



January 23, 2018

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

PUBLIC UTILITIES
COMMISSION

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 December 2017 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 Companies are 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@hawaiianelectric.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

c: 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".

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 December 31, 2017):

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 December 31, 2017):

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

Hawaiian Electric's contingency reserve activations are provided in Attachment 3. Maui Electric and Hawai'i Electric Light 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:

Hawaiian Electric, Maui Electric, and Hawai'i Electric Light did not have any under frequency load shed activations for the month of December. Therefore, Attachment 4 is not being provided for this reporting period.

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. Hawai'i Electric Light currently does not have a 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.

- (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 December 31, 2017):

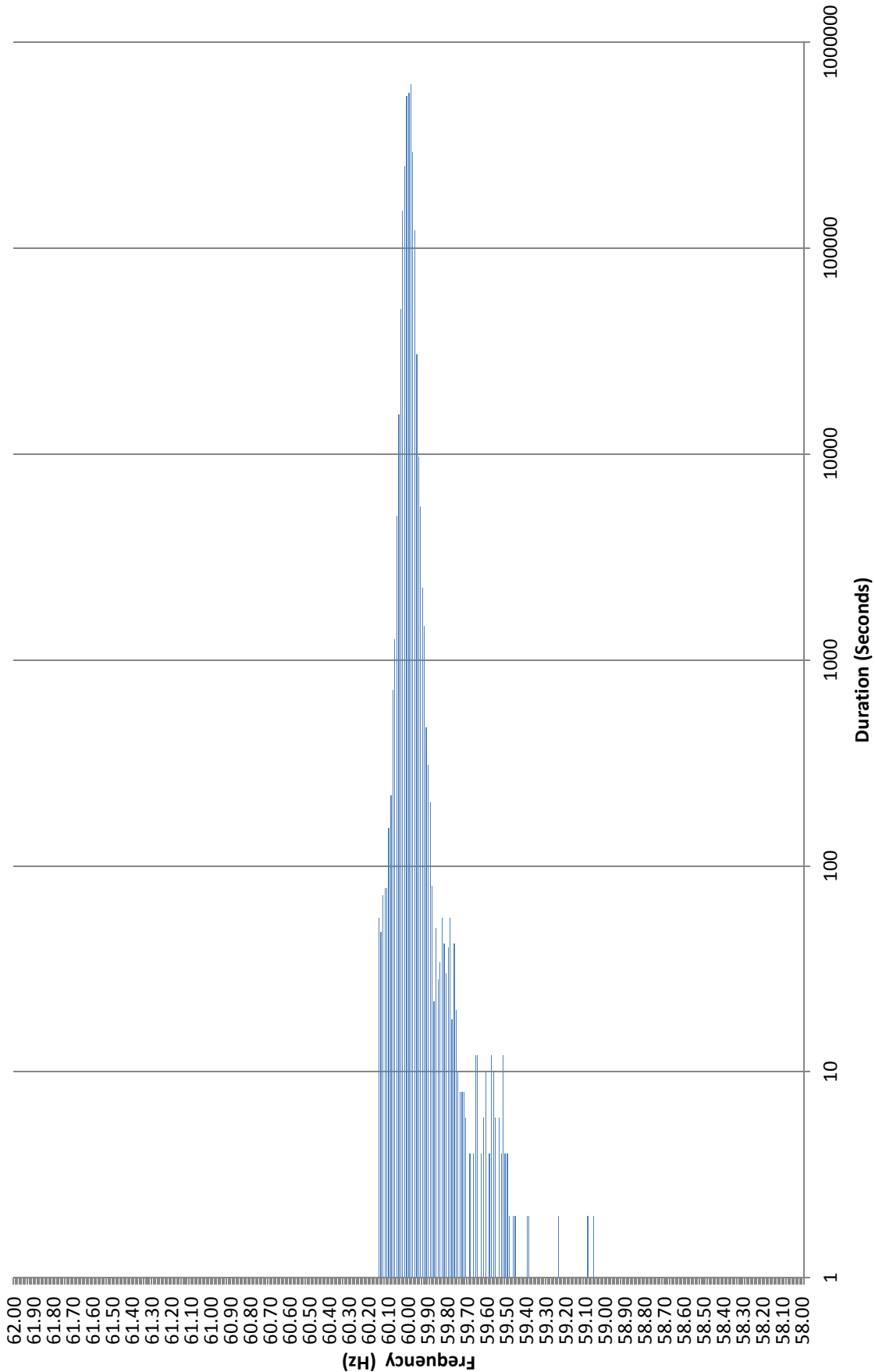
3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:

