Hawaii Electric Light Company, Inc. • PO Box 1027 • Hilo, HI 96721-1027

1/30/14 Gen File
C: JG, MEC

FILED

2014 JAN 30 P 3:58

PUBLIC UTILITIES COMMISSION

Jay M. Ignacio, P.E.
President

January 30, 2014

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

Dear Commissioners:

Subject: Adequacy of Supply
Hawai'i Electric Light Company, Inc.

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.*

Hawai'i Electric Light's 2013 total firm generation capability at its system peak was 277,300 kW net (282,650 kW gross) and included firm capacity power purchases of 34,600 kW from Puna Geothermal Venture ("PGV")[1] and 60,000 kW from Hamakua Energy Partners, L.P. ("HEP"). Hawai'i Electric Light's system peak of 190,200 kW (net) or 194,868 kW (gross) occurred on December 29, 2013[2], at approximately 6:35 p.m. The 2013 reserve margin at the time of the peak was approximately 46%.

---

[1] At the time of the December 29, 2013 system peak, PGV's output was 34,600 kW. The PGV additional 8,000 kW facility was placed in-service on March 19, 2012. PGV's total capacity was increased from 30,000 kW to 34,600 kW based on completed acceptance testing. According to Article 5 of the PPA for the expansion, PGV has an opportunity to use commercially reasonable efforts to increase the facility's capacity level to the committed capacity of 38,000 kW. For the purposes of this report, PGV's capacity of 34,600 kW is assumed for the reserve margin calculation for 2014, 2015, and 2016.

[2] Hawai'i Electric Light's system peak in 2013 occurred in the month of December. Typically, Hawai'i Electric Light's system peaks have occurred in the month of December. For the purposes of this report, it is assumed that Hawai'i Electric Light's future annual system peak will occur in December.

Load Management/DSM

By the end of 2013, Hawai'i Electric Light had in place 30 load management contracts totaling 6,793 kW under Rider M and Schedule U, reducing the evening peak by approximately 5,700 kW. In addition, residential and commercial & industrial demand side management ("DSM") programs, implemented by Hawai'i Electric Light from 1996 through June 2009 and by Hawaii Energy since July 1, 2009, reduced the system peak by an estimated 17,351[3] net kW (net of free riders).

In its future planning processes, Hawai'i Electric Light will explore the implications of the energy and demand impacts related to the Energy Efficiency Portfolio Standards ("EEPS").[4] 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 State of Hawai'i Public Utilities Commission ("Commission").

Reserve Margins

Attachment 1 shows the expected reserve margin over the next three years, based on Hawai'i Electric Light's May 2013 Sales and Peak Forecast Update, dated May 23, 2013, and Hawai'i Electric Light's latest estimate of forecasted DSM impacts. Attachment 2 details the gross and net ratings of Hawai'i Electric Light 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.*

---

[3] Energy efficiency program impacts for customers who participated in the programs prior to July 1, 2009 are based on Hawai'i Electric Light records and total an estimated 9,334 net kW. Energy efficiency program impacts of 1,982 net kW,1,949 net kW, and 2,030 net kW for Hawaii Energy's first program year (July 1, 2009 to June 30, 2010), second program year (July 1, 2010 to June 30, 2011), and third program year (July 1, 2011 to June 30, 2012), respectively, are also included in this estimate. Source: Hawaii Energy Annual Report for PY2009 (net level savings), Page 23; Hawaii Energy Annual Report for PY2010 (net level savings), Page 39; Hawaii Energy Annual Report for PY2011 (net level savings), Page 35; and Hawaii Energy Annual Report for PY2012 (net level savings), Page 39; www.hawaiienergy.com.

[4] On March 8, 2010, the Commission initiated an investigation to examine establishing energy efficiency portfolio standards for the State of Hawai'i, pursuant to Act 155, Session Laws of Hawai'i 2009 ("Act 155") and Hawai'i Revised Statues §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.

Hawai'i Electric Light'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.

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 Hawai'i 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 Hawaiian Electric 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 ....

Hawai'i Electric Light's total firm capacity (net reserve MW) as of December 31, 2013 was 277.3 MW, and 1% of Hawai'i Electric Light's total firm capacity is 2.773 MW. As a result, for Hawai'i Electric Light, the CB Framework would not apply to proposed generating units with a net output available to the utility of 2.773 MW (i.e., the lower of 2.773 MW and 5 MW) or less.

Pursuant to the Commission's Decision and Order, filed November 14, 2008 in Docket No. 2008-0143, which granted the request for waiver from the CB Framework for the Hu Honua Bioenergy, LLC ("Hu Honua") project, in 2009, Hawai'i Electric Light negotiated and reached agreement in principle to purchase additional firm, dispatchable energy from 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 Hawai'i Electric Light. On December 20, 2013, the Commission issued Decision and Order No. 31758 in Docket No. 2012-0212, approving the Power Purchase Agreement ("PPA") between Hawai'i Electric Light and Hu Honua.

