



Dean K. Matsuura
Manager
Regulatory Affairs

February 28, 2013

PUBLIC UTILITIES
COMMISSION

2013 FEB 28 P 4:00

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'¹ monthly report for January 2013 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 a compact disc ("CD") containing the electronic files to both the Commission and the Consumer Advocate. Copies of the CD will be available to any Party to this proceeding. Interested Parties should email Marisa Chun at 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,

Enclosure

cc: Service List

¹ 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".

SERVICE LIST
(Docket No. 2011-0206)

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SERVICE LIST
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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 January 31, 2013):

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 January 31, 2013):

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

Hawaiian Electric's contingency reserve actions are provided in Attachment 3. MECO and HELCO do not operate with contingency reserve requirements.

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 did not have any under frequency load shed events for the month of January.

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's demand response activations for system events are provided in Attachment 5. MECO and HELCO currently do not have demand response programs.

- (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 January 31, 2013):

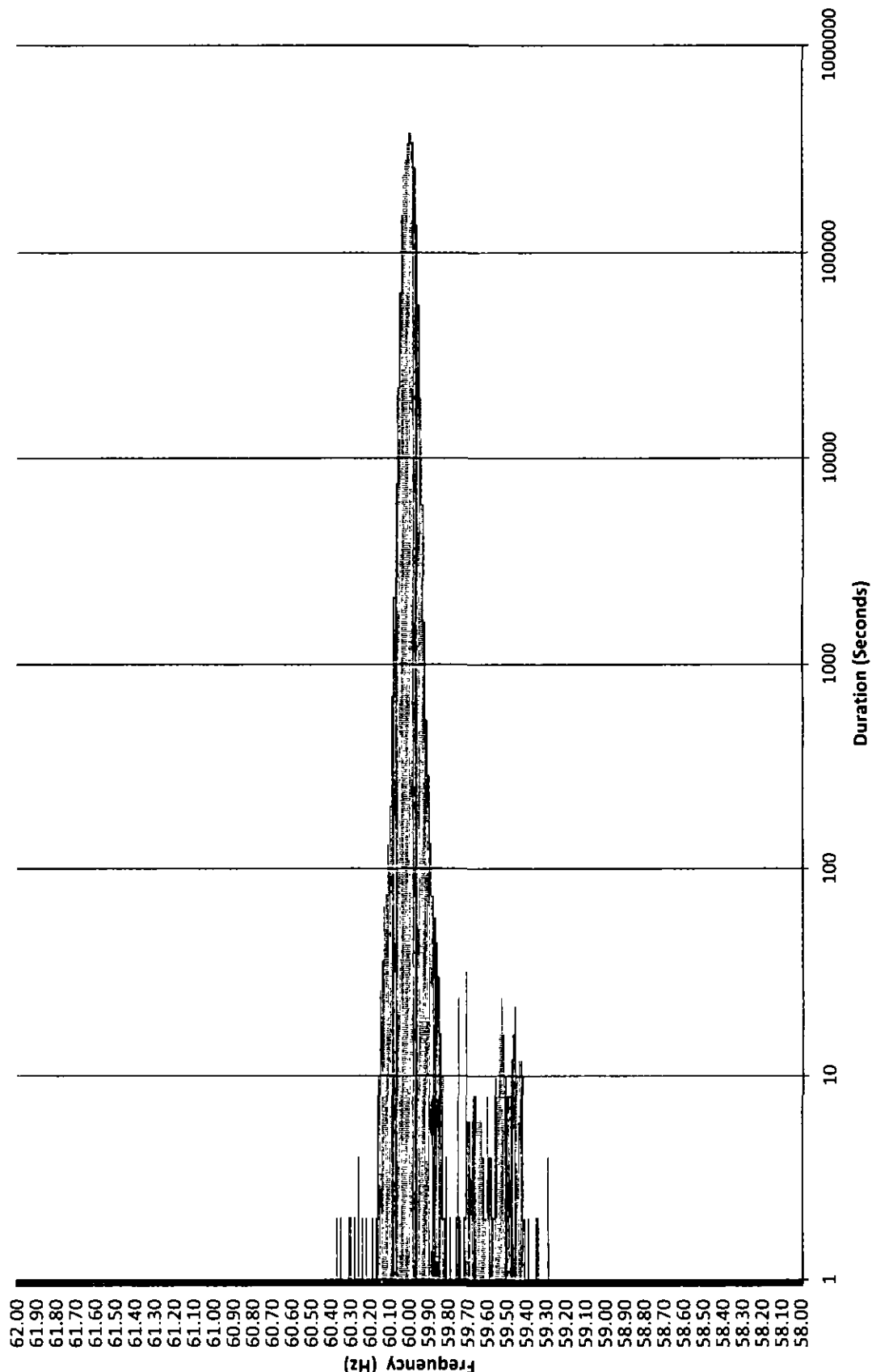
3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:

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

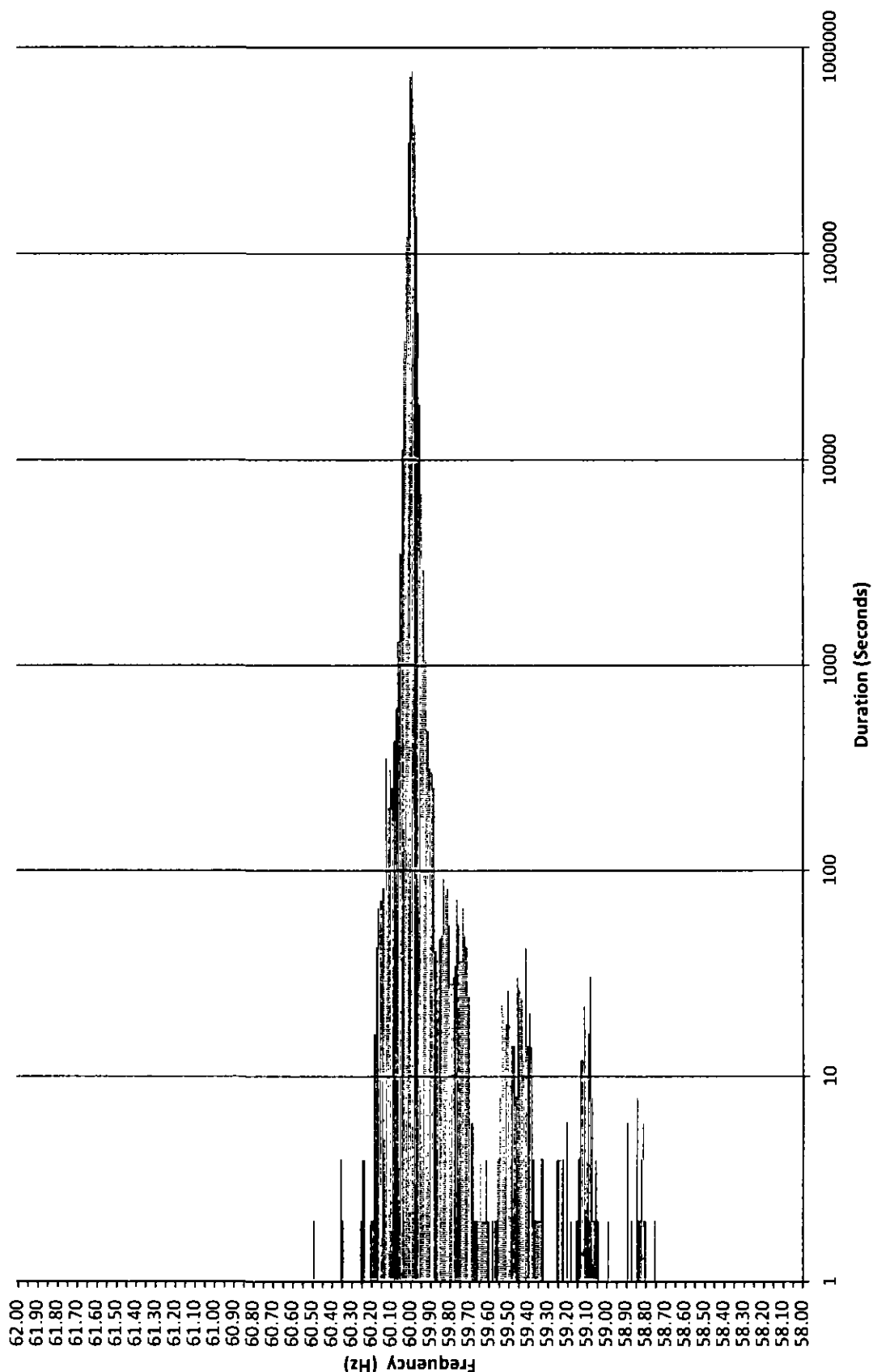
3b) Total MWh of non-dispatchable renewable resources curtailed for the month:

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.

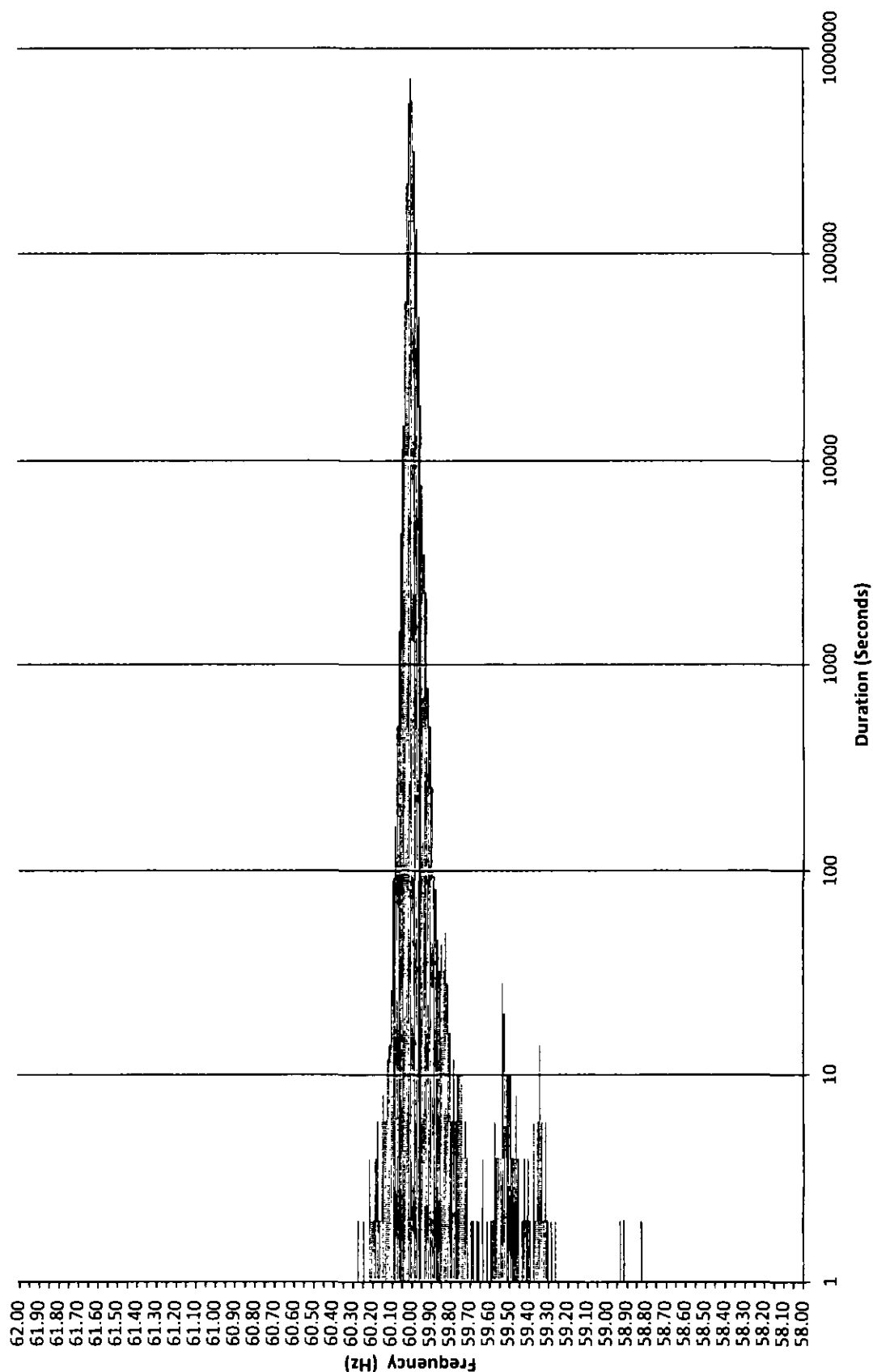
Frequency Distribution Plot - HECO January 2013



