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SENATE COMMITTEE ON COMMERCE AND CONSUMER PROTECTION

February 6, 2013, 9:45 A.M.
(Testimony is 1 page long)

TESTIMONY IN SUPPORT OF SB 1040 WITH A PROPOSED AMENDMENT

Aloha Chair Baker, Chair Wakai, and members of the Committees:

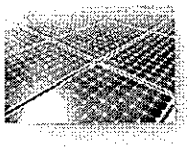
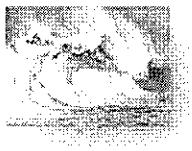
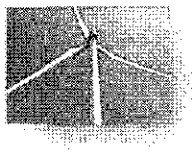
The Sierra Club, Hawaii Chapter, with over 10,000 dues paying members and supporters statewide, respectfully ***supports*** SB 1040. The bill is a smart policy signal for the Public Utilities Commission to build a modern grid infrastructure that can compliment renewable energy production by making better use of fluctuating power sources and advance energy efficiency through the use of smart meters.

A smart grid allows a utility to communicate with many devices plugged into the grid, as well as power sources. Each device on the network can be given sensors to gather data (power meters, voltage sensors, fault detectors, etc.), plus two-way digital communication between the device in the field and the utility's network operations center. A key feature of the smart grid is automation technology that lets the utility adjust and control each individual device or millions of devices from a central location.

The Sierra Club strongly believes the success of our aggressive clean energy goals will only be accomplished with significant improvements to our existing grid. We recommend adding language indicating the PUC can increase the rate of return on these types of investments so as to provide an even stronger policy signal that we prefer our utilities to invest their limited capitol on improving the grid, rather than investing in more power production facilities. Perhaps a new line after line 22 on page 2, stating "The commission may consider a higher rate of return if necessary to ensure investment in advanced grid modernization technology."

Mahalo for the opportunity to testify.

blue planet FOUNDATION

SENATE COMMITTEE ON COMMERCE AND CONSUMER PROTECTION
SENATE COMMITTEE ON TECHNOLOGY AND THE ARTS
February 6, 2013, 9:45 A.M.
Room 229
(Testimony is 1 page long)

TESTIMONY IN STRONG SUPPORT OF SB 1040

Chairs Baker and Wakai and members of the committees:

The Blue Planet Foundation strongly supports SB 1040, authorizing the Public Utilities Commission to consider the value of implementing advanced grid modernization ("smart grid") technology in the State. This measure will provide policy guidance to the Commission to help them weigh the often competing objectives in their deliberations. This measure is not a mandate to build the "smart grid;" it is direction to the Commission to consider its merits in their decision making. We believe enactment of SB 1040 will accelerate Hawaii's transition to a clean energy future.

Hawaii's 1890s style power grid is a barrier to the clean energy revolution. Currently, electricity flows in one direction: from the power plant to your home or business. This is much like television in the 1960s. When you turned on the TV, you watched whatever one of the three networks was broadcasting. You couldn't store the broadcast and you couldn't contribute your own content. That's roughly how our power grid operates today.

To take advantage of distributed and diversified sources like solar, wind, and wave, the grid has to become smarter and have the capacity to store electricity. It will resemble today's Internet—where distributed servers both send and receive packets of information—and less like yesterday's commercial television. Such a self-aware, robust smart grid will instantaneously adjust to shifts in wind strength or cloud cover over solar, balancing energy loads on the other side of the wire and drawing on stored energy when needed.

Senate Bill 1040 requires that the Commission consider the value of modernizing Hawaii's electricity grid to accommodate more clean energy sources. Blue Planet fully supports this policy.

Thank you for this opportunity to testify.

