



October 27, 2014

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PUBLIC UTILITIES
COMMISSION

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 September 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".

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 September 30, 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 September 30, 2014):

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

Hawaiian Electric 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 and Hawai'i Electric Light's under frequency load shed events are provided in Attachment 4. Maui Electric did not have any under frequency load shed events for the month of September.

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

Hawaiian Electric's demand response activations for system events are provided in Attachment 5. 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.

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

The following provides information with respect to items 3a) through 3b) – (all statements are current as of the month ending September 30, 2014):

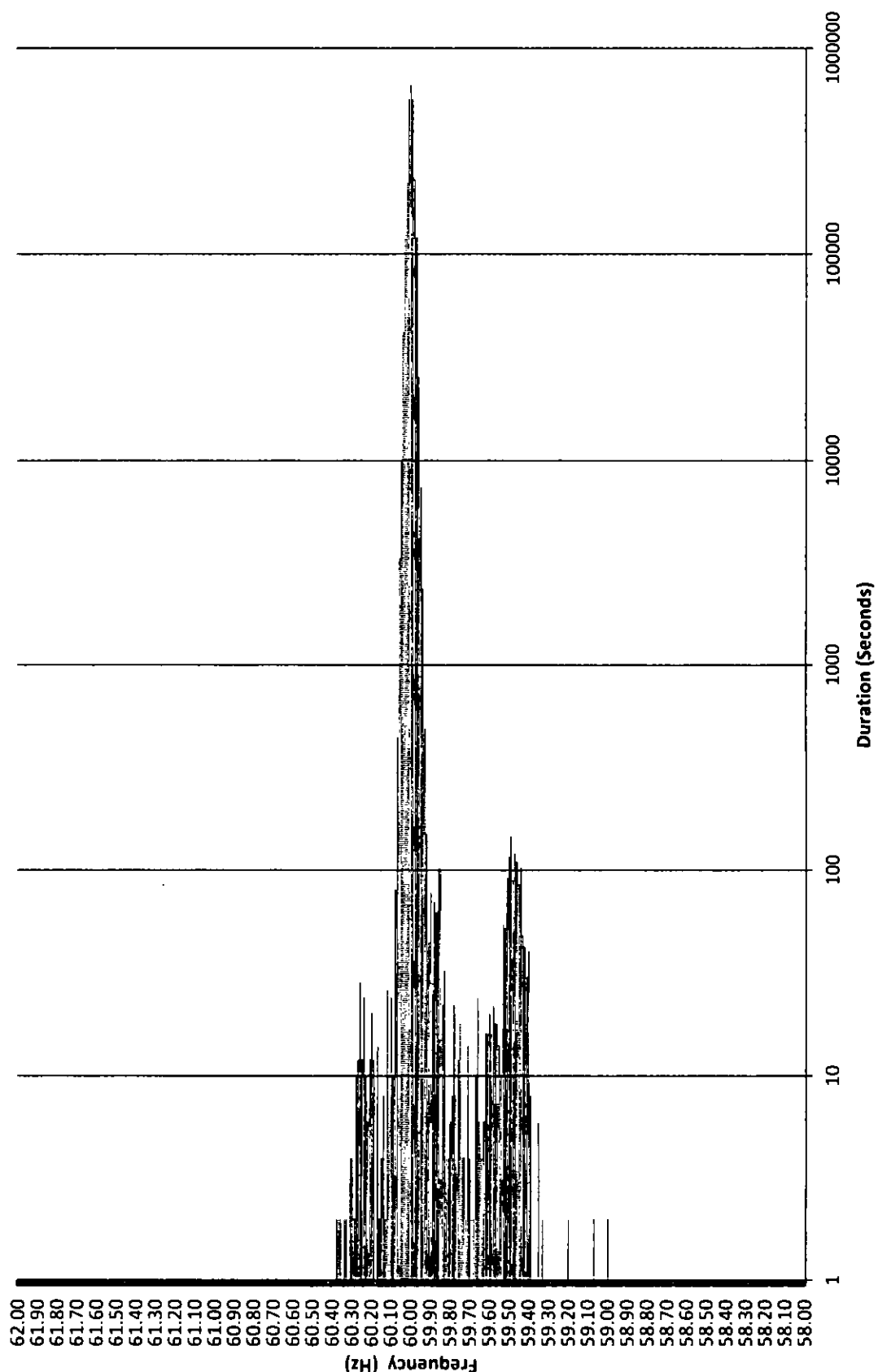
3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:

