainland. This is money that otherwise would be used in the local economy, or in the absence of renewable energy, would go to create jobs at our local utility.

This money will leave our economy at a time when we can least afford it. With jobs leaving the state and local companies such as Aloha Airlines putting 3,500 jobs in jeopardy, the economy needs to increase growth and attract outside capital, not drive it to the mainland. It has been estimated that every dollar that leaves Hawaii costs the local economy three dollars. This multiplier shows how important it is to attract and keep dollars in the local economy. Island Pacific Energy estimates that there is such pent up demand for solar energy systems that the switch from tax credits to rebates could produce up to \$100 million in new third party financed solar development this year alone. At a rebate rate of 25% and money multiplier of 3 times, the true effect to the economy could be as high as \$75 million dollars. If funding is provided by local sources, this growth benefits all of us on the islands. If funded by mainland sources, this is money taken away from the local economy.

## **Solution**

A solution to the unintended negative effects of rebates on Hawaii's economy would be to put a limit on the amount of refund a company can take to be no more than a percentage of a company's total income or the total General Excise Taxes paid. This limit need apply only to commercial installations. Residential systems are already limited to a \$5,000 per installation cap. This rebate limit is high enough that it would have little effect on nearly all tax paying organizations but would stop the negative effects on our economy of an uncontrolled rebate. For non-tax paying organizations whom would be severely constrained by this limitation, these entities do not qualify for the 30% Federal Investment Tax Credit and would need to utilize third party financing to make use of the incentives anyway. This limitation on rebates would ensure that the funding for third party financed systems comes from and stays in Hawaii and contributes to the growth and prosperity of our State.

## Conclusion

As has been shown, Hawaii's tax credits on solar energy are insufficient to encourage broad adoption of solar energy systems to meet the State's renewable energy goals. I urge the committee to pass SB 988, SD2, HD2 and provide Hawaii with an incentive that truly encourages broad scale development of solar energy systems. I also urge the committee to consider limitations on the use of the rebate in order to prevent the unintended consequence of drawing money out of Hawaii's economy at a time when we can least afford it. Thank you for this opportunity to testify.

Joseph Saturnia

President

Island Pacific Energy, LLC

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PHOTOVOLTAIC SOLAR ENERGY  
SOLAR HOT WATER AND  
HEATING  
ENERGY EFFICIENCY INSTALLATION  
HI License # C-26505

March 31, 2008

**Testimony in Support of SB988 SD2 HD2  
Relating to Photovoltaic Energy**

Dear Chair Oshiro, Vice-Chair Lee, and Members of the Committee on Finance:

The intent of this bill is to make available a rebate for installation of solar photovoltaic generating capacity but to do so only after careful study of the economic and equity implications of such a program. Suntech Hawaii supports this bill because rebates have been proven to be an effective means to encourage the development of solar energy systems. A rebate incentive can complement our state's existing tax credit to help Hawaii achieve its renewable energy goals.

In the current environment, economic incentives are essential to encourage the deployment of solar energy on the scale envisioned in the existing RPS and the governor's target of 70 percent in 2030. Since solar energy projects rely so heavily on government incentives, a project's payback is critically dependent upon the owner's ability to not only to qualify for, but also to monetize these incentives. Potential owners of solar projects in Hawaii often lack the tax appetite necessary to make the financing work, which stalls many projects before they can move forward. To this end a rebate will help accelerate the deployment of alternative energy generating equipment and reduce our state's dependence on imported oil.

In closing, we note that the approach taken in this bill is extremely careful. It does not commit budgetary funds to pay the rebate expenses. It also provides for a detailed study by the PUC before proceeding with a rate payer funded rebate. With these cautions in mind, we support passage of this bill and look forward to the cleaner, greener future for Hawaii that it will help create.

Sincerely,

Mark Duda  
Vice-President, Finance

# ProVision Technologies, Inc.



Electrical Contractor C-26351

March 28, 2008

To: House Sergeant-at-Arms—Please provide 25 copies.