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COMMITTEE ON COMMERCE AND CONSUMER PROTECTION
Senator Rosalyn H. Baker, Chair
Senator Brickwood Galuteria, Vice Chair

COMMITTEE ON TECHNOLOGY AND THE ARTS
Senator Glenn Wakai, Chair
Senator Clarence K. Nishihara, Vice Chair

DATE: February 6, 2013
TIME: 9:45am
PLACE: Room 229

SB 1040 ELECTRIC SYSTEMS **STRONGLY OPPOSE**

Aloha Chairs Baker and Wakai, Vice Chairs Galuteria and Nishihara and Members of the Committees

My name is Henry Curtis and I am the Executive Director of Life of the Land, Hawai`i's own energy, environmental and community action group advocating for the people and `aina for over four decades. Our mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

The opening sentence of this bill is misleading and false.

"Hawaii's progress toward the widespread use of renewable energy requires modernized electrical infrastructure supported by nimble, robust technology capable of servicing the evolving needs of the grid."

Consider the following two examples

(1) The grid has only three types of systems: central station wind and solar systems combined with pumped storage hydro (PSH) units. Each PSH unit has two sets of pipes between a lower reservoir and an upper reservoir so they can simultaneously use intermittent renewable energy resources (solar, wind) to pump water uphill while dropping water through the second pipe to a turbine which would produce reliable energy at a constant rate.

(2) There is no grid. Every customer has maximized energy efficiency, installed renewable energy systems, and has lithium batteries for their cell phone, personal computer and photovoltaic panels.

In both cases the entire state's electricity needs are powered by renewable energy, in one case using a simple grid and in the other case no grid.

The first sentence of HB 810 should read, "*the utility will maximize their profits by adding costly infrastructure that may or may not lead to greater renewable energy penetration but definitely will do little to support community values or provide ratepayer relief.*"

Smart Grids may be the preferred solution for those who have come to the believe that overhauling the 19th century electric grid is preferable to any other alternative, that the utility knows best, and that issues of reliability and cost should be left to others.

<u>Simplicity versus Complexity</u>

The difference between simple models and complex models is that complex models require experts, consultants, hired guns, patents and confidential business information.

Complexity requires consumer confidence that legislators, regulators and bureaucrats will do the right thing as large vested interests throw huge amounts of cash, awards, prizes, trips and gifts aimed at getting acceptance of their preferred solutions.

Some would even say that complex models can not be understood by the layperson who just gets in the way of those who know what they are doing and are getting handsomely paid for it.

Simple models are driven by community values. They are community friendly and utilize participatory democracy. Thus they are less efficient to implement but in the long-run are more desirable from a societal perspective.

Could a complex system be better than a simple solution.

Yes, but not because its proponents say so based on the thickness of their pocketbook.

Rather, the choice of solutions must be based on *community values and involve* scientifically sound and data driven analysis.

For example, take the smart meter as a gatekeeper.

Upstream gatekeeper: all customer supply and demand data is sent upwards to a huge utility-run computer that measurers instantaneous operational changes to the grid on a $1/000^{th}$ of a second basis, to maximize grid efficiency.

versus

Downstream gatekeeper: Red, yellow and green lights appear on cell phones letting customers know when there is adequate/inadequate energy on the grid. People are able to use apps to turn off systems when demand is high. Each color has a different cost per kWhr to the customer. Sort of like cell phones having cheaper weekend rates.

It is intuitively obvious that experts and utility executives prefer the upstream gatekeeper because that will maximize their financial interests.

But without any analysis it may turn out to be true or false. The answer may differ based on the island or the type of customer.

For example, large commercial banks processing billions of dollars in checks, may believe that a grid offering 99.9999% reliability is not

reliable enough, and may have opted to have installed on-site back-up systems. Some major hospitals in Hawai`i have done just that.

The use of the term "Advanced grid modernization technology" implies that those who favor other solutions are the backwater luddites who oppose progress and oppose the inter-island grid.

It is interesting that the term "Advanced grid modernization technology" does NOTreference

community values

lower electric rates

lower environmental impacts

lower cultural impacts, or

lower greenhouse gas emission impacts.

