

Aloha E Komo Mai: Hawaii Introduces its New Energy Efficiency Program Structure

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ABSTRACT

Hawaii's historic Clean Energy Initiative (HCEI) calls for the state to meet 70 percent of its energy needs with clean energy by 2030. HCEI is based on two key strategies to promote efficiency and use indigenous renewables: "conserve what we can" and "use what we've got." The Hawaii Public Utilities Commission (Commission) has a long history of supporting energy efficiency programs, initially through the regulated utilities and now through an independent third-party contractor. These programs, and other activities to promote efficiency such as the Energy Efficiency Portfolio Standard (EEPS) will play a key role in helping Hawaii to achieve its clean energy goals. This paper describes the regulatory history and recent developments related to Hawaii's aggressive policies to promote energy efficiency and clean energy.

Introduction

Hawaii is the most oil-dependent state in the nation. Hawaii imports roughly 51 million barrels of oil annually at a cost of nearly \$7 billion, supplying 90 percent of the state's energy. More than 60 percent of the petroleum is used for transportation, split about evenly between air transportation and ground and marine transport. The remaining petroleum percent is used to produce electricity, consumed in roughly equal parts by buildings in the residential, commercial and industrial sectors. Meanwhile, utility customers pay the highest electricity rates in the country, averaging 28.89 cents/kWh for residential customers and 46.05 cents per kWh for small business customers in 2010. The Hawaii Clean Energy Initiative (HCEI) is bringing together business leaders, policy makers, and concerned citizens committed to leading Hawaii to energy independence.

Hawaii's clean energy initiative was launched on January 28, 2008, with the signing of a memorandum of understanding between the State of Hawaii and the United States Department of Energy (U.S. DOE). HCEI is based on two key strategies to promote efficiency and use indigenous renewables: "conserve what we can" and "use what we've got." This initiative and long-term partnership between Hawaii and the U.S. DOE is aimed at accelerating the use and development of energy efficiency and renewable energy technologies; allowing Hawaii to serve as a model and demonstration for the United States and other island communities; and developing a national partnership to accelerate system transformation. The goal is to provide 70 percent of Hawaii's energy through efficiency and renewable sources by 2030. A number of legislative and regulatory activities are underway to support the agreement and provide the policy infrastructure to achieve mid- and long-term goals.

The Commission has a long history of supporting energy efficiency programs, initially through the regulated utilities and now through an independent third-party contractor that serves much of the State. These programs, and other activities to promote efficiency such as the Energy Efficiency Portfolio Standard (EEPS) will play a key role in helping Hawaii to achieve its clean energy goals.

Historically the programs were offered through the HECO Companies: Hawaiian Electric Company (HECO), and its subsidiaries, Maui Electric Company (MECO), and Hawaii Electric Light Company (HELCO), which together supply power to 95 percent of Hawaii's population. HECO serves nearly 300,000 customers on Oahu and has a total generation capacity of 1,672MW. HECO's electricity sales revenue totaled \$1.380 billion in 2007. MECO serves nearly 79,000 customers on the islands of Maui, Lanai and Molokai and has a total generation capacity of 281 MW and had electricity sales revenues of \$360.1 million. HELCO serves over 60,000 customers on the island of Hawaii with a total generation capacity of 270 MW and had electricity sales revenues of \$349 million.

Following a transition in 2009, the programs formerly operated by the HECO Companies are now offered through a third-party administrator reporting directly to the Commission. (The Kauai Island Utility Cooperative (KIUC) operates its own programs on Kauai.)

This paper describes the regulatory history and recent developments related to Hawaii's energy efficiency programs.

Hawaii Energy Efficiency Regulatory Background

Original Regulatory Framework

Hawaii took up demand-side management programs in a regulatory context in 1992 by developing an Integrated Resource Planning (IRP) Framework (Framework), defined by the Commission. The Framework was to be used as a guideline by the public utility companies to develop Integrated Resource Plans, the goal of which was “the identification of the resources ... for meeting near and long term consumer energy needs in an efficient and reliable manner at the lowest reasonable cost,” using both supply-side and demand-side strategies, with an outlook of 20 years (HPUC 1992).

In view of the possibility that utility companies might be reluctant to vigorously pursue demand-side management (DSM) programs which would, if successful, reduce demand for energy and thereby reduce their revenue, the Framework stipulated the inclusion of the Division of Consumer Advocacy within the state Department of Commerce and Consumer Affairs, , in all stages of the IRP submission process in order to “ensure that ... [it] promotes the interest of utility consumers,” and specified that the IRP process was to be public, requiring advisory groups and encouraging public hearings. Furthermore, not only were planning and implementation costs of DSM programs reimbursable, but also the net revenue lost as a result of successful DSM programming. The possibility of introducing additional incentive mechanisms was left open.

