



Dean K. Matsuura  
Manager  
Regulatory Affairs

October 30, 2012

PUBLIC UTILITIES  
COMMISSION

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FILED

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

Dear Commissioners:

Subject: Docket No. 2011-0206  
Reliability Standards Working Group  
Monthly Report

Pursuant to Ordering Paragraph 3 of the Commission's Order No. 30371, filed on May 4, 2012, in the above subject proceeding, enclosed as Exhibit A is the Hawaiian Electric Companies'<sup>1</sup> monthly report for September 2012 on (1) system frequency control performance during month; (2) significant system events during month; and (3) curtailment of non-dispatchable renewable resources.

In addition, an electronic copy of each report is also included with this filing. These files are voluminous, and therefore, the Company is providing compact discs ("CD") containing the electronic files to both the Commission and the Consumer Advocate. Copies of the CDs will be available to any Party to this proceeding. Interested Parties should email Marisa Chun at [marisa.chun@heco.com](mailto:marisa.chun@heco.com) to request a copy.

If you have any questions on this matter, please contact Marisa Chun at (808) 543-4723.

Very truly yours,

for Dean K. Matsuura  
Manager, Regulatory Affairs

Enclosure

cc: Service List

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<sup>1</sup> Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited are collectively referred to as the "Hawaiian Electric Companies" or "Companies".

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(Docket No. 2011-0206)

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**The Commission's Order No. 30371 (Docket No 2011-0206 – Relating To Various Matters in RSWG Process), filed May 4, 2012, ordered the following information for each island grid:**

- (1) System frequency control performance during month:
  - a) Frequency duration plot based on the highest resolution SCADA data available for the month detailing how many seconds each power system operated at frequencies above 60 hertz and at frequencies below 60 Hz.
  - b) Tabulation of the number, magnitude and duration of frequency excursions (high and low) outside normal frequency control range (59.95 to 60.05 Hz).

The following provides information with respect to items 1a) through 1b) – (all statements are current as of the month ending September 30, 2012):

**1a) Frequency duration plot based on the highest resolution SCADA data available for the month detailing how many seconds each power system operated at frequencies above 60 hertz and at frequencies below 60 Hz:**

The frequency duration plots for Hawaiian Electric, MECO (Maui Division) and HELCO based on two-second data are provided in Attachment 1, and the enclosed Excel files. Refer to the electronic files for the individual data points because the information is voluminous and does not translate well to a hard copy.

**1b) Tabulation of the number, magnitude and duration of frequency excursions (high and low) outside normal frequency control range (59.95 to 60.05 Hz):**

Tabulation of the number, magnitude and duration of frequency excursions outside of the frequency range of 59.95 Hz to 60.05 Hz for Hawaiian Electric, MECO (Maui Division) and HELCO are provided in Attachment 2, and the enclosed Excel files. Refer to the electronic files for the individual data points because the information is voluminous and does not translate well to a hard copy.

- (2) Significant system events during month:
  - a) Tabulation of contingency reserve activations including date and time, MW magnitude, duration, and triggering event.
  - b) Tabulation of under frequency load shed activations including date and time, triggering frequency, MW magnitude, duration, and triggering event.
  - c) Tabulation of demand response activations for system events, including date and time, MW magnitude, duration, and triggering event. (excluding demand response utilization for unit commitment deferral or system operations economics.)

The following provides information with respect to items 2a) through 2c) – (all statements are current as of the month ending September 30, 2012):

**2a) Tabulation of contingency reserve activations including date and time, MW magnitude, duration, and triggering event:**

Hawaiian Electric did not have any contingency reserve actions for the month of September. MECO and HELCO do not operate with contingency reserve requirements. Therefore, Attachment 3 is not being provided for this reporting period.

**2b) Tabulation of under frequency load shed activations including date and time, triggering frequency, MW magnitude, duration, and triggering event:**

The tabulation of under frequency load shed events is provided in Attachment 4. Hawaiian Electric and MECO did not have any under frequency load shed events for the month of September.