MECO Frequency Distribution Plot - Maui January 2013



**Frequency Distribution Plot - HELCO
January 2013**



HECO Frequency Excursion Statistics January 2013		
Data Rounded to the nearest	<59.95 Hz	>60.05 Hz
Number of Excursions	2741	2647
Maximum Duration (sec)	642	408
Maximum Deviation (Hz)	59.288	60.373
Total Duration of Excursions (sec)	50686	56294

MECO Frequency Excursion Statistics January 2013		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3929	287
Maximum Duration (sec)	646	548
Maximum Deviation (Hz)	58.74707	60.48633
Total Duration of Excursions (sec)	32524	3900

HELCO Frequency Excursion Statistics January 2013		
	<59.95 Hz	>60.05 Hz
Number of Excursions	2639	656
Maximum Duration (sec)	526	66
Maximum Deviation (Hz)	58.81641	60.27148
Total Duration of Excursions (sec)	22750	3964

HAWAIIAN ELECTRIC COMPANY, INC.
CONTINGENCY RESERVE ACTIVATION EVENTS
JANUARY 2013

Event #	Date & Time	Frequency (Hz)			Spinning Reserve Shortfall (MW)	Duration (HH:MM)	Description
		Prior to Event	Nadir	Trigger			
1	01/14/13 10:26	59.970	59.286	N/A	-32.00	0:54	AES & HPOWER tripped offline while generating ~180 & ~40 MW, respectively. W10 and CIP called online for spinning reserve.
2	01/15/13 19:31	60.032	59.990	N/A	-36.00	0:34	CIP shut down due to emissions. W9 called online for spinning reserve.
3	01/29/13 06:27	59.964	59.958	N/A	-2.00	0:23	Waiau 7 blocked at 47 MW. W9 called online for spinning reserve.

HAWAII ELECTRIC LIGHT COMPANY, INC.
 UNDERFREQUENCY LOAD SHEDDING EVENTS
 January 2013

Event #	Date & Time	Frequency (Hz)			Load Shed (MW)	Duration (HH:MM)	Description
		Prior to Event	Nadir	Level UFLS Occurred			
1	1/21/2013	NA	NA	58.80	5.42	0:07	HRD Windfarm was islanded from the grid when a fault occurred along Line 3300 during windy conditions. There was approximately 6MW exporting into the grid when Waimea CB3301 opened.
2	1/25/2013	59.992	58.800	58.80	15 20	0:09	HEP 1CTCC was islanded from the grid while Line 7700 was open for maintenance and a fault occurred on Line 7600 when a tree fell and brushed the lines.

HECO Curtailment Report January 2013

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
01/03/13 06:34	0.0	1.00	01/13/13 07:04	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/03/13 14:27	0.0	4.00	01/13/13 15:53	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/04/13 05:34	0.0	8.00	01/04/13 06:07	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/04/13 18:17	0.0	12.00	01/04/13 19:48	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/07/13 05:16	0.0	0.00	01/08/13 16:28	0	*	Mauka	Wahiawa-Waiatua 1 circuit breaker opened; 46kV insulator replacement
01/10/13 07:23	0.0	4.80	01/10/13 19:22	0	*	Mauka	Pole replacement on Wahiawa-Waiatua 1 46kV line
01/11/13 05:55	0.0	4.00	01/11/13 07:01	0	*	Mauka	Pole replacement on Koolau-Kahuku 46kV line
01/11/13 15:05	0.0	2.20	01/11/13 15:53	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/14/13 07:13	0.0	26.00	01/14/13 11:19	0	*	Mauka	Pole replacement on Wahiawa-Waiatua 1 46kV line
01/15/13 06:16	0.0	0.20	01/15/13 19:11	0	*	Mauka	Pole replacement on Wahiawa-Waiatua 1 46kV line
01/16/13 07:17	0.0	1.00	01/16/13 21:47	0	*	Mauka	Pole replacement on Wahiawa-Waiatua 1 46kV line
01/17/13 06:51	0.0	0.00	01/17/13 07:27	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/17/13 14:00	0.0	0.40	01/17/13 14:50	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/22/13 06:21	0.0	11.00	01/22/13 16:12	0	*	Mauka	Pole replacement on Wahiawa-Waiatua 2 46kV line
01/23/13 06:12	0.0	0.00	01/23/13 06:46	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/23/13 16:52	0.0	7.00	01/23/13 17:04	0	*	Mauka	Pole replacement on Koolau-Kahuku 46kV line
01/24/13 06:18	0.0	1.00	01/24/13 18:02	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/24/13 14:37	0.0	6.00	01/24/13 15:48	0	*	Makai	Pole replacement on Koolau-Kahuku 46kV line
01/28/13 06:30	0.0	0.20	01/28/13 17:02	0	*	Mauka	Pole replacement on Wahiawa-Waiatua 1 46kV line

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/or Kawaihoa Wind Farm, and HECO does not make any representations as to its accuracy

* Data has not been provided by IPP

MECO - Maui Curtailment Report January 2013

Start Date/Time	End	Duration (hr mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/1/2013 4:32	1/1/2013 5:29	0:57	KWPI	3.12	6.47	AGC MAVG - entered - maintain regulating reserves
1/1/2013 4:43	1/1/2013 5:20	0:37	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/1/2013 4:46	1/1/2013 4:51	0:05	KWP	0.18	23.07	AGC MAVG - entered - maintain regulating reserves
1/1/2013 5:43	1/1/2013 5:52	0:09	KWPII	0.27	7.58	AGC MAVG - entered - maintain regulating reserves
1/1/2013 5:57	1/1/2013 6:02	0:05	KWPII	0.11	7.41	AGC MAVG - entered - maintain regulating reserves
1/1/2013 7:04	1/1/2013 7:04	0:00	KWPII	0.00	4.10	AGC MAVG - calculated
1/1/2013 7:14	1/1/2013 7:29	0:15	KWPII	0.64	8.10	AGC MAVG - calculated
1/1/2013 8:55	1/1/2013 8:55	0:00	KWPII	0.01	12.31	AGC MAVG - calculated
1/1/2013 8:57	1/1/2013 9:00	0:03	KWPII	0.02	12.99	AGC MAVG - calculated
1/1/2013 9:02	1/1/2013 9:02	0:00	KWPII	0.01	12.22	AGC MAVG - calculated
1/1/2013 9:04	1/1/2013 9:04	0:00	KWPII	0.01	13.15	AGC MAVG - calculated
1/1/2013 10:54	1/1/2013 10:58	0:04	KWPII	0.05	16.22	AGC MAVG - calculated
1/1/2013 11:04	1/1/2013 11:26	0:22	KWPII	1.20	19.05	AGC MAVG - calculated
1/1/2013 11:41	1/1/2013 12:00	0:19	KWPII	2.46	19.41	AGC MAVG - entered - good engineering and operating practices
1/1/2013 12:08	1/1/2013 12:31	0:23	KWPII	2.21	18.91	AGC MAVG - entered - maintain regulating reserves
1/1/2013 12:40	1/1/2013 15:10	2:30	KWPII	28.28	19.44	AGC MAVG - entered - maintain regulating reserves
1/1/2013 15:13	1/1/2013 17:21	2:08	KWPII	22.07	19.30	AGC MAVG - entered - maintain regulating reserves
1/1/2013 18:20	1/2/2013 10:34	16:14	KWPII	265.74	20.98	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/1/2013 23:55	1/2/2013 1:59	2:04	AWE	17.75	18.00	AGC MAVG - entered - maintain regulating reserves
1/2/2013 0:16	1/2/2013 8:01	7:45	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/2/2013 0:24	1/2/2013 7:01	6:37	KWP	29.66	25.49	AGC MAVG - entered - maintain regulating reserves
1/2/2013 2:48	1/2/2013 17:34	14:46	AWE	154.19	20.00	AGC MAVG - entered - maintain regulating reserves and testing
1/2/2013 7:07	1/2/2013 7:57	0:50	KWP	2.10	28.99	AGC MAVG - entered - maintain regulating reserves
1/2/2013 10:36	1/2/2013 20:36	10:00	KWPII	199.70	20.98	AGC MAVG - entered - maintain regulating reserves, operating conditions on company system, and testing
1/2/2013 17:36	1/2/2013 17:58	0:22	AWE	0.68	18.00	AGC MAVG - entered - testing
1/2/2013 18:00	1/2/2013 18:07	0:07	AWE	0.12	17.00	AGC MAVG - entered - testing
1/2/2013 18:16	1/2/2013 18:23	0:07	AWE	0.12	17.00	AGC MAVG - entered - testing
1/2/2013 18:26	1/2/2013 18:27	0:01	AWE	0.03	17.00	AGC MAVG - entered - testing
1/2/2013 18:29	1/2/2013 18:29	0:00	AWE	0.03	18.00	AGC MAVG - entered - testing
1/2/2013 18:32	1/2/2013 18:51	0:19	AWE	0.38	20.00	AGC MAVG - entered - testing
1/2/2013 18:38	1/2/2013 19:59	0:23	AWE	0.59	20.00	AGC MAVG - entered - maintain regulating reserves
1/2/2013 20:01	1/2/2013 20:20	0:19	AWE	0.56	20.00	AGC MAVG - entered - maintain regulating reserves
1/2/2013 20:39	1/3/2013 1:41	5:02	KWPII	51.48	20.93	AGC MAVG - entered - maintain regulating reserves
1/2/2013 20:48	1/3/2013 0:38	3:50	AWE	16.58	19.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 0:44	1/3/2013 0:44	0:00	AWE	0.02	7.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 0:51	1/3/2013 1:08	0:17	AWE	0.82	12.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 1:47	1/3/2013 13:15	11:28	KWPII	169.17	20.92	AGC MAVG - entered - maintain regulating reserves
1/3/2013 2:06	1/3/2013 3:25	1:18	AWE	3.77	15.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 3:30	1/3/2013 3:31	0:01	AWE	0.03	11.00	AGC MAVG - calculated
1/3/2013 3:34	1/3/2013 5:37	2:03	AWE	9.54	12.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 4:07	1/3/2013 7:43	3:36	MH	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/3/2013 4:09	1/3/2013 5:24	1:15	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/3/2013 4:18	1/3/2013 4:20	0:02	KWP	0.06	23.02	AGC MAVG - entered - maintain regulating reserves
1/3/2013 4:36	1/3/2013 5:21	0:45	KWP	2.68	25.42	AGC MAVG - entered - maintain regulating reserves
1/3/2013 5:25	1/3/2013 5:27	0:02	KWP	0.00	25.14	AGC MAVG - entered - maintain regulating reserves
1/3/2013 5:39	1/3/2013 7:29	1:50	AWE	8.63	18.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 7:36	1/3/2013 8:56	1:22	AWE	6.70	18.00	AGC MAVG - entered - maintain regulating reserves