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

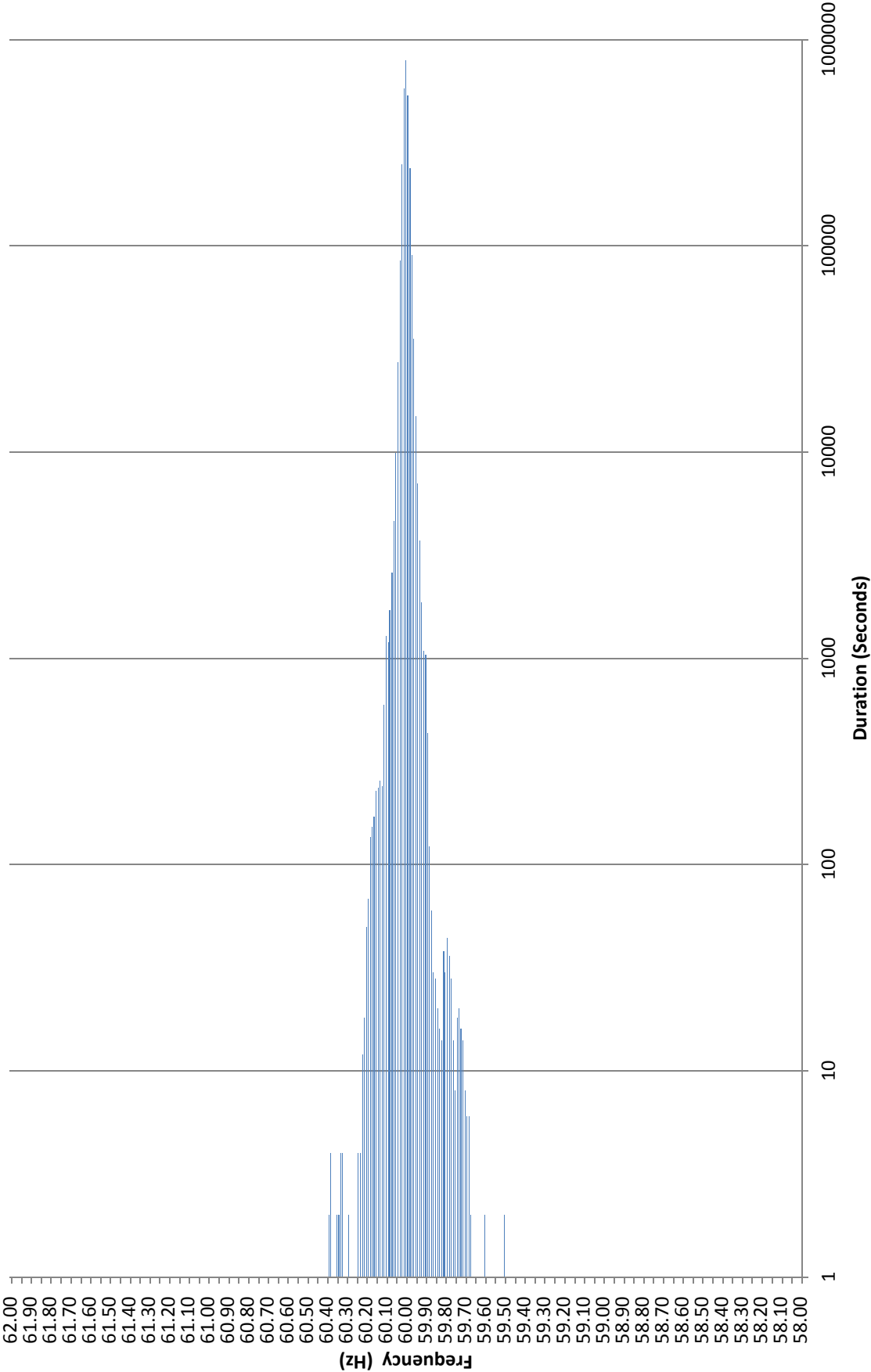
3b) Total MWh of non-dispatchable renewable resources curtailed for the month:

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. 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.

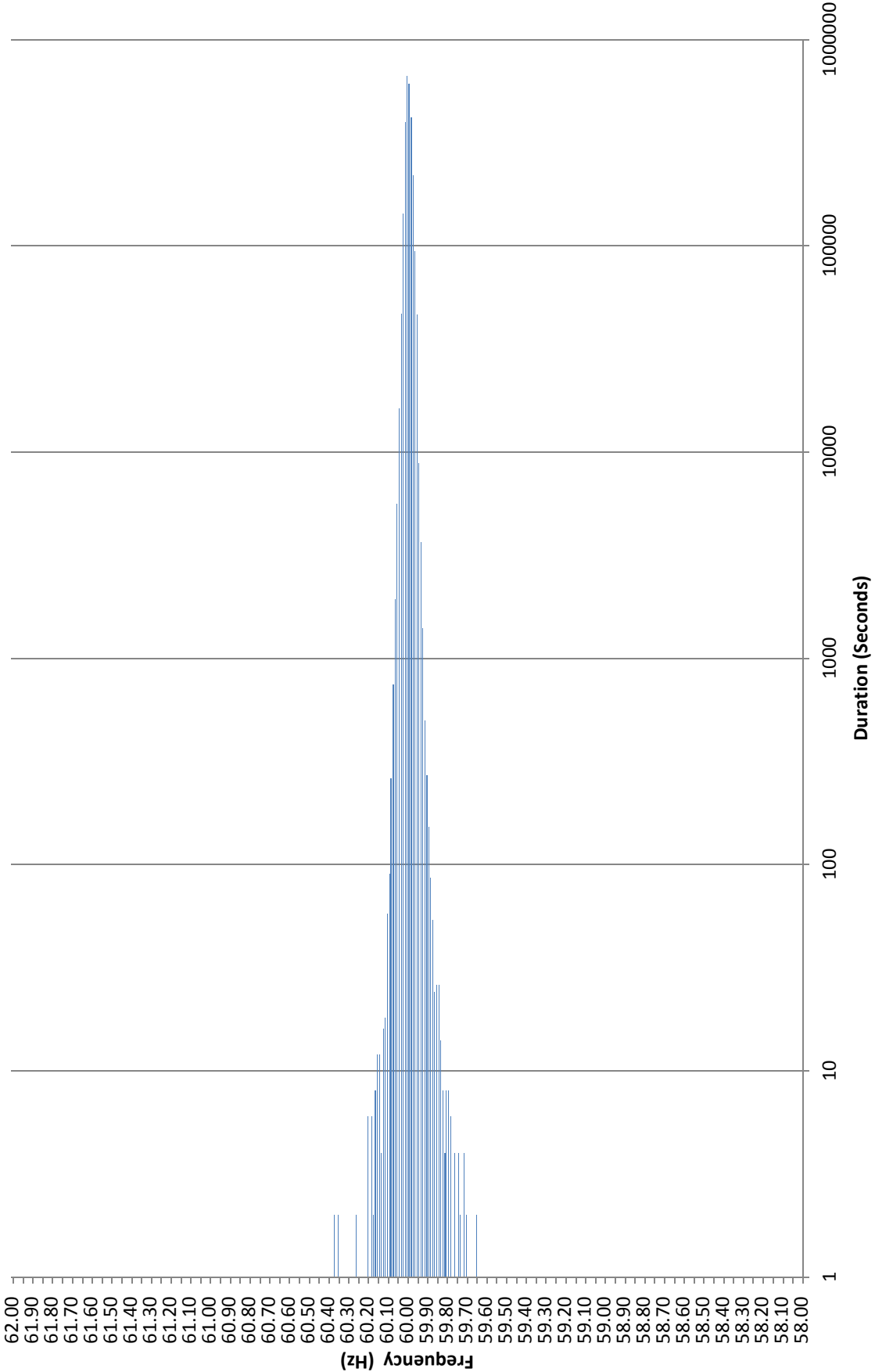
Frequency Distribution Plot - Hawaiian Electric December 2017