**2c) Tabulation of demand response activations for system events, including date and time, MW magnitude, duration, and triggering event, (excluding demand response utilization for unit commitment deferral or system operations economics.)**

Hawaiian Electric did not have any demand response activations for system events for the month of September. MECO and HELCO currently do not have demand response programs. Therefore, Attachment 5 is not being provided for this reporting period.

- (3) Curtailment of non-dispatchable renewable resources:
- (a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment.
  - (b) Total MWh of non-dispatchable renewable resources curtailed for the month.

The following provides information with respect to items 3a) through 3b) – (all statements are current as of the month ending September 30, 2012):

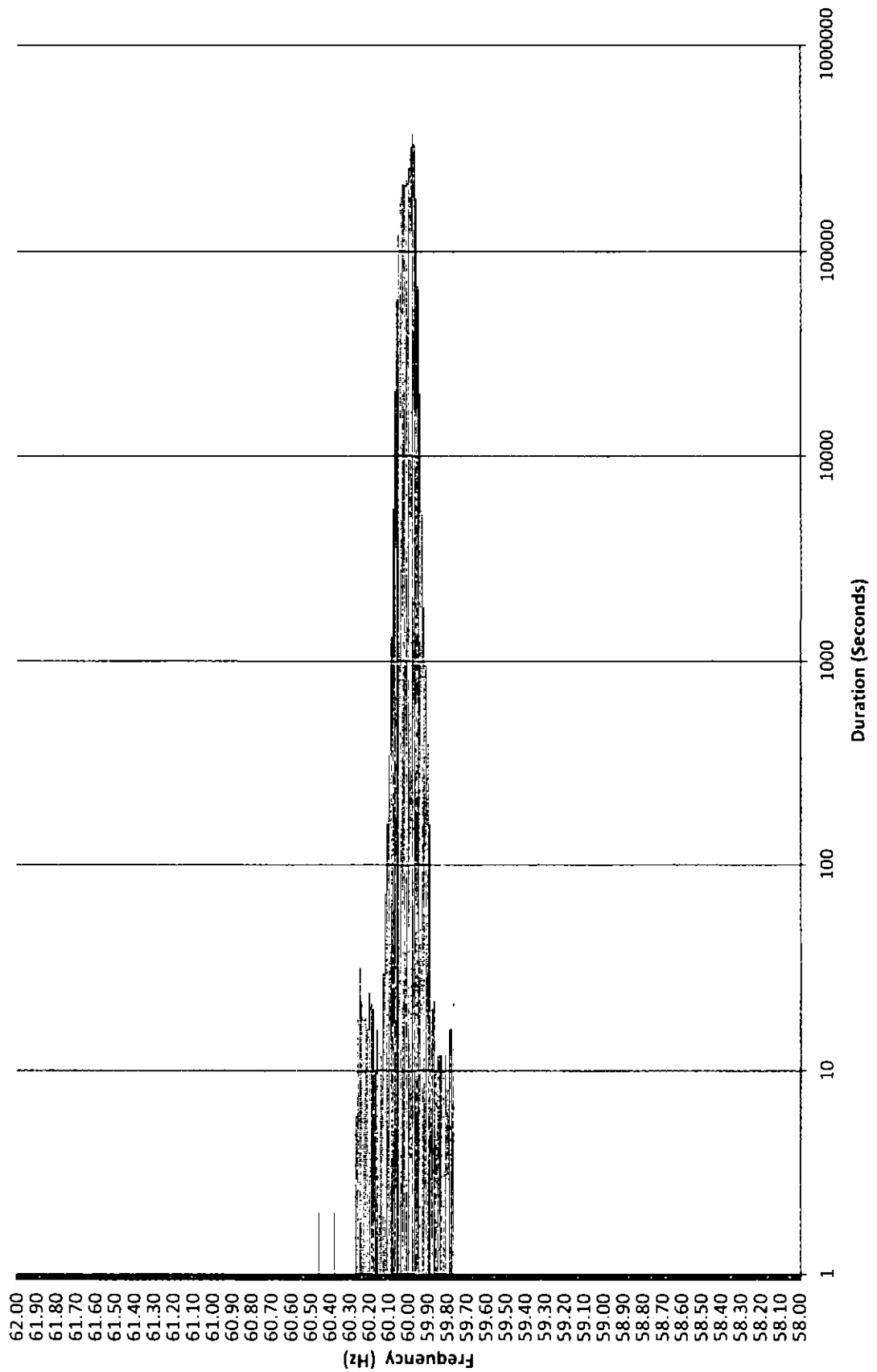
**3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:**

The tabulation of each curtailment event for each resource is provided in Attachment 6.