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

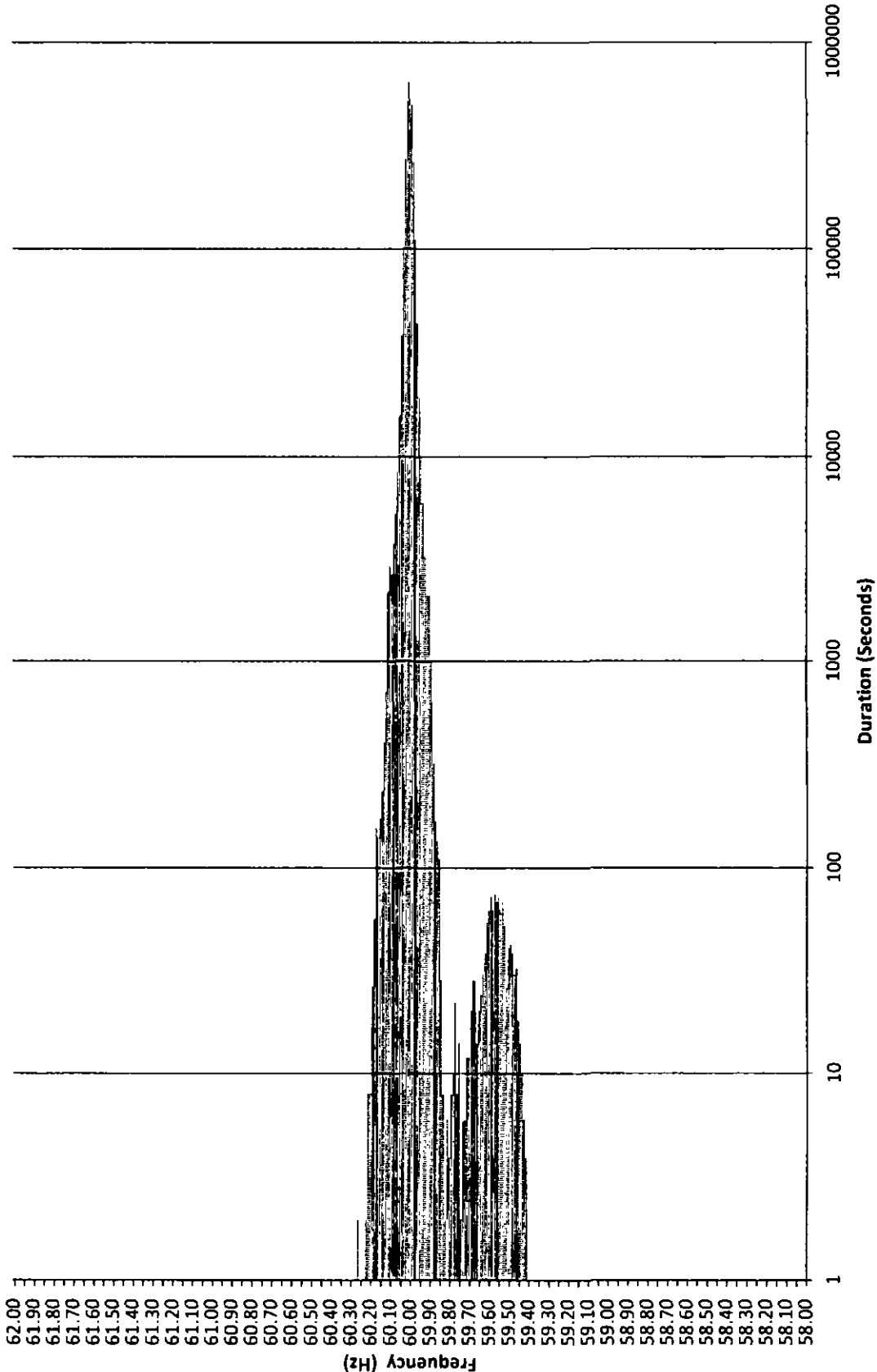
3b) Total MWh of non-dispatchable renewable resources curtailed for the month:

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.