Frequency Distribution Plot - Maui Electric December 2017



**Frequency Distribution Plot - Hawai'i Electric Light
December 2017**



Hawaiian Electric Frequency Excursion Statistics December 2017		
Data Rounded to the nearest	<59.95 Hz	>60.05 Hz
Number of Excursions	867	1626
Maximum Duration (sec)	454	350
Maximum Deviation (Hz)	59.063	60.154
Total Duration of Excursions (sec)	14320	12430

Maui Electric Frequency Excursion Statistics December 2017		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3016	1689
Maximum Duration (sec)	500	722
Maximum Deviation (Hz)	59.496	60.394
Total Duration of Excursions (sec)	21808	17300

Hawai'i Electric Light Frequency Excursion Statistics December 2017		
	<59.95 Hz	>60.05 Hz
Number of Excursions	6100	1156
Maximum Duration (sec)	156	52
Maximum Deviation (Hz)	59.652	60.375
Total Duration of Excursions (sec)	37920	5258

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Hawaiian Electric Curtailment Report December 2017

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
12/03/17 09:27	0.0	30.00	12/03/17 10:01	0	*	KWF	System constraints
12/03/17 09:29	0.0	13.50	12/03/17 10:03	0	*	Makai	System constraints
12/05/17 05:07	0.0	0.00	12/05/17 06:39	0	*	KREP	System constraints
12/05/17 05:09	0.0	0.00	12/05/17 17:36	0	*	KLS2	System constraints
12/05/17 15:20	0.0	2.70	12/05/17 17:35	0	*	KREP	System constraints
12/06/17 05:34	0.0	0.00	12/06/17 18:08	0	*	Aloha1	System constraints
12/06/17 05:37	0.0	0.00	12/06/17 05:45	0	*	Waianae	System constraints
12/06/17 16:44	0.0	8.80	12/06/17 18:05	0	*	Waianae	System constraints
12/09/17 05:27	0.0	0.00	12/09/17 16:20	0	*	Aloha1	System constraints
12/09/17 05:30	0.0	0.00	12/09/17 06:18	0	*	Waianae	System constraints
12/09/17 15:32	0.0	25.00	12/09/17 16:17	0	*	Waianae	System constraints
12/12/17 07:49	0.0	0.00	12/12/17 08:35	0	*	KLS2	System constraints
12/14/17 06:36	0.0	0.00	12/14/17 07:00	0	*	Waianae	System constraints
12/14/17 06:38	0.0	0.00	12/14/17 06:58	0	*	Aloha1	System constraints
12/14/17 14:20	0.0	14.90	12/14/17 16:24	0	*	Waianae	System constraints
12/14/17 14:22	0.0	0.00	12/14/17 16:22	0	*	Aloha1	System constraints
12/15/17 06:27	0.0	0.00	12/15/17 07:16	0	*	Waianae	System constraints
12/15/17 06:31	0.0	0.00	12/15/17 07:14	0	*	Aloha1	System constraints
12/15/17 15:00	0.0	8.70	12/15/17 16:01	0	*	Waianae	System constraints
12/15/17 15:02	0.0	4.00	12/15/17 16:00	0	*	Aloha1	System constraints
12/16/17 06:23	0.0	0.00	12/16/17 06:46	0	*	Waianae	System constraints
12/16/17 06:20	0.0	0.00	12/16/17 06:44	0	*	Aloha1	System constraints
12/16/17 12:52	0.0	22.00	12/16/17 13:50	0	*	Waianae	System constraints
12/16/17 12:53	0.0	3.00	12/16/17 13:48	0	*	Aloha1	System constraints
12/21/17 07:17	0.0	7.70	12/21/17 07:43	0	*	KWF	System constraints
12/21/17 07:20	0.0	4.60	12/21/17 07:44	0	*	Makai	System constraints
12/21/17 12:41	0.0	2.90	12/21/17 13:19	0	*	KWF	System constraints
12/21/17 12:42	0.0	0.00	12/21/17 13:20	0	*	Makai	System constraints
12/27/17 15:25	0.0	9.20	12/27/17 15:57	0	*	Waianae	System constraints

Aloha1 = Aloha Solar 1 PV Farm

KLS2 = Kalaeloa Solar 2 PV Farm

KREP = Kalaeloa Renewable Energy Park

KWF = Kahuku Wind Farm

Makai = Kawaiiloa Makai Wind Farm

Mauka = Kawaiiloa Mauka Wind Farm

North = Waihonu North PV Farm

South = Waihonu South PV Farm

Waianae = Waianae Solar PV Farm

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

* Data has not been provided by IPP.



