

L A T E

TO: Senators Sakamoto and Menor, Chairs
Committee on Education and Committee on Energy and Environment

FROM: David Nixon, Associate Professor, Social Sciences Public Policy Center
University of Hawaii at Manoa

RE: Expression of Support for SB2356, scheduled for testimony 2.4.2008 at 1:15pm

Thank you for the opportunity to express my support of HR 126. I am writing to you as a citizen and as the UH faculty most intimately connected to the **Sustainable Saunders initiative**. I am not writing to you as a spokesperson for the University of Hawaii, and I do not want this bill to supplant any other essential funds in the University of Hawaii budget.

The Sustainable Saunders initiative was originally proposed in Fall 2006 by the UH Legislators in Residence, Representative **Marumoto** and Senator **Chun Oakland**, and it is rapidly emerging as the focal point for sustainability on the UH Manoa campus. It is designated by the Chancellor and the Sustainability Council as one of the primary pilot projects for energy conservation. The initiative is spearheaded by the Social Sciences Public Policy Center, and is augmented in a significant way by a fantastic bunch of students who work tirelessly, effectively, and passionately through their independent student organization - the Sustainable Saunders HUB. Sustainable Saunders is being operated as a service learning experiment, and we have the dedicated and passionate contributions of many UH undergraduate and graduate students.. We're doing all this in a way to ensure that Saunders can serve as a model or template for public office buildings across the UH and the islands of Hawaii. I firmly believe that in the process, we are training the future leaders of Hawaii.

Saunders Hall is a tangible focal point for sustainability on the UH Manoa campus, and we have some dramatic and impressive accomplishments and projects underway. We launched a new deposit-bottle recycling program that achieved an 87% overall recycling rate, and reduced the number of bottles going into the dumpster by 70%. We launched an interactive Earth Day event that brought thousands of visitors to Saunders Hall to explore the possibilities and limits of workplace sustainability. Saunders Hall is home to most of the social science departments on campus. Naturally, then, we are in the process of doing some important scientific studies of human behaviors, and we have several very serious and carefully researched conservation programs underway that, together, can reduce the energy use of the building by a minimum of 20% with little or no resource investment. We have secured valuable equipment donations and commitments for installation assistance from several private sector renewable energy companies sufficient to install both the **FIRST WIND TURBINE** on the Manoa campus and the **FIRST SOLAR PV ARRAY** on the Manoa campus. These are to be small research and demonstration projects that are vital, in my view, to move UH to the forefront of research and education in these fields.

Sustainable Saunders is working in cooperation with many campus and private sector partners.

Our solar PV project is a collaborative effort between the Public Policy Center, HNEI, and four private sector companies who will be donating valuable equipment . Our bathroom retrofit demonstration is in cooperation with UH Facilities, the Board of Water Supply, and two private sector donors. We have received some important seed money from the Dean of the College of Social Sciences, the Vice Chancellor for Facilities, the UH Manoa Sustainability Council, and our own fundraising efforts. Our submeter project has benefitted from some tremendous and selfless contributions from HECO. We are working in close cooperation with Facilities for the AC management plan

While many of the research and conservation projects of the Sustainable Saunders initiative focus on small scale human behaviors, conservation can only take us so far, and there are some very important technology investments that could emphatically bolster Saunders Hall as the focal point for energy conservation on the Manoa campus. UH Manoa Facilities management has long included the antiquated air conditioning system in its 'deferred maintenance list'. A professional energy and resource audit of Saunders Hall conducted by Energy Industries and sponsored by the Hawaii Energy Policy Forum echoed those plans in recommending an air conditioning retrofit and a large renewable energy and green roof installation on the Saunders rooftop as very cost-effective efforts. The AC upgrades will **pay for themselves in reduced energy and water costs** - for some items, the payback period is **less than three years**.

All told, EI recommended investments totaling \$1.7 million for Saunders. I don't support all of their recommendations.

- We are not prepared to go forward with a green roof installation, yet.
- We much prefer that the renewable energy systems be set up as demonstration and research test-beds, rather than a large utility installation (and we have most of the necessary equipment for such projects already donated).
- EI failed to include a VAV system in their recommendations, which makes it unwise and unproductive to install variable motors for the Air Handling Units in isolation.

The table on the following page describes what I think would be an ideal budget for the money proposed in SB2356. Most of the AC upgrades are identical to those identified in the EI audit and proposed by UH Manoa Facilities for many many years. The renewable energy budget is a minimal investment in jump starting the also long overdue move of UH to take the lead in Hawaii's renewable energy. It will pay for some additional monitoring equipment and will leverage the donated equipment and installation assistance that is valued in the many thousands of dollars.

item	Cost	Annual resource savings (in kWh)	Annual financial savings	Estimated Payback Period (in years)
Chiller Replacement (to a variable speed motor)	\$480,000	310,600	\$49,700	9.3
Variable Primary Flow on Chill Water Pumps	\$118,000	112,200	\$18,000	6.3
Variable Frequency Drives on Condenser Water Pumps	\$46,000	91,000	\$14,600	2.8
Variable Frequency Drives for Cooling Towers	\$62,000	97,600	\$15,700	3.7
Occupancy Sensors for Office Fan Coils	\$118,000	135,700	\$21,800	5.2
Energy Management System	\$80,000	78,700	\$12,600	6.3
Renewable Solar/Wind Demonstration Project	\$44,000	26,000		
Totals	\$948,000	902,400	\$144,700	5.7

We are the beneficiaries of lots of moral support, some important logistical support, and we have become a focal point for private sector donor support. But we could use your help with these long overdue efforts. Blessed with abundant resources, the University of Hawaii can be a leader for the state and the world in solar and wind energy, and we're playing catch-up. I urge you to support the Sustainable Saunders effort to bring these crucially important technology investments to the University.

UH has set as a 30% energy reduction goal by 2012, and I know of no other place on campus as promising as Saunders to blaze the trail towards meeting that goal. I urge you to support this initiative.

Thank you for the opportunity to express my support for this important legislation.