**3b) Total MWh of non-dispatchable renewable resources curtailed for the month:**

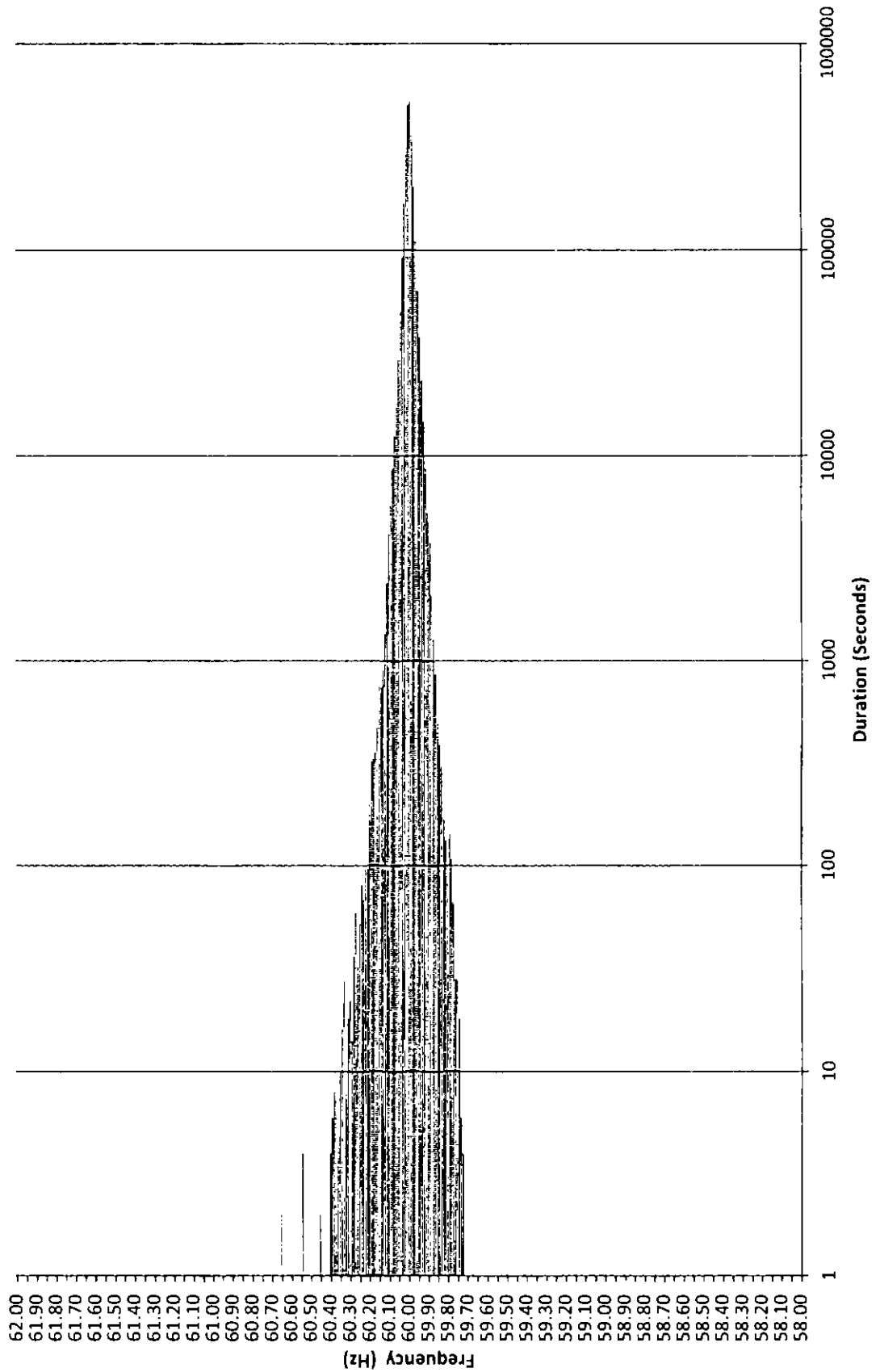
Curtailed MWh from non-dispatchable resources are difficult to determine due to the variability of the resource during curtailment periods. In some cases, the curtailed MWh estimates were provided by the IPPs under curtailment. HELCO is not providing an estimate of curtailed MWh, as this information is not provided to HELCO from the IPP. The Hawaiian Electric Companies do not make any representations as to the accuracy of the curtailed MWh. The estimated MWh of non-dispatchable resources curtailed for the month are provided in Attachment 6, corresponding to each curtailment event.