MECO - Maui Curtailment Report January 2013

Start Date/Time	End	Duration (hh mm)	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for curtailment
1/3/2013 9:02	1/3/2013 9:43	0:41	AWE	7.08	18.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 9:47	1/3/2013 9:47	0:00	AWE	0.00	15.00	AGC MAVG - calculated
1/3/2013 9:49	1/3/2013 9:56	0:07	AWE	0.10	18.00	AGC MAVG - calculated
1/3/2013 10:08	1/3/2013 10:08	0:01	AWE	0.01	18.00	AGC MAVG - calculated
1/3/2013 10:17	1/3/2013 10:18	0:02	AWE	0.08	17.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 10:31	1/3/2013 10:31	0:00	AWE	0.02	18.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 10:34	1/3/2013 10:38	0:04	AWE	0.08	18.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 10:41	1/3/2013 10:41	0:00	AWE	0.02	19.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 10:45	1/3/2013 11:24	0:39	AWE	2.90	17.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 11:27	1/3/2013 11:44	0:17	AWE	0.72	17.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 11:46	1/3/2013 11:47	0:01	AWE	0.03	17.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 11:49	1/3/2013 11:49	0:00	AWE	0.02	17.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 11:52	1/3/2013 13:10	1:18	AWE	8.55	18.60	AGC MAVG - entered - maintain regulating reserves
1/3/2013 13:14	1/3/2013 13:15	0:01	AWE	0.14	15.70	AGC MAVG - calculated
1/3/2013 13:17	1/3/2013 17:18	4:01	AWE	21.72	16.10	AGC MAVG - entered - maintain regulating reserves, AGC MAVG - calculated, and AGC MAVG - entered - maintain regulating reserves
1/3/2013 13:17	1/4/2013 9:41	20:24	KWPII	398.12	20.88	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/3/2013 22:55	1/3/2013 23:14	0:19	AWE	5.25	36.00	AGC MAVG - entered - maintain regulating reserves
1/3/2013 23:37	1/4/2013 9:07	9:30	AWE	88.06	18.80	AGC MAVG - entered - maintain regulating reserves
1/4/2013 1:15	1/4/2013 4:18	3:01	KWP	16.86	24.00	AGC MAVG - entered - maintain regulating reserves
1/4/2013 3:00	1/4/2013 4:28	1:28	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/4/2013 3:01	1/4/2013 7:25	4:24	MH	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/4/2013 4:22	1/4/2013 4:30	0:08	KWP	0.24	18.00	AGC MAVG - entered - maintain regulating reserves
1/4/2013 8:45	1/4/2013 8:52	0:07	AWE	0.22	18.80	AGC MAVG - calculated
1/4/2013 8:45	1/4/2013 8:54	0:09	KWPII	0.93	5.99	AGC MAVG - entered - maintain regulating reserves
1/4/2013 8:58	1/4/2013 8:57	0:01	KWPII	0.11	5.99	AGC MAVG - calculated
1/4/2013 9:58	1/4/2013 10:20	0:21	AWE	0.94	18.80	AGC MAVG - entered - testing and AGC MAVG - calculated
1/4/2013 10:10	1/4/2013 10:17	0:07	KWPII	0.17	1.50	AGC MAVG - calculated
1/4/2013 10:19	1/4/2013 10:21	0:02	KWPII	0.03	1.50	AGC MAVG - calculated
1/4/2013 10:22	1/4/2013 10:23	0:01	AWE	0.04	15.50	AGC MAVG - entered - testing and AGC MAVG - calculated
1/4/2013 10:23	1/4/2013 10:23	0:00	KWPII	0.02	1.50	AGC MAVG - calculated
1/4/2013 10:25	1/4/2013 10:25	0:00	KWPII	0.01	1.50	AGC MAVG - calculated
1/4/2013 10:26	1/4/2013 10:28	0:03	AWE	0.04	15.80	AGC MAVG - entered - testing and AGC MAVG - calculated
1/4/2013 10:35	1/4/2013 10:52	0:17	AWE	0.62	9.80	AGC MAVG - entered - testing
1/4/2013 10:54	1/4/2013 11:08	0:14	AWE	0.32	6.80	AGC MAVG - entered - testing and AGC MAVG - calculated
1/4/2013 11:27	1/4/2013 11:28	0:01	KWPII	0.04	7.48	AGC MAVG - calculated
1/4/2013 11:33	1/4/2013 11:37	0:04	KWPII	0.37	17.96	AGC MAVG - calculated
1/4/2013 11:38	1/4/2013 12:37	0:59	AWE	3.31	9.80	AGC MAVG - calculated
1/4/2013 12:17	1/4/2013 12:17	0:00	KWP	0.04	2.99	AGC MAVG - calculated
1/4/2013 12:23	1/4/2013 12:29	0:06	KWP	0.10	2.99	AGC MAVG - calculated
1/4/2013 12:32	1/4/2013 12:38	0:04	KWP	0.05	1.49	AGC MAVG - entered - maintain regulating reserves
1/4/2013 13:07	1/4/2013 13:07	0:00	KWPII	0.00	0.09	AGC MAVG - calculated
1/4/2013 13:07	1/4/2013 13:24	0:17	AWE	2.21	11.22	AGC MAVG - calculated
1/4/2013 13:16	1/4/2013 13:18	0:00	KWPII	0.00	0.41	AGC MAVG - calculated
1/4/2013 13:33	1/4/2013 13:33	0:00	AWE	0.01	9.40	AGC MAVG - calculated
1/4/2013 14:33	1/4/2013 14:33	0:00	KWP	0.02	1.48	AGC MAVG - calculated
1/4/2013 17:31	1/4/2013 17:38	0:08	KWPII	0.15	1.50	AGC MAVG - calculated
1/4/2013 17:32	1/4/2013 17:33	0:01	AWE	0.02	20.90	AGC MAVG - calculated

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Start Date/Time	End	Duration (hr mm)	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for curtailment
1/4/2013 17 35	1/4/2013 17 35	0 00	AWE	0 02	20 90	AGC MAVG - calculated
1/4/2013 17 44	1/4/2013 17 46	0 02	KWPII	0 04	2 99	AGC MAVG - calculated
1/4/2013 20 35	1/4/2013 20 35	0 00	AWE	0 01	20 60	AGC MAVG - calculated
1/4/2013 20 48	1/4/2013 20 48	0 00	AWE	0 00	20 90	AGC MAVG - calculated
1/4/2013 20 50	1/4/2013 20 50	0 00	AWE	0 00	20 90	AGC MAVG - calculated
1/4/2013 20 58	1/4/2013 21 00	0 01	AWE	0 01	20 90	AGC MAVG - calculated
1/4/2013 21 02	1/4/2013 21 02	0 00	AWE	0 00	20 90	AGC MAVG - calculated
1/4/2013 22 22	1/4/2013 22 23	0 01	KWPII	0 03	1 50	AGC MAVG - calculated
1/4/2013 22 23	1/4/2013 22 23	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/4/2013 22 25	1/4/2013 22 36	0 11	KWPII	0 21	4 49	AGC MAVG - calculated
1/4/2013 22 42	1/4/2013 22 42	0 00	KWPII	0 02	4 49	AGC MAVG - calculated
1/4/2013 22 45	1/4/2013 22 45	0 00	KWPII	0 00	2 99	AGC MAVG - calculated
1/4/2013 23 05	1/4/2013 23 14	0 09	AWE	0 05	21 00	AGC MAVG - entered - testing
1/4/2013 23 47	1/4/2013 23 49	0 02	AWE	0 01	21 00	AGC MAVG - calculated
1/4/2013 23 55	1/4/2013 23 59	0 04	AWE	0 02	21 00	AGC MAVG - calculated
1/5/2013 0 05	1/5/2013 0 05	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 0 11	1/5/2013 0 14	0 03	AWE	0 02	21 00	AGC MAVG - calculated
1/5/2013 0 21	1/5/2013 0 40	0 19	AWE	0 09	21 00	AGC MAVG - calculated
1/5/2013 0 54	1/5/2013 1 07	0 13	AWE	0 07	21 00	AGC MAVG - calculated
1/5/2013 1 17	1/5/2013 1 17	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 1 19	1/5/2013 1 20	0 01	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 1 22	1/5/2013 1 22	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 1 33	1/5/2013 1 35	0 02	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 1 40	1/5/2013 1 41	0 01	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 1 50	1/5/2013 1 54	0 04	KWPII	0 04	1 50	AGC MAVG - calculated
1/5/2013 2 30	1/5/2013 2 30	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 2 44	1/5/2013 2 46	0 02	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 2 48	1/5/2013 2 48	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 3 22	1/5/2013 3 31	0 09	AWE	0 05	21 00	AGC MAVG - calculated
1/5/2013 3 43	1/5/2013 3 48	0 05	AWE	0 03	21 00	AGC MAVG - calculated
1/5/2013 4 26	1/5/2013 4 26	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 5 01	1/5/2013 5 08	0 07	AWE	0 04	21 00	AGC MAVG - calculated
1/5/2013 5 12	1/5/2013 5 12	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/5/2013 5 19	1/5/2013 5 21	0 02	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 5 24	1/5/2013 5 26	0 02	KWPII	0 00	1 50	AGC MAVG - calculated
1/5/2013 5 43	1/5/2013 5 44	0 01	KWPII	0 04	1 50	AGC MAVG - calculated
1/5/2013 6 44	1/5/2013 6 48	0 02	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 6 51	1/5/2013 6 55	0 04	AWE	0 02	21 00	AGC MAVG - calculated
1/5/2013 6 59	1/5/2013 7 00	0 01	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 8 05	1/5/2013 8 26	0 21	KWPII	1 05	7 48	AGC MAVG - calculated
1/5/2013 8 07	1/5/2013 8 08	0 01	AWE	0 01	21 00	AGC MAVG - calculated
1/5/2013 8 34	1/5/2013 7 32	0 56	KWPII	2 97	4 49	AGC MAVG - calculated
1/5/2013 8 35	1/5/2013 7 39	1 04	AWE	5 81	21 00	AGC MAVG - calculated
1/5/2013 8 55	1/5/2013 9 06	0 11	AWE	0 11	4 00	AGC MAVG - calculated
1/5/2013 9 08	1/5/2013 9 08	0 00	AWE	0 00	3 90	AGC MAVG - calculated
1/5/2013 9 15	1/5/2013 9 16	0 01	AWE	0 01	3 90	AGC MAVG - calculated
1/5/2013 10 05	1/5/2013 10 28	0 23	AWE	0 48	10 00	AGC MAVG - calculated