To: Marcus Oshiro, Chair, Marilyn Lee, Vice-Chair, Finance Committee, Members Karen Awana, Della Belatti, Tom Brower, Mele Carroll, Faye Hanohano, Sharon Har, Jon Karamatsu, Michael Magaoay, Joey Manahan, John Mizuno, Bob Nakasone, Karl Rhoads, Ronald Sagum, James Tokioka, Colleen Myer, Kimberly Pine, Gene Ward

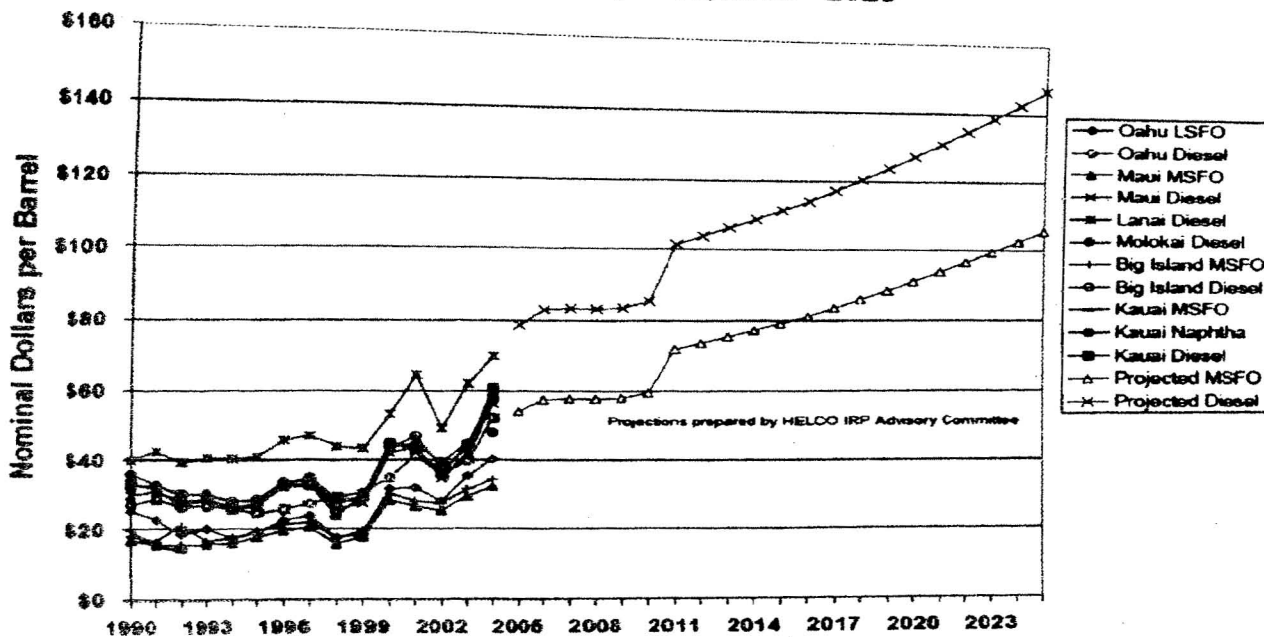
From: Marco Mangelsdorf, President, ProVision Technologies and founder of the Hawai'i PV Coalition

Re: SB 988 SD 2, HD2, Scheduled to be heard Monday March 31, 3:30PM, Conference Room 308

I am writing to urge you to pass SB 988 SD 2 HD 2 which would establish a state-sponsored, ratepayer-based buydown program to encourage Hawai'i home, small business owners and non-profit organizations to install clean, green solar electric systems.

As you're likely aware, Hawai'i residents pay the most expensive electric utility rates in the nation: Kauai, the Big Island and Maui are consistently 1, 2 and 3 in terms of experiencing the highest kilowatt-hour costs in the U.S. And those costs are likely to continue to rise as illustrated below.