# Frequency Distribution Plot - HECO September 2012

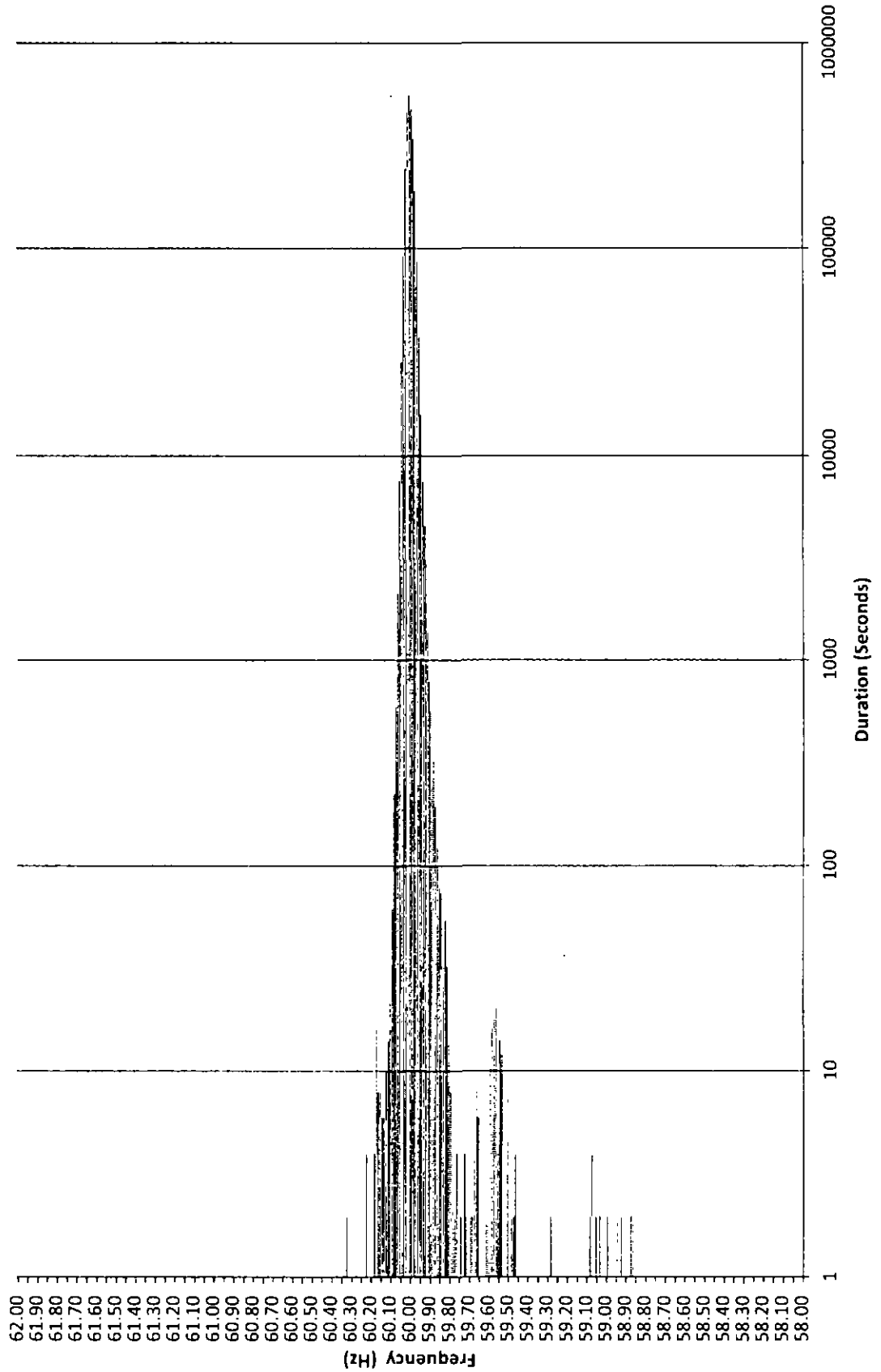




# MECO Frequency Distribution Plot - Maui September 2012



# Frequency Distribution Plot - HELCO September 2012



HECO Frequency Excursion Statistics September 2012		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3285	5723
Maximum Duration (sec)	760	594
Maximum Deviation (Hz)	59.765	60.46
Total Duration of Excursions (sec)	53480	136636

MECO Frequency Excursion Statistics September 2012		
	<59.95 Hz	>60.05 Hz
Number of Excursions	14641	3894
Maximum Duration (sec)	1178	1166
Maximum Deviation (Hz)	59.7168	60.64648
Total Duration of Excursions (sec)	164414	57544

HELCO Frequency Excursion Statistics September 2012		
	<59.95 Hz	>60.05 Hz
Number of Excursions	6178	1192
Maximum Duration (sec)	234	56
Maximum Deviation (Hz)	58.85547	60.32031
Total Duration of Excursions (sec)	46900	5634

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HECO Curtailment Report September 2012

Start Date/Time	Curtailment Set Point	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released	Estimated MWh of curtailed energy during event (1)	IPP	Reason for Curtailment
09/22/12 16:37	0.0	6.70	09/22/12 17:25	0	*	Makai	Emergency pole replacement caused by MVA
09/23/12 01:53	0.0	0.80	09/23/12 02:26	0	*	Makai	Emergency pole replacement caused by MVA

KWF = Kahuku Wind Farm  
 Makai = Kawaihoa Makai Wind Farm  
 Mauka = Kawaihoa Mauka Wind Farm

(1) The estimated MWh of energy curtailed during the event is supplied by Kahuku Wind Farm, and HECO does not make any representations as to its accuracy  
 \* Data has not been provided by IPP.