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Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/5/2013 10:32	1/5/2013 10:33	0:01	AWE	0.02	6.00	AGC MAVG - calculated
1/5/2013 10:37	1/5/2013 10:52	0:15	AWE	0.49	6.00	AGC MAVG - calculated
1/5/2013 10:42	1/5/2013 10:42	0:00	KWP	0.00	14.99	AGC MAVG - calculated
1/5/2013 10:54	1/5/2013 11:02	0:08	AWE	0.29	5.90	AGC MAVG - calculated
1/5/2013 11:08	1/5/2013 11:09	0:01	AWE	0.00	6.00	AGC MAVG - calculated
1/5/2013 11:21	1/5/2013 13:08	1:47	KWPII	18.95	19.46	AGC MAVG - calculated
1/5/2013 11:24	1/5/2013 11:24	0:00	AWE	0.00	6.00	AGC MAVG - calculated
1/5/2013 11:26	1/5/2013 11:26	0:00	KWP	0.01	22.50	AGC MAVG - calculated
1/5/2013 11:40	1/5/2013 11:40	0:00	AWE	0.01	2.90	AGC MAVG - calculated
1/5/2013 11:42	1/5/2013 11:42	0:00	AWE	0.00	2.80	AGC MAVG - calculated
1/5/2013 11:55	1/5/2013 11:55	0:00	AWE	0.00	2.60	AGC MAVG - calculated
1/5/2013 11:57	1/5/2013 12:17	0:20	KWP	0.97	24.00	AGC MAVG - calculated
1/5/2013 12:02	1/5/2013 13:44	1:42	AWE	21.81	21.00	AGC MAVG - calculated
1/5/2013 12:25	1/5/2013 12:32	0:07	KWP	0.47	25.49	AGC MAVG - calculated
1/5/2013 12:39	1/5/2013 13:06	0:27	KWP	1.08	25.49	AGC MAVG - calculated
1/5/2013 13:08	1/5/2013 13:08	0:00	KWP	0.00	20.99	AGC MAVG - calculated
1/5/2013 13:10	1/5/2013 13:10	0:00	KWP	0.01	20.99	AGC MAVG - calculated
1/5/2013 13:11	1/5/2013 14:46	1:35	KWPII	21.02	19.46	AGC MAVG - calculated
1/5/2013 13:46	1/5/2013 13:56	0:10	AWE	0.77	20.90	AGC MAVG - calculated
1/5/2013 14:00	1/5/2013 14:00	0:00	AWE	0.01	20.90	AGC MAVG - calculated
1/5/2013 14:26	1/5/2013 14:27	0:01	AWE	0.02	21.00	AGC MAVG - calculated
1/5/2013 14:29	1/5/2013 14:42	0:13	AWE	0.48	21.00	AGC MAVG - calculated
1/5/2013 14:50	1/5/2013 14:53	0:03	AWE	0.03	12.10	AGC MAVG - calculated
1/5/2013 14:50	1/5/2013 15:36	0:46	KWPII	14.29	19.46	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/5/2013 14:58	1/5/2013 15:32	0:34	AWE	5.68	20.90	AGC MAVG - calculated
1/5/2013 15:38	1/5/2013 16:25	0:46	KWPII	7.92	17.96	AGC MAVG - calculated
1/5/2013 16:28	1/5/2013 16:28	0:00	AWE	0.00	20.90	AGC MAVG - calculated
1/5/2013 16:28	1/5/2013 16:48	0:20	KWPII	3.52	16.47	AGC MAVG - calculated
1/5/2013 17:23	1/5/2013 17:24	0:01	KWPII	0.03	4.49	AGC MAVG - calculated
1/5/2013 17:28	1/5/2013 17:36	0:10	KWPII	0.80	11.98	AGC MAVG - calculated and AGC MAVG - entered - maintain regulating reserves
1/5/2013 21:17	1/5/2013 21:17	0:00	KWP	0.02	1.49	AGC MAVG - calculated
1/5/2013 23:46	1/5/2013 23:46	0:00	KWP	0.04	2.99	AGC MAVG - entered - maintain regulating reserves
1/5/2013 23:53	1/6/2013 9:03	9:13	AWE	155.33	21.00	AGC MAVG - entered - maintain regulating reserves and excess energy
1/6/2013 1:05	1/6/2013 8:02	4:57	KWP	55.00	20.99	AGC MAVG - entered - excess energy and maintaining regulating reserves
1/6/2013 9:27	1/6/2013 12:29	3:02	AWE	30.40	21.00	AGC MAVG - calculated
1/6/2013 11:42	1/6/2013 13:44	2:02	KWPII	18.11	14.65	AGC MAVG - entered - maintain regulating reserves and operating conditions on company system
1/6/2013 12:17	1/6/2013 12:18	0:01	KWP	0.00	18.72	AGC MAVG - calculated
1/6/2013 12:20	1/6/2013 12:29	0:09	KWP	0.08	19.34	AGC MAVG - calculated
1/6/2013 12:38	1/6/2013 13:40	1:02	AWE	14.55	19.70	AGC MAVG - entered - maintain regulating reserves
1/6/2013 13:55	1/6/2013 14:02	0:07	KWPII	0.45	6.73	AGC MAVG - calculated
1/6/2013 14:17	1/6/2013 16:55	2:38	KWPII	26.29	13.47	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/6/2013 14:48	1/6/2013 16:43	1:57	AWE	6.67	19.90	AGC MAVG - calculated
1/6/2013 16:45	1/6/2013 16:48	0:03	AWE	0.06	19.90	AGC MAVG - calculated
1/6/2013 16:51	1/6/2013 16:51	0:00	AWE	0.00	19.80	AGC MAVG - calculated
1/6/2013 16:58	1/6/2013 17:50	0:52	KWPII	7.29	13.47	AGC MAVG - calculated
1/6/2013 18:50	1/6/2013 18:50	0:00	KWP	0.00	0.10	AGC MAVG - calculated
1/6/2013 20:28	1/6/2013 20:26	0:00	KWP	0.00	0.03	AGC MAVG - calculated

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Start Date/Time	End	Duration (hh mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/6/2013 21 58	1/6/2013 21 57	0 01	AWE	0 01	19 80	AGC MAVG - calculated
1/6/2013 22 12	1/6/2013 22 12	0 00	AWE	0 00	19 80	AGC MAVG - calculated
1/6/2013 22 27	1/6/2013 22 31	0 04	AWE	0 04	19 90	AGC MAVG - calculated
1/6/2013 23 22	1/6/2013 23 24	0 02	AWE	0 03	19 80	AGC MAVG - calculated
1/6/2013 23 22	1/7/2013 6 13	6 51	KWPII	82 87	14 97	AGC MAVG - calculated
1/6/2013 23 27	1/7/2013 5 51	6 24	AWE	110 84	20 00	AGC MAVG - calculated and AGC MAVG - entered - maintain regulating reserves
1/7/2013 0 44	1/7/2013 5 10	4 26	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/7/2013 0 45	1/7/2013 4 18	3 33	KWP	26 65	19 49	AGC MAVG - calculated
1/7/2013 4 20	1/7/2013 5 08	0 48	KWP	2 32	19 47	AGC MAVG - calculated
1/7/2013 5 53	1/7/2013 5 57	0 04	AWE	0 10	19 70	AGC MAVG - calculated
1/7/2013 6 08	1/7/2013 6 08	0 01	AWE	0 02	19 90	AGC MAVG - calculated
1/7/2013 6 32	1/7/2013 6 32	0 00	KWPII	0 00	0 44	AGC MAVG - calculated
1/7/2013 6 32	1/7/2013 8 23	1 51	AWE	7 91	19 80	AGC MAVG - calculated
1/7/2013 6 36	1/7/2013 8 42	2 06	KWPII	20 36	13 90	AGC MAVG - calculated
1/7/2013 6 28	1/7/2013 6 29	0 01	AWE	0 01	19 80	AGC MAVG - calculated
1/7/2013 6 45	1/7/2013 11 03	2 18	KWPII	22 18	14 21	AGC MAVG - calculated
1/7/2013 8 54	1/7/2013 9 01	0 07	AWE	0 13	19 90	AGC MAVG - calculated
1/7/2013 9 05	1/7/2013 9 08	0 01	AWE	0 01	18 90	AGC MAVG - calculated
1/7/2013 9 08	1/7/2013 9 22	0 14	AWE	0 45	19 70	AGC MAVG - calculated
1/7/2013 9 24	1/7/2013 10 19	0 55	AWE	4 32	19 70	AGC MAVG - calculated
1/7/2013 10 21	1/7/2013 10 58	0 35	AWE	2 55	19 90	AGC MAVG - calculated
1/7/2013 10 58	1/7/2013 10 58	0 00	AWE	0 02	19 70	AGC MAVG - calculated
1/7/2013 11 06	1/7/2013 18 14	7 08	KWPII	133 21	20 96	AGC MAVG - calculated
1/7/2013 11 38	1/7/2013 11 38	0 02	AWE	0 01	16 90	AGC MAVG - calculated
1/7/2013 11 40	1/7/2013 18 04	6 24	AWE	46 83	20 90	AGC MAVG - calculated
1/7/2013 18 06	1/7/2013 18 06	0 00	AWE	0 00	19 80	AGC MAVG - calculated
1/7/2013 18 17	1/8/2013 1 37	7 20	KWPII	121 63	20 96	AGC MAVG - calculated
1/7/2013 19 54	1/7/2013 19 56	0 02	AWE	0 01	19 90	AGC MAVG - calculated
1/7/2013 19 59	1/7/2013 19 59	0 00	AWE	0 00	19 80	AGC MAVG - calculated
1/7/2013 20 05	1/8/2013 5 37	9 32	AWE	123 78	19 90	AGC MAVG - calculated
1/8/2013 0 07	1/8/2013 5 11	5 04	SA	No data available	No data available	AGC MAVG - calculated
1/8/2013 0 13	1/8/2013 0 15	0 02	KWP	0 01	19 49	AGC MAVG - calculated
1/8/2013 0 19	1/8/2013 0 20	0 01	KWP	0 01	16 14	AGC MAVG - calculated
1/8/2013 0 22	1/8/2013 0 23	0 01	KWP	0 00	17 38	AGC MAVG - calculated
1/8/2013 0 26	1/8/2013 0 29	0 03	KWP	0 03	17 66	AGC MAVG - calculated
1/8/2013 0 32	1/8/2013 0 32	0 00	KWP	0 00	15 95	AGC MAVG - calculated
1/8/2013 1 39	1/8/2013 1 48	0 09	KWPII	0 02	0 21	AGC MAVG - calculated
1/8/2013 2 00	1/8/2013 5 38	3 38	KWPII	9 64	14 27	AGC MAVG - calculated
1/8/2013 2 08	1/8/2013 4 25	2 17	KWP	14 73	20 22	AGC MAVG - calculated
1/8/2013 4 58	1/8/2013 5 01	0 03	KWP	0 03	17 58	AGC MAVG - calculated
1/8/2013 5 52	1/8/2013 5 52	0 00	KWPII	0 00	0 09	AGC MAVG - calculated
1/8/2013 6 45	1/8/2013 6 48	0 04	KWPII	0 12	12 15	AGC MAVG - calculated
1/8/2013 7 05	1/8/2013 7 05	0 00	KWPII	0 01	1 02	AGC MAVG - calculated
1/8/2013 7 11	1/8/2013 7 17	0 06	KWPII	0 05	0 83	AGC MAVG - calculated
1/8/2013 7 13	1/8/2013 7 18	0 03	AWE	0 03	19 90	AGC MAVG - calculated
1/8/2013 7 18	1/8/2013 7 18	0 00	AWE	0 00	19 80	AGC MAVG - calculated
1/8/2013 7 25	1/8/2013 8 51	1 26	AWE	8 79	19 90	AGC MAVG - calculated