Maui Curtailment Report

December 2017

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
12/1/2017 0:00	0:48	KWPPI	5.403	18.589	Oversupply
12/1/2017 0:49	4:17	KWPPI	56.024	19.211	Oversupply
12/1/2017 2:13	2:35	AWE	15.763	20.100	Oversupply
12/1/2017 4:49	0:06	AWE	0.080	19.300	Oversupply
12/1/2017 4:57	0:01	AWE	0.000	18.900	Oversupply
12/1/2017 5:00	0:01	AWE	0.002	19.500	Oversupply
12/1/2017 5:07	0:57	KWPPI	9.299	19.211	Oversupply
12/1/2017 6:05	0:01	KWPPI	0.000	19.211	Oversupply
12/1/2017 9:43	2:59	KWPPI	48.066	19.211	System constraint
12/1/2017 10:36	0:05	AWE	0.108	18.900	System constraint
12/1/2017 10:42	0:08	AWE	0.147	19.300	System constraint
12/1/2017 10:53	0:01	AWE	0.007	18.900	System constraint
12/1/2017 10:55	0:02	AWE	0.026	17.800	System constraint
12/1/2017 11:01	0:03	AWE	0.040	17.600	System constraint
12/1/2017 11:06	0:16	AWE	1.022	19.300	System constraint
12/1/2017 11:24	0:05	AWE	0.124	17.100	System constraint
12/1/2017 11:30	0:04	AWE	0.105	18.300	System constraint
12/1/2017 11:35	0:50	AWE	3.264	19.700	System constraint
12/1/2017 12:30	0:01	AWE	0.008	19.200	System constraint
12/1/2017 12:32	0:05	AWE	0.076	20.100	System constraint
12/1/2017 12:44	2:11	KWPPI	18.742	19.211	System constraint
12/2/2017 2:36	1:14	KWPPI	12.729	19.211	Oversupply
12/2/2017 3:30	0:02	AWE	0.000	18.900	Oversupply
12/2/2017 3:36	0:10	AWE	0.181	19.800	Oversupply
12/2/2017 3:52	0:52	KWPPI	5.674	17.714	Oversupply
12/2/2017 8:03	0:01	AWE	0.002	0.100	System constraint
12/2/2017 10:50	0:04	KWPPI	0.107	19.211	System constraint
12/2/2017 10:56	1:55	KWPPI	13.409	19.211	System constraint
12/2/2017 16:18	2:42	KWP	12.498	19.672	Facility requested
12/3/2017 1:33	3:33	KWPPI	14.481	19.211	Oversupply
12/3/2017 8:56	0:01	AWE	0.010	12.200	Oversupply
12/3/2017 8:58	0:01	KWPPI	0.011	19.211	Oversupply
12/3/2017 9:02	0:09	KWPPI	0.370	19.211	Oversupply
12/3/2017 9:44	0:07	KWPPI	0.197	19.211	Oversupply
12/3/2017 9:52	4:15	KWPPI	76.871	19.211	Oversupply
12/3/2017 10:16	3:30	AWE	30.989	20.700	Oversupply
12/3/2017 13:48	0:13	AWE	0.468	14.500	Oversupply
12/3/2017 14:09	1:03	KWPPI	11.214	19.211	Oversupply
12/3/2017 15:13	0:01	KWPPI	0.005	19.204	Oversupply
12/3/2017 23:25	0:01	KWPPI	0.003	17.662	Oversupply
12/3/2017 23:41	0:02	KWPPI	0.005	17.558	Oversupply
12/4/2017 0:02	0:01	KWPPI	0.008	17.680	Oversupply
12/4/2017 0:11	0:11	KWPPI	0.373	17.671	Oversupply
12/4/2017 0:24	0:02	KWPPI	0.030	17.710	Oversupply
12/4/2017 0:27	0:01	KWPPI	0.002	17.665	Oversupply
12/4/2017 0:30	1:34	KWPPI	5.096	17.706	Oversupply
12/4/2017 2:05	0:22	KWPPI	1.611	17.266	Oversupply
12/4/2017 2:25	0:01	AWE	0.003	0.200	Oversupply
12/4/2017 2:29	0:26	KWPPI	1.692	17.664	Oversupply
12/4/2017 2:58	0:01	KWPPI	0.012	15.318	Oversupply
12/4/2017 3:18	0:11	KWPPI	0.628	14.006	Oversupply
12/4/2017 3:34	0:08	KWPPI	0.126	8.213	Oversupply
12/4/2017 3:53	0:11	KWPPI	0.586	11.138	Oversupply
12/4/2017 4:07	0:28	KWPPI	0.905	13.752	Oversupply
12/4/2017 4:40	0:14	KWPPI	0.407	15.687	Oversupply
12/4/2017 9:52	0:49	KWPPI	6.444	16.661	System constraint
12/4/2017 10:13	0:04	AWE	0.051	15.100	System constraint
12/4/2017 10:26	0:01	AWE	0.005	12.200	System constraint
12/4/2017 10:28	0:02	AWE	0.033	14.200	System constraint
12/4/2017 10:31	0:01	AWE	0.007	14.200	System constraint
12/4/2017 10:43	0:39	KWPPI	4.904	16.197	System constraint
12/4/2017 11:25	0:59	KWPPI	5.403	15.001	System constraint
12/4/2017 12:09	0:02	AWE	0.028	17.900	System constraint
12/4/2017 12:14	0:02	AWE	0.022	17.400	System constraint
12/4/2017 12:18	0:02	AWE	0.003	16.400	System constraint
12/4/2017 12:26	0:41	KWPPI	4.305	11.710	System constraint
12/4/2017 12:47	0:01	AWE	0.005	12.700	System constraint
12/4/2017 12:52	0:03	AWE	0.055	10.800	System constraint
12/4/2017 12:57	0:06	AWE	0.141	12.500	System constraint
12/4/2017 13:10	0:20	KWPPI	1.656	8.306	System constraint
12/4/2017 13:16	0:09	AWE	0.311	12.100	System constraint
12/4/2017 13:32	0:15	KWPPI	1.070	8.295	System constraint
12/4/2017 13:35	0:03	AWE	0.013	9.900	System constraint
12/4/2017 13:42	0:01	AWE	0.004	10.700	System constraint
12/4/2017 13:48	0:04	AWE	0.053	11.200	System constraint
12/4/2017 13:48	0:16	KWPPI	1.425	7.820	System constraint
12/4/2017 13:53	0:06	AWE	0.080	13.000	System constraint
12/4/2017 14:06	0:04	KWPPI	0.140	7.080	System constraint
12/4/2017 14:11	0:02	KWPPI	0.026	7.620	System constraint
12/5/2017 1:49	0:31	KWPPI	1.076	17.782	Oversupply
12/5/2017 2:22	0:01	KWPPI	0.009	16.154	Oversupply
12/5/2017 2:39	0:47	KWPPI	2.846	18.850	System constraint
12/5/2017 9:36	0:02	KWPPI	0.043	19.211	System constraint