As a result of the utilities' first IRP filing in 1993, five DSM programs, three commercial and two residential, were approved in 1995 (HPUC 1995). Although originally implementation was to occur over a five-year period, in 2001 the Commission granted an extension until the

utilities' next rate case filing, which was filed in late 2004 (HPUC 2001 and 2005). During the entire lifespan of these programs, the implementing utilities were compensated as described above, both for costs and lost revenue.

Following the rate case filing in 2004, which included proposals for seven new DSM programs, the Commission concluded that it would address the proposed programs separately from the rate case filing, in order to “consider whether [they were] the most cost-effective methods of meeting increasing demand for electric services,” as well as to determine what type of entity - utility, third party, or both - would be most appropriate for implementing DSM programs. Furthermore, in the intervening period, it was agreed that following the rate case filing, lost revenue from DSM programs would no longer be reimbursed to the utilities (HPUC 2005). This set the stage for the eventual decision, in 2007, to transition DSM program implementation from the utilities to a third-party administrator (HPUC 2007).

Although it was eventually determined that a third-party administrator would be advantageous for Hawaii, the utility programs achieved a number of accomplishments during their tenure. Over the course of 13 years of utility administration (1996 through June 30, 2009), programs implemented by the HECO Companies:

- Installed more than 1.8 million CFLs, more than 50,000 solar water heating systems, and more than 39,000 Energy Star appliances;
- Reduced electricity demand by 169 megawatts, equal to the output of a large power plant;
- Paid \$97 million in rebates and other incentives and saved customers more than \$640 million over the life of their energy efficiency equipment;
- Avoided burning an average 1.6 million barrels of oil a year;
- Reduced emission of carbon dioxide by 864,000 tons a year.

Evolving Energy Landscape

Between the time of the initial IRP filing in 1993 and the final decision on the issue of DSM program administration in 2007, the energy legislation landscape in Hawaii changed significantly. Of particular note were three legislative acts regarding energy efficiency and the use of renewable energy in Hawaii. The first, in 2001, established the first renewable energy goals, under the name renewable portfolio standard (RPS), requiring, among other things, 9 percent of energy to be generated by renewable sources by the end of 2010 (State of Hawaii 2001). That was later increased to 20 percent from renewable sources by 2020 in 2004 (State of Hawaii 2004), and now stands at 40 percent by 2030 (State of Hawaii 2009).

Public Benefit Fund Development

In 2006, Act 162 was passed giving the Commission the power to change the market structure of energy efficiency programs by appointing a third-party administrator to implement them with funding by an energy bill surcharge, the Public Benefits Fund (PBF), now known as the Public Benefits Fee. Furthermore, it expanded the definition of renewable energy sources to include energy efficiency programs that reduce energy use (State of Hawaii, 2006).

Based on the authority given to it by Act 162, the Commission approved the seven proposed DSM programs but determined that the administration of them would transition from

the utilities to a third-party administrator, starting in January 2009 (later extended to July 1, 2009), believing that a third party administrator would (1) “remove the perceived inherent conflict between a utility’s desire to generate revenues and income, and energy efficiency measures that serve to decrease sales and defer the need for additional plant investment”; (2) “facilitate the introduction of innovative Energy Efficiency programs to the State, resulting in greater customer choice, increased participation levels, and higher overall energy savings”; and (3) “improve the cost-effectiveness of administering DSM programs.” The HECO Companies were authorized to continue existing pilot DSM programs and all load management programs (HPUC 2007).

The PBF is based on a percentage of total revenues of the HECO Companies, and is reconciled annually to achieve the target amount. For 2009 and 2010, the PBF will have a target budget of 1 percent of total projected revenue, including revenue taxes. The recommended target budget moves to 1.5 percent in 2011 and 2012, and after 2013, to 2 percent; the Commission is considering these recommendations. The surcharge is set on a cents per kilowatt-hour (\$/kWh) basis to meet the target budget, and is determined by dividing the target budget (based on a percentage of total utility sales) by projected sales. Any difference in the amount collected from the surcharge and the target budget is addressed by adjusting the following year's surcharge (by either increasing or decreasing the surcharge). There are separate residential and commercial/industrial components, currently 45 percent from residential customers and 55 percent from commercial/industrial customers funding the residential and commercial programs, respectively, consistent with electricity sales by sector. The surcharge appears as a separate line item on customers' bills.

