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2014 MAR 27 P 4:00

PUBLIC UTILITIES
COMMISSION



March 27, 2014

The Honorable Chair and Members
of the Hawai'i Public Utilities Commission
Kekuanaoa Building, 1st Floor
465 South King Street
Honolulu, Hawai'i 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 February 2014 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.

Sincerely,

Daniel G. Brown
Manager
Regulatory Non-Rate Proceedings

Enclosure

cc: Service List

¹ Hawaiian Electric Company, Inc., Hawai'i 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 February 28, 2014):

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, Maui Electric (Maui Division) and Hawai'i Electric Light 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, Maui Electric (Maui Division) and Hawai'i Electric Light 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 February 28, 2014):

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

Hawaiian Electric did not have any contingency reserve activations for the month of February. Maui Electric and Hawai'i Electric Light 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 Hawai'i Electric Light did not have any under frequency load shed events for the month of February.

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 February. Hawai'i Electric Light currently does not have demand response program. Maui Electric has implemented the Fast Demand Response pilot program on a limited basis. Hawai'i Electric Light plans to use the findings of Maui Electric's pilot program to help in the evaluation and development of future demand response programs. Maui Electric executes a weekly testing protocol which measures customer participation. This program is not currently used in response to actual system events. 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 February 28, 2014):

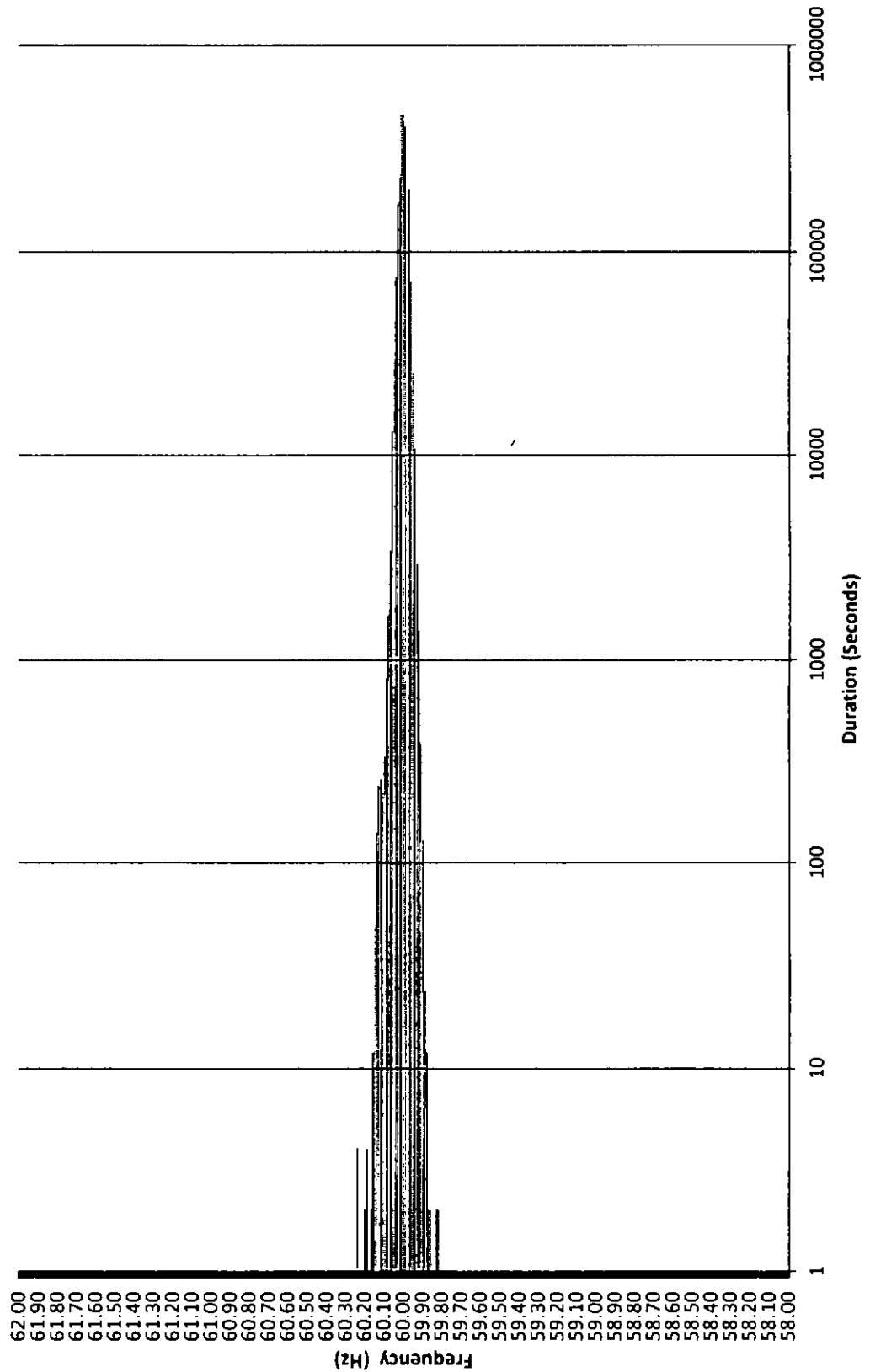
3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:

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

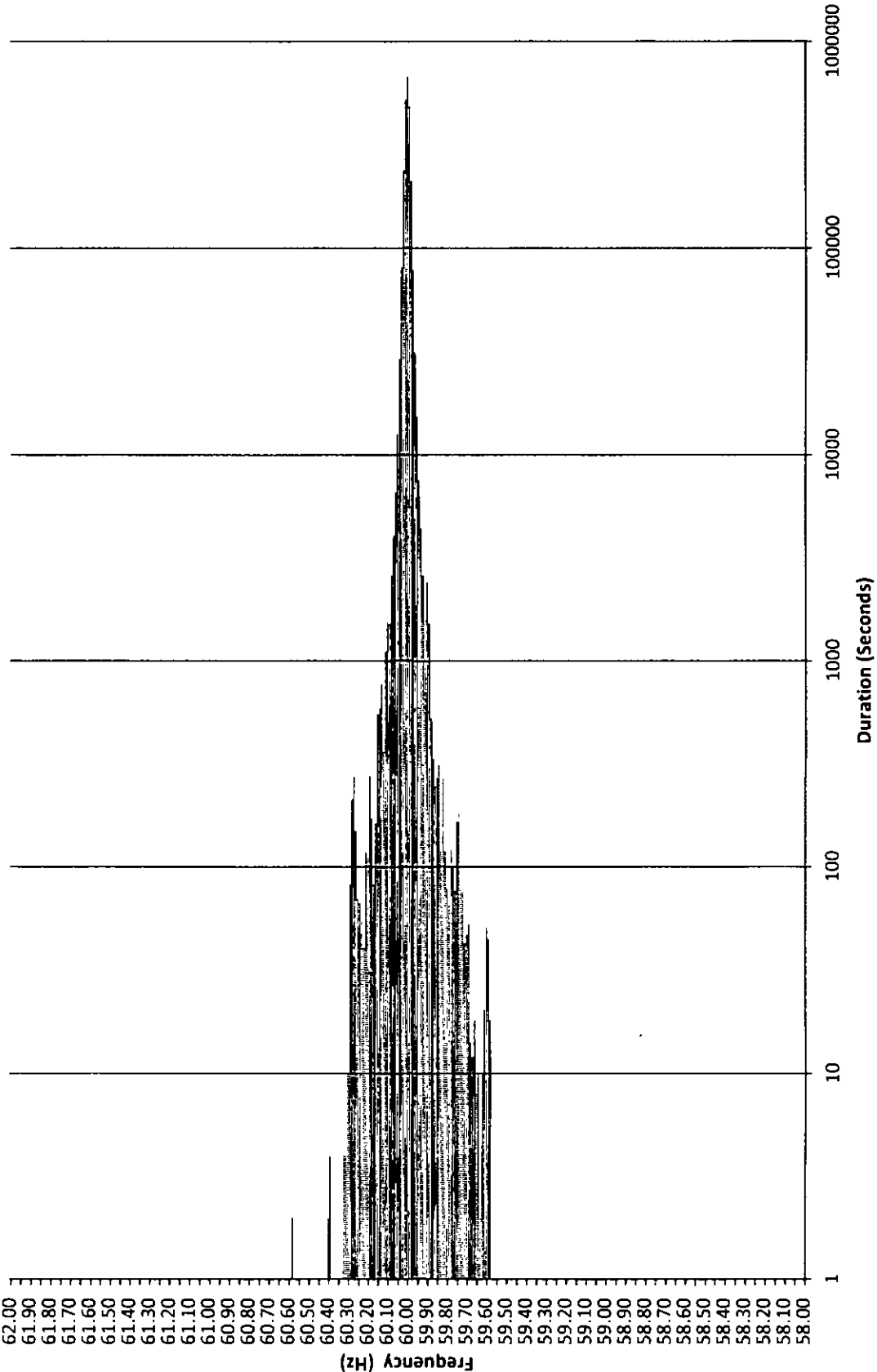
3b) Total MWh of non-dispatchable renewable resources curtailed for the month:

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. Hawai'i Electric Light is not providing an estimate of curtailed MWh, as this information is not provided to Hawai'i Electric Light 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.

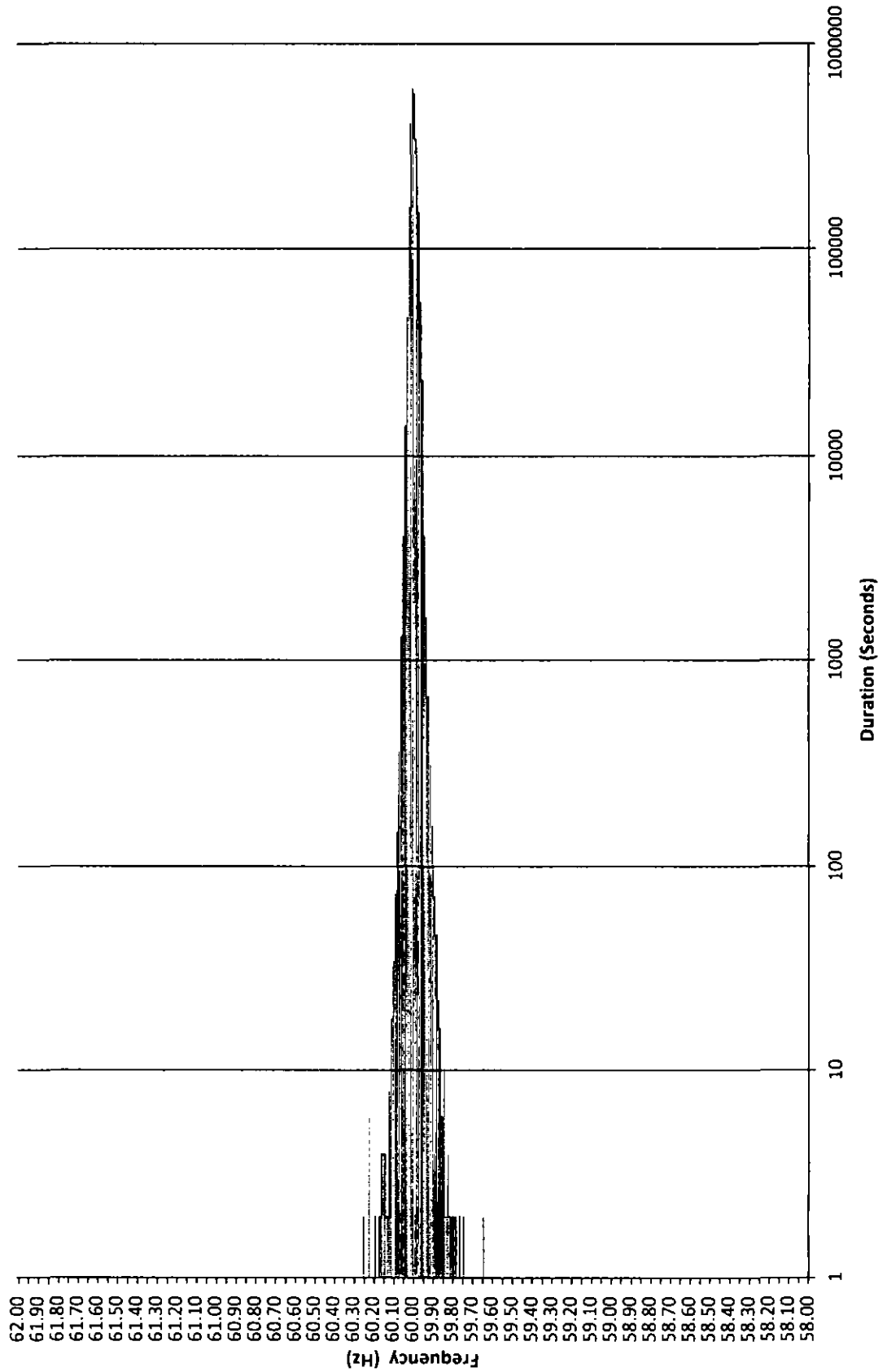
Frequency Distribution Plot - Hawaiian Electric February 2014