MECO-Maui Curtailment Report September 2012

Start Date/Time	Duration	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for curtailment
8/31/2012 8:34	100:27	KWPII	1038	20	Maintain regulating reserve and Excess Energy
8/31/2012 23:33	6:57	5A	No data available	No data available	Excess Energy
8/31/2012 23:35	34:26	Makila Hydro	No data available	No data available	Excess Energy
8/31/2012 23:41	6:35	KWP	53	30	Maintain regulating reserve and Excess Energy
9/1/2012 12:14	0:40	KWP	2	22	Maintain regulating reserve
9/2/2012 0:10	6:24	5A	No data available	No data available	Excess Energy
9/2/2012 0:35	5:54	KWP	42	29	Excess Energy
9/2/2012 19:14	78:54	KWP	No data available	30	Self curtailment high wind gusts
9/4/2012 15:20	0:17	KWPII	0	14	Maintain regulating reserve
9/4/2012 19:50	43:40	KWPII	7	20	Maintain regulating reserve and Excess Energy
9/6/2012 1:50	3:00	5A	No data available	No data available	Excess Energy
9/6/2012 1:54	7:21	Makila Hydro	No data available	No data available	Excess Energy and maintain regulating reserve
9/6/2012 2:08	2:33	KWP	4	29	Excess Energy
9/7/2012 0:56	2:55	KWPII	10	18	Excess Energy and maintain regulating reserve
9/8/2012 19:48	1:17	KWPII	0	19	Maintain regulating reserve
9/9/2012 15:14	1:13	KWPII	2	19	Maintain regulating reserve
9/9/2012 18:16	48:28	KWPII	402	20	Maintain regulating reserve and Excess Energy
9/10/2012 0:30	15:01	5A	No data available	No data available	Excess Energy and maintain regulating reserve
9/10/2012 0:33	8:58	Makila Hydro	No data available	No data available	Excess Energy
9/10/2012 0:36	4:18	KWP	19	30	Excess Energy
9/11/2012 0:27	4:32	5A	No data available	No data available	Excess Energy
9/11/2012 0:32	9:01	Makila Hydro	No data available	No data available	Excess Energy
9/11/2012 0:35	4:23	KWP	24	30	Excess Energy
9/11/2012 20:44	15:56	KWPII	149	20	Maintain regulating reserve and Excess Energy
9/12/2012 1:06	0:17	5A	No data available	No data available	Excess Energy
9/12/2012 1:09	11:38	Makila Hydro	No data available	No data available	Excess Energy
9/12/2012 2:36	1:59	5A	No data available	No data available	Excess Energy
9/12/2012 2:37	1:57	KWP	6	27	Excess Energy
9/12/2012 14:51	3:46	KWPII	3	18	Maintain regulating reserve
9/12/2012 20:05	14:39	KWPII	127	20	Maintain regulating reserve and Excess Energy
9/13/2012 1:03	3:35	5A	No data available	No data available	Excess Energy
9/13/2012 1:05	3:33	Makila Hydro	No data available	No data available	Excess Energy
9/13/2012 1:11	27:27	KWP	8	27	Excess Energy
9/13/2012 20:57	11:30	KWPII	147	20	Maintain regulating reserve and Excess Energy
9/14/2012 1:19	3:30	5A	No data available	No data available	Excess Energy