Included in the Commission's Decision and Order No. 31758 was a requirement for Hawai'i Electric Light to file a Power Supply Improvement Plan ("PSIP") within 120 days of the date of the Decision and Order. The PSIP shall address, at a minimum, the

following issues: (1) Fossil Generation Retirement Plan, which shall include an analysis of which existing fossil fuel plants can be retired, when it is feasible to retire each such plant, the effect on system operations of retiring each such plant, and the anticipated ratepayer savings that would result; (2) a Generation Flexibility Plan designed to enable Hawai'i Electric Light to accommodate greater quantities of low cost energy resources; (3) a Must-Run Generation Reduction Plan to reduce or eliminate the must-run designation and operation of generating units on Hawai'i Electric Light's power supply system and enable Hawai'i Electric Light to accept additional lower-cost energy resources; and (4) a Generation Commitment and Economic Dispatch Review to ensure that existing generation resource allocation policies and practices yield the most fuel-efficient and cost-effective outcome given Hawai'i Electric Light's rapidly changing portfolio of power supply resources. Hawai'i Electric Light is in the process of preparing the PSIP as directed by the Commission.

Integrated Resource Planning ("IRP")

On March 1, 2012, the Commission issued Order No. 30233 in Docket No. 2012-0036 that commenced the IRP cycle for the Hawaiian Electric Companies. The Hawaiian Electric Companies filed their IRP Report and Actions Plans with the Commission on June 28, 2013 ("IRP Report"). The Commission is currently reviewing: (1) whether the IRP process and IRP Report, including Scenarios, Resource Plans, and Action Plans, are consistent with the IRP Framework; (2) whether the IRP Report meaningfully addresses the Principal Issues identified in the IRP process, including the questions and issues identified by the commission by Order No. 30534; and (3) whether the commission should approve, reject, either in whole or in part, or require modifications of the submitted IRP Report, including Scenarios, Resource Plans, or Action Plans.

Chapter 18 of the IRP Report, *Competitive Bidding and Resource Acquisition*, discusses the relationship between the IRP and the Competitive Bidding Framework along with the status of competitive bidding processes and specific exempt projects. (The specific Hawai'i Electric Light system discussion is on pages 18-39 to 18-42, and further included in Hawai'i Electric Light's Action Plan on pages 21-4 to 21-5 in the IRP Report.)

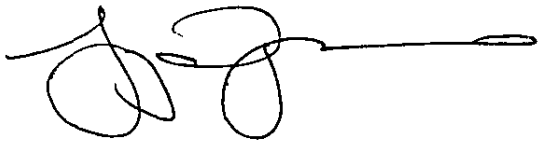
Geothermal Request For Proposals

On May 1, 2012, the Commission opened Docket No. 2012-0092 to allow Hawai'i Electric Light to proceed with the competitive bidding process, in accordance with the Commission's December 8, 2006 Competitive Bidding Framework, to acquire up to 50 MW of dispatchable renewable geothermal firm capacity on the Island of Hawai'i. Hawai'i Electric Light filed the Draft Geothermal RFP with the Commission on November 9, 2012, and held the Hawai'i Electric Light Geothermal RFP Technical Conference Webinar on December 5, 2012, after the Commission retained the Independent Observer, Boston Pacific, on December 4, 2012. Hawai'i Electric Light filed the Proposed Final Geothermal RFP with the Commission on January 25, 2013 and

issued the Final Geothermal RFP on February 28, 2013. Evaluation of submitted bids continues. Hawai'i Electric Light is working with the Independent Observer on the next steps to give the bidders the opportunity to provide additional information. Updated Geothermal RFP information, including key filings and documents, may be found at http://GeothermalRFP.helcohi.com.

Hawai'i Electric Light seeks bids for one or more geothermal plants, as noted above, that will lower overall system-wide costs to Hawai'i Electric Light customers. Hawai'i Electric Light desires firm, dispatchable geothermal power that meets stated performance characteristics to enable the utility to schedule and control the output from the facility. This may allow potential retirement of Hawai'i Electric Light fossil units in the future.