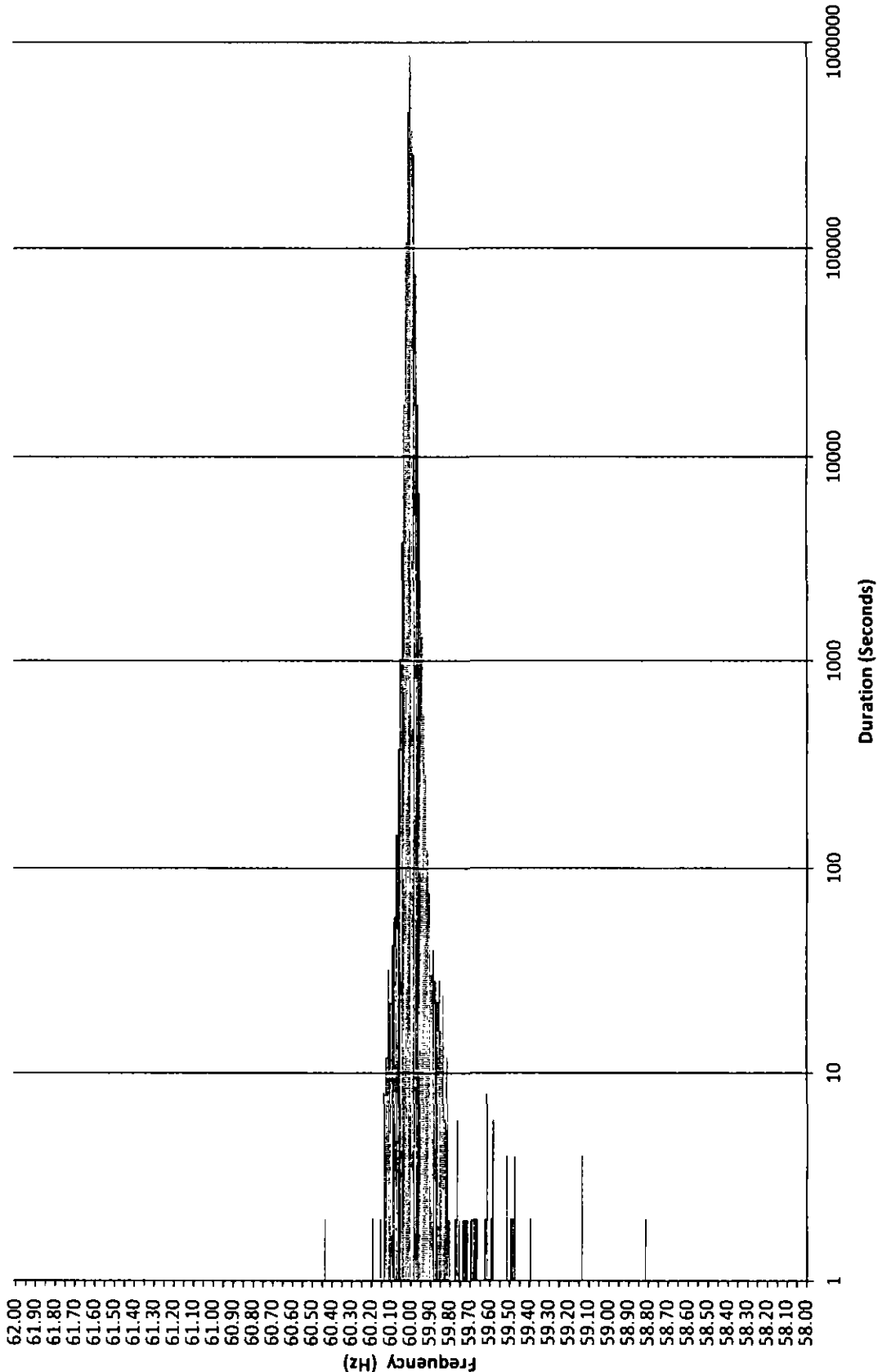
**Frequency Distribution Plot - Hawaiian Electric
September 2014**



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



**Frequency Distribution Plot - Hawai'i Electric Light
September 2014**



Hawaiian Electric Frequency Excursion Statistics September 2014		
Data Rounded to the nearest	<59.95 Hz	>60.05 Hz
Number of Excursions	520	634
Maximum Duration (sec)	1590	374
Maximum Deviation (Hz)	57.023	60.375
Total Duration of Excursions (sec)	7286	7408

Maui Electric Frequency Excursion Statistics September 2014		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3616	2448
Maximum Duration (sec)	1830	606
Maximum Deviation (Hz)	59.4068	60.2628
Total Duration of Excursions (sec)	34198	33544

Hawai'i Electric Light Frequency Excursion Statistics September 2014		
	<59.95 Hz	>60.05 Hz
Number of Excursions	921	243
Maximum Duration (sec)	188	52
Maximum Deviation (Hz)	58.807	60.433
Total Duration of Excursions (sec)	6132	1066

