

O. G. File  
C. C.  
JC  
C. G.  
BKK ✓  
SKD  
STI  
RV/JM  
LYK



December 8, 2006

William A. Bonnet  
Vice President  
Government & Community Affairs

2006 DEC - 8 P 4: 28  
PUBLIC UTILITIES  
COMMISSION  
FILED

The Honorable Chairman and Members of  
the Hawaii Public Utilities Commission  
465 South King Street  
Kekuanaoa Building, 1st Floor  
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: HECO, HELCO and MECO  
Renewable Portfolio Standard Status Report

Attached for your information is the Renewable Portfolio Standard Status Report for the year ended December 31, 2005 for Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited.

If you have any questions or would like to discuss this further, please call Dean Matsuura at 543-4622.

Sincerely,

Attachment

cc: Division of Consumer Advocacy

## **2005 Renewable Portfolio Standard Status Report**

**Hawaiian Electric Company, Inc.  
Hawaii Electric Light Company, Inc.  
Maui Electric Company, Limited**

**For the Year Ended December 31, 2005**

Hawaiian Electric Company and its subsidiaries, Hawaii Electric Light Company and Maui Electric Company ("the HECO utilities") are very pleased to have achieved in 2005 a consolidated Renewable Portfolio Standard (RPS) percentage of 11.7%. This percentage exceeds the RPS percentage requirement for 2005 of 8%.

This RPS status report shows that renewable energy generation (as compared to quantifiable energy conservation) comprises the majority of the RPS percentage for 2005. In addition, there are several renewable energy projects with power purchase agreements approved by the Public Utilities Commission (PUC) that have either recently begun operations or are under construction.

This RPS status report also shows that new Demand-side Management (DSM) program participants in 2005 contributed approximately 41 gigawatt hours of additional overall quantifiable energy conservation savings. The majority of the energy savings in 2005 came from participants in the utility's DSM programs from previous years that continue to save electricity. This highlights the importance of long-term support for utility DSM to achieve significant energy conservation benefits and increase the RPS percentage.

Major accomplishments were achieved in 2005 to further reduce Hawaii's use of fossil fuel and concerted efforts to increase renewable energy generation and energy conservation are continuing. However, achieving higher RPS percentages in the future will be challenging. Even with aggressive utility DSM programs, the use of electricity in the future is forecasted to increase as Hawaii's economy continues to grow. Problems experienced by existing renewable energy providers and developers in recent years -- and delays in implementing proposed projects -- illustrate the challenges. It will take a concerted effort of all stakeholders to meet the State's RPS law. We look forward to working together to help Hawaii achieve these important objectives.



## 2005 Renewable Portfolio Standard Status Report

Hawaiian Electric Company, Inc.  
Hawaii Electric Light Company, Inc.  
Maui Electric Company, Limited

For the Year Ended December 31, 2005  
(In Gigawatt Hours)

	HECO	HELCO	MECO	TOTAL
<b>Non-Fossil Fuel Energy</b>				
H-POWER	293			293
Municipal Solid Waste - AES <sup>1</sup>	40			40
PGV		221		221
Hydro-Wailuku		30		30
Hydro-HELCO owned		9		9
Wind - Lalamilo Wells		2		2
Small Hydro		1		1
Other Wind including Kamaoa		5		5
Biomass & Hydro-HC&S <sup>2</sup>			75	75
Biodiesel			0.1	0.1
Photovoltaic Systems	0.4	1.6	0.3	2.3
Solar Water Heating <sup>3</sup>	51	10	23	84
<b>Subtotal Non-Fossil Fuel Energy</b>	<b>384</b>	<b>280</b>	<b>98</b>	<b>762</b>
<b>Quantifiable Energy Conservation (QEC) without Solar Water Heating(SWH)<sup>4</sup></b>				
Pre-2005 Participants	263	46	68	377
2005 Participants	29	3	9	41
<b>Subtotal QEC without SWH</b>	<b>292</b>	<b>49</b>	<b>77</b>	<b>418</b>
<b>TOTAL</b>	<b>676</b>	<b>329</b>	<b>175</b>	<b>1180</b>
<b>TOTAL SALES (GWh)</b>	<b>7,721</b>	<b>1,116</b>	<b>1,252</b>	<b>10,089</b>
<b>RPS PERCENTAGE<sup>5</sup></b>	<b>8.8%</b>	<b>29.4%</b>	<b>14.0%</b>	<b>11.7%</b>