Fuel Costs for Electricity Generation in Hawaiian Islands: 1990 - 2004; and Projected, 2005 - 2025

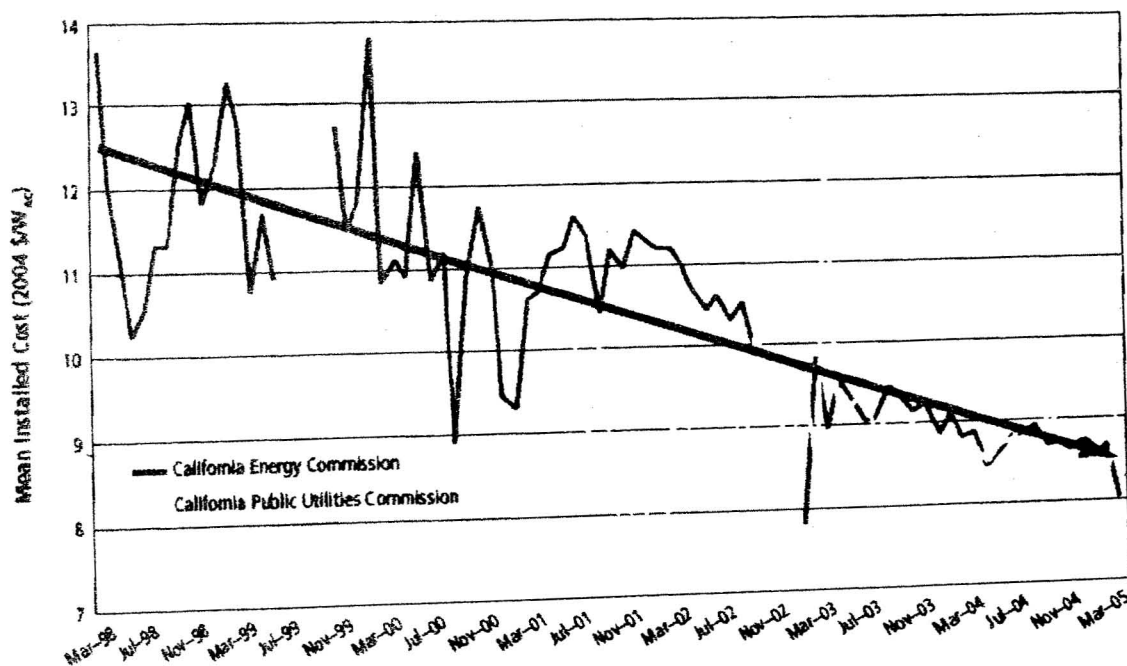


69 Railroad Avenue, A-7, Hilo, HI 96720  
phone (808) 969-3281 fax (808) 934-7462

As of Dec. 31, 2007, according to figures provided to the Public Utilities Commission, there was a total of 415 NEM systems across the state, 415 mostly residential PV systems installed during an almost 7-year time span amounting to a little over two megawatts of generating capacity or about *12/100ths of one percent* of the state's total generating capacity. I estimate that every one million dollars of ratepayer funds (not including any admin costs) will lead to between 80-130 new PV systems going in. A modest funding of \$5 million per year would lead to 400 to 500+ systems being installed per year across the state.

While we in the industry are very grateful for the existing state tax credit incentives for renewable energy systems, tax credits alone are insufficient to kick-start the move toward greater energy independence for Hawai'i's residents. Looking at what happened after such rebate programs have been enacted in California, Oregon, Washington, Nevada, Colorado, Arizona, Montana, Minnesota, Connecticut, New Jersey, New York and Florida, to name some of the states which have implemented PV buydown programs, it's evident that this type of incentive has a huge impact in encouraging people to go solar electric. Since California, which enjoys much lower electric rates than Hawai'i, enacted their buydown program in 1998, over 30,000 NEM PV systems have gone into operation. And as is evidenced in the California example, one of the key benefits of supporting a buydown program is to bring about a larger economy of scale which leads to lower PV system costs and therefore greater affordability to more consumers.

The graph below illustrates what a buydown program economy of scale has achieved to bring down the costs of PV systems in California.



In fact, with the new "public goods/benefits" charge on each electric ratepayer's bill going into effect January 1, 2009, the funds to support a buydown program could come from an existing pot of money.

69 Railroad Avenue, A-7, Hilo, HI 96720  
 phone (808) 969-3281 fax (808) 934-7462

Finally, if reducing oil imports into the state, lowering the amount of pollution spewed into the air from the burning of fossil fuels in power plants and encouraging greater sustainability in our Aloha State are of public benefit, then a modest level of ratepayer funding for this program is, I believe, a reasonable price to pay.

I respectfully ask that you support passage of SB 988 SD 2 HD 2 which is sure to accelerate the adoption of this valuable and energy independence-supporting technology.