HECO Curtailment Report September 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
07/17/14 14:29	48.0	41.10	Ongoing	—	---	Mauka	Flicker
09/03/14 07:39	0.0	3.10	09/03/14 07:57	0	*	KL52	Replacement work
09/08/14 06:23	0.0	0.00	09/08/14 07:53	0	*	KREP	Circuit de-energization for outside contractor work
09/08/14 14:46	0.0	2.80	09/08/14 15:03	0	*	KREP	Circuit de-energization for outside contractor work
09/11/14 06:54	0.0	0.60	09/11/14 07:32	0	*	KL52	Replacement work
09/11/14 20:02	0.0	0.00	09/11/14 20:12	0	*	KL52	Replacement work
09/12/14 06:55	0.0	0.20	09/12/14 07:25	0	*	KWF	Maintenance work
09/12/14 06:56	0.0	0.30	09/12/14 07:26	0	*	Makai	Maintenance work
09/12/14 16:22	0.0	2.00	09/12/14 16:45	0	*	KWF	Maintenance work
09/12/14 16:23	0.0	5.00	09/12/14 16:46	0	*	Makai	Maintenance work
09/13/14 07:27	0.0	0.70	09/13/14 08:12	0	*	KREP	Replacement work
09/13/14 16:26	0.0	1.00	09/13/14 16:47	0	*	KREP	Replacement work
09/14/14 18:59	0.0	0.00	09/14/14 19:20	0	*	KREP	Replacement work
09/16/14 07:34	0.0	0.00	09/18/14 18:24	0	*	Mauka	Replacement work
09/16/14 07:34	0.0	0.00	09/18/14 18:23	0	*	Makai	Replacement work
09/16/14 07:35	0.0	0.00	09/16/14 12:48	0	*	KWF	Replacement work
09/16/14 18:14	0.0	1.60	09/16/14 19:05	0	*	KWF	Replacement work
09/17/14 06:03	0.0	0.00	09/17/14 07:20	0	*	KWF	Replacement work
09/17/14 15:50	0.0	2.50	09/17/14 16:06	0	*	KWF	Replacement work
09/18/14 06:39	0.0	0.00	09/18/14 08:47	0	*	KWF	Replacement work
09/18/14 17:03	0.0	0.50	09/18/14 18:08	0	*	KWF	Replacement work
09/19/14 07:17	0.0	0.10	09/19/14 08:28	0	*	KWF	Replacement and maintenance work
09/19/14 07:18	0.0	0.00	09/19/14 08:28	0	*	Makai	Replacement and maintenance work
09/19/14 07:18	0.0	0.00	09/19/14 18:11	0	*	Mauka	Replacement and maintenance work
09/19/14 16:25	0.0	0.00	09/19/14 18:11	0	*	KWF	Replacement and maintenance work
09/19/14 16:25	0.0	0.00	09/19/14 18:11	0	*	Makai	Replacement and maintenance work
09/20/14 06:46	0.0	0.00	09/20/14 08:28	0	*	KWF	Replacement and maintenance work
09/20/14 06:47	0.0	0.00	09/20/14 08:27	0	*	Makai	Replacement and maintenance work
09/20/14 06:48	0.0	0.00	09/20/14 16:52	0	*	Mauka	Replacement and maintenance work
09/20/14 15:51	0.0	2.10	09/20/14 16:53	0	*	KWF	Replacement and maintenance work
09/20/14 15:50	0.0	0.60	09/20/14 16:52	0	*	Makai	Replacement and maintenance work
09/21/14 07:13	0.0	1.50	09/21/14 08:42	0	*	KWF	Replacement and maintenance work
09/21/14 07:14	0.0	0.20	09/21/14 08:42	0	*	Makai	Replacement and maintenance work
09/21/14 07:13	0.0	0.10	09/21/14 17:44	0	*	Mauka	Replacement and maintenance work
09/21/14 15:35	0.0	4.90	09/21/14 17:45	0	*	KWF	Replacement and maintenance work
09/21/14 15:35	0.0	1.40	09/21/14 17:44	0	*	Makai	Replacement and maintenance work
09/25/14 06:50	0.0	0.00	09/25/14 07:03	0	*	KL52	Replacement work

KL52 = Kalaeloa Solar 2 PV Farm
KREP = Kalaeloa Renewable Energy Park
KWF = Kahuku Wind Farm
Makai = Kawaiioa Makai Wind Farm
Mauka = Kawaiioa Mauka Wind Farm