**Maui Electric Frequency Distribution Plot - Maui
February 2014**



Frequency Distribution Plot - Hawai'i Electric Light February 2014



Hawaiian Electric Frequency Excursion Statistics February 2014		
Data Rounded to the nearest	<59.95 Hz	>60.05 Hz
Number of Excursions	2019	2292
Maximum Duration (sec)	600	1058
Maximum Deviation (Hz)	59.819	60.238
Total Duration of Excursions (sec)	24280	30208

Maui Electric Frequency Excursion Statistics February 2014		
	<59.95 Hz	>60.05 Hz
Number of Excursions	1745	1303
Maximum Duration (sec)	2454	2788
Maximum Deviation (Hz)	59.5751	60.5767
Total Duration of Excursions (sec)	29828	26542

Hawai'i Electric Light Frequency Excursion Statistics February 2014		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3129	768
Maximum Duration (sec)	152	42
Maximum Deviation (Hz)	59.642	60.253
Total Duration of Excursions (sec)	18424	3474

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Hawaiian Electric Curtailment Report February 2014

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
02/01/14 05:38	0.0	3.00	02/01/14 06:59	0	*	KLS2	Structure replacement on Kahe-CEIP 1 138kV line
02/01/14 15:20	0.0	0.00	02/01/14 16:10	0	*	KLS2	Structure replacement on Kahe-CEIP 1 138kV line
02/08/14 06:19	0.0	6.00	02/08/14 07:18	0	*	KLS2	Structure replacement on Kahe-CEIP 2 138kV line
02/08/14 16:55	0.0	3.60	02/08/14 18:22	0	*	KLS2	Structure replacement on Kahe-CEIP 2 138kV line
02/27/14 07:53	0.0	9.80	02/27/14 08:41	0	*	KWF	Pole replacement on Koolau-Kahuku 46kV line.
02/27/14 07:53	0.0	8.20	02/27/14 08:42	0	*	Maka:	Pole replacement on Koolau-Kahuku 46kV line.
02/27/14 19:43	0.0	0.40	02/27/14 20:24	0	*	KWF	Pole replacement on Koolau-Kahuku 46kV line.
02/27/14 19:44	0.0	0.10	02/27/14 20:24	0	*	Maka:	Pole replacement on Koolau-Kahuku 46kV line.