9/14/2012 1:21	8:13	Makila Hydro	No data available	No data available	Excess Energy
9/14/2012 1:36	3:11	KWP	6	27	Excess Energy
9/14/2012 21:59	9:07	KWPII	79	20	Maintain regulating reserve
9/15/2012 7:30	0:27	KWPII	0	18	Maintain regulating reserve
9/15/2012 23:07	8:44	KWPII	69	19	Maintain regulating reserve
9/16/2012 22:56	7:48	KWPII	58	19	Maintain regulating reserve
9/17/2012 21:24	8:12	KWPII	60	18	Maintain regulating reserve
9/18/2012 2:21	1:04	5A	No data available	No data available	Maintain regulating reserve
9/18/2012 2:52	6:50	Makila Hydro	No data available	No data available	Maintain regulating reserve

MECO-Maui Curtailment Report September 2012

Start Date/Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
9/18/2012 2:56	0:27	KWP	0	26	Maintain regulating reserve
9/19/2012 10:42	0:03	KWP II	0	0	Testing
9/20/2012 0:37	1:44	KWP II	0	0	Operating condition on MECO system - single interconnection contingency
9/20/2012 0:37	1:44	5A	No data available	No data available	System emergency power surge
9/20/2012 0:37	10:08	Makila Hydro	No data available	No data available	System emergency power surge - Makila tripped
9/21/2012 18:53	0:29	KWP II	0	20	Maintain regulating reserve
9/21/2012 19:51	9:13	KWP II	50	21	Maintain regulating reserve
9/22/2012 5:42	1:12	KWP II	4	13	Maintain regulating reserve
9/22/2012 7:49	9:28	KWP II	46	21	Maintain regulating reserve
9/22/2012 19:29	39:36	KWP II	406	21	Maintain regulating reserve
9/24/2012 2:09	2:23	5A	No data available	No data available	Maintain regulating reserve and Excess Energy
9/24/2012 2:14	2:16	Makila Hydro	No data available	No data available	Maintain regulating reserve and Excess Energy
9/24/2012 2:20	2:04	KWP	4	26	Excess Energy
9/24/2012 19:55	13:13	KWP II	140	21	Maintain regulating reserve
9/25/2012 12:31	0:06	KWP II	0	21	Maintain regulating reserve
9/25/2012 12:58	0:09	KWP II	0	21	Maintain regulating reserve
9/25/2012 16:26	0:50	KWP II	2	21	Maintain regulating reserve
9/25/2012 19:38	13:05	KWP II	141	21	Maintain regulating reserve
9/26/2012 21:47	11:53	KWP II	133	21	Maintain regulating reserve and Excess Energy
9/27/2012 1:10	3:31	5A	No data available	No data available	Maintain regulating reserve and Excess Energy
9/27/2012 1:12	8:05	Makila Hydro	No data available	No data available	Maintain regulating reserve and Excess Energy
9/27/2012 1:27	3:12	KWP	7	28	Excess Energy
9/27/2012 15:22	3:13	KWP II	16	21	Maintain regulating reserve
9/27/2012 19:39	19:19	KWP II	153	21	Maintain regulating reserve
9/28/2012 19:15	1:41	KWP II	8	21	Maintain regulating reserve
9/28/2012 21:01	10:57	KWP II	21	20	Maintain regulating reserve
9/29/2012 9:10	2:05	KWP II	3	20	Maintain regulating reserve