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

* Data has not been provided by IPP



RBWG Maui Curtailment Report September 2014

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for Curtailment
9/1/2014 3 35	0 15	AWE	0 385	18 000	AGC MAVG - calculated
9/1/2014 11 38	0 01	KWP	0 001	0 032	AGC MAVG - calculated
9/1/2014 14 35	0 01	KWP	0 000	0 019	AGC MAVG - calculated and Good Engineering and Operating Practices
9/1/2014 15 04	0 01	KWP	0 001	0 048	AGC MAVG - calculated and Good Engineering and Operating Practices
9/2/2014 4 05	0 01	KWP	0 001	0 088	AGC MAVG - calculated
9/2/2014 4 31	0 01	KWP	0 000	0 019	AGC MAVG - calculated
9/2/2014 5 12	0 01	KWP	0 000	0 001	AGC MAVG - calculated
9/2/2014 12 22	0 02	KWP	0 003	0 006	AGC MAVG - calculated
9/2/2014 15 21	0 01	KWP	0 001	0 080	AGC MAVG - calculated and Testing
9/2/2014 15 47	0 01	KWP	0 001	0 080	AGC MAVG - calculated and Testing
9/2/2014 23 42	0 07	KWP	0 274	8 490	AGC MAVG - calculated
9/3/2014 0 23	0 01	KWP	0 004	0 251	AGC MAVG - calculated
9/3/2014 4 24	0 01	KWP	0 010	3 839	AGC MAVG - calculated
9/3/2014 4 28	0 06	KWP	0 086	6 844	AGC MAVG - calculated
9/3/2014 4 39	0 09	KWP	0 370	13 324	AGC MAVG - calculated
9/3/2014 4 52	0 01	KWP	0 005	10 873	AGC MAVG - calculated
9/3/2014 4 55	0 03	KWP	0 018	11 183	AGC MAVG - calculated
9/3/2014 5 01	0 01	KWP	0 002	11 252	AGC MAVG - calculated
9/3/2014 5 07	0 01	KWP	0 030	15 546	AGC MAVG - calculated
9/3/2014 5 18	0 01	KWP	0 002	13 714	AGC MAVG - calculated
9/3/2014 5 23	0 01	KWP	0 028	13 523	AGC MAVG - calculated
9/3/2014 6 00	0 01	KWP	0 011	15 848	AGC MAVG - calculated
9/3/2014 6 07	0 01	KWP	0 003	16 501	AGC MAVG - calculated
9/3/2014 6 14	0 02	KWP	0 031	16 381	AGC MAVG - calculated
9/3/2014 6 18	0 02	KWP	0 028	16 369	AGC MAVG - calculated
9/3/2014 6 21	0 01	KWP	0 001	16 033	AGC MAVG - calculated
9/3/2014 6 58	0 04	KWP	0 072	16 982	AGC MAVG - calculated
9/3/2014 7 40	0 01	KWP	0 002	10 855	AGC MAVG - calculated
9/3/2014 7 42	0 55	KWP	5 793	20 205	AGC MAVG - calculated
9/3/2014 8 36	0 04	KWP	0 093	16 297	AGC MAVG - calculated
9/3/2014 8 47	0 04	KWP	0 087	16 986	AGC MAVG - calculated
9/3/2014 8 52	0 01	KWP	0 017	16 102	AGC MAVG - calculated
9/3/2014 8 59	0 02	KWP	0 050	18 390	AGC MAVG - calculated
9/3/2014 9 02	0 04	KWP	0 098	18 120	AGC MAVG - calculated
9/3/2014 9 08	0 01	KWP	0 003	17 265	AGC MAVG - calculated
9/3/2014 9 12	0 03	KWP	0 078	18 972	AGC MAVG - calculated
9/3/2014 9 16	0 01	KWP	0 000	18 804	AGC MAVG - calculated
9/3/2014 9 23	0 03	KWP	0 065	19 454	AGC MAVG - calculated
9/3/2014 9 28	0 02	KWP	0 082	19 948	AGC MAVG - calculated
9/3/2014 9 31	0 04	KWP	0 082	20 183	AGC MAVG - calculated
9/3/2014 9 37	0 02	KWP	0 028	18 870	AGC MAVG - calculated
9/3/2014 10 02	0 01	KWP	0 008	20 338	AGC MAVG - calculated
9/3/2014 16 28	0 01	KWP	0 018	18 227	AGC MAVG - calculated
9/3/2014 17 09	0 19	KWP	1 075	20 791	AGC MAVG - calculated
9/3/2014 17 22	0 01	KWP	0 023	20 074	AGC MAVG - calculated
9/3/2014 22 12	0 01	KWP	0 005	20 870	AGC MAVG - calculated
9/3/2014 22 17	0 03	KWP	0 035	20 704	AGC MAVG - calculated
9/3/2014 22 21	0 24	KWP	1 807	20 706	AGC MAVG - calculated
9/3/2014 23 31	1 21	KWP	4 182	20 708	AGC MAVG - calculated
9/4/2014 1 46	0 01	KWP	0 008	20 568	AGC MAVG - calculated
9/4/2014 1 49	0 07	KWP	0 043	20 032	AGC MAVG - calculated
9/4/2014 1 57	0 04	KWP	0 024	20 578	AGC MAVG - calculated
9/4/2014 2 20	0 01	KWP	0 001	20 379	AGC MAVG - calculated
9/4/2014 2 22	0 01	KWP	0 004	20 330	AGC MAVG - calculated
9/4/2014 2 27	0 01	KWP	0 001	20 361	AGC MAVG - calculated
9/4/2014 2 31	0 03	KWP	0 017	20 135	AGC MAVG - calculated
9/4/2014 2 35	0 02	KWP	0 018	20 069	AGC MAVG - calculated
9/4/2014 2 38	0 06	KWP	0 038	20 085	AGC MAVG - calculated
9/4/2014 2 44	0 02	KWP	0 008	19 713	AGC MAVG - calculated
9/4/2014 2 47	0 01	KWP	0 003	19 858	AGC MAVG - calculated
9/4/2014 2 49	0 04	KWP	0 019	20 062	AGC MAVG - calculated
9/4/2014 3 22	0 01	KWP	0 011	19 589	AGC MAVG - calculated
9/4/2014 3 27	0 04	KWP	0 024	19 774	AGC MAVG - calculated
9/4/2014 3 32	0 02	KWP	0 007	19 819	AGC MAVG - calculated
9/4/2014 3 36	0 01	KWP	0 007	18 776	AGC MAVG - calculated
9/4/2014 3 39	0 06	KWP	0 083	19 202	AGC MAVG - calculated
9/4/2014 3 46	0 02	KWP	0 043	18 984	AGC MAVG - calculated
9/4/2014 3 55	0 02	KWP	0 006	19 067	AGC MAVG - calculated
9/4/2014 3 59	0 01	KWP	0 009	19 707	AGC MAVG - calculated
9/4/2014 4 16	0 02	KWP	0 004	20 538	AGC MAVG - calculated
9/4/2014 4 22	0 07	KWP	0 049	20 602	AGC MAVG - calculated
9/4/2014 4 31	0 02	KWP	0 022	20 506	AGC MAVG - calculated
9/4/2014 4 34	0 01	KWP	0 006	20 375	AGC MAVG - calculated
9/4/2014 4 37	0 04	KWP	0 025	20 481	AGC MAVG - calculated
9/4/2014 4 42	0 02	KWP	0 017	20 430	AGC MAVG - calculated
9/4/2014 4 46	0 08	KWP	0 167	20 471	AGC MAVG - calculated
9/4/2014 5 22	0 01	KWP	0 008	17 934	AGC MAVG - calculated
9/4/2014 5 32	0 01	KWP	0 004	15 060	AGC MAVG - calculated
9/4/2014 5 38	0 04	KWP	0 039	15 968	AGC MAVG - calculated
9/4/2014 5 39	0 01	KWP	0 005	17 261	AGC MAVG - calculated
9/4/2014 5 23 23	0 48	KWP	2 595	18 061	AGC MAVG - calculated
9/5/2014 0 13	0 02	KWP	0 028	18 075	AGC MAVG - calculated
9/5/2014 0 16	0 06	KWP	0 211	18 763	AGC MAVG - calculated
9/5/2014 0 25	0 30	KWP	2 571	20 352	AGC MAVG - calculated
9/5/2014 1 22	0 11	KWP	0 768	19 022	AGC MAVG - calculated
9/5/2014 1 35	0 01	KWP	0 005	18 066	AGC MAVG - calculated
9/5/2014 1 38	0 01	KWP	0 012	17 338	AGC MAVG - calculated
9/5/2014 1 41	0 28	KWP	1 432	19 668	AGC MAVG - calculated
9/5/2014 2 10	1 49	KWP	16 157	20 888	AGC MAVG - calculated
9/5/2014 4 01	0 01	KWP	0 028	20 002	AGC MAVG - calculated
9/5/2014 4 03	0 04	KWP	0 040	20 330	AGC MAVG - calculated
9/5/2014 4 10	0 01	KWP	0 013	20 711	AGC MAVG - calculated
9/5/2014 5 37	0 03	KWP	0 022	16 813	AGC MAVG - calculated
9/5/2014 5 41	0 02	KWP	0 047	17 490	AGC MAVG - calculated
9/5/2014 6 00	0 01	KWP	0 002	16 615	AGC MAVG - calculated
9/5/2014 12 48	0 01	KWP	0 001	0 048	AGC MAVG - calculated
9/5/2014 15 31	0 01	KWP	0 000	0 016	AGC MAVG - calculated and Testing
9/6/2014 0 06	0 01	KWP	0 005	17 409	AGC MAVG - calculated
9/6/2014 0 43	0 01	KWP	0 031	17 589	AGC MAVG - calculated
9/6/2014 1 04	0 06	KWP	0 158	20 433	AGC MAVG - calculated
9/6/2014 1 11	0 08	KWP	0 465	20 470	AGC MAVG - calculated
9/6/2014 1 22	0 05	KWP	0 203	19 361	AGC MAVG - calculated
9/6/2014 1 29	0 19	KWP	0 775	18 838	AGC MAVG - calculated
9/6/2014 1 49	0 06	KWP	0 279	17 271	AGC MAVG - calculated
9/6/2014 2 22	0 05	KWP	0 127	11 854	AGC MAVG - calculated
9/6/2014 2 30	0 06	KWP	0 824	14 761	AGC MAVG - calculated
9/6/2014 2 34	0 01	AWE	0 024	12 100	AGC MAVG - calculated
9/6/2014 2 39	0 01	KWP	0 130	15 391	AGC MAVG - calculated
9/6/2014 2 49	0 04	KWP	0 202	17 665	AGC MAVG - calculated