Maui Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
12/5/2017 9:40	0:01	KWP/II	0.004	17.714	System constraint
12/5/2017 9:52	0:01	KWP/II	0.011	19.211	System constraint
12/5/2017 9:56	0:29	KWP/II	1.780	19.211	System constraint
12/5/2017 10:32	0:01	KWP/II	0.006	18.792	System constraint
12/5/2017 10:34	1:11	KWP/II	17.285	19.211	System constraint
12/5/2017 11:20	0:05	AWE	0.102	2.900	System constraint
12/5/2017 11:21:00	0:01	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:21:00	0:01	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:23:00	0:02	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:23:00	0:02	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:24	0:01	KWP	0.000	19.672	System constraint
12/5/2017 11:26:00	0:03	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:26:00	0:03	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:26	0:14	AWE	0.257	1.900	System constraint
12/5/2017 11:30:00	0:01	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:30:00	0:01	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:32:00	0:02	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:32:00	0:02	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:35:00	0:02	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:35:00	0:02	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:38:00	0:01	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:38:00	0:01	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:46	2:17	KWP/II	40.120	19.211	System constraint
12/5/2017 11:49	0:01	AWE	0.006	3.000	System constraint
12/5/2017 11:51	0:03	AWE	0.008	2.200	System constraint
12/5/2017 11:54:00	0:02	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:54:00	0:02	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:55	0:06	AWE	0.073	1.200	System constraint
12/5/2017 11:57:00	0:01	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:57:00	0:01	ESB	Data is not available	Data is not available	System constraint
12/5/2017 11:59:00	0:01	5A	Data is not available	Data is not available	System constraint
12/5/2017 11:59:00	0:01	ESB	Data is not available	Data is not available	System constraint
12/5/2017 12:05:00	0:03	5A	Data is not available	Data is not available	Oversupply
12/5/2017 12:05:00	0:03	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 12:10:00	0:04	5A	Data is not available	Data is not available	Oversupply
12/5/2017 12:10:00	0:04	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 12:13	0:02	AWE	0.027	0.800	Oversupply
12/5/2017 12:18:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 12:18:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 12:18	0:02	AWE	0.012	0.600	Oversupply
12/5/2017 12:22	0:02	AWE	0.019	2.000	Oversupply
12/5/2017 12:27	0:01	AWE	0.006	2.100	Oversupply
12/5/2017 12:29	0:07	AWE	0.085	1.600	Oversupply
12/5/2017 12:37	0:02	AWE	0.012	1.200	Oversupply
12/5/2017 12:41	0:01	AWE	0.003	1.700	Oversupply
12/5/2017 12:42:00	0:04	5A	Data is not available	Data is not available	Oversupply
12/5/2017 12:42:00	0:04	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 12:43	0:04	AWE	0.055	1.100	Oversupply
12/5/2017 12:47:00	0:05	5A	Data is not available	Data is not available	Oversupply
12/5/2017 12:47:00	0:05	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 12:48	0:03	AWE	0.038	1.000	Oversupply
12/5/2017 12:52	0:05	AWE	0.020	0.600	Oversupply
12/5/2017 12:53:00	0:08	5A	Data is not available	Data is not available	Oversupply
12/5/2017 12:53:00	0:08	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 12:59	0:02	AWE	0.011	0.400	Oversupply
12/5/2017 13:02:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:02:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:04:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:04:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:06:00	0:03	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:06:00	0:03	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:08	0:01	AWE	0.002	0.100	Oversupply
12/5/2017 13:14:00	0:02	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:14:00	0:02	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:19:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:19:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:22	0:15	AWE	0.139	0.900	Oversupply
12/5/2017 13:23:00	0:04	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:23:00	0:04	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:28:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:28:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:31:00	0:03	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:31:00	0:03	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:35:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:35:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:39:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:39:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:40	0:03	AWE	0.024	1.400	Oversupply
12/5/2017 13:42:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:42:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/5/2017 13:44	0:05	AWE	0.054	1.000	Oversupply
12/5/2017 13:47:00	0:02	5A	Data is not available	Data is not available	Oversupply
12/5/2017 13:47:00	0:02	ESB	Data is not available	Data is not available	Oversupply