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Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/8/2013 7:30	1/8/2013 7:43	0:13	KWPII	0.02	0.21	AGC MAVG - calculated
1/8/2013 7:48	1/8/2013 8:52	1:06	KWPII	4.90	13.26	AGC MAVG - calculated
1/8/2013 10:35	1/8/2013 17:57	7:22	AWE	66.11	19.90	AGC MAVG - calculated
1/8/2013 10:47	1/8/2013 12:29	1:42	KWPII	31.29	20.96	AGC MAVG - calculated
1/8/2013 12:31	1/8/2013 18:14	5:43	KWPII	117.48	20.96	AGC MAVG - calculated
1/8/2013 17:59	1/8/2013 18:01	0:02	AWE	0.02	19.90	AGC MAVG - calculated
1/8/2013 18:05	1/8/2013 18:06	0:01	AWE	0.01	19.90	AGC MAVG - calculated
1/8/2013 18:17	1/8/2013 5:35	11:18	KWPII	166.17	19.46	AGC MAVG - calculated
1/8/2013 19:23	1/8/2013 19:25	0:02	AWE	0.01	20.00	AGC MAVG - calculated
1/8/2013 19:33	1/8/2013 19:35	0:02	AWE	0.01	19.90	AGC MAVG - calculated
1/8/2013 19:37	1/8/2013 5:33	9:56	AWE	148.37	19.90	AGC MAVG - calculated
1/8/2013 21:34	1/8/2013 21:39	0:05	KWP	0.07	28.50	AGC MAVG - calculated
1/8/2013 21:43	1/8/2013 21:43	0:00	KWP	0.00	28.50	AGC MAVG - calculated
1/8/2013 21:45	1/8/2013 21:45	0:00	KWP	0.00	28.50	AGC MAVG - calculated
1/8/2013 23:31	1/8/2013 23:31	0:00	KWP	0.00	28.50	AGC MAVG - calculated
1/8/2013 23:33	1/8/2013 3:47	4:14	KWP	45.51	28.50	AGC MAVG - calculated
1/8/2013 23:37	1/8/2013 4:50	5:13	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/8/2013 4:18	1/8/2013 4:18	0:00	KWP	0.01	11.71	AGC MAVG - calculated
1/8/2013 5:35	1/8/2013 5:35	0:00	AWE	0.00	19.70	AGC MAVG - calculated
1/8/2013 5:37	1/8/2013 5:37	0:00	KWPII	0.00	0.11	AGC MAVG - calculated
1/8/2013 6:52	1/8/2013 6:57	0:05	AWE	0.09	19.80	AGC MAVG - calculated
1/8/2013 8:52	1/8/2013 8:10	1:18	KWPII	7.80	10.19	AGC MAVG - calculated
1/8/2013 8:58	1/8/2013 8:04	1:05	AWE	2.72	19.90	AGC MAVG - calculated
1/8/2013 8:08	1/8/2013 8:09	0:00	AWE	0.00	18.70	AGC MAVG - calculated
1/8/2013 8:12	1/8/2013 8:17	0:05	KWPII	0.51	8.48	AGC MAVG - calculated
1/8/2013 8:19	1/8/2013 8:01	0:42	KWPII	4.17	12.95	AGC MAVG - calculated
1/8/2013 9:55	1/8/2013 10:07	0:12	KWPII	0.98	14.62	AGC MAVG - calculated
1/8/2013 10:11	1/8/2013 11:31	1:20	KWPII	14.98	18.88	AGC MAVG - entered - maintain regulating reserves
1/8/2013 10:59	1/8/2013 11:31	0:32	AWE	1.60	16.90	AGC MAVG - calculated
1/8/2013 11:33	1/8/2013 12:55	1:22	AWE	10.45	16.70	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/8/2013 11:33	1/8/2013 15:30	3:57	KWPII	69.71	20.70	AGC MAVG - entered - maintain regulating reserves
1/8/2013 13:07	1/8/2013 15:30	2:23	AWE	13.84	16.80	AGC MAVG - calculated and operating conditions on company system
1/8/2013 15:35	1/8/2013 16:15	2:40	AWE	18.65	16.80	AGC MAVG - entered - maintain regulating reserves operating conditions on company system, and AGC MAVG - calculated
1/8/2013 15:35	1/8/2013 16:24	2:49	KWPII	58.06	20.95	AGC MAVG - entered - maintain regulating reserves
1/8/2013 16:27	1/10/2013 5:27	11:00	KWPII	180.00	20.96	AGC MAVG - entered - maintain regulating reserves
1/8/2013 18:56	1/10/2013 5:21	10:25	AWE	122.24	19.70	AGC MAVG - calculated
1/8/2013 23:39	1/10/2013 3:47	4:08	KWP	39.82	28.50	AGC MAVG - calculated
1/8/2013 23:40	1/10/2013 3:52	4:12	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/10/2013 5:30	1/10/2013 6:46	1:16	KWPII	11.04	18.50	AGC MAVG - entered - maintain regulating reserves
1/10/2013 5:41	1/10/2013 5:41	0:00	AWE	0.00	19.70	AGC MAVG - calculated
1/10/2013 5:43	1/10/2013 5:51	0:08	AWE	0.28	19.80	AGC MAVG - calculated
1/10/2013 5:54	1/10/2013 6:34	0:40	AWE	3.37	19.00	AGC MAVG - calculated
1/10/2013 5:54	1/10/2013 6:09	0:15	KWP	1.56	28.91	AGC MAVG - entered - maintain regulating reserves
1/10/2013 6:40	1/10/2013 6:42	0:02	AWE	0.09	17.00	AGC MAVG - calculated
1/10/2013 6:49	1/10/2013 6:52	0:03	AWE	0.15	17.00	AGC MAVG - calculated
1/10/2013 6:49	1/10/2013 7:11	0:22	KWPII	0.99	5.27	AGC MAVG - entered - maintain regulating reserves
1/10/2013 7:14	1/10/2013 7:14	0:00	KWPII	0.01	1.48	AGC MAVG - entered - maintain regulating reserves

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Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/10/2013 7:23	1/10/2013 7:27	0:04	KWPII	0.01	4.28	AGC MAVG - entered - maintain regulating reserves
1/10/2013 7:29	1/10/2013 7:31	0:02	KWPII	0.02	4.47	AGC MAVG - entered - maintain regulating reserves
1/10/2013 7:54	1/10/2013 7:54	0:00	KWPII	0.01	5.60	AGC MAVG - entered - maintain regulating reserves
1/10/2013 7:58	1/10/2013 8:02	0:06	KWPII	0.04	6.53	AGC MAVG - entered - maintain regulating reserves
1/10/2013 8:14	1/10/2013 12:17	3:03	AWE	28.84	19.70	AGC MAVG - calculated and AGC MAVG - entered - testing
1/10/2013 13:33	1/10/2013 13:38	0:03	AWE	0.05	19.90	AGC MAVG - calculated
1/10/2013 13:33	1/10/2013 14:34	1:01	KWPII	2.82	3.82	AGC MAVG - calculated
1/10/2013 13:57	1/10/2013 14:32	0:35	AWE	5.06	19.90	AGC MAVG - calculated
1/10/2013 14:48	1/10/2013 14:49	0:01	KWPII	0.02	5.44	AGC MAVG - calculated
1/10/2013 14:51	1/10/2013 15:12	0:21	KWPII	0.47	8.28	AGC MAVG - calculated
1/10/2013 15:15	1/10/2013 15:17	0:02	KWPII	0.02	7.75	AGC MAVG - calculated
1/10/2013 15:18	1/10/2013 15:18	0:00	KWPII	0.00	7.58	AGC MAVG - calculated
1/10/2013 18:14	1/10/2013 18:14	0:00	KWPII	0.00	0.02	AGC MAVG - calculated
1/10/2013 18:51	1/10/2013 19:44	0:53	KWPII	11.17	20.59	AGC MAVG - calculated
1/10/2013 19:23	1/10/2013 19:26	0:03	AWE	0.03	14.40	AGC MAVG - calculated
1/10/2013 19:28	1/10/2013 19:29	0:01	AWE	0.02	16.20	AGC MAVG - calculated
1/10/2013 19:31	1/10/2013 19:34	0:03	AWE	0.05	14.50	AGC MAVG - calculated
1/10/2013 19:40	1/10/2013 19:40	0:00	AWE	0.00	14.90	AGC MAVG - calculated
1/10/2013 19:47	1/11/2013 8:06	12:19	KWPII	249.98	20.98	AGC MAVG - entered - maintain regulating reserves
1/10/2013 19:48	1/10/2013 19:55	0:07	AWE	0.11	18.90	AGC MAVG - calculated
1/10/2013 20:02	1/10/2013 20:09	0:07	AWE	0.13	15.10	AGC MAVG - calculated
1/10/2013 20:18	1/10/2013 20:21	0:03	AWE	0.04	13.60	AGC MAVG - calculated
1/10/2013 20:23	1/10/2013 20:25	0:02	AWE	0.04	13.70	AGC MAVG - calculated
1/10/2013 20:29	1/10/2013 20:29	0:00	AWE	0.00	11.80	AGC MAVG - calculated
1/10/2013 20:35	1/10/2013 21:41	1:06	AWE	4.63	14.70	AGC MAVG - calculated
1/10/2013 21:43	1/10/2013 21:43	0:00	AWE	0.00	8.80	AGC MAVG - calculated
1/10/2013 21:45	1/10/2013 21:45	0:00	AWE	0.00	8.30	AGC MAVG - calculated
1/10/2013 21:49	1/10/2013 21:56	0:07	AWE	0.18	9.20	AGC MAVG - calculated
1/10/2013 21:56	1/10/2013 22:04	0:08	AWE	0.37	8.80	AGC MAVG - calculated
1/10/2013 22:06	1/11/2013 2:53	4:47	AWE	29.90	18.90	AGC MAVG - calculated
1/10/2013 23:32	1/11/2013 3:39	6:07	SA	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/10/2013 23:33	1/11/2013 7:13	7:40	MH	No data available	No data available	AGC MAVG - entered - maintain regulating reserves
1/10/2013 23:34	1/11/2013 5:17	5:43	KWP	47.27	28.50	AGC MAVG - calculated
1/11/2013 2:56	1/11/2013 2:56	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/11/2013 3:02	1/11/2013 3:27	0:25	AWE	0.33	1.80	AGC MAVG - calculated
1/11/2013 3:38	1/11/2013 3:39	0:01	AWE	0.00	0.20	AGC MAVG - calculated
1/11/2013 3:44	1/11/2013 3:47	0:03	AWE	0.01	0.30	AGC MAVG - calculated
1/11/2013 4:03	1/11/2013 5:35	1:32	AWE	1.23	4.80	AGC MAVG - calculated
1/11/2013 5:39	1/11/2013 5:42	0:03	KWP	0.10	26.72	AGC MAVG - calculated
1/11/2013 5:41	1/11/2013 5:56	0:15	AWE	0.44	4.80	AGC MAVG - calculated
1/11/2013 8:08	1/11/2013 9:58	1:50	KWPII	22.44	20.95	AGC MAVG - calculated
1/11/2013 10:20	1/11/2013 10:26	0:06	KWPII	0.16	16.91	AGC MAVG - calculated
1/11/2013 13:44	1/11/2013 13:47	0:03	KWPII	0.17	11.68	AGC MAVG - calculated
1/11/2013 13:49	1/11/2013 13:52	0:03	KWPII	0.18	15.79	AGC MAVG - calculated
1/11/2013 13:54	1/11/2013 18:18	4:24	KWPII	63.80	20.96	AGC MAVG - entered - maintain regulating reserves
1/11/2013 17:37	1/11/2013 17:53	0:16	AWE	1.18	17.50	AGC MAVG - calculated
1/11/2013 17:55	1/11/2013 17:59	0:04	AWE	0.03	13.40	AGC MAVG - calculated

