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Jay M. Ignacio, P.E.  
President

January 30, 2012

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PUBLIC UTILITIES  
COMMISSION

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

Dear Commissioners:

Subject: Adequacy of Supply  
Hawaii Electric Light Company, Inc. ("HELCO")

The following information is respectfully submitted in accordance with paragraph 5.3a of General Order No. 7, which states:

*The generation capacity of the utility's plant, supplemented by electric power regularly available from other sources, must be sufficiently large to meet all reasonably expectable demands for service and provide a reasonable reserve for emergencies. A Statement shall be filed annually with the Commission within 30 days after the close of the year indicating the adequacy of such capacity and the method used to determine the required reserve capacity which forms the basis for future requirements in generation, transmission, and distribution plant expansion programs required under Rule 2.3h.1.*

HELCO's 2011 total system capability was 287,100 kW net (293,250 kW gross) and included firm capacity power purchases of 30,000 kW from Puna Geothermal Venture ("PGV") and 60,000 kW from Hamakua Energy Partners, L.P. ("HEP"). HELCO's system peak of 189,200 kW (net) or 194,095 kW (gross) occurred on December 27, 2011<sup>1</sup>, at approximately 6:22 p.m. The 2011 reserve margin was approximately 52% over the system peak.

Load Management/DSM

At the time of the system peak, HELCO had in place 34 load management contracts totaling 8,390 kW under Rider M and Schedule U, which reduced the evening peak by approximately 5,646 kW. In addition, residential and commercial & industrial demand side

<sup>1</sup> HELCO's system peak has occurred in the month of December from 1997 to 2007, and again in 2009 to 2011. For the purposes of this report, it is assumed that HELCO's system peak will continue to occur in December.

management (“DSM”) programs, implemented by HELCO from 1996 through June 2009 and by Hawaii Energy since July 1, 2009, reduced the system peak by an estimated 13,264<sup>2</sup> net kW (net of free riders).

In its future planning processes, HELCO will explore the implications of the energy and demand impacts related to the Energy Efficiency Portfolio Standards (“EEPS”).<sup>3</sup> The EEPS is designed to achieve 4,300 GWh of electricity use reductions statewide by 2030 or to achieve some other level of reduction as may be determined by the Commission.

### Reserve Margins

Attachment 1 shows the expected reserve margin over the next three years, based on HELCO’s 2011-2016 Sales and Peak Forecast, dated May 24, 2011, and HELCO’s latest estimate of forecasted DSM impacts. Attachment 2 details the gross and net ratings of HELCO units and Independent Power Producer (“IPP”) units.

The following capacity planning criterion is used to determine the need for additional generation:

*The sum of the reserve ratings of all available units, minus the reserve rating of the largest available unit, minus the reserve ratings of any units on maintenance, must be equal to or greater than the system peak load to be supplied.*

HELCO’s generation capacity for the Big Island for the next three years is sufficiently large to meet all reasonably expected demands for service and provide reasonable reserves for emergencies.

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<sup>2</sup> Energy efficiency program impacts for customers who participated in the programs prior to July 1, 2009 are based on HELCO records and total 9,334 net kW. Energy efficiency program impacts of 1,982 net kW and 1,949 net kW for Hawaii Energy’s first program year, which ran July 1, 2009 to June 30, 2010, and second program year, which ran July 1, 2010 to June 30, 2011, respectively, are also included in this estimate. Source: Hawaii Energy Annual Report for PY2009 (net level savings), Page 23, and Hawaii Energy Annual Report for PY2010 (net level savings), Page 39. [www.hawaiienergy.com](http://www.hawaiienergy.com).

<sup>3</sup> On March 8, 2010, the Commission initiated an investigation to examine establishing energy efficiency portfolio standards for the State of Hawaii, pursuant to Act 155, Session Laws of Hawaii 2009 (“Act 155”) and Hawaii Revised Statutes §269-96. On January 3, 2012, the Framework for EEPS was adopted by the Commission in Decision and Order No. 30089 (“D&O 30089”) in Docket No. 2010-0037. D&O 30089 set interim incremental reduction goals which may be revised through goal evaluations scheduled every five years or as the result of recommendations by an EEPS technical working group (TWG) for consideration by the Commission.