# 2005 Renewable Portfolio Standard Status Report

**Hawaiian Electric Company, Inc.  
Hawaii Electric Light Company, Inc.  
Maui Electric Company, Limited**

**For the Year Ended December 31, 2005**

Hawaii's Renewable Portfolio Standard legislation (codified as Sections 269-91 to 269-95 of the Hawaii Revised Statutes (HRS)) sets the requirements for electric utilities for incorporating renewable resources into their resource portfolios and to reduce the use of imported oil. The Hawaii RPS legislation states that the renewable portfolio standard is the percentage of electricity sales that is represented by renewable energy. It further specifies that the renewable portfolio standard goals shall be 8% by December 31, 2005, 10% by December 31, 2010, 15% by December 31, 2015, and 20% by December 31, 2020. An electric utility company and its electric utility affiliates may aggregate their renewable portfolios in order to achieve the renewable portfolio standard.

## Footnotes:

1. AES Municipal Solid Waste energy reflects the amount of energy derived from shredded tires, waste oil, and used activated carbon.
2. HC&S utilizes bagasse (i.e., sugar cane residue) and hydropower, which are sources of renewable energy, in addition to coal and oil to generate the electricity it sells to MECO. Renewable energy is estimated to provide 77.5% of the electricity sold to MECO based upon actual fuel consumption information for 2005 provided by HC&S.
3. HRS Section 269-91 specifies that renewable energy includes the electrical energy savings brought about by the use of solar water heating. The gigawatt hours (GWh) for solar water heating are based upon the annualized system level energy savings for all solar water heating participants in the utility's demand-side management (DSM) programs. The energy savings from utility DSM programs are reported to the PUC and the Consumer Advocate and are verified by an independent consultant whose evaluation reports are also filed with the PUC and the Consumer Advocate.
4. HRS Section 269-91 specifies that renewable energy includes the electrical energy savings brought about by the use of quantifiable energy conservation. The gigawatt hours (GWh) for quantifiable energy conservation are based upon the annualized system level energy savings for all participants in the utility's demand-side management (DSM) programs excluding solar water heating, which is listed separately under non-fossil fuel energy. The energy savings from utility DSM programs are reported to the Public Utilities Commission and the Consumer Advocate and are verified by an independent consultant whose evaluation reports are also filed with the PUC and the Consumer Advocate.
5. Renewable energy is defined in HRS Section 269-91 to include the electrical energy savings brought about by quantifiable energy conservation. Since quantifiable energy conservation is included with renewable energy and also reduces the amount of electricity sales, the renewable portfolio standard percentage might be viewed as double counting the benefits of quantifiable energy conservation. If the energy savings of 418 GWh were added back into the electricity sales, then the renewable portfolio standard percentage would be 11.2%.



## **SPECIFIC PROJECTS**

The following provides information regarding the status of some of the existing and proposed renewable energy projects, which could have an impact on future RPS percentages.

### Big Island:

#### Puna Geothermal Venture (PGV)

In 2005, PGV re-drilled an existing well, and drilled for a new production and a new injection well. As a result, in July 2005 PGV restored its capacity to 30 MW to HELCO with all of its wells and converters in service. However, in July 2006 PGV experienced trouble with its production well and is derated to between 16 and 24 MWs. PGV has plans to correct the situation before the end of December. PGV has indicated its intent to pursue improvements to the plant to increase its capacity by 8 MW, and to pursue negotiations with HELCO for a new or amended Power Purchase Agreement (PPA).