Maui Curtailment Report

December 2017

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
12/5/2017 13:50	0:01	AWE	0.018	1.200	Oversupply
12/5/2017 13:52	0:01	AWE	0.019	1.400	Oversupply
12/5/2017 13:54	0:05	AWE	0.048	2.600	Oversupply
12/5/2017 14:05	0:29	KWPPII	4.362	19.211	Oversupply
12/5/2017 14:08	0:26	KWP	1.988	19.672	Facility requested
12/5/2017 14:39	0:03	KWPPII	0.073	19.202	Oversupply
12/5/2017 14:59	0:01	KWPPII	0.003	19.201	System constraint
12/5/2017 15:03	0:01	KWPPII	0.006	19.210	System constraint
12/6/2017 1:01	0:10	KWPPII	0.154	19.124	Oversupply
12/6/2017 1:12	2:57	KWPPII	18.462	19.211	Oversupply
12/6/2017 9:11	0:04	KWPPII	0.133	15.303	Oversupply
12/6/2017 10:39	0:01	AWE	0.002	0.100	System constraint
12/6/2017 10:51	0:01	AWE	0.002	0.100	System constraint
12/6/2017 11:01	0:01	AWE	0.002	0.100	System constraint
12/6/2017 11:44	0:44	KWPPII	2.411	6.839	Oversupply
12/8/2017 9:21	0:01	AWE	0.002	0.100	System constraint
12/8/2017 9:27	0:01	AWE	0.002	0.100	System constraint
12/8/2017 23:46	0:01	AWE	0.002	0.100	Oversupply
12/11/2017 10:15	0:01	AWE	0.002	0.100	Oversupply
12/12/2017 4:45	0:01	AWE	0.002	0.100	Oversupply
12/12/2017 15:40	0:03	AWE	0.041	19.200	Facility requested
12/13/2017 10:53	0:01	KWPPII	0.003	17.141	Oversupply
12/13/2017 10:56	0:01	KWPPII	0.000	17.139	Oversupply
12/13/2017 11:45	0:01	KWPPII	0.003	17.250	Oversupply
12/13/2017 11:47	0:06	KWPPII	0.139	17.238	Oversupply
12/13/2017 11:55	0:06	KWPPII	0.119	17.740	Oversupply
12/13/2017 12:23	0:01	KWPPII	0.012	18.106	Oversupply
12/13/2017 12:26	1:16	KWPPII	7.631	18.668	Oversupply
12/13/2017 13:43	0:01	AWE	0.002	0.100	Oversupply
12/13/2017 13:43	0:09	KWPPII	0.167	18.617	Oversupply
12/13/2017 14:02	0:01	KWPPII	0.002	18.559	Oversupply
12/13/2017 23:29	0:03	KWPPII	0.011	18.739	Oversupply
12/13/2017 23:42	5:58	KWPPII	55.397	19.211	Oversupply
12/14/2017 8:59	0:03	KWPPII	0.016	19.210	Oversupply
12/14/2017 9:03	3:31	KWPPII	43.689	19.211	Oversupply
12/14/2017 10:18	0:01	AWE	0.002	0.100	Oversupply
12/14/2017 11:38:00	0:05	5A	Data is not available	Data is not available	Oversupply
12/14/2017 11:38:00	0:05	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 11:43	0:01	AWE	0.005	0.300	Oversupply
12/14/2017 11:45:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/14/2017 11:45:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 11:46	0:01	AWE	0.005	0.300	Oversupply
12/14/2017 11:47:00	0:03	5A	Data is not available	Data is not available	Oversupply
12/14/2017 11:47:00	0:03	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 11:48	0:01	AWE	0.002	0.100	Oversupply
12/14/2017 11:50	0:01	AWE	0.002	0.200	Oversupply
12/14/2017 12:00:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/14/2017 12:00:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 12:01	0:08	AWE	0.046	0.900	Oversupply
12/14/2017 12:02:00	0:05	5A	Data is not available	Data is not available	Oversupply
12/14/2017 12:02:00	0:05	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 12:11:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/14/2017 12:11:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 12:12	0:01	AWE	0.005	0.300	Oversupply
12/14/2017 12:13:00	0:02	5A	Data is not available	Data is not available	Oversupply
12/14/2017 12:13:00	0:02	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 12:14	0:01	AWE	0.005	0.300	Oversupply
12/14/2017 12:16:00	0:01	5A	Data is not available	Data is not available	Oversupply
12/14/2017 12:16:00	0:01	ESB	Data is not available	Data is not available	Oversupply
12/14/2017 12:16	0:01	AWE	0.005	0.500	Oversupply
12/14/2017 12:23	0:01	AWE	0.003	0.500	Oversupply
12/14/2017 12:25	0:02	AWE	0.005	0.900	Oversupply
12/14/2017 12:35	0:42	KWPPII	3.898	19.211	Oversupply
12/14/2017 13:54	1:27	KWPPII	14.692	19.211	Oversupply
12/14/2017 15:22	0:02	KWPPII	0.017	19.211	Oversupply
12/14/2017 16:21	0:01	AWE	0.002	0.100	Oversupply
12/14/2017 16:26	0:01	AWE	0.002	0.100	Oversupply
12/14/2017 22:15	0:55	KWPPII	2.457	19.211	Oversupply
12/14/2017 23:12	0:02	KWPPII	0.010	19.211	Oversupply
12/14/2017 23:15	0:01	KWPPII	0.002	19.211	Oversupply
12/14/2017 23:44	5:46	KWPPII	46.576	19.211	Oversupply
12/15/2017 9:51	0:05	KWPPII	0.095	17.820	Oversupply
12/15/2017 10:03	0:07	KWPPII	0.078	17.248	Oversupply
12/15/2017 10:13	0:01	KWPPII	0.007	17.133	Oversupply
12/15/2017 10:56	0:02	KWPPII	0.033	18.293	Oversupply
12/15/2017 10:59	0:34	KWPPII	3.025	18.653	Oversupply
12/15/2017 11:41	0:02	KWPPII	0.007	10.231	Oversupply
12/15/2017 11:53	0:06	KWPPII	0.063	9.574	Oversupply
12/15/2017 12:10	0:01	KWPPII	0.009	9.550	Oversupply
12/15/2017 12:21	0:01	KWPPII	0.002	9.400	Oversupply
12/15/2017 12:25	0:03	KWPPII	0.023	6.783	Oversupply
12/15/2017 12:29	0:04	KWPPII	0.057	7.693	Oversupply
12/16/2017 11:32	0:13	KWPPII	0.300	4.648	Oversupply



Maui Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for Curtailment
12/16/2017 11:48	0:01	KWP	0.003	3.909	Oversupply
12/16/2017 12:28	0:03	KWP	0.115	12.532	Oversupply
12/21/2017 3:10	0:03	KWP	0.126	13.379	Oversupply
12/21/2017 3:17	1:30	KWP	11.448	17.540	Oversupply
12/21/2017 10:17	0:15	KWP	0.906	19.117	Oversupply
12/21/2017 11:57	0:20	KWP	1.096	18.163	Oversupply
12/21/2017 12:21	0:20	KWP	0.863	19.095	Oversupply
12/21/2017 12:42	0:01	KWP	0.011	18.537	Oversupply
12/21/2017 13:03	0:01	AWE	0.002	0.100	Oversupply
12/22/2017 16:16	0:01	AWE	0.002	0.100	Oversupply
12/23/2017 2:17	2:50	KWP	15.155	19.211	Oversupply
12/25/2017 9:36	0:03	KWP	0.051	7.713	Oversupply
12/26/2017 2:48	0:01	KWP	0.003	0.170	Oversupply
12/30/2017 13:06	0:01	KWP	0.005	12.309	Oversupply
12/30/2017 13:09	0:01	KWP	0.005	13.004	Oversupply
12/30/2017 13:12	0:03	KWP	0.061	13.026	Oversupply
12/30/2017 13:25	0:02	KWP	0.021	11.498	Oversupply
12/30/2017 14:09	0:04	KWP	0.062	11.157	Oversupply
12/30/2017 14:14	0:01	KWP	0.008	11.341	Oversupply
12/30/2017 14:24	0:03	KWP	0.064	11.863	Oversupply
12/30/2017 23:10	0:01	AWE	0.003	0.200	Oversupply
12/30/2017 23:19	0:02	AWE	0.003	0.100	Oversupply
12/31/2017 2:56	0:12	KWP	0.149	16.217	Oversupply
12/31/2017 3:09	0:40	KWP	0.864	16.217	Oversupply
Total Estimated Curtailed MWh			676.711		

Notes:

- Curtailment for Kaheawa Wind Power ("KWP"), Makila Hydroelectric ("MH"), AAAAA Rent-A-Space Maui LTD ("5A"), Bioreal Solar, LLC ("BS"), Auwahi Wind Energy ("AWE"), Kaheawa Wind Power II ("KWPII") Bioreal Solar 250, LLC ("BS250"), Extra Spaces A ("ESA"), and Extra Spaces B ("ESB") may now be controlled by Maui Electric's Automatic Generation Control System ("AGC") or a Maui Electric operator-entered curtailment limit. The AGC curtailment control automatically calculates the amount of Maximum Allowable Variable Generation ("MAVG") that Maui Electric can accept into the Maui system, based on the system current available variable generation ("CAVG"), regulating reserve down requirement ("RRDR"), and available regulating reserve down ("ARRD"). Thus, the AGC MAVG - calculated is equal to CAVG less (RRDR less ARRD). Additionally, the AGC curtailment control allows the Maui Electric 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 MWh and Peak MW Curtailed are calculated with information provided by AWE, KWP, and KWPII. Maui Electric does not make any representation as to its accuracy.
- The data to calculate the Estimated Curtailed MWh and Peak MW Curtailed is not provided by 5A, BS, BS 250, ESA, ESB, or MH.
- Curtailment signals sent to 5A, BS, BS250, ESA, or ESB during nighttime hours are not recorded as curtailment events because no energy generation is possible during that time.
- The curtailment reasons have been modified to oversupply, system constraints, and facility requested, to provide continuity with HPUC Docket No. 2013-0141 Decoupling for HECO companies metrics.



Lanai Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
12/1/2017 7:30	0:02	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 8:28	0:16	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 9:01	0:03	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 9:05	0:02	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 9:45	0:04	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 9:51	0:11	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 10:04	0:15	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 10:26	0:03	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 10:30	0:05	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 11:07	0:02	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 11:15	0:14	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 11:30	0:02	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 12:46	0:03	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 13:15	0:01	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 14:22	0:05	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 14:29	0:11	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 14:41	0:03	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 14:49	0:05	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 15:02	0:20	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 15:26	0:30	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 15:58	0:13	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 16:13	0:08	LSR	Data is not available	Data is not available	Oversupply
12/1/2017 16:27	0:44	LSR	Data is not available	Data is not available	Oversupply
12/2/2017 8:30	0:09	LSR	Data is not available	Data is not available	Oversupply
12/2/2017 8:41	1:34	LSR	Data is not available	Data is not available	Oversupply
12/2/2017 10:23	2:01	LSR	Data is not available	Data is not available	Oversupply
12/2/2017 12:40	1:38	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 7:41	3:11	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 10:53	0:27	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 11:29	0:03	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 11:48	0:02	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 11:52	0:01	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 11:54	1:12	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 13:09	0:06	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 13:27	0:01	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 13:38	0:03	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 13:43	0:59	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 15:19	0:01	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 15:38	0:23	LSR	Data is not available	Data is not available	Oversupply
12/3/2017 16:03	0:39	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 7:43	1:17	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 10:25	0:05	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 10:32	0:09	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 10:42	2:31	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 13:14	0:44	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 14:22	1:19	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 15:46	0:21	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 16:12	0:01	LSR	Data is not available	Data is not available	Oversupply
12/4/2017 16:45	0:10	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 7:57	0:01	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 8:00	0:19	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 9:18	0:03	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 9:22	0:04	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 9:27	0:02	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 9:36	0:21	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 9:59	1:18	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 11:18	0:11	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 11:30	0:12	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 11:44	0:09	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 11:54	0:39	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 12:34	1:04	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 13:40	1:24	LSR	Data is not available	Data is not available	Oversupply
12/5/2017 15:08	1:10	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 8:55	0:28	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 9:28	0:14	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 9:43	0:14	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 10:04	3:02	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 13:08	0:01	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 13:10	1:01	LSR	Data is not available	Data is not available	Oversupply
12/6/2017 14:12	0:13	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 8:15	0:07	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 8:24	2:52	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 11:20	0:08	LSR	Data is not available	Data is not available	Oversupply



Lanai Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
12/7/2017 11:31	0:01	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 11:35	0:13	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 12:01	0:17	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 12:34	0:01	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 12:36	0:06	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 12:46	0:11	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 13:02	0:18	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 13:23	0:02	LSR	Data is not available	Data is not available	Oversupply
12/7/2017 13:28	3:10	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 8:16	0:01	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 9:51	0:02	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 9:54	0:01	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 9:59	0:01	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 10:01	0:01	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 10:05	0:08	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 10:31	0:01	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 10:34	0:08	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 10:43	0:16	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 13:04	0:02	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 13:09	0:01	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 13:18	0:03	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 13:27	0:05	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 14:10	0:06	LSR	Data is not available	Data is not available	Oversupply
12/8/2017 14:28	0:02	LSR	Data is not available	Data is not available	Oversupply
12/9/2017 9:43	0:03	LSR	Data is not available	Data is not available	Oversupply
12/9/2017 11:26	0:03	LSR	Data is not available	Data is not available	Oversupply
12/9/2017 11:36	1:50	LSR	Data is not available	Data is not available	Oversupply
12/9/2017 13:28	0:08	LSR	Data is not available	Data is not available	Oversupply
12/9/2017 13:38	0:13	LSR	Data is not available	Data is not available	Oversupply
12/9/2017 13:52	2:50	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 11:02	0:07	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 11:30	0:25	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 11:57	0:32	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 12:32	0:11	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 12:55	0:14	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 13:44	0:04	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 13:52	0:02	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 14:03	0:03	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 14:10	0:02	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 14:39	0:01	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 14:49	0:01	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 15:09	0:02	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 15:13	0:01	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 15:17	0:02	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 15:26	0:03	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 15:38	0:10	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 15:49	0:01	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 16:02	0:05	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 16:08	0:04	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 16:14	0:02	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 16:25	0:03	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 16:32	0:04	LSR	Data is not available	Data is not available	Oversupply
12/10/2017 16:37	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 8:31	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 9:21	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 9:38	0:05	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 9:58	0:04	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:04	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:12	0:03	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:19	0:06	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:28	0:15	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:44	0:03	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:49	0:03	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 10:57	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:03	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:07	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:12	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:18	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:30	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:34	0:07	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:42	0:06	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 11:52	0:03	LSR	Data is not available	Data is not available	Oversupply



