

GFile
C: CC
JC
LHK
RJI
BC
SKD
LYK



Warren H. W. Lee, P.E.
President

January 30, 2008

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

PUBLIC UTILITIES
COMMISSION

2008 JAN 30 P 3:35

FILED

Dear Commissioners:

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

In accordance with paragraph 5.3a of General Order No. 7, the following information is respectfully submitted.

HELCO's 2007 total system capability was 269,850 kW net (274,250 kW gross) and included firm capacity power purchases of 28,000 kW from Puna Geothermal Venture ("PGV")¹ and 60,000 kW from Hamakua Energy Partners, L.P. ("HEP"). HELCO's system peak of 203,300 kW net (207,600 kW gross) occurred on December 26, 2007, at approximately 6:34 p.m. The 2007 reserve margin was approximately 33% over the system peak.

Load Management/DSM

At the time of the system peak, HELCO had in place 25 load management contracts totaling 6,177 kW under Rider M and Schedule U, which reduced the evening peak by approximately 5,393 kW. In addition, HELCO has had residential and commercial & industrial demand side management ("DSM") programs in place since 1996, which reduced the system peak by an estimated 8,184 net kW (net of free riders). Without the load management and DSM impacts, the system peak would have been approximately 217,000 kW net, with a reserve margin of approximately 24%.

¹ PGV's normal rating is 30 MW. In July 2006, PGV began experiencing problems with well production and by mid-February 2007, was restored to the contract export of 30 MW. PGV can export 30 MW to HELCO with all wells in service and all ten of the Ormat Energy Converters ("OEC") in service. At the time of the system peak, PGV's output was about 28 MW. As of January 6, 2008, PGV has been restored to the contract export of 30 MW with all of the OEC in service.

On February 13, 2007, the Commission issued Decision and Order No. 23258 in the Energy Efficiency proceeding (Docket No. 05-0069) in which the Commission ordered that the energy efficiency programs transition to a non-utility administrator by January 2009. The impact of the transition is unknown at this time and there are uncertainties associated with obtaining the peak reduction impacts from a new, yet to be defined market structure. Should customer participation in the DSM programs be lower than estimated or delayed, the peak forecast used in this AOS filing will result in higher peak loads. On September 27, 2007, the Commission opened Docket No. 2007-0323, which will examine the selection of the non-utility administrator and refine the details of the new market structure.

Distributed Generation (“DG”) and Combined Heat and Power (“CHP”)

Firm DG resources can provide generating capacity if dispatchable by the utility, or can reduce peak loads if operated by customers. HELCO has been including forecasted firm DG resources, namely CHP, in its Adequacy of Supply (“AOS”) evaluations for the past several years. As reported in last year’s AOS², the CHP forecast (dated January 12, 2007) was used for this 2008 AOS report due to the continuation of the following: (1) new rules issued by the U.S. Environmental Protection Agency (“EPA”) which will require more stringent emission controls for stationary diesel engines in the near future, (2) Commission criteria required to be met by HELCO in order to provide customer-sited DG projects on a regulated utility basis, and (3) other uncertainties concerning customer-sited DG.

Reserve Margins

Attachment 1 shows the expected reserve margin over the next three years, based on HELCO’s 2007-2012 Sales and Peak Forecast, dated June 6, 2007, HELCO’s latest estimate of forecasted DSM impacts, and HELCO latest estimate of forecasted CHP impacts. (Attachment 1 also shows the estimated reserve margins without future DSM.) Attachment 2 details the gross and net ratings of HELCO units and Independent Power Producer (“IPP”) units. HELCO has entered into a Power Purchase Agreement (“PPA”) with Tradewinds Forest Products, LLC (“Tradewinds”) in which HELCO will purchase from Tradewinds approximately 13,220 MWh per year on a scheduled basis.³ The Tradewinds facility is estimated to be in service by October 2010. An application requesting Commission approval of the PPA is expected to be filed in the first half of this year.

² In the 2007 AOS report, the peak reduction impact of CHP in the year 2008 was forecasted to be 2.0 MW. In this 2008 AOS report, the peak reduction impact of CHP in the years 2009 and 2010 are forecasted to be 3.0 MW and 4.0 MW, respectively.

³ Under the terms of the PPA, Tradewinds will have the opportunity to increase the amount of energy supplied to HELCO to 14,000 MWh per year.



The Honorable Chairman and Members of the
Hawaii Public Utilities Commission
January 30, 2008
Page 3

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.

Very truly yours,



Attachments

cc: Division of Consumer Advocacy (with Attachments)



Table 1
Adequacy of Supply

Year	System Capability at Annual Peak Load (net kW) [A]	Notes	With 3 rd Party CHP ^(I)			
			Without Future DSM (Includes Acquired DSM) ^(II)		With Future DSM (Includes Acquired DSM) ^(III)	
			System Peak (net kW) [B] ^(IV)	Reserve Margin (%) [[A-B]/B] ^(IX)	System Peak (net kW) [C] ^(IV)	Reserve Margin (%) [[A-C]/C] ^(IX)
<i>Recorded</i>						
2007	269,900	(V)	203,300	33%	N/A	N/A
<i>Future</i>						
2008	271,900	(VI)	208,900	30%	207,800	31%
2009	288,200	(VII)	212,800	35%	211,200	36%
2010	288,200	(VIII)	217,100	33%	214,900	34%

Notes:

- (I) With 3rd Party CHP:
 - Forecasted system peaks include reduction for forecasted system level third party CHP impacts.¹
- (II) System Peaks (Without 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.
 - The forecasted system peak values for the years 2008-2010 include the actual peak reduction benefits acquired in 1996-2006 and the estimated peak reduction benefits acquired in 2007, as well as the benefits of the Rider M and Schedule U contracts, and third party CHP impacts.
- (III) System Peaks (With Future Peak Reduction Benefits of DSM Programs):
 - The forecasted system peaks for 2008-2010 include the peak reduction benefits of the DSM programs (acquired and future) and the Rider M and Schedule U contracts, and third party CHP impacts.