#### Puueo Hydro

The existing 1.5 MW HELCO-owned run-of-river Puueo hydroelectric plant has been rehabilitated by installing a modern, more efficient turbine generator. The repowered plant began operation in July 2005 and can now produce 3.0 MW.

#### Hawi Renewable Development (HRD) Wind Farm

Hawi Renewable Development LLC (HRD) and HELCO signed a power purchase agreement (PPA) on December 30, 2003 for as-available energy from a 10.56 MW wind farm at Hawi, Hawaii. The PPA was approved by the PUC on May 14, 2004. Construction of the wind farm and interconnection facilities was completed in February 2006. The wind farm completed acceptance testing and became operational in May 2006.

#### Apollo Kamaoa Wind Farm

HELCO and Apollo Energy Corporation (Apollo) reached agreement on a restated and amended PPA on October 13, 2004 which enables Apollo to repower its existing 7 MW wind farm (Kamaoa Wind Farm) located at South Point, Hawaii, and install an additional 13.5 MW of wind capacity for a total wind farm capacity of 20.5 MW. The PUC approved the restated and amended PPA on March 10, 2005. Apollo has recently indicated that it believes the project can be completed in 2007. Construction activities have begun at the site.

### Maui:

#### HC&S

MECO and Hawaiian Commercial and Sugar Company (HC&S) agreed on June 28, 2005 that their existing PPA, which continues from year-to-year unless terminated, will continue to at least through December 31, 2011, thus continuing the export of bagasse-generated and hydroelectric energy to Maui's grid.



### Kaheawa Wind Farm

On December 3, 2004, MECO and Kaheawa Wind Power, LLC (KWP) executed a PPA for as-available energy from a 30 MW wind farm at Kaheawa Pastures, Maui. The PUC approved the PPA on March 18, 2005. KWP has completed construction and testing and the wind farm became operational in June 2006. KWP has indicated that it intends to pursue expansion of the KWP wind farm by 27 MW. MECO is supportive and is currently in discussion with KWP regarding its proposed expansion. Any resulting PPA would require PUC approval.

### Auwahi Wind Farm and Pumped Storage Hydro

In late June 2006, Shell WindEnergy Inc. and Ulupalakua Ranch Inc. announced an agreement under which Shell WindEnergy intends to construct an approximately 40 MW wind farm and complementary pumped storage hydro facility on ranch land in East Maui. Shell WindEnergy became interested in Hawaii due to the Renewable Hawaii Inc. requests for renewable energy proposals. The project was planned to be built in two phases, with the second phase to include pumped storage hydro in order to allow for expanded use of the wind power. MECO is currently in discussions with Shell WindEnergy regarding its proposed project. Any resulting PPA would require PUC approval.

### Makila Hydro

On May 10, 2005, MECO entered into a PPA with Makila Hydro, LLC (Makila) for the purchase of as-available energy from an existing 500 kW hydro electric plant, which Makila is refurbishing above Lahaina (previously interconnected to Pioneer Mill). The PPA was approved by the PUC on May 10, 2006. The plant is not yet operational as the construction of the interconnection with MECO is ongoing.

### Maui Electrical System Analysis

MECO is initiating a study to analyze its Maui system which is currently operating with a significant penetration of as-available energy resources, primarily associated with a 30 MW wind farm in Kaheawa and the potential for future expansion of as-available energy resources. The study plans to evaluate: (1) the impact of the current penetration of wind on the Maui grid, (2) the utilization of control and energy storage technologies, such as the Electronic Shock Absorber, to mitigate the effect of wind variability on grid frequency, (3) the impact of additional wind energy projects, in conjunction with the potential addition of pumped hydro storage, and (4) the impact of significant distributed solar photovoltaic resources.

## Oahu:

### H-POWER

By letter dated October 21, 2004, the City and County of Honolulu expressed its desire to extend the current PPA for an additional 20 years to provide for the possible addition of a third boiler, however plans for the third boiler are on hold as the City and County administration reviews the plans. Although an additional boiler would not be expected to increase the MW capacity of H-POWER, it would allow the plant to process an additional 120,000 tons of municipal solid waste (MSW) a year, and increase the reliability of H-POWER and the amount of electricity sold to HECO. In February 2006, the Mayor announced plans to bid out both the future H-POWER contract and the waste stream not currently committed to H-POWER. The



Mayor also announced a partnership with HECO to explore waste-to-energy technologies. HECO has also agreed to assist the City with the bidding process for these waste-to-energy facilities.