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Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for curtailment
1/11/2013 18:02	1/11/2013 18:02	0:00	AWE	0.01	11.60	AGC MAVG - calculated
1/11/2013 18:05	1/11/2013 18:10	0:05	AWE	0.09	12.60	AGC MAVG - calculated
1/11/2013 18:21	1/11/2013 18:24	0:03	KWPII	0.24	10.60	AGC MAVG - calculated
1/11/2013 18:27	1/11/2013 18:51	0:24	KWPII	0.42	8.13	AGC MAVG - calculated
1/11/2013 18:36	1/11/2013 18:51	0:15	AWE	0.60	19.40	AGC MAVG - calculated
1/11/2013 18:54	1/11/2013 18:55	0:01	KWPII	0.02	1.98	AGC MAVG - calculated
1/12/2013 1:26	1/12/2013 1:30	0:04	AWE	0.10	6.70	AGC MAVG - calculated
1/12/2013 2:03	1/12/2013 2:11	0:08	AWE	0.14	5.80	AGC MAVG - calculated
1/12/2013 2:13	1/12/2013 3:40	1:27	AWE	3.15	11.00	AGC MAVG - calculated
1/12/2013 3:42	1/12/2013 3:43	0:01	AWE	0.02	8.50	AGC MAVG - calculated
1/12/2013 3:45	1/12/2013 3:47	0:02	AWE	0.02	7.90	AGC MAVG - calculated
1/12/2013 3:49	1/12/2013 3:49	0:00	AWE	0.00	7.60	AGC MAVG - calculated
1/12/2013 3:51	1/12/2013 3:51	0:00	AWE	0.00	7.80	AGC MAVG - calculated
1/12/2013 3:53	1/12/2013 3:53	0:00	AWE	0.00	7.90	AGC MAVG - calculated
1/12/2013 3:57	1/12/2013 3:57	0:00	AWE	0.00	7.60	AGC MAVG - calculated
1/12/2013 22:42	1/12/2013 22:43	0:01	KWPII	0.04	5.04	AGC MAVG - calculated
1/12/2013 22:48	1/12/2013 22:57	0:08	KWPII	0.13	3.15	AGC MAVG - calculated
1/12/2013 22:54	1/12/2013 22:57	0:03	AWE	0.05	13.70	AGC MAVG - calculated
1/12/2013 23:28	1/12/2013 23:31	0:03	AWE	0.01	13.70	AGC MAVG - calculated
1/12/2013 23:34	1/12/2013 23:38	0:04	AWE	0.11	13.70	AGC MAVG - calculated
1/13/2013 2:45	1/13/2013 3:37	0:52	AWE	0.62	13.70	AGC MAVG - entered - excess energy
1/13/2013 4:36	1/13/2013 4:46	0:10	KWPII	0.01	0.09	AGC MAVG - entered - excess energy
1/13/2013 11:45	1/13/2013 11:45	0:00	AWE	0.01	19.20	AGC MAVG - calculated
1/13/2013 18:47	1/13/2013 18:47	0:00	KWPII	0.00	0.04	AGC MAVG - calculated
1/14/2013 4:20	1/14/2013 4:20	0:00	KWPII	0.00	3.59	AGC MAVG - calculated
1/14/2013 10:26	1/14/2013 10:26	0:00	KWPII	0.00	12.27	AGC MAVG - calculated
1/14/2013 11:53	1/14/2013 11:53	0:00	AWE	0.00	0.30	AGC MAVG - calculated
1/14/2013 11:54	1/14/2013 11:54	0:00	KWPII	0.02	6.69	AGC MAVG - calculated
1/14/2013 12:45	1/14/2013 12:45	0:00	KWPII	0.00	10.13	AGC MAVG - calculated
1/14/2013 15:40	1/14/2013 15:45	0:05	KWPII	0.43	12.90	AGC MAVG - calculated
1/14/2013 15:54	1/14/2013 16:29	0:35	KWPII	1.95	16.07	AGC MAVG - calculated
1/14/2013 16:32	1/14/2013 16:33	0:01	KWPII	0.05	14.65	AGC MAVG - calculated
1/14/2013 16:55	1/14/2013 16:55	0:00	KWPII	0.00	13.44	AGC MAVG - calculated
1/14/2013 17:43	1/14/2013 17:43	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/14/2013 17:51	1/14/2013 17:53	0:02	KWPII	0.05	17.81	AGC MAVG - calculated
1/15/2013 3:28	1/15/2013 3:30	0:02	KWPII	0.01	2.94	AGC MAVG - calculated
1/15/2013 3:48	1/15/2013 3:50	0:01	KWPII	0.00	3.76	AGC MAVG - calculated
1/15/2013 3:52	1/15/2013 3:56	0:04	KWPII	0.03	3.65	AGC MAVG - calculated
1/15/2013 8:13	1/15/2013 8:13	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/15/2013 10:36	1/15/2013 10:36	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/15/2013 13:43	1/15/2013 13:43	0:00	AWE	0.00	0.30	AGC MAVG - calculated
1/15/2013 16:16	1/15/2013 16:16	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/17/2013 0:37	1/17/2013 0:37	0:00	KWPII	0.00	0.02	AGC MAVG - calculated
1/17/2013 11:19	1/17/2013 11:19	0:00	AWE	0.00	0.20	AGC MAVG - entered - testing and AGC MAVG - entered
1/17/2013 11:21	1/17/2013 11:30	0:09	AWE	0.03	0.30	AGC MAVG - entered - testing and AGC MAVG - entered
1/17/2013 11:32	1/17/2013 11:32	0:00	AWE	0.00	0.30	AGC MAVG - entered - testing and AGC MAVG - entered
1/17/2013 11:34	1/17/2013 11:34	0:00	AWE	0.00	0.30	AGC MAVG - entered - testing and AGC MAVG - entered

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Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for curtailment
1/17/2013 11:37	1/17/2013 11:37	0:00	AWE	0.01	0.40	AGC MAVG - entered - testing and AGC MAVG - entered
1/17/2013 11:43	1/17/2013 11:43	0:00	AWE	0.00	0.10	AGC MAVG - entered - testing and AGC MAVG - entered
1/17/2013 11:47	1/17/2013 11:47	0:00	AWE	0.00	0.30	AGC MAVG - calculated
1/17/2013 12:53	1/17/2013 12:53	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/18/2013 21:31	1/18/2013 21:31	0:00	KWPII	0.02	3.82	AGC MAVG - calculated
1/18/2013 22:50	1/18/2013 22:50	0:00	AWE	0.00	0.20	AGC MAVG - calculated
1/18/2013 0:39	1/18/2013 0:39	0:00	AWE	0.00	0.30	AGC MAVG - calculated
1/18/2013 0:56	1/18/2013 0:56	0:00	AWE	0.00	0.30	AGC MAVG - calculated
1/18/2013 0:56	1/18/2013 1:41	0:45	KWPII	2.62	14.48	AGC MAVG - calculated
1/18/2013 1:30	1/18/2013 1:30	0:00	AWE	0.00	0.20	AGC MAVG - calculated
1/18/2013 1:43	1/18/2013 1:43	0:00	KWPII	0.00	8.84	AGC MAVG - calculated
1/18/2013 1:45	1/18/2013 3:52	2:07	KWPII	17.45	16.80	AGC MAVG - entered - excess energy
1/18/2013 3:55	1/18/2013 4:57	1:02	KWPII	3.79	13.46	AGC MAVG - entered - excess energy
1/18/2013 6:10	1/18/2013 8:41	0:31	KWPII	1.82	20.41	AGC MAVG - calculated
1/18/2013 10:25	1/18/2013 10:25	0:00	KWPII	0.03	11.16	AGC MAVG - calculated
1/18/2013 10:28	1/18/2013 10:31	0:03	KWPII	0.25	12.52	AGC MAVG - calculated
1/18/2013 10:34	1/18/2013 10:34	0:00	KWPII	0.07	12.18	AGC MAVG - calculated
1/18/2013 11:45	1/18/2013 11:45	0:00	KWPII	0.00	17.03	AGC MAVG - calculated
1/18/2013 11:54	1/18/2013 11:54	0:00	KWPII	0.00	16.61	AGC MAVG - calculated
1/18/2013 12:00	1/18/2013 12:05	0:05	KWPII	0.06	17.97	AGC MAVG - calculated
1/18/2013 12:19	1/18/2013 12:37	0:18	KWPII	0.30	18.75	AGC MAVG - calculated
1/18/2013 12:58	1/18/2013 12:58	0:00	KWP	0.00	0.02	AGC MAVG - calculated
1/18/2013 13:23	1/18/2013 13:23	0:00	KWPII	0.00	15.43	AGC MAVG - calculated
1/18/2013 22:55	1/18/2013 23:04	0:09	KWPII	0.27	17.02	AGC MAVG - calculated
1/18/2013 23:09	1/18/2013 23:15	0:06	KWPII	0.09	17.04	AGC MAVG - calculated
1/18/2013 23:19	1/18/2013 23:21	0:02	KWPII	0.05	15.88	AGC MAVG - calculated
1/20/2013 0:05	1/20/2013 5:31	5:26	KWPII	93.66	20.95	AGC MAVG - entered - excess energy
1/20/2013 1:50	1/20/2013 1:50	0:00	KWP	0.00	8.22	AGC MAVG - calculated
1/20/2013 1:53	1/20/2013 12:08	10:15	MH	No data available	No data available	AGC MAVG - entered - excess energy
1/20/2013 1:54	1/20/2013 5:21	3:27	SA	No data available	No data available	AGC MAVG - entered - excess energy
1/20/2013 1:56	1/20/2013 5:18	3:22	KWP	44.49	26.83	AGC MAVG - entered - excess energy
1/20/2013 5:34	1/20/2013 5:57	0:23	KWPII	1.74	17.83	AGC MAVG - entered - excess energy
1/20/2013 7:28	1/20/2013 7:43	0:15	KWPII	0.49	19.14	AGC MAVG - calculated
1/20/2013 7:58	1/20/2013 8:02	0:04	KWPII	0.04	18.94	AGC MAVG - calculated
1/20/2013 9:15	1/20/2013 9:15	0:00	AWE	0.00	0.10	AGC MAVG - calculated
1/20/2013 9:59	1/20/2013 9:59	0:00	AWE	0.00	0.20	AGC MAVG - calculated
1/20/2013 10:10	1/20/2013 10:10	0:00	KWPII	0.00	20.34	AGC MAVG - calculated
1/20/2013 10:20	1/20/2013 10:22	0:02	KWPII	0.02	20.17	AGC MAVG - calculated
1/20/2013 10:28	1/20/2013 13:01	2:33	KWPII	19.62	20.95	AGC MAVG - calculated
1/20/2013 13:19	1/20/2013 14:32	1:13	KWPII	5.59	20.87	AGC MAVG - entered - maintain regulating reserves
1/20/2013 15:37	1/20/2013 15:53	0:16	KWPII	0.42	20.30	AGC MAVG - entered - maintain regulating reserves
1/20/2013 15:53	1/20/2013 15:59	0:04	KWPII	0.08	19.41	AGC MAVG - entered - maintain regulating reserves
1/20/2013 16:02	1/20/2013 16:10	0:08	KWPII	0.16	19.82	AGC MAVG - entered - maintain regulating reserves
1/20/2013 16:25	1/20/2013 20:06	0:41	KWPII	0.64	20.68	AGC MAVG - entered - maintain regulating reserves
1/20/2013 20:11	1/20/2013 21:13	1:02	KWPII	3.89	20.32	AGC MAVG - entered - maintain regulating reserves
1/20/2013 21:18	1/20/2013 21:22	0:06	KWPII	0.10	17.39	AGC MAVG - entered - maintain regulating reserves
1/20/2013 21:26	1/20/2013 21:26	0:00	KWPII	0.00	16.01	AGC MAVG - entered - maintain regulating reserves