The PBF surcharge effective January 1, 2010 is 0.4760 cents per kWh for residential customers and 0.1976 cents per kWh for business customers. For a residential customer who uses 600 kWh per month, the PBF surcharge would be \$2.86 each month. The amount of the PBF is offset by a decrease in the former IRP cost borne by ratepayers to fund the HECO Companies' energy efficiency programs.¹

Hawaii Clean Energy Agreement and Associated Developments in Efficiency Regulation

In 2008, the HECO Companies and the Consumer Advocate requested the Commission to close their respective existing IRP dockets and open a new docket to establish the Clean Energy Planning Scenario process. The HCEI is a Memorandum of Understanding (MOU) between Governor Lingle and the U.S. Department of Energy. Signed in January 2008, the MOU has the goal of decreasing energy demand and accelerating use of renewable, indigenous energy resources in Hawaii in residential, building, industrial, utility, and transportation end-use sectors so that efficiency and renewable energy sources will meet 70 percent of Hawaii's energy demand by 2030. The agreement is also designed to allow Hawaii to serve as a model and demonstration for the United States and other island communities, and to develop a national partnership to accelerate system transformation.

In 2009, the Commission opened a docket to investigate the HECO Companies', Consumer Advocate's and KIUC's proposed amendments to the Framework for IRP.

¹In 2009, the PBF surcharge was based on based on 40 percent of the 1 percent of projected total revenues. The other 60 percent went to the DSM surcharge, since the HECO Companies were administering their programs until June 30, 2010.

In 2009, House Bill 1464 (Act 155, Session Laws of Hawaii 2009) established an energy efficiency portfolio standard (EEPS) and enacted several other key steps toward greater energy efficiency by ordering changes to the public utilities law. The energy efficiency portfolio standard sets a target of electricity-use reduction to be achieved in incremental stages, as a contribution to the goals and objectives of the Hawaii Clean Energy Initiative. The EEPS is set to achieve 4,300 GWH by 2030 (about 30 percent of the demand forecasted for that year), with interim goals for reductions to be met by 2015, 2020 and 2030. The Commission must evaluate the EEPS every five years, and may revise it by rule or order. The bill also contained provisions to make public buildings more energy efficient through retro-commissioning and performance contracts, requires disclosure of a property's energy consumption at the time of sale, and created a building energy efficiency revolving loan fund, to achieve electricity use reductions to the maximum extent feasible. The Commission opened an investigation in March 2010, to examine EEPS standards, pursuant to Act 155.

In February 2010, the Commission approved a new method for setting electric rates designed to encourage a clean energy economy for Hawaii. Under the new "decoupling" method, electric revenues will be de-linked, or "decoupled," from the amount of electricity sold. The decoupling proposal was submitted jointly by the Consumer Advocate and the HECO Companies. The concept was also endorsed by other participants in the docket including environmental and renewable energy groups. This decoupling of revenues from sales will remove barriers for the utilities to pursue aggressive demand-response, load management and customer-owned or third-party owned renewable energy systems while giving the utilities an opportunity to achieve fair rates of return.

“Hawaii Energy” Program

Meanwhile, the Commission has selected an administrator for its energy efficiency programs and completed the transition of its energy efficiency programs to the new administrative structure. In March 2008, the Commission contracted with Science Applications International Corporation (now R.W. Beck²) as the third-party energy efficiency program administrator (Program Administrator), to begin operations on July 1, 2009. The energy efficiency programs operated under the PBF have been christened simply “Hawaii Energy.”³ The electric utility ratepayers of HECO, HELCO and MECO on the Big Island, Lanai, Maui, Molokai and Oahu qualify for participation in Hawaii Energy. These ratepayers contribute to the PBF through fees on their electric bills. Customers receiving their electricity from KIUC on Kauai do not participate in the Hawaii Energy programs; KIUC has Energy Efficiency and Demand Side Management programs designed specifically for cooperative members. The Gas Company (TGC) provides service throughout the state, but does not at this time offer energy efficiency programs.

The Hawaii Energy program budget for Program Years 2009 and 2010 is \$38,420,468 (split roughly evenly between the two years), representing approximately 1 percent of electric revenue. Anticipated net electricity savings goals represent approximately 1.2 percent of annual electricity sales and are shown in Table 1.

² An SAIC company.

³ Website: <http://www.hawaiienergyefficiency.com/>.

Table 1: Hawaii Energy Savings Goals PY2009 and PY2010

Sector	PY 2009		PY 2010	
	kW	MWh	kW	MWh
Residential	N/A	68,722	N/A	71,245
Business	N/A	57,301	N/A	61,370
Total	20,097	126,023	23,126	132,615

In order to focus on the administrative details required to successfully execute the transition, the Program Administrator is keeping the previous programs largely intact and using existing incentive levels for an initial period. Rollout of new initiatives and program modifications will occur over time. The program offerings transitioned from the HECO Companies in July 2009 represent the “Core” programs and consist of the following:

1. Residential Water Heating Program
2. Residential New Construction
3. Energy Solutions for the Home
4. Business Standard Energy Efficiency
5. Business New Construction
6. Business Customized Rebate
7. Low Income / Hard to Reach Customer Programs

The expected Total Resource Benefits from each program are shown in Table 2.