Thank you for your consideration.

**FINTestimony**

**From:** Marco [marco@pvthawaii.com]  
**Sent:** Friday, March 28, 2008 2:29 PM  
**To:** FINTestimony  
**Subject:** 3/31/2008 SB988 Agenda #2

28, 2008

**use Sergeant-at-Arms—Please provide 25 copies.**

rcus Oshiro, Chair, Marilyn Lee, Vice-Chair, Finance Committee, Members Karen Awana, Della Belatti, Mele Carroll, Faye Hanohano, Sharon Har, Jon Karamatsu, Michael Magaoay, Joey Manahan, John Mikasone, Karl Rhoads, Ronald Sagum, James Tokioka, Colleen Myer, Kimberly Pine, Gene Ward

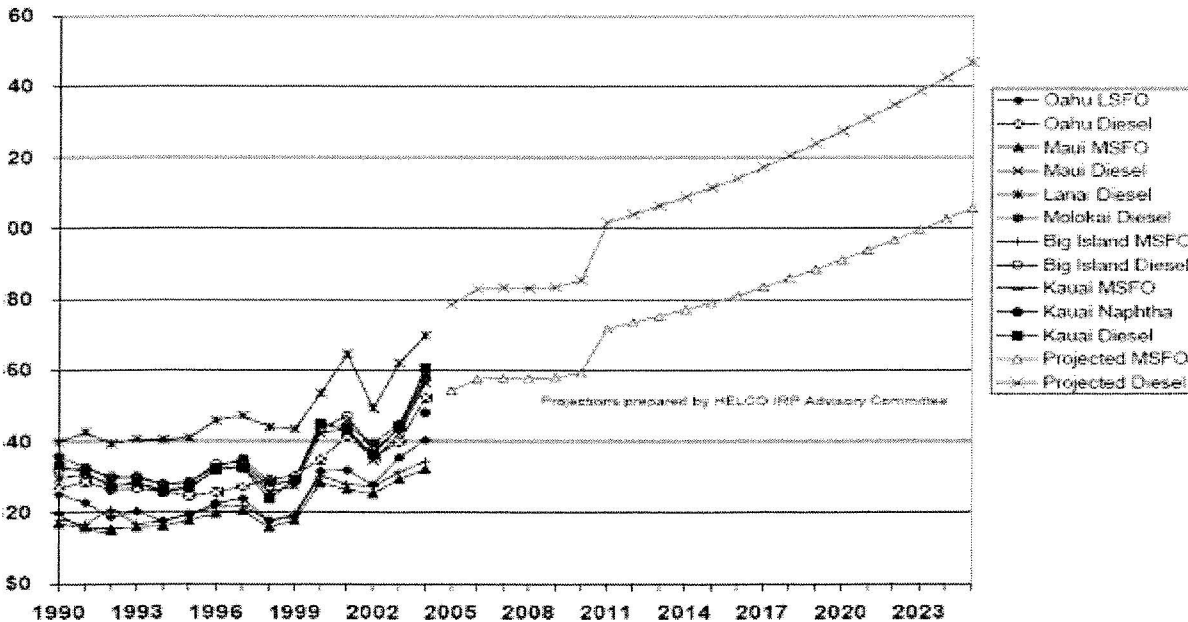
Marco Mangelsdorf, President, ProVision Technologies and founder of the Hawai'i PV Coalition

**988 SD 2, HD2, Scheduled to be heard Monday March 31, 3:30PM, Conference Room 308**

iting to urge you to pass SB 988 SD 2 HD 2 which would establish a state-sponsored, ratepayer-based program to encourage Hawai'i home, small business owners and non-profit organizations to install solar electric systems.

're likely aware, Hawai'i residents pay the most expensive electric utility rates in the nation: Kauai, the Big Island and Maui are consistently 1, 2 and 3 in terms of experiencing the highest kilowatt-hour costs in the U.S. Costs are likely to continue to rise as illustrated below.