Notes:

- During curtailment events the set point for Kaheawa Wind Power ("KWP") and Kaheawa Wind Power II ("KWP II") are adjusted to ensure maximum energy contribution. KWP "Estimated curtailed energy during event" and "Peak MW curtailed" information is provided by First Wind, and MECO does not make any representation as to its accuracy.
- The Makila Hydro curtailment period end time is usually controlled by the facility. MECO can usually accept Makila Hydro generation at the same time that 5A is uncurtailed, which is before the facility commits its generator.
- Estimated curtailed MWH during curtailment events for Kaheawa Wind Power II, LLC is based on information provided by Kaheawa Wind Power II, LLC. Maui Electric Company, Limited does not make any representation as to its accuracy.
- Estimated curtailed MWH during curtailment events is not available for Makila Hydro, or AAAAA Rent-A-Space Maui LTD.

MECO-Lanai Curtailment Report September 2012

Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/1/12 9:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 11:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 12:06	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 13:02	0:49	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 14:06	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 15:15	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 16:03	0:07	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/1/12 17:10	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 9:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 11:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 12:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 13:07	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 14:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 15:10	0:20	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 16:04	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/2/12 17:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 9:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 11:07	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 12:06	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 13:01	0:19	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 14:07	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 15:20	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 16:09	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/3/12 17:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 9:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 10:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 11:05	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 12:01	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 13:05	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation

MECO-Lanai Curtailment Report September 2012

Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/4/12 14:10	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 15:15	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/12 16:13	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/4/15 17:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 9:02	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 11:02	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 12:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 13:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 14:06	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 15:12	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 16:07	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 17:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/5/12 18:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 9:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 10:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 11:05	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 12:07	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 13:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 14:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 15:09	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 16:01	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/6/12 17:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 9:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 11:06	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 12:09	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 13:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 14:00	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 15:10	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/7/12 16:06	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 9:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 10:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation

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Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/8/12 11:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 12:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 13:06	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 14:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 15:06	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 16:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 17:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/8/12 18:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 9:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 10:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 11:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 12:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 13:01	0:19	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 14:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 15:07	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/9/12 16:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 9:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 10:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 11:06	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 12:02	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 13:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 14:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 15:13	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 16:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/10/12 17:03	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 9:00	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 10:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 11:05	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 12:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 13:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 14:05	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 15:09	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation

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Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/11/12 16:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/11/12 17:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 9:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 10:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 11:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 12:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 13:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 14:02	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 15:11	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 16:00	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 17:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/12/12 18:02	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 9:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 11:02	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 12:05	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 13:10	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 14:02	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 15:14	0:16	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 16:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/13/12 17:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 9:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 10:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 11:00	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 12:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 13:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 14:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 15:10	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 16:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 17:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/14/12 18:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 9:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 10:01	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation