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Start Date and Time	Duration	IPP Curtail	Estimated Curtailment MWh	Peak MW Curtail	Reasons for Curtailment
9/6/2014 2:58	0:01	KWPII	0.022	18.664	AGC MAVG - calculated
9/6/2014 3:01	0:02	KWPII	0.084	17.743	AGC MAVG - calculated
9/6/2014 3:08	0:12	KWPII	0.781	18.549	AGC MAVG - calculated
9/6/2014 3:23	0:05	KWPII	0.208	16.184	AGC MAVG - calculated
9/6/2014 3:29	0:20	KWPII	4.514	19.778	AGC MAVG - calculated
9/6/2014 3:50	0:01	KWPII	0.242	17.968	AGC MAVG - calculated
9/6/2014 3:53	0:04	AWE	0.048	10.000	AGC MAVG - calculated
9/6/2014 3:53	0:22	KWPII	3.878	16.523	AGC MAVG - calculated
9/6/2014 3:58	0:08	AWE	0.102	8.700	AGC MAVG - calculated
9/6/2014 4:05	0:02	AWE	0.012	9.200	AGC MAVG - calculated
9/6/2014 4:29	0:02	KWPII	0.055	9.520	AGC MAVG - calculated
9/6/2014 6:55	0:01	KWPII	0.001	6.876	AGC MAVG - calculated
9/6/2014 7:01	0:02	KWPII	0.024	8.486	AGC MAVG - calculated
9/6/2014 7:06	0:01	KWPII	0.012	7.817	AGC MAVG - calculated
9/6/2014 7:14	0:01	KWPII	0.018	8.941	AGC MAVG - calculated
9/6/2014 7:18	0:14	KWPII	0.882	13.261	AGC MAVG - calculated
9/6/2014 10:53	0:01	KWPII	0.000	0.018	AGC MAVG - calculated
9/6/2014 14:26	0:03	KWPII	0.056	16.047	AGC MAVG - calculated
9/6/2014 15:06	0:01	KWPII	0.031	16.358	AGC MAVG - calculated
9/6/2014 17:48	0:01	KWPII	0.006	10.876	AGC MAVG - calculated
9/6/2014 17:50	0:02	KWPII	0.010	20.062	AGC MAVG - calculated
9/6/2014 17:55	0:01	KWPII	0.002	20.471	AGC MAVG - calculated
9/6/2014 18:01	0:01	KWPII	0.008	16.355	AGC MAVG - calculated
9/6/2014 18:03	0:02	KWPII	0.017	19.462	AGC MAVG - calculated
9/6/2014 18:11	0:02	KWPII	0.005	10.385	AGC MAVG - calculated
9/6/2014 18:24	0:03	KWPII	0.020	16.255	AGC MAVG - calculated
9/6/2014 20:30	0:01	KWPII	0.005	15.780	AGC MAVG - calculated
9/6/2014 20:55	0:01	KWPII	0.003	16.941	AGC MAVG - calculated
9/6/2014 20:58	0:01	KWPII	0.022	17.492	AGC MAVG - calculated
9/6/2014 21:03	0:01	KWPII	0.003	19.200	AGC MAVG - calculated
9/6/2014 21:08	0:01	KWPII	0.000	16.382	AGC MAVG - calculated
9/7/2014 11:24	0:01	KWPII	0.003	11.824	AGC MAVG - calculated
9/7/2014 20:50	0:02	KWPII	0.021	10.070	AGC MAVG - calculated
9/8/2014 0:15	0:02	KWPII	0.005	13.007	AGC MAVG - calculated
9/8/2014 0:41	0:03	KWPII	0.156	15.453	AGC MAVG - calculated
9/8/2014 0:46	0:01	KWPII	0.084	15.467	AGC MAVG - calculated
9/8/2014 0:48	0:03	KWPII	0.240	16.600	AGC MAVG - calculated
9/8/2014 0:52	0:01	KWPII	0.093	17.115	AGC MAVG - calculated
9/8/2014 0:56	0:03	KWPII	0.311	16.437	AGC MAVG - calculated
9/8/2014 0:59	0:01	KWPII	0.133	19.343	AGC MAVG - calculated
9/8/2014 1:03	0:04	KWPII	0.650	19.717	AGC MAVG - calculated
9/8/2014 1:11	0:21	KWPII	4.518	16.804	AGC MAVG - calculated
9/8/2014 1:34	0:26	KWPII	3.588	19.490	AGC MAVG - calculated
9/8/2014 2:01	0:01	KWPII	0.047	15.780	AGC MAVG - calculated
9/8/2014 2:25	0:32	KWPII	4.610	19.010	AGC MAVG - calculated
9/8/2014 2:58	0:37	KWPII	8.821	17.123	AGC MAVG - calculated
9/8/2014 3:04	0:01	AWE	0.002	12.700	AGC MAVG - calculated
9/8/2014 3:13	0:12	AWE	0.649	21.000	AGC MAVG - calculated
9/8/2014 3:26	0:01	AWE	0.001	15.200	AGC MAVG - calculated
9/8/2014 3:28	0:01	AWE	0.001	14.400	AGC MAVG - calculated
9/8/2014 3:30	0:01	AWE	0.002	13.200	AGC MAVG - calculated
9/8/2014 3:37	0:04	KWPII	0.171	10.455	AGC MAVG - calculated
9/8/2014 5:01	0:02	KWPII	0.054	14.711	AGC MAVG - calculated
9/8/2014 5:26	0:03	KWPII	0.031	16.191	AGC MAVG - calculated