### Acquisition of Additional Firm Generating Capacity

#### Competitive Bidding is the Required Acquisition Mechanism

On December 8, 2006, the Framework for Competitive Bidding ("CB Framework") was adopted by the Commission in Decision and Order No. 23121 ("D&O 23121") in Docket No. 03-0372, pursuant to HRS §§ 269-7 and 269-15, and Hawaii Administrative Rules § 6-61-71. The Commission's CB Framework states that "[c]ompetitive bidding, unless the Commission finds it to be unsuitable, is established as the required mechanism for acquiring a future generation resource or a block of generation resources, whether or not such resource has been identified in a utility's IRP."

#### Exemptions to the CB Framework

In D&O 23121, the Commission adopted "exemptions based on size" as proposed by the HECO Utilities. One exemption given in Section II.A.3.f. on page 5 of the CB Framework states in relevant part:

This Framework also does not apply to: (i) generating units with a net output available to the utility of 1% or less of a utility's total firm capacity, including that of independent power producers, or with a net output of 5 MW or less, whichever is lower ....

HELCO's total firm capacity (net reserve MW) as of December 31, 2011 was 287.1 MW, and 1% of HELCO's total firm capacity is 2.87 MW. As a result, for HELCO, the CB Framework would not apply to proposed generating units with a net output available to the utility of 2.87 MW (i.e., the lower of 2.87 MW and 5 MW) or less.

#### Geothermal Request For Proposal

HELCO plans to take steps to expand geothermal energy on the island of Hawaii with a request to the Commission to open a docket for a Geothermal Request For Proposals ("RFP") in 2012.

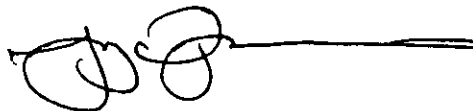
At the same time, HELCO will undertake technical studies on the integration of additional geothermal resources on the Big Island grid. These include the need for more transmission lines if the geothermal power is all from the east side of the island, and the potential for placing into standby one or more fossil-fueled units when the geothermal power is operational.

HELCO will seek geothermal technologies that provide firm, fully dispatchable capability, that is, the ability for the utility to schedule and control the output power from the geothermal plant. This will help maintain reliability and at the same time help to manage intermittent resources such as wind and solar photovoltaic power. HELCO



hopes to add up to 50 MW more of geothermal power if the cost is lower for its customers. The amount added must also operationally blend with other power resources, including renewable energy from other sources such as wind, solar, biomass and hydro.

Very truly yours,

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Jay Ignacio  
President

Attachments

c: Division of Consumer Advocacy (with Attachments)



**Table 1**  
**Adequacy of Supply**

Year	System Capability at Annual Peak Load (net kW) [A]	Notes	With Future DSM (Includes Acquired DSM) <sup>(I)</sup>	
			System Peak (net kW) [C] <sup>(III)</sup>	Reserve Margin (%) $[(A-C)/C]$ <sup>(VIII)</sup>
<i>Recorded</i> <sup>(II)</sup>				
2011	287,100	(IV)	189,200	51.7%
<i>Future</i>				
2012	295,100	(V)	192,600	53.2%
2013	295,100	(VI)	195,300	51.1%
2014	295,100	(VII)	197,900	49.1%

Notes:

(I) System Peaks (With Future Peak Reduction Benefits of DSM Programs):

- Implementation of full-scale DSM programs began in the first quarter of 1996 following Commission approval of the programs. On February 13, 2007, the Commission issued Decision and Order No. 23258 in the Energy Efficiency proceeding (Docket No. 05-0069). The Commission ordered that the energy efficiency programs transition to a non-utility administrator by January 2009. Effective July 1, 2009, the administration of the company's energy efficiency DSM programs was transferred to the Hawaii Energy Efficiency Programs (HEEP) Administrator.
- The forecasted system peak values for the years 2012-2014 include the actual peak reduction benefits acquired in 1996-June 2009 implemented by HELCO and the estimated peak reduction benefits acquired through 2011 implemented by Hawaii Energy, as well as the benefits of the DSM programs (acquired and future), Rider M, and Schedule U contracts.

