



# Sierra Club Hawai'i Chapter

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

## LATE TESTIMONY

### SENATE COMMITTEE ON ENERGY AND ENVIRONMENT

February 5<sup>th</sup>, 2008, 3:00 P.M.

(Testimony is 2 pages long)

### TESTIMONY IN SUPPORT OF SB 2985

Chair Menor and members of the Committee:

The Sierra Club, Hawai'i Chapter, with 5500 dues paying members statewide, strongly supports SB 2985, 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)

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

Thank you for the opportunity to testify.