9/8/2014 6:45	0:01	KWPII	0.006	8.992	AGC MAVG - calculated
9/8/2014 6:48	0:01	KWPII	0.007	9.232	AGC MAVG - calculated
9/8/2014 6:50	0:01	KWPII	0.002	9.551	AGC MAVG - calculated
9/8/2014 6:53	0:02	KWPII	0.014	8.620	AGC MAVG - calculated
9/8/2014 6:56	0:06	KWPII	0.153	11.416	AGC MAVG - calculated
9/8/2014 7:40	0:01	KWPII	0.005	8.221	AGC MAVG - calculated
9/8/2014 7:42	0:06	KWPII	0.134	12.726	AGC MAVG - calculated
9/8/2014 7:48	0:04	KWPII	0.138	14.050	AGC MAVG - calculated
9/8/2014 7:53	0:13	KWPII	0.592	16.827	AGC MAVG - calculated
9/8/2014 8:55	0:01	KWPII	0.018	17.522	AGC MAVG - calculated
9/8/2014 18:16	0:01	KWPII	0.011	8.387	AGC MAVG - calculated
9/8/2014 23:21	0:04	KWPII	0.067	8.132	AGC MAVG - calculated
9/8/2014 23:26	0:06	KWPII	0.374	12.052	AGC MAVG - calculated
9/8/2014 23:29	0:02	AWE	0.018	13.800	AGC MAVG - calculated
9/8/2014 23:33	0:01	KWPII	0.204	14.028	AGC MAVG - calculated
9/8/2014 23:39	0:02	KWPII	0.328	15.882	AGC MAVG - calculated
9/8/2014 23:48	0:01	KWPII	0.008	15.990	AGC MAVG - calculated
9/8/2014 23:50	0:01	KWPII	0.058	11.928	AGC MAVG - calculated
9/8/2014 0:03	0:02	KWPII	0.236	16.781	AGC MAVG - calculated
9/8/2014 0:09	0:02	KWPII	0.143	15.728	AGC MAVG - calculated
9/8/2014 0:15	0:01	KWPII	0.063	17.925	AGC MAVG - calculated
9/8/2014 0:26	0:02	KWPII	0.070	19.200	AGC MAVG - calculated
9/8/2014 0:45	0:02	KWPII	0.073	15.586	AGC MAVG - calculated
9/8/2014 0:49	0:01	KWPII	0.031	15.915	AGC MAVG - calculated
9/8/2014 0:51	0:01	KWPII	0.016	13.619	AGC MAVG - calculated
9/8/2014 0:59	0:04	KWPII	0.210	14.406	AGC MAVG - calculated
9/8/2014 1:04	0:01	KWPII	0.013	10.241	AGC MAVG - calculated
9/8/2014 1:08	0:03	KWPII	0.061	10.643	AGC MAVG - calculated
9/8/2014 1:19	0:02	KWPII	0.073	12.014	AGC MAVG - calculated
9/8/2014 1:23	0:04	KWPII	0.127	11.626	AGC MAVG - calculated
9/8/2014 1:31	0:01	KWPII	0.026	10.034	AGC MAVG - calculated
9/8/2014 1:38	0:01	KWPII	0.011	10.653	AGC MAVG - calculated
9/8/2014 1:42	0:01	KWPII	0.021	10.816	AGC MAVG - calculated
9/8/2014 1:44	0:01	KWPII	0.034	10.543	AGC MAVG - calculated
9/8/2014 2:06	0:01	KWPII	0.018	7.722	AGC MAVG - calculated
9/8/2014 2:25	0:02	KWPII	0.034	11.571	AGC MAVG - calculated
9/8/2014 2:29	0:04	KWPII	0.134	12.949	AGC MAVG - calculated
9/8/2014 7:31	0:02	KWPII	0.112	14.288	AGC MAVG - calculated
9/8/2014 22:53	0:01	KWPII	0.001	1.554	AGC MAVG - calculated
9/8/2014 22:59	0:01	KWPII	0.012	6.307	AGC MAVG - calculated
9/9/2014 23:02	0:02	KWPII	0.010	9.006	AGC MAVG - calculated
9/10/2014 12:00	0:01	KWPII	0.001	0.038	AGC MAVG - calculated
9/10/2014 12:11	0:01	KWPII	0.001	0.048	AGC MAVG - calculated
9/10/2014 12:13	0:01	KWPII	0.000	0.018	AGC MAVG - calculated
9/10/2014 22:10	0:01	KWPII	0.000	0.014	AGC MAVG - calculated
9/10/2014 22:25	0:01	KWPII	0.000	0.001	AGC MAVG - calculated
9/11/2014 1:22	0:01	KWPII	0.001	0.067	AGC MAVG - calculated
9/11/2014 10:57	0:01	KWPII	0.001	0.064	AGC MAVG - calculated
9/11/2014 12:26	0:01	KWPII	0.000	0.016	AGC MAVG - calculated and Good Engineering and Operating Practices
9/11/2014 13:27	0:01	KWPII	0.001	0.033	AGC MAVG - calculated
9/12/2014 0:12	0:01	KWPII	0.008	9.813	AGC MAVG - calculated
9/12/2014 0:37	0:03	AWE	0.049	15.200	AGC MAVG - calculated
9/12/2014 0:37	0:05	KWPII	0.150	5.863	AGC MAVG - calculated
9/12/2014 0:36	0:01	AWE	0.001	13.000	AGC MAVG - calculated
9/12/2014 0:40	0:02	KWPII	0.138	9.136	AGC MAVG - calculated