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Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
1/20/2013 21:50	1/20/2013 21:58	0:08	KWPII	0.48	17.84	AGC MAVG - calculated
1/20/2013 22:04	1/20/2013 22:07	0:03	KWPII	0.01	16.68	AGC MAVG - calculated
1/20/2013 22:09	1/20/2013 22:13	0:04	KWPII	0.07	16.33	AGC MAVG - calculated
1/20/2013 22:28	1/20/2013 22:28	0:00	KWPII	0.01	13.00	AGC MAVG - calculated
1/20/2013 22:29	1/20/2013 22:34	0:05	KWPII	0.07	13.84	AGC MAVG - calculated
1/20/2013 22:37	1/20/2013 22:43	0:06	KWPII	0.06	11.91	AGC MAVG - calculated
1/20/2013 22:47	1/20/2013 23:43	0:56	KWPII	5.62	15.59	AGC MAVG - entered - excess energy
1/20/2013 23:45	1/21/2013 8:02	8:17	KWPII	156.11	20.96	AGC MAVG - entered - excess energy
1/21/2013 0:37	1/21/2013 8:17	7:40	MH	No data available	No data available	AGC MAVG - entered - excess energy
1/21/2013 0:39	1/21/2013 6:30	5:51	SA	No data available	No data available	AGC MAVG - entered - excess energy
1/21/2013 0:41	1/21/2013 1:21	0:40	KWP	3.74	18.18	AGC MAVG - entered - excess energy
1/21/2013 1:23	1/21/2013 1:23	0:00	KWP	0.00	8.02	AGC MAVG - entered - excess energy
1/21/2013 1:25	1/21/2013 8:14	4:49	KWP	80.21	24.00	AGC MAVG - entered - excess energy
1/21/2013 1:37	1/21/2013 1:37	0:00	AWE	0.00	0.10	AGC MAVG - entered - excess energy
1/21/2013 2:04	1/21/2013 2:04	0:00	AWE	0.00	0.10	AGC MAVG - entered - excess energy
1/21/2013 2:08	1/21/2013 3:41	1:32	AWE	0.74	1.30	AGC MAVG - entered - excess energy
1/21/2013 3:43	1/21/2013 3:43	0:00	AWE	0.00	0.10	AGC MAVG - entered - excess energy
1/21/2013 4:10	1/21/2013 4:10	0:00	AWE	0.00	0.10	AGC MAVG - entered - excess energy
1/21/2013 4:23	1/21/2013 4:28	0:05	AWE	0.01	0.20	AGC MAVG - entered - excess energy
1/21/2013 4:32	1/21/2013 4:32	0:00	AWE	0.00	0.10	AGC MAVG - entered - excess energy
1/21/2013 4:34	1/21/2013 5:06	0:32	AWE	0.10	0.30	AGC MAVG - entered - excess energy
1/21/2013 5:12	1/21/2013 5:22	0:10	AWE	0.02	0.20	AGC MAVG - entered - excess energy
1/21/2013 6:28	1/21/2013 6:29	0:01	AWE	0.00	0.20	AGC MAVG - entered - excess energy
1/21/2013 6:31	1/21/2013 7:23	0:52	AWE	0.39	0.90	AGC MAVG - entered - excess energy
1/21/2013 7:25	1/21/2013 7:34	0:09	AWE	0.02	0.20	AGC MAVG - entered - excess energy
1/21/2013 8:05	1/21/2013 11:48	3:43	KWPII	43.19	20.96	AGC MAVG - calculated
1/21/2013 12:52	1/21/2013 12:52	0:00	KWPII	0.02	19.89	AGC MAVG - calculated
1/21/2013 12:54	1/21/2013 13:02	0:08	KWPII	0.39	20.55	AGC MAVG - calculated
1/21/2013 13:22	1/22/2013 8:23	20:01	KWPII	318.45	20.96	AGC MAVG - entered - maintain regulating reserves
1/21/2013 23:33	1/22/2013 8:05	8:32	MH	No data available	No data available	AGC MAVG - entered - excess energy
1/21/2013 23:34	1/22/2013 5:48	6:12	SA	No data available	No data available	AGC MAVG - entered - excess energy
1/21/2013 23:38	1/22/2013 5:40	6:02	KWP	30.83	24.00	AGC MAVG - entered - excess energy
1/21/2013 23:47	1/22/2013 0:42	0:55	AWE	0.82	2.60	AGC MAVG - entered - excess energy
1/22/2013 0:48	1/22/2013 1:50	1:02	AWE	0.52	1.60	AGC MAVG - entered - excess energy
1/22/2013 1:53	1/22/2013 2:05	0:12	AWE	0.07	0.70	AGC MAVG - entered - excess energy
1/22/2013 2:07	1/22/2013 2:08	0:01	AWE	0.00	0.20	AGC MAVG - entered - excess energy
1/22/2013 2:37	1/22/2013 2:43	0:06	AWE	0.06	0.90	AGC MAVG - entered - excess energy
1/22/2013 2:45	1/22/2013 3:00	0:15	AWE	0.18	1.20	AGC MAVG - entered - excess energy
1/22/2013 3:02	1/22/2013 3:13	0:11	AWE	0.10	1.40	AGC MAVG - entered - excess energy
1/22/2013 3:15	1/22/2013 3:18	0:01	AWE	0.00	0.20	AGC MAVG - entered - excess energy
1/22/2013 3:25	1/22/2013 4:38	1:14	AWE	1.73	5.80	AGC MAVG - entered - excess energy
1/22/2013 4:51	1/22/2013 4:57	0:06	AWE	0.04	0.70	AGC MAVG - entered - excess energy
1/22/2013 5:21	1/22/2013 5:21	0:00	AWE	0.00	0.20	AGC MAVG - entered - excess energy
1/22/2013 5:23	1/22/2013 5:28	0:03	AWE	0.01	0.40	AGC MAVG - entered - excess energy
1/22/2013 5:29	1/22/2013 5:48	0:19	AWE	0.29	1.90	AGC MAVG - entered - excess energy
1/22/2013 8:52	1/22/2013 8:57	0:05	AWE	0.11	6.10	AGC MAVG - calculated
1/22/2013 8:58	1/22/2013 9:01	0:02	AWE	0.04	7.60	AGC MAVG - calculated

MECO - Maui Curtailment Report January 2013

Start Date/Time	End	Duration (hh mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/22/2013 9 03	1/22/2013 9 12	0 09	AWE	0 30	11 60	AGC MAVG - calculated
1/22/2013 9 15	1/22/2013 9 18	0 03	AWE	0 12	10 60	AGC MAVG - calculated
1/22/2013 9 28	1/22/2013 11 38	2 12	KWPII	38 95	20 93	AGC MAVG - entered - maintain regulating reserves
1/22/2013 9 39	1/22/2013 9 39	0 00	AWE	0 00	0 30	AGC MAVG - calculated
1/22/2013 10 26	1/22/2013 10 29	0 03	AWE	0 07	13 80	AGC MAVG - entered - maintain regulating reserves
1/22/2013 10 31	1/22/2013 10 31	0 00	AWE	0 02	11 10	AGC MAVG - entered - maintain regulating reserves
1/22/2013 10 35	1/22/2013 11 28	0 53	AWE	4 48	17 00	AGC MAVG - entered - maintain regulating reserves
1/22/2013 11 30	1/22/2013 11 32	0 02	AWE	0 06	16 50	AGC MAVG - entered - maintain regulating reserves
1/22/2013 11 41	1/23/2013 8 14	20 33	KWPII	314 89	20 96	AGC MAVG - entered - maintain regulating reserves
1/22/2013 15 04	1/22/2013 15 49	0 45	AWE	1 56	21 00	AGC MAVG - entered - maintain regulating reserves
1/22/2013 16 31	1/22/2013 16 42	0 11	AWE	0 26	16 20	AGC MAVG - entered - maintain regulating reserves
1/22/2013 16 45	1/22/2013 16 55	0 10	AWE	0 27	17 00	AGC MAVG - entered - maintain regulating reserves
1/22/2013 16 57	1/22/2013 16 58	0 01	AWE	0 01	14 60	AGC MAVG - entered - maintain regulating reserves
1/22/2013 17 05	1/22/2013 17 14	0 09	AWE	0 33	17 10	AGC MAVG - entered - maintain regulating reserves
1/22/2013 17 16	1/22/2013 17 17	0 01	AWE	0 01	13 70	AGC MAVG - entered - maintain regulating reserves
1/22/2013 23 25	1/25/2013 8 00	56 35	MH	No data available	No data available	AGC MAVG - entered - excess energy
1/22/2013 23 27	1/23/2013 6 26	8 59	SA	No data available	No data available	AGC MAVG - entered - excess energy
1/22/2013 23 30	1/23/2013 6 17	8 47	KWP	38 66	28 50	AGC MAVG - entered - excess energy
1/22/2013 23 35	1/22/2013 23 37	0 02	AWE	0 01	0 20	AGC MAVG - entered - excess energy
1/22/2013 23 39	1/22/2013 23 41	0 02	AWE	0 02	0 70	AGC MAVG - entered - excess energy
1/22/2013 23 45	1/22/2013 23 45	0 00	AWE	0 00	0 10	AGC MAVG - entered - excess energy
1/22/2013 23 49	1/22/2013 23 49	0 00	AWE	0 00	0 20	AGC MAVG - entered - excess energy
1/22/2013 23 51	1/23/2013 0 51	1 00	AWE	1 47	5 80	AGC MAVG - entered - excess energy
1/23/2013 1 01	1/23/2013 1 01	0 00	AWE	0 00	0 20	AGC MAVG - entered - excess energy
1/23/2013 1 03	1/23/2013 1 24	0 21	AWE	0 43	4 30	AGC MAVG - entered - excess energy
1/23/2013 1 34	1/23/2013 2 18	0 44	AWE	0 86	2 70	AGC MAVG - entered - excess energy
1/23/2013 2 24	1/23/2013 3 29	1 05	AWE	1 18	4 30	AGC MAVG - entered - excess energy
1/23/2013 3 37	1/23/2013 3 50	0 13	AWE	0 37	3 70	AGC MAVG - entered - excess energy
1/23/2013 3 53	1/23/2013 4 03	0 10	AWE	0 07	0 80	AGC MAVG - entered - excess energy
1/23/2013 4 05	1/23/2013 4 05	0 00	AWE	0 00	0 30	AGC MAVG - entered - excess energy
1/23/2013 4 07	1/23/2013 4 07	0 00	AWE	0 00	0 10	AGC MAVG - entered - excess energy
1/23/2013 4 12	1/23/2013 8 10	3 58	AWE	33 49	21 00	AGC MAVG - entered - excess energy and AGC MAVG - calculated
1/23/2013 8 18	1/23/2013 8 20	0 02	KWPII	0 15	10 32	AGC MAVG - entered - maintain regulating reserves
1/24/2013 0 05	1/24/2013 5 17	5 12	AWE	38 10	21 00	AGC MAVG - entered - excess energy
1/24/2013 10 44	1/24/2013 10 44	0 00	KWPII	0 00	0 05	AGC MAVG - calculated
1/25/2013 0 00	1/25/2013 0 00	0 00	AWE	0 00	21 00	AGC MAVG - calculated
1/25/2013 0 02	1/25/2013 0 16	0 14	AWE	0 20	21 00	AGC MAVG - calculated
1/25/2013 0 18	1/25/2013 4 12	3 54	AWE	37 48	21 00	AGC MAVG - calculated
1/25/2013 1 23	1/25/2013 4 33	3 10	KWPII	2 33	2 39	AGC MAVG - calculated
1/25/2013 4 14	1/25/2013 4 33	0 19	AWE	0 29	13 90	AGC MAVG - calculated
1/25/2013 4 37	1/25/2013 5 04	0 27	AWE	0 53	17 50	AGC MAVG - calculated
1/25/2013 5 21	1/25/2013 5 22	0 01	AWE	0 05	18 80	AGC MAVG - calculated
1/25/2013 5 25	1/25/2013 5 25	0 00	AWE	0 00	17 80	AGC MAVG - calculated
1/25/2013 5 31	1/25/2013 5 34	0 03	AWE	0 04	21 00	AGC MAVG - calculated
1/25/2013 17 05	1/25/2013 17 05	0 00	KWP	0 00	0 03	AGC MAVG - calculated
1/25/2013 20 38	1/25/2013 20 43	0 05	AWE	0 68	8 40	AGC MAVG - entered - testing
1/26/2013 1 54	1/26/2013 3 00	1 06	KWPII	2 29	4 16	AGC MAVG - entered - excess energy