(II) System Peaks (Recorded):

- The recorded system peaks for 2011 includes the actual peak reduction benefits of the acquired DSM programs and the Rider M and Schedule U contracts.

(III) The 2012-2014 annual forecasted system peaks are based on:

- HELCO's 2011-2016 Sales and Peak Forecast, dated May 24, 2011. The HELCO annual forecasted system peak is expected to occur in the month of December.

(IV) System Capability for 2011 includes:

- HELCO units at a total of 197,100 kW net (203,300 kW gross).
- Firm power purchase contracts with a combined net total of 90,000 kW from PGV (30,000 kW) and HEP (60,000 kW).

(V) System Capability for 2012 includes:

- HELCO units at a total of 197,100 kW net (203,300 kW gross).
- Firm power purchase contracts with a combined net total of 98,000 kW from PGV (38,000 kW) and HEP (60,000 kW).

(VI) System Capability for 2013 includes:

- HELCO units at a total of 197,100 kW net (203,300 kW gross).
- Firm power purchase contracts with a combined net total of 98,000 kW from PGV (38,000 kW) and HEP (60,000 kW).

(VII) System Capability for 2014 includes:

- HELCO units at a total of 197,100 kW net (203,300 kW gross).
- Firm power purchase contracts with a combined net total of 98,000 kW from PGV (38,000 kW) and HEP (60,000 kW).

(VIII) Reserve Margin

- The reserve margins shown for 2012-2014 assume that HEP and PGV are at full ratings.
- On July 26, 2007, HELCO entered into a Power Purchase Agreement ("PPA") with Tradewinds Forest Products, LLC ("Tradewinds") in which HELCO would purchase from Tradewinds approximately 13,220 MWh per year on a scheduled basis. The PPA was incomplete because an Interconnection Requirements Study ("IRS"), which would have provided information on HELCO-owned interconnection facilities, was not completed. The IRS has since been completed, and the PPA would need to be amended with that information. On July 9, 2010,

Tradewinds gave notice that their project was on hold indefinitely. Due to the uncertainty of the project's future, Tradewinds is not included in the 2012-2014 firm power purchase capacity and reserve margin calculations.

In 2009, HELCO negotiated and reached agreement in principle to purchase additional firm, dispatchable energy from Hu Honua Bioenergy, LLC, ("Hu Honua"). In accordance with the term sheet signed on March 13, 2009, Hu Honua is anticipated to produce and deliver approximately 21.5 MW of firm, dispatchable energy to HELCO. In 2011, Hu Honua received approvals for its Special Management Area Permit and for its Covered Source Permit. Hu Honua continues working towards developing a power purchase agreement with HELCO. The parties have agreed in principle on all of the PPA provisions to purchase the additional firm capacity, and the documents are awaiting execution by the parties. The date of commercial operation for Hu Honua is predicated on execution of a final power purchase agreement and Commission approval of the PPA. Therefore, the in-service date for the project is uncertain at this time and the Hu Honua capacity is not included in the reserve margin calculations.

Also in 2009, HELCO negotiated and reached agreement in principle to purchase additional firm, dispatchable energy from PGV. In 2011, a PPA was executed for the purchase of firm, dispatchable energy from PGV's geothermal facility located in Puna. The PPA allows for an 8 MW increase in available capacity for HELCO's energy needs. The Commission issued Decision & Order No. 30088 ("D&O No. 30088") on December 30, 2011 in Docket No. 2011-0040, approving the contract. At the time this report was written, PGV was undergoing acceptance testing. For the purposes of this report, PGV's additional 8 MW capacity is included in the reserve margin calculation from 2012.