Table 2: Hawaii Energy Present Values (PV) of Total Resource Benefits – 2009-2010

Program	PV Avoided Energy	PV Avoided Capacity	Total Resource Benefit
Residential Water Heating	\$6,131,129		\$6,131,129
Residential New Construction	\$3,513,793		\$3,513,793
Energy Solutions for Home	\$31,205,278		\$31,205,278
Low Income / Hard to Reach	\$2,144,673		\$2,144,673
Business Standard Efficiency	\$9,280,067		\$9,280,067
Business New Construction	\$13,869,018		\$13,869,018
Business Customized Rebate	\$20,405,732		\$20,405,732
New Business Programs	\$6,746,075		\$6,746,075
kW Benefit		\$46,783,974	\$46,783,974
Total	\$93,295,765	\$46,783,974	\$140,079,739

For the remainder of the first program year and the second program year, the Program Administrator will phase in the introduction of enhanced program elements and new initiatives. The goal is to expand upon the State’s past efficiency activities and to respond to the state’s increasing need to reduce its reliance on fossil fuel generation and other Commission-identified objectives. Elements being designed during Program Year 2009 (and implemented late in the year and during the Program Year 2010 period) include the following:

- Commercial Retro-Commissioning
- Home Audit and Tune Up
- Residential and Small Business Low Interest Financing
- Photovoltaic Rebate Program
- Green Buildings Program
- Community Pilot Project
- Custom Project Request for Proposals Program
- Service Buy-Down Program
- Performance Contract Buy-Down Program

The pilot programs will be screened based on anticipated Total Resource Costs (TRC).

In addition, Hawaii’s Department of Business, Economic Development and Tourism (DBEDT) has signed a Memorandum of Understanding with the Commission to leverage Hawaii Energy’s program administrative infrastructure to deliver additional energy efficiency program funding of approximately \$7.1 million (\$6 million for the State Energy Program (SEP) and \$1.1 million for the State Energy Efficiency Appliance Recycling Program (SEEARP)) that DBEDT is receiving from federal stimulus funds. These funds will allow for additional program efforts in the following areas:

- Residential Solar Hot Water Heater Interest Buydown
- Residential Solar Hot Water Heater Incentives
- Energy Star™ Appliance Rebates
- Peer Group Comparisons
- Customized Incentives for Government Buildings.

Evaluation Framework

With the transition of the program implementation to a third-party administrator, the Commission also assumed oversight from the HECO Companies of the entire evaluation, measurement and verification (EM&V) process. Through a competitive bidding process, the Commission selected ECONorthwest (EM&V Contractor) as the lead evaluation contractor in October 2009 and the evaluation work officially began in December 2009.

A major component of the evaluation research effort will be to verify that the Program Administrator is meeting the performance goals set for them in their implementation contract with the Commission. As discussed below, these contract requirements include both savings-related goals in addition to other performance metrics related to Hawaii Energy’s implementation. Elements of successful implementation that will be evaluated are grouped into four major objectives. The Program Administrator is called upon to:

1. Achieve the maximum magnitude of societal net benefits while acquiring comprehensive cost-effective electric efficiency savings;
2. Respond appropriately to markets in order to increase the level of and comprehensiveness of energy efficiency services to ratepayers;
3. Effectively capture potential “lost opportunity” markets; and

4. Provide a standard level of service to all customer classes and in each of the HECO Companies' service territories.

In addition to these four over-arching objectives, the Program Administrator's performance will be judged by multiple indicators, as shown in Table 3. The Program Administrator's compensation is subject to holdbacks for performance falling below specific levels and bonuses for performance exceeding specified targets.⁴

Table 3: Hawaii Energy Program Administrator Performance Indicators and Relative Awards

Performance Indicator	Percent of Performance Pool	
	PY 1 2009-2010	PY2 2010-2011
Residential and Business Energy (kWh)	40%	40%
Peak Demand (kW)	15%	10%
Total Resource Benefits (\$)	30%	30%
Market Transformation	10%	10%
Broad Participation (Island Equity)	5%	10%

Conclusions

The Hawaii Public Utilities Commission has a long history of supporting energy efficiency programs in Hawaii. Recent developments including a transition of program administration from the HECO Companies to a third-party implementer, establishment of a public benefits fee to fund energy efficiency programs and an aggressive energy efficiency portfolio standard are contributing significantly to the state's transition from fossil-based electricity generation to a clean energy economy.

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⁴ There are no bonuses for exceeding the Market Transformation and Island Equity targets.

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