MECO - Maul Curtailment Report January 2013

Start Date/Time	End	Duration (hh mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/26/2013 2:29	1/26/2013 2:38	0 09	AWE	0 10	17 90	AGC MAVG - entered - excess energy
1/26/2013 2:43	1/26/2013 2:53	0 10	AWE	0 21	17 10	AGC MAVG - entered - excess energy
1/26/2013 8:57	1/26/2013 9:58	0 01	AWE	0 01	17 90	AGC MAVG - calculated
1/26/2013 10:11	1/26/2013 10:11	0 00	AWE	0 00	17 50	AGC MAVG - calculated
1/26/2013 12:03	1/26/2013 12:03	0 00	KWPII	0 00	0 10	AGC MAVG - calculated
1/26/2013 12:07	1/26/2013 12:08	0 01	AWE	0 02	18 90	AGC MAVG - calculated
1/26/2013 12:07	1/26/2013 12:08	0 01	KWPII	0 00	0 00	AGC MAVG - calculated
1/27/2013 11:22	1/27/2013 11:22	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/27/2013 11:34	1/27/2013 11:34	0 00	AWE	0 00	0 30	AGC MAVG - calculated
1/27/2013 12:28	1/27/2013 12:28	0 00	AWE	0 00	0 30	AGC MAVG - calculated
1/27/2013 12:50	1/27/2013 12:50	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/27/2013 13:41	1/27/2013 13:42	0 01	KWPII	0 00	4 92	AGC MAVG - calculated
1/27/2013 13:54	1/27/2013 13:55	0 01	KWPII	0 05	5 94	AGC MAVG - calculated
1/27/2013 14:03	1/27/2013 14:03	0 00	KWPII	0 01	6 15	AGC MAVG - calculated
1/27/2013 14:18	1/27/2013 14:18	0 00	KWPII	0 00	6 10	AGC MAVG - calculated
1/27/2013 14:27	1/27/2013 14:27	0 00	KWPII	0 00	6 20	AGC MAVG - calculated
1/27/2013 17:15	1/27/2013 17:15	0 00	KWPII	0 03	12 37	AGC MAVG - calculated
1/27/2013 17:17	1/27/2013 17:17	0 00	KWPII	0 00	11 80	AGC MAVG - calculated
1/27/2013 20:58	1/27/2013 20:58	0 00	AWE	0 00	0 30	AGC MAVG - calculated
1/28/2013 1:41	1/28/2013 1:41	0 00	KWP	0 00	0 02	AGC MAVG - calculated and good engineering and operating practices
1/28/2013 2:50	1/28/2013 2:50	0 00	KWP	0 00	0 02	AGC MAVG - calculated
1/28/2013 3:14	1/28/2013 3:14	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/28/2013 4:36	1/28/2013 4:36	0 00	KWP	0 00	0 05	AGC MAVG - calculated
1/28/2013 10:17	1/28/2013 10:17	0 00	KWP	0 00	0 02	AGC MAVG - calculated
1/28/2013 18:30	1/28/2013 18:30	0 00	AWE	0 00	0 30	AGC MAVG - calculated
1/28/2013 18:48	1/28/2013 18:48	0 00	KWP	0 00	0 02	AGC MAVG - calculated
1/28/2013 20:42	1/28/2013 20:42	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/29/2013 18:58	1/29/2013 18:58	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/30/2013 11:19	1/30/2013 11:19	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/30/2013 11:36	1/30/2013 11:36	0 00	KWPII	0 00	0 06	AGC MAVG - calculated
1/30/2013 13:10	1/30/2013 13:10	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/30/2013 15:14	1/30/2013 15:16	0 02	AWE	0 01	0 30	AGC MAVG - calculated
1/30/2013 15:18	1/30/2013 15:18	0 00	AWE	0 00	0 10	AGC MAVG - calculated
1/30/2013 18:16	1/30/2013 18:16	0 00	AWE	0 00	0 20	AGC MAVG - calculated
1/30/2013 18:48	1/30/2013 18:48	0 00	AWE	0 00	0 30	AGC MAVG - calculated
1/30/2013 19:52	1/30/2013 19:52	0 00	AWE	0 00	0 20	AGC MAVG - calculated
1/31/2013 5:28	1/31/2013 5:32	0 06	KWPII	0 04	13 78	AGC MAVG - calculated
1/31/2013 7:54	1/31/2013 7:54	0 00	KWPII	0 02	16 24	AGC MAVG - calculated
1/31/2013 8:03	1/31/2013 8:03	0 00	KWPII	0 01	16 40	AGC MAVG - calculated
1/31/2013 8:12	1/31/2013 8:20	0 08	KWPII	0 32	18 35	AGC MAVG - calculated
1/31/2013 8:49	1/31/2013 9:55	0 06	KWPII	0 25	17 94	AGC MAVG - calculated
1/31/2013 12:21	1/31/2013 12:24	0 03	KWPII	0 06	17 91	AGC MAVG - calculated
1/31/2013 12:28	1/31/2013 14:31	2 05	KWPII	25 21	20 24	AGC MAVG - calculated
1/31/2013 13:58	1/31/2013 14:23	0 27	AWE	0 51	9 10	AGC MAVG - calculated
1/31/2013 14:35	1/31/2013 18:10	1 35	KWPII	16 07	20 18	AGC MAVG - calculated
1/31/2013 16:12	1/31/2013 16:13	0 01	KWPII	0 01	15 75	AGC MAVG - calculated
1/31/2013 18:41	1/31/2013 18:45	0 04	KWPII	0 09	20 87	AGC MAVG - calculated

MECO - Maui Curtailment Report January 2013

Start Date/Time	End	Duration (hh:mm)	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for curtailment
1/31/2013 16:54	1/31/2013 17:02	0:08	KWPII	0.13	20.92	AGC MAVG - calculated
1/31/2013 17:51	1/31/2013 17:54	0:03	KWPII	0.04	20.89	AGC MAVG - calculated
1/31/2013 17:56	1/31/2013 17:56	0:00	KWPII	0.01	20.90	AGC MAVG - calculated
1/31/2013 17:58	1/31/2013 17:58	0:00	KWPII	0.00	20.92	AGC MAVG - calculated
1/31/2013 19:16	1/31/2013 19:49	0:33	KWPII	1.16	20.95	AGC MAVG - calculated
1/31/2013 19:56	1/31/2013 20:02	0:06	KWPII	0.15	20.96	AGC MAVG - calculated
1/31/2013 20:13	1/31/2013 20:15	0:02	KWPII	0.05	20.96	AGC MAVG - calculated
1/31/2013 20:24	1/31/2013 23:50	3:35	KWPII	38.53	20.96	AGC MAVG - calculated
1/31/2013 21:43	1/31/2013 21:43	0:00	AWE	0.00	0.10	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/31/2013 21:46	1/31/2013 22:03	0:17	AWE	0.36	1.90	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/31/2013 22:22	1/31/2013 23:04	0:42	AWE	0.36	1.20	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/31/2013 23:28	1/31/2013 23:28	0:00	AWE	0.00	0.10	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/31/2013 23:35	1/31/2013 23:40	0:05	AWE	0.01	0.20	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated
1/31/2013 23:50	1/31/2013 23:58	0:08	AWE	0.03	0.30	AGC MAVG - entered - maintain regulating reserves and AGC MAVG - calculated

Notes

- During curtailment events the set point for Kaneohe Wind Power ("KWPI") and Kaneohe Wind Power II ("KWPII") are adjusted to ensure maximum energy contribution.
- Curtailment for KWP, Auwahi, and KWP II is now controlled by MECO's Automatic Generation Control System ("AGC"). The AGC curtailment control automatically calculates the amount of Maximum Allowable Variable Generation ("MAVG") that MECO can accept into the Maui system, based on the system regulating reserve down requirement ("RRDR") and available regulating reserve down ("ARRD"). Thus, the AGC MAVG calculated is equal to MAVG less (RRDR less ARRD). Additionally, the AGC curtailment control allows the MECO operator to enter an AGC MAVG value. The AGC curtailment control will employ the lesser of the AGC MAVG - calculated and AGC MAVG - entered values in the control logic.
- The Estimated Curtailed MW and Peak MW Curtailed are formulated with information provided by the IPPs, and MECO does not make any representation as to its accuracy.
- The Makua Hydro curtailment period is usually controlled by the facility. MECO can usually accept Makua Hydro generation at the same time that SA is curtailed.
- Estimated Curtailed MW and Peak MW Curtailed data is not provided by the IPPs for Makua Hydro or AAAAA Rent-A-Space Maui LTD.

MECO-Lanai Curtailment Report January 2013

Start Date/Time	End Date/Time	Curtailment Event Duration	IPP Curtailed	MWH Curtailed	Peak MW Curtailed	Reason for Curtailment
1/26/13 14:00	1/26/13 14:14	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/26/13 15:00	1/26/13 15:13	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/26/13 16:00	1/26/13 16:13	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/26/13 17:00	1/26/13 17:14	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/27/13 9:00	1/27/13 9:14	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/27/13 10:00	1/27/13 10:13	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/27/13 11:00	1/27/13 11:12	0:12	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/27/13 12:00	1/27/13 12:13	0:13	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/27/13 13:00	1/27/13 13:14	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation
1/27/13 14:00	1/27/13 14:14	0:14	LSR-La Ola PV	No data	No data	Ramp rate mitigation

HELCO Curtailment Report January 2013				
Start Date/Time	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released	Reason for Curtailment
01/02/13 00:29	14.7 MW	01/02/13 05:09	5.9 MW	Tawhiri Group B curtailed for excess energy.
01/03/13 01:25	16.7 MW	01/03/13 04:58	3.5 MW	Tawhiri Group B curtailed for excess energy.
01/04/13 00:08	18.8 MW	01/04/13 04:46	13.8 MW	Tawhiri Group B curtailed for excess energy.
01/04/13 04:47	13.8 MW	01/06/13 18:43	13.9 MW	Tawhiri - High wind curtailment at Tawhiri request.
01/06/13 00:05	14.0 MW	01/06/13 06:27	13.7 MW	Tawhiri - curtailed for excess energy
01/06/13 01:07	7.5 MW	01/06/13 05:15	6.3 MW	HRD curtailed for excess energy
01/06/13 23:03	19.8 MW	01/07/13 05:43	16.0 MW	Tawhiri Group B curtailed for excess energy.
01/07/13 00:16	7.4 MW	01/07/13 05:13	6.2 MW	HRD curtailed for excess energy
01/07/13 23:17	18.8 MW	01/08/13 05:27	6.2 MW	Tawhiri Group B curtailed for excess energy.
01/08/13 00:46	3.3 MW	01/08/13 05:11	3.0 MW	HRD curtailed for excess energy
01/09/13 00:05	19.7 MW	01/09/13 05:36	14.6 MW	Tawhiri Group B curtailed for excess energy.
01/09/13 02:02	7.5 MW	01/09/13 05:06	7.0 MW	HRD curtailed for excess energy
01/09/13 23:20	19.5 MW	01/10/13 05:37	16.0 MW	Tawhiri Group B curtailed for excess energy.
01/10/13 00:43	5.1 MW	01/10/13 05:08	2.7 MW	HRD curtailed for excess energy
01/10/13 01:44	23.9 MW	01/10/13 04:42	22.1 MW	PGV curtailed - excess energy
01/11/13 00:07	10.2 MW	01/11/13 05:01	0.0 MW	Tawhiri Group B curtailed for excess energy.
01/13/13 00:54	16.9 MW	01/13/13 05:35	16.5 MW	Tawhiri Group B curtailed for excess energy.
01/14/13 00:29	18.1 MW	01/14/13 05:03	17.4 MW	Tawhiri Group B curtailed for excess energy.
01/16/13 10:19	0.0 MW	01/16/13 10:24	0.0 MW	Tawhiri curtailed - switching at Kealia Sw. Station
01/16/13 13:02	0.0 MW	01/16/13 13:09	0.0 MW	Tawhiri curtailed - switching at Kealia Sw. Station
01/23/13 01:18	14.0 MW	01/23/13 04:43	14.8 MW	Tawhiri Group B curtailed for excess energy.
01/24/13 01:05	19.3 MW	01/24/13 05:07	14.9 MW	Tawhiri Group B curtailed for excess energy.
01/25/13 02:06	19.6 MW	01/25/13 04:23	18.2 MW	Tawhiri Group B curtailed for excess energy.
01/26/13 01:33	19.8 MW	01/26/13 05:13	18.5 MW	Tawhiri Group B curtailed for excess energy.
01/27/13 01:24	19.2 MW	01/27/13 05:08	16.3 MW	Tawhiri Group B curtailed for excess energy.