Public Utilities Commission re the Smart Grid

On October 20, 2008 the Hawaii Clean Energy Agreement was signed by the HECO Companies, the Consumer Advocate and the State. The parties agreed "in principal that a 'smart grid' is a critical component of Hawaii's energy future."[1]

On December 1, 2008 HECO, MECO and HELCO filed an Application (Docket No. 2008-0303) with the Commission for approval of the Advanced Metering Infrastructure (AMI) Project.

The Commission granted intervener status to Life of the Land (LOL), the Hawaii Renewable Energy Alliance (HREA) and the Hawaii Solar Energy Association (HSEA).

On July 26, 2010 the Commission dismissed the application, without prejudice, and closed the docket: "In the commission's view, any new AMI or preferably AMI/smart grid application should include or be

[1] HCEI Energy Agreement p. 31

preceded by an overall smart grid plan or proposal filed with the commission."

On November 25, 2009 HECO received Stimulus Funds to develop a "Green Smart Grid ("GSG") Roadmap," and hired Accenture to do the work.[2] "The Smart Grid Roadmap spans 20 years and defines short-term initiatives as well as medium-term and long-term capabilities. An individualized roadmap for each operating company as well as a consolidated blueprint is presented."[3]

HECO's Web site notes further that: "The Hawaiian Electric companies have been involved in smart grid pilot projects [.] The company is now developing a comprehensive Smart Grid Roadmap."[4]

We are waiting for the Smart Grid Roadmaps

The HELCO 2013 Rate Case is the first and only docket to address the "Smart Grid" as envisioned in the HCEI Energy Agreement. It does so by including the key components of the Smart Grid concept, while minimizing the use of the term "Smart Grid." Included in the rate case are studies and implementation of Smart Grid concepts.

The Public Utilities Commission admitted Life of the Land into the HELCO Rate Case.

Communications

According to the HECO Clean Energy Status Report (2011), "The Hawaiian Electric Companies have developed a Smart Grid roadmap to identify opportunities over time for Smart Grid technologies [.] One such assessment that is currently in progress is the development of a telecommunications master plan to support the development of the Smart Grid as well as other corporate telecommunications needs."[5]

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[2] http://www.accenture.com/us-en/cQmpanv/PaQes/index.aspx
[3] HECO Voluminous Hawaiian Electric Response to CA-IR-271, HECO 2011 Rate Case, Docket No. 2010-0080, HECO RIR re CA-IR-271, dated May 12, 2011. Attachment B, p. 1
[4] Hawaiian Electric Website: Hawaii's Energy Future http://www.hawaiisenergyfuture.com/arttcles/Smart_Grld.html
[5] Clean Energy Status Report: (1) MECO Rate Case Application, Docket 2011-0092: MECO-214, p. 15, dated June 30, 2011; (2) HELCO Rate Case Application, Docket

Despite HECO response, customer complaints continue (Aug 16, 2012)

"A Hawaii News Now investigation into problems with Hawaiian Electric Company's new billing system and the resulting backlog of complaint calls to customer service has prompted a flood of new horror stories, and many people are worried that they will lose power for failing to reach HECO with their billing concerns. ...

"We would call and stay on line for an hour each, until hopefully one of us would eventually get through. We'd pass the phone to each other so we could all resolve our issues at the same time but that never ended up working out."

Stories of panicked customers with disconnection notices and claims of being over-charged continue to fill our phone lines, website and Facebook page. One viewer even posted a photo of her electricity bill for almost 19-hundred dollars when it's usually around 450-dollars a month."[6]

One final thought

A Google search of the term "Advanced grid modernization technology" found only references to the 2013 Hawai`i State Legislature.

2012-0099: HELCO-210, p. 18, dated May 31, 2012. The last sentence has the same meaning but is said in a different word ordering in the HELCO filing.

[6] http://www.hawaiinewsnow.com/story/19300976/despite-heco-response-customer-complaints-continue