Lanai Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
12/11/2017 11:57	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 12:05	1:00	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 13:08	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 13:20	0:06	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 13:50	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 13:53	0:04	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:02	0:05	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:19	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:21	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:28	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:32	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:40	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:44	0:03	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:49	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:52	0:01	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 14:56	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 15:04	0:02	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 15:09	0:03	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 15:16	0:04	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 15:21	0:11	LSR	Data is not available	Data is not available	Oversupply
12/11/2017 15:36	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 7:43	0:20	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 9:04	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 9:08	0:03	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 9:23	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 9:42	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 10:02	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 10:16	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 10:45	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 10:49	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 11:07	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 11:38	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 12:42	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 12:48	0:03	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 12:53	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 13:04	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 13:27	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 13:44	0:04	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 14:43	0:03	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:05	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:09	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:20	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:23	0:03	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:30	0:02	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:33	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:36	0:01	LSR	Data is not available	Data is not available	Oversupply
12/12/2017 15:47	0:01	LSR	Data is not available	Data is not available	Oversupply
12/13/2017 7:53	0:01	LSR	Data is not available	Data is not available	Oversupply
12/13/2017 7:55	0:01	LSR	Data is not available	Data is not available	Oversupply
12/13/2017 7:59	0:02	LSR	Data is not available	Data is not available	Oversupply
12/13/2017 8:07	0:01	LSR	Data is not available	Data is not available	Oversupply
12/13/2017 10:20	1:12	LSR	Data is not available	Data is not available	Oversupply
12/13/2017 11:34	5:19	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 8:10	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 8:19	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 8:22	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 8:30	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 8:34	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 8:54	0:05	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:01	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:16	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:24	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:27	0:05	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:33	0:03	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:38	0:08	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 9:48	0:11	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 10:00	0:09	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 10:10	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 10:13	0:03	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 10:17	0:30	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 10:48	0:13	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 11:13	0:01	LSR	Data is not available	Data is not available	Oversupply



Lanai Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
12/14/2017 11:15	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 11:25	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 11:29	0:06	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 11:50	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 11:53	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 11:58	0:09	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:08	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:11	0:14	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:27	0:05	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:33	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:35	0:10	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:51	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 12:55	0:03	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:02	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:06	0:03	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:17	0:05	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:24	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:33	0:14	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:51	0:02	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 13:59	0:24	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 14:24	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 14:26	0:23	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 14:50	0:15	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 15:06	0:18	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 15:35	0:01	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 15:40	0:54	LSR	Data is not available	Data is not available	Oversupply
12/14/2017 16:35	0:08	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 8:14	0:02	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 8:32	0:03	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 8:39	0:01	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 8:46	0:02	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 8:53	0:01	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 10:10	0:01	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 10:18	0:03	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 10:23	0:11	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 10:36	0:01	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 10:38	0:12	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 10:51	0:39	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 11:32	0:19	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 11:54	2:22	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 14:29	0:52	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 15:22	0:59	LSR	Data is not available	Data is not available	Oversupply
12/15/2017 16:27	0:47	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 7:59	0:50	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 8:53	0:09	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:08	0:05	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:24	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:27	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:38	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:42	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:47	0:05	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 9:57	0:04	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:07	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:24	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:28	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:31	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:34	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:40	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:44	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:48	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:52	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 10:56	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 11:00	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 11:26	0:07	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 11:39	0:25	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:06	0:07	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:15	0:06	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:22	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:26	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:31	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:37	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:39	0:01	LSR	Data is not available	Data is not available	Oversupply



Lanai Curtailment Report

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
12/16/2017 12:41	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:44	0:05	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:52	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:55	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 12:58	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:02	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:07	0:07	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:17	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:19	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:23	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:27	0:04	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:32	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:38	0:04	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:46	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:50	0:04	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 13:57	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:00	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:04	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:23	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:28	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:35	0:03	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:52	0:05	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 14:59	0:05	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 15:17	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 15:25	0:13	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 15:43	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 15:47	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 15:50	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 15:56	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:03	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:06	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:11	0:08	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:20	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:24	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:29	0:02	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:36	0:01	LSR	Data is not available	Data is not available	Oversupply
12/16/2017 16:38	0:03	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 7:47	1:18	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 9:07	0:59	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 10:07	0:51	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 10:59	0:14	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 11:15	0:40	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 11:58	0:02	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 12:01	0:04	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 12:08	2:58	LSR	Data is not available	Data is not available	Oversupply
12/17/2017 15:07	1:35	LSR	Data is not available	Data is not available	Oversupply

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-Lanai 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.

The curtailment reasons have been modified to oversupply, system constraints, and facility requested, to provide continuity with HPUC Docket No. 2013-0141 Decoupling for HECO companies metrics.

Hawai'i Electric Light Company Curtailment Report December 2017

Start Date/Time	MW Output Prior to Start of Curtailment	End Date/Time	MW Output After Curtailment Released ¹	IPP	Reason for Curtailment
12/02/17 07:36	9.1 MW	12/02/17 12:09	1.4 MW	Hawi Renewable Dev.	System constraint
12/03/17 02:46	19.5 MW	12/03/17 05:28	18.0 MW	Pakini Nui Windfarm	Oversupply ²
12/03/17 08:49	19.8 MW	12/03/17 16:11	19.7 MW	Pakini Nui Windfarm	Facility Requested
12/04/17 10:30	4.8 MW	12/04/17 12:52	2.3 MW	Hawi Renewable Dev.	System constraint
12/10/17 10:49	0.5 MW	12/10/17 14:02	0.0 MW	TGUH1	Oversupply
12/10/17 10:50	0.2 MW	12/10/17 14:01	0.0 MW	West Hawaii Civic Center	
12/10/17 11:18	19.4 MW	12/10/17 13:58	10.6 MW	Pakini Nui Windfarm	
12/21/17 03:20	18.5 MW	12/21/17 04:11	15.7 MW	Pakini Nui Windfarm	Oversupply

¹ The MW output values are taken soon after curtailment is released by Hawai'i Electric Light and may not reflect their full output depending on ramp rate for the facility. The wind farms generally return immediately to full available levels, whereas PGV and Wailuku may take longer to return to scheduled or full available output levels.

² During the morning of 12/3/17, PGV was on automatic generation control and tested for providing regulating reserve capability.

SERVICE LIST
(Docket No. 2011-0206)

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