¹ 3rd Party CHP impacts are from a CHP forecast dated January 12, 2007. These impacts are included in the system peak. The impacts are at system level based on a loss factor of 8.39% and include an availability factor to account for periods when the 3rd Party CHP is unavailable due to forced outage and maintenance.

- (IV) The 2008-2010 annual forecasted system peaks are based on
- HELCO's 2007-2012 Sales and Peak Forecast, dated June 6, 2007. The HELCO annual forecasted system peak is expected to occur in the month of December.
- (V) System Capability for 2007 includes:
- HELCO units at a total of 181,900 kW net (186,300 kW gross).
 - Firm power purchase contracts with a combined net total of 88,000 kW from PGV (28,000 kW)² and HEP (60,000 kW).
- (VI) System Capability for 2008 includes
- HELCO units at a total of 181,900 kW net (186,300 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).
- (VII) System Capability for 2009 includes:
- HELCO units at a total of 198,200 kW net (204,600 kW gross). This includes the anticipated installation of Keahole ST-7, a nominal 16,300 kW (net) steam turbine generator (Phase III of a nominal 60,300 kW (net) dual train combined-cycle unit). In August 2006, HELCO awarded the engineering consultant contract to design the conversion to a dual train combined cycle unit. Equipment procurement and construction is currently underway for ST-7 and all the discretionary permits have been received for the project, which is scheduled for commercial operation in July 2009. The expeditious installation of ST-7 is one of the conditions specified in the settlement agreement reached on November 6, 2003 between HELCO, the Keahole Defense Coalition, the State Department of Hawaiian Home Lands, the State Department of Land and Natural Resources, the State Department of Health, Peggy Ratliff, and Mahi Cooper, which in turn was incorporated among the conditions in the State Land Use Commission Decision and Order (November 7, 2005) reclassifying the Keahole site as Urban, and in the County ordinance (May 2, 2006) rezoning the site to General Industrial.
 - Firm power purchase contracts with a combined net total of 90,000 kW from PGV (30,000 kW) and HEP (60,000 kW).

² PGV's normal rating is 30 MW. In July 2006, PGV began experiencing problems with well production and by mid-February 2007, was restored to the contract export of 30 MW. PGV can export 30 MW to HELCO with all wells in service and all ten of the OEC in service. At the time of the system peak, PGV's output was about 28 MW. As of January 6, 2008, PGV has been restored to the contract export of 30 MW with all of the OEC in service.

- (VIII) System Capability for 2010 includes:
- HELCO units at a total of 198,200 kW net (204,600 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).
- (IX) Reserve Margin
- The reserve margins shown for 2008-2010 assume that HEP and PGV are at full ratings.

**HELCO Adequacy of Supply
 2007 Unit Ratings (Firm Capacity at Actual System Peak in December 2007)**

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	15.50	15.50	14.10	14.10
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	13.00	13.00	13.00	13.00
Puna CT-3	20.80	20.80	20.40	20.40
Keahole CT-4	22	22	22	22
Keahole CT-5	22	22	22	22
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
HELCO Total	186.25	184.00	181.85	179.60
PGV	28.00 (I)	28.00 (I)	28.00 (I)	28.00 (I)
HEP	60.00	60.00	60.00	60.00
IPP Total	88.00	88.00	88.00	88.00
System Total	274.25	272.00	269.85	267.60

Notes:

- (I) PGV's normal rating is 30 MW. In July 2006, PGV began experiencing problems with well production and by mid-February 2007, was restored to the contract export of 30 MW. PGV can export 30 MW to HELCO with all wells in service and all ten of the OEC in service. At the time of the system peak, PGV's output was about 28 MW. As of January 6, 2008, PGV has been restored to the contract export of 30 MW with all of the OEC in service.

**HELCO Adequacy of Supply
 2008 Unit Ratings (Firm Capacity at Forecasted System Peak in December 2008)**

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	15.50	15.50	14.10	14.10
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	13.00	13.00	13.00	13.00
Puna CT-3	20.80	20.80	20.40	20.40
Keahole CT-4	22	22	22	22
Keahole CT-5	22	22	22	22
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
HELCO Total	186.25	184.00	181.85	179.60
PGV	30.00	30.00	30.00	30.00
HEP	60.00	60.00	60.00	60.00
IPP Total	90.00	90.00	90.00	90.00
System Total	276.25	274.00	271.85	269.60

Notes:

**HELCO Adequacy of Supply
 2009-2010 Unit Ratings (Firm Capacity at Forecasted System Peak in December
 2009-2010)**

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	15.50	15.50	14.10	14.10
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	13.00	13.00	13.00	13.00
Puna CT-3	20.80	20.80	20.40	20.40
Keahole CT-4	- (I)	- (I)	- (I)	- (I)
Keahole CT-5	- (I)	- (I)	- (I)	- (I)
Keahole DTCC	62.36 (I)	62.36 (I)	60.30 (I)	60.30 (I)
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
HELCO Total	204.61	202.36	198.15	195.90
PGV	30.00	30.00	30.00	30.00
HEP	60.00	60.00	60.00	60.00
IPP Total	90.00	90.00	90.00	90.00
System Total	294.61	292.36	288.15	285.90

Notes:

- (I) Conversion of Keahole CT-4 and CT-5 to dual train combined cycle ("DTCC") with the addition of Keahole ST-7.