KLS2 = Kalaeloa Solar 2 PV Farm
KREP = Kalaeloa Renewable Energy Park
KWF = Kahuku Wind Farm
Maka: = Kawaioloa Maka Wind Farm
Mauka = Kawaioloa Mauka Wind Farm

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



Lana's Curtailment Report February 2014

Start Date/Time	Stop Date/Time	Duration (h mm)	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
2/26/2014 8:48	2/26/2014 9:58	1:11	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:02	2/26/2014 10:02	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:08	2/26/2014 10:10	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:12	2/26/2014 10:13	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:28	2/26/2014 10:28	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:28	2/26/2014 10:29	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:31	2/26/2014 10:45	0:15	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:47	2/26/2014 10:47	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:51	2/26/2014 10:53	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 10:57	2/26/2014 10:58	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:00	2/26/2014 11:01	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:07	2/26/2014 11:07	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:08	2/26/2014 11:28	0:18	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:31	2/26/2014 11:35	0:05	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:41	2/26/2014 11:43	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:50	2/26/2014 11:50	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:54	2/26/2014 11:56	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 11:59	2/26/2014 11:59	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:02	2/26/2014 12:02	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:04	2/26/2014 12:06	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:10	2/26/2014 12:10	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:15	2/26/2014 12:19	0:05	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:22	2/26/2014 12:23	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:25	2/26/2014 12:27	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:29	2/26/2014 12:31	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:35	2/26/2014 12:35	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:38	2/26/2014 12:38	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 12:41	2/26/2014 13:01	0:21	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 13:03	2/26/2014 13:13	0:11	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 13:18	2/26/2014 13:22	0:05	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 13:25	2/26/2014 13:39	0:15	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 13:41	2/26/2014 14:07	0:27	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 14:09	2/26/2014 14:10	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 14:24	2/26/2014 14:24	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 16:07	2/26/2014 16:13	0:07	LSR	Data is not available	Data is not available	Testing
2/26/2014 17:03	2/26/2014 17:05	0:03	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:07	2/26/2014 17:07	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:11	2/26/2014 17:12	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:15	2/26/2014 17:18	0:02	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:18	2/26/2014 17:30	0:13	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:32	2/26/2014 17:35	0:04	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:37	2/26/2014 17:51	0:15	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:55	2/26/2014 17:55	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/26/2014 17:57	2/26/2014 17:57	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/27/2014 7:58	2/27/2014 7:58	0:01	LSR	Data is not available	Data is not available	Good Engineering and Operating
2/27/2014 8:00	2/27/2014 9:06	1:07	LSR	Data is not available	Data is not available	Good Engineering and Operating

Notes

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

LSR possible output data is not available. Therefore, Maui Electric assumes LSR is curtailed if the LSR curtailment set point is less than 1,200 kW and LSR's output is within 50 kW of the curtailment set point.

Hawai'i Electric Light Company Curtailment Report February 2014

Start Date/Time	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released	Reason for Curtailment
02/12/14 09:18	18.5 MW	02/12/14 09:50	10.1 MW	Tawhiri curtailed - switching at 9600 line
02/12/14 14:07	7.9 MW	02/12/14 14:28	7.9 MW	Tawhiri curtailed - switching at 9600 line
02/22/14 19:31	0.0 MW	02/23/14 02:58	0.0 MW	Low wind curtailment at Tawhiri's request.
02/23/14 17:59	1.5 MW	02/24/14 06:34	0.0 MW	Low wind curtailment at Tawhiri's request.
02/24/14 18:33	3.1 MW	02/25/14 06:47	0.0 MW	Low wind curtailment at Tawhiri's request.
02/25/14 21:05	0.0 MW	02/26/14 06:28	0.0 MW	Low wind curtailment at Tawhiri's request.