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Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/15/12 11:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 12:00	0:20	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 13:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 14:06	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 15:12	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 16:00	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 17:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/15/12 18:00	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 9:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 10:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 11:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 12:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 13:05	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 14:06	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 15:10	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 16:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 17:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/16/12 18:01	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 9:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 10:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 11:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 12:02	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 13:05	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 14:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 15:10	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 16:01	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/17/12 17:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 9:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 11:13	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 12:02	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 13:00	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation



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Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/18/12 14:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 15:11	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 16:02	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 17:10	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/18/12 18:00	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 9:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 10:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 11:05	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/20 12:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 13:06	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 14:02	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 15:15	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 16:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/19/12 17:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 9:02	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 10:00	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 11:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 12:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 13:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 14:03	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 15:11	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 16:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/20/12 17:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 9:03	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 10:01	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 11:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 12:06	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 13:08	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 14:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 15:10	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 16:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/21/12 17:05	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 9:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation

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Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/22/12 10:00	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 11:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 12:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 13:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 14:07	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 15:12	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 16:01	0:20	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/22/12 17:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 9:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 10:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 11:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 12:04	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 13:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 14:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 15:15	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/12 16:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/23/01 17:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 9:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 10:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 11:01	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 12:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 13:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 14:06	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 15:15	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 16:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/24/12 17:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 9:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 10:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 11:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 12:01	0:16	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 13:03	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 14:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation

MECO-Lanai Curtailment Report September 2012

Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/25/12 15:11	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 16:03	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/25/12 17:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 9:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 10:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 11:00	0:16	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 12:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 13:02	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 14:04	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 15:10	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 16:01	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/26/12 17:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 9:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 10:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 11:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 12:00	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 13:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 14:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 15:10	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 16:01	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/27/12 17:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 9:00	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 10:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 11:09	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 12:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 13:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 14:05	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 15:09	0:16	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 16:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/28/12 17:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 9:03	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 10:02	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 11:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation

MECO-Lanai Curtailment Report September 2012

Start Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
9/29/12 12:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 13:07	0:15	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 14:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 15:11	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 16:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/29/12 17:02	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 9:00	0:09	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 10:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 11:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 12:05	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 13:01	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 14:05	0:11	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 15:12	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 16:01	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
9/30/12 17:05	0:10	LSR-La Ola PV	No data	No data	Ramp rate mitigation

Note: On June 27, 2012, MECO notified LSR that although LSR has not operated in compliance with the revised ramp rate of 360 kW/minute, MECO would conditionally allow LSR to operate at the allowed capacity of 1.2 MW while the MECO-Lanai Diesel Operator was in the control room.

HELCO Curtailment Report September 2012

Start Date/Time	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released	Reason for Curtailment
07/12/12 18:50	6.1 MW	09/12/12 14:07	9.0 MW	Tawhiri request to self-curtail to 9.0 MW until resolution of fiber optic communication problem which caused wind plant trips on 7/12/12 & 7/17/12. Self-curtailment was released on 9/12/12, after Tawhiri contractors completed repairs to their fiber optic system.
09/10/12 00:20	9.0 MW	09/10/12 04:33	5.9 MW	Tawhiri Group B curtailed for excess energy. At the end of this curtailment, returned to 9.0 MW self curtailment limit.
09/10/12 02:09	7.2 MW	09/10/12 04:11	4.2 MW	HRD curtailed for excess energy
09/11/12 02:01	9.0 MW	09/11/12 04:03	6.8 MW	Tawhiri Group B curtailed for excess energy. At the end of this curtailment, returned to 9.0 MW self curtailment limit.
09/13/12 01:06	12.3 MW	09/13/12 05:27	11.4 MW	Tawhiri Group B curtailed for excess energy.
09/14/12 01:27	9.0 MW	09/14/12 05:07	8.4 MW	Tawhiri Group B curtailed for excess energy.
09/18/12 12:20	14.4 MW	09/18/12 14:29	13.3 MW	Tawhiri request to self curtail to stabilize frequency.
09/21/12 13:08	16.7 MW	09/21/12 13:32	16.7 MW	Tawhiri curtailed - reclose 9600 line.