### Wind Farm

HECO held discussions with the Leeward Community on plans to pursue the construction of a wind farm. The potential site was identified as the ridge above the Kahe Generating Station for a wind farm in the 25 to 50 MW range. Community meetings were held on July 19, 20 and 21, 2005, to evaluate sentiments on whether, or how, such a project might proceed. At the community meetings, strong concerns were expressed about archaeological and cultural sites in the area, as well as the potential loss of panoramic views of the coastline. Further, while the City and County of Honolulu expressed general support for wind energy as a resource, it announced in September 2005 that it would not issue government permits for the proposed Kahe wind farm based on community concerns. In light of this opposition, HECO determined that it is not practical to proceed with the Kahe wind farm, and is exploring other alternatives. In particular, HECO is currently in discussions with the US Army regarding co-use of land in Kahuku for a potential wind farm. A wind monitoring plan has been submitted to the US Army and is currently undergoing review. Based on ongoing discussions with the Army, the site may be leased by HECO and HECO would then competitively bid for a wind project developer.

### Ethanol

HECO is pursuing the use of ethanol blended fuels in its next generating unit addition. In April 2006, HECO issued a solicitation of interest to ethanol suppliers to explore the possibilities of entering into a multi-year supply arrangement. The solicitation of interest provided preliminary information on ethanol requirements and asked prospective suppliers to indicate by June 30, 2006, their interest in supplying HECO with ethanol and to provide information on, among other things, their ability to meet the preliminary supply requirements. HECO received seven responses and is in the process of seeking further information from the prospective suppliers. Information collected will be used to carefully compare and then select a short list of prospective suppliers to move on to the next phase of HECO's ethanol procurement process.

### Photovoltaic Systems

HECO is pursuing the installation of a 175 kW photovoltaic systems at its Ward Avenue property with a projected commercial operation date of November 2007, as part of the 300 kW PV resource identified in its IRP filed with the PUC on October 28, 2005. The timing of the installation will depend upon the acquisition of the required permits and regulatory approvals.

### Other PPA Proposals:

HELCO and HECO are in discussions with developers of a number of proposed renewable energy projects in addition to those identified above. Unless announced publicly by the project developers, details of the proposals generally are treated as confidential information. (The Companies provided some details of the proposals currently under discussion to the PUC and the Consumer Advocate under Protective Order in the Competitive Bidding proceeding, Docket No. 03-0372.) Additional projects for which proposals have been submitted to the Companies include wind farm projects on Oahu and the Big Island, an ocean thermal energy conversion project on Oahu, a small waste-fired facility on Oahu, two biomass projects on the Big Island, and small



hydroelectric and solar power projects on the Big Island. Any resulting PPA would require PUC approval.

Renewable Hawaii, Inc.:

HECO's non-regulated subsidiary, Renewable Hawaii, Inc., is seeking passive investment in cost-effective, commercial renewable energy projects. Two rounds of renewable energy requests for project proposals (RE RFPP) for the islands of Oahu, Maui, Molokai, Lanai, and the Big Island of Hawaii were issued between 2003 and 2005. RHI's objective is to proactively stimulate the development of cost-effective and operationally positive renewable energy generation in the State of Hawaii through limited passive investment in qualified commercially viable and technically feasible projects. (Technologies requiring research and design, prototype development, or demonstration will not be considered.)

Over twenty proposals have been received in response to the RE RFPPs. RHI is in discussions with a number of developers for potential renewable energy projects on three different islands. Whether or not these projects are viable will depend on numerous factors, such as cost of the projects, continued availability of tax credits, technical feasibility, and developers' abilities to obtain sites, permits, project financing and/or community support.