Very truly yours,



Jay Ignacio
President

Attachments

c: Division of Consumer Advocacy (with Attachments)

Table 1
Adequacy of Supply

			With Future DSM (Includes Acquired DSM) [I]	
Year	System Capability at Annual Peak Load (net kW) [A]	Notes	System Peak (net kW) [C] [III]	Reserve Margin (%) [[A-C]/C] [VIII]
Recorded [II] 2013	277,300	[IV]	190,200	45.8%
Future 2014	277,300	[V]	183,700	51.0%
2015	277,300	[VI]	184,900	50.0%
2016	277,300	[VII]	186,000	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 2014-2016 include the actual peak reduction benefits acquired in 1996-June 2009 implemented by Hawai'i Electric Light and the estimated peak reduction benefits acquired through 2013 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 2013 includes the actual peak reduction benefits of the acquired DSM programs and the Rider M and Schedule U contracts.

(III) The 2014-2016 annual forecasted system peaks are based on:

- Hawai'i Electric Light's May 2013 Sales and Peak Forecast Update, dated May 23, 2013. The Hawai'i Electric Light annual forecasted system peak is expected to occur in the month of December.

(IV) System Capability for 2013 includes:

- Hawai'i Electric Light units at a total of 182,700 kW net (188,100 kW gross).
- Firm power purchase contracts with a combined net total of 94,600 kW from PGV (34,600 kW) and HEP (60,000 kW).

(V) System Capability for 2014 includes:

- Hawai'i Electric Light units at a total of 182,700kW net (188,100 kW gross).
- Firm power purchase contracts with a combined net total of 94,600 kW from PGV (34,600 kW) and HEP (60,000 kW).

(VI) System Capability for 2015 includes:

- Hawai'i Electric Light units at a total of 182,700 kW net (188,100 kW gross).
- Firm power purchase contracts with a combined net total of 94,600 kW from PGV (34,600 kW) and HEP (60,000 kW).

(VII) System Capability for 2016 includes:

- Hawai'i Electric Light units at a total of 182,700 kW net (188,100 kW gross).
- Firm power purchase contracts with a combined net total of 94,600 kW from PGV (34,600 kW) and HEP (60,000 kW).

(VIII) Reserve Margin

- The reserve margins shown for 2014-2016 assume that HEP is at full rating and PGV's rating is at 34.6 MW.

  Shipman 3 and Shipman 4 have been placed in an inactive status (dry layup). These units are anticipated to be placed in deactivated status pending the addition of the Hu Honua Bioenergy facility to the Hawai'i Electric Light system. The capacities of Shipman 3 and Shipman 4 are not included in the reserve margin calculation.

Hu Honua is anticipated to produce and deliver approximately 21.5 MW of firm, dispatchable energy to Hawai'i Electric Light, however, an in-service date has not been established. For the purposes of this report, Hu Honua's capacity is not included in the reserve margin calculations. It is projected that after Hu Honua achieves its contract capacity rating and demonstrates satisfactory operation for one year, Shipman unit 3 and Shipman unit 4 will be considered candidates for retirement.

Hawai'i Electric Light Adequacy of Supply
2013 Unit Ratings (Firm Capacity at Actual System Peak in December 2013)

	(Gross MW)		(Net MW)	
Unit	Reserve Rating (MW)	NTL Rating (MW)	Reserve Rating (MW)	NTL Rating (MW)
Shipman 3	0.00	0.00	0.00	0.00
Shipman 4	0.00	0.00	0.00	0.00
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
Hawai'i Electric Light Total	188.05	185.80	182.70	180.45
PGV	34.60 (1)	34.60 (1)	34.60 (1)	34.60 (1)
HEP	60.00	60.00	60.00	60.00
IPP Total	94.60	94.60	94.60	94.60
System Total	282.65	280.40	277.30	275.05

Notes:

(1) Hawai'i Electric Light 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 on December 30, 2011 in Docket No. 2011-0040, approving the contract. In March 2012, PGV increased its capacity to 34.6 MW based on acceptance testing. PGV's output is anticipated to increase to 38 MW in the near future.

Hawai'i Electric Light Adequacy of Supply
2014-2016 Unit Ratings (Firm Capacity at Forecasted System Peak in December 2014-2016)

	(Gross MW)		(Net MW)	
Unit	Reserve Rating (MW)	NTL Rating (MW)	Reserve Rating (MW)	NTL Rating (MW)
Shipman 3	0.00	0.00	0.00	0.00
Shipman 4	0.00	0.00	0.00	0.00
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
Hawai'i Electric Light Total	188.05	185.80	182.70	180.45
PGV	34.60 (I)	34.60 (I)	34.60 (I)	34.60 (I)
HEP	60.00	60.00	60.00	60.00
IPP Total	94.60	94.60	94.60	94.60
System Total	282.65	280.40	277.30	275.05

Notes:

(II) Hawai'i Electric Light 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 on December 30, 2011 in Docket No. 2011-0040, approving the contract. In March 2012, PGV increased its capacity to 34.6 MW based on acceptance testing. PGV's output is anticipated to increase to 38 MW in the near future.