**HELCO Adequacy of Supply  
 2011 Unit Ratings (Firm Capacity at Actual System Peak in December 2011)**

Unit	(Gross MW)		(Net MW)	
	Reserve Rating (MW)	NTL Rating (MW)	Reserve Rating (MW)	NTL Rating (MW)
Shipman 3	7.50	7.50	7.10	7.10
Shipman 4	7.70	7.70	7.30	7.30
Hill 5	14.10	14.10	13.50	13.50
Hill 6	21.40	21.40	20.20	20.20
Puna	17.00	17.00	15.70	15.70
Kanoelehua D11	2.00	2.00	2.00	2.00
Waimea D12	2.75	2.50	2.75	2.50
Waimea D13	2.75	2.50	2.75	2.50
Waimea D14	2.75	2.50	2.75	2.50
Kanoelehua D15	2.75	2.50	2.75	2.50
Kanoelehua D16	2.75	2.50	2.75	2.50
Kanoelehua D17	2.75	2.50	2.75	2.50
Keahole D21	2.75	2.50	2.75	2.50
Keahole D22	2.75	2.50	2.75	2.50
Keahole D23	2.75	2.50	2.75	2.50
Kanoelehua CT-1	11.50	11.50	11.50	11.50
Keahole CT-2	13.80	13.80	13.80	13.80
Puna CT-3	21.00	21.00	21.00	21.00
Keahole CT-4/CT-5/ST-7	58.50	58.50	56.25	56.25
Panaewa D24	1.00	1.00	1.00	1.00
Ouli D25	1.00	1.00	1.00	1.00
Punaluu D26	1.00	1.00	1.00	1.00
Kapua D27	1.00	1.00	1.00	1.00
<b>HELCO Total</b>	<b>203.25</b>	<b>201.00</b>	<b>197.10</b>	<b>194.85</b>
PGV	30.00	30.00	30.00	30.00
HEP	60.00	60.00	60.00	60.00
<b>IPP Total</b>	<b>90.00</b>	<b>90.00</b>	<b>90.00</b>	<b>90.00</b>
<b>System Total</b>	<b>293.25</b>	<b>291.00</b>	<b>287.10</b>	<b>284.85</b>



**HELCO Adequacy of Supply  
 2012-2014 Unit Ratings (Firm Capacity at Forecasted System Peak in December 2012-2014)**

Unit	(Gross MW)		(Net MW)	
	Reserve Rating (MW)	NTL Rating (MW)	Reserve Rating (MW)	NTL Rating (MW)
Shipman 3	7.50	7.50	7.10	7.10
Shipman 4	7.70	7.70	7.30	7.30
Hill 5	14.10	14.10	13.50	13.50
Hill 6	21.40	21.40	20.20	20.20
Puna	17.00	17.00	15.70	15.70
Kanoelehua D11	2.00	2.00	2.00	2.00
Waimea D12	2.75	2.50	2.75	2.50
Waimea D13	2.75	2.50	2.75	2.50
Waimea D14	2.75	2.50	2.75	2.50
Kanoelehua D15	2.75	2.50	2.75	2.50
Kanoelehua D16	2.75	2.50	2.75	2.50
Kanoelehua D17	2.75	2.50	2.75	2.50
Keahole D21	2.75	2.50	2.75	2.50
Keahole D22	2.75	2.50	2.75	2.50
Keahole D23	2.75	2.50	2.75	2.50
Kanoelehua CT-1	11.50	11.50	11.50	11.50
Keahole CT-2	13.80	13.80	13.80	13.80
Puna CT-3	21.00	21.00	21.00	21.00
Keahole CT-4/CT-5/ST-7	58.50	58.50	56.25	56.25
Panaewa D24	1.00	1.00	1.00	1.00
Ouli D25	1.00	1.00	1.00	1.00
Punaluu D26	1.00	1.00	1.00	1.00
Kapua D27	1.00	1.00	1.00	1.00
<b>HELCO Total</b>	<b>203.25</b>	<b>201.00</b>	<b>197.10</b>	<b>194.85</b>
PGV	38.00 (1)	38.00 (1)	38.00 (1)	38.00 (1)
HEP	60.00	60.00	60.00	60.00
<b>IPP Total</b>	<b>98.00</b>	<b>98.00</b>	<b>98.00</b>	<b>98.00</b>
<b>System Total</b>	<b>301.25</b>	<b>299.00</b>	<b>295.10</b>	<b>292.85</b>

Notes:

- (1) HELCO and PGV executed a power purchase agreement on February 7, 2011 for the 8 MW expansion of PGV's geothermal facility. The Commission issued D&O No. 30088 in Docket No. 2011-0040 approving the contract on December 30, 2011.