**Fuel Costs for Electricity Generation in Hawaiian Islands:  
 1990 - 2004; and Projected, 2005 - 2025**

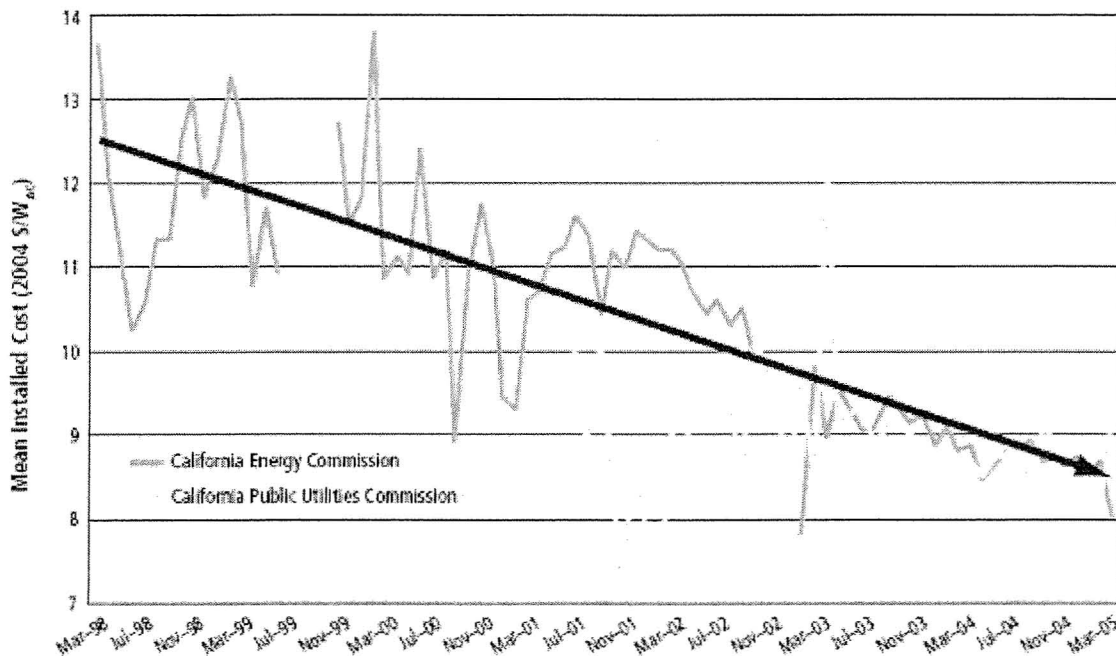




of Dec. 31, 2007, according to figures provided to the Public Utilities Commission, there was a total of 4.1 M systems across the state, 415 mostly residential PV systems installed during an almost 7-year time span amounting to a little over two megawatts of generating capacity or about *12/100ths of one percent* of the state's total generating capacity. I estimate that every one million dollars of ratepayer funds (not including any administrative costs) will lead to between 80-130 new PV systems going in. A modest funding of \$5 million per year would result in 400 to 500+ systems being installed per year across the state.

While we in the industry are very grateful for the existing state tax credit incentives for renewable energy systems, such credits alone are insufficient to kick-start the move toward greater energy independence for Hawai'i's residents. Looking at what happened after such rebate programs have been enacted in California, Oregon, Washington, Nevada, Colorado, Arizona, Montana, Minnesota, Connecticut, New Jersey, New York and Florida are some of the states which have implemented PV buydown programs, it's evident that this type of incentive has a large impact in encouraging people to go solar electric. Since California, which enjoys much lower electricity rates than Hawai'i, enacted their buydown program in 1998, over 30,000 NEM PV systems have gone into operation. As is evidenced in the California example, one of the key benefits of supporting a buydown program is that it creates a larger economy of scale which leads to lower PV system costs and therefore greater affordability for consumers.

The graph below illustrates what a buydown program economy of scale has achieved to bring down the costs of PV systems in California.



With the new "public goods/benefits" charge on each electric ratepayer's bill going into effect January 2008, the funds to support a buydown program could come from an existing pot of money.

By reducing oil imports into the state, lowering the amount of pollution spewed into the air from the bus diesel fuels in power plants and encouraging greater sustainability in our Aloha State are of public benefit, the cost level of ratepayer funding for this program is, I believe, a reasonable price to pay.

ectfully ask that you support passage of SB 988 SD 2 HD 2 which is sure to accelerate the adoption of the  
ble and energy independence-supporting technology.

Thank you for your consideration.



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