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailment MWh	Peak MW Curtailed	Reasons for Curtailment
9/12/2014 0:43	0:02	KWPII	0.180	10.348	AGC MAVG - calculated
9/12/2014 1:10	0:02	KWPII	0.049	12.954	AGC MAVG - calculated
9/12/2014 1:13	0:01	KWPII	0.033	13.127	AGC MAVG - calculated
9/12/2014 1:41	0:01	KWPII	0.027	14.252	AGC MAVG - calculated
9/12/2014 3:00	0:01	KWPII	0.004	9.456	AGC MAVG - calculated
9/12/2014 8:39	0:01	KWP	0.002	0.086	AGC MAVG - calculated and Good Engineering and Operating Practices
9/12/2014 9:18	0:01	KWP	0.001	0.032	AGC MAVG - calculated and Good Engineering and Operating Practices
9/12/2014 15:53	0:01	KWP	0.001	0.064	AGC MAVG - calculated
9/12/2014 22:57	0:01	KWPII	0.024	18.940	AGC MAVG - calculated
9/12/2014 22:59	0:01	KWPII	0.028	18.288	AGC MAVG - calculated
9/13/2014 2:34	0:02	KWPII	0.021	12.331	AGC MAVG - calculated
9/13/2014 15:32	0:01	KWP	0.000	0.018	AGC MAVG - calculated
9/13/2014 18:15	0:01	KWP	0.001	0.048	AGC MAVG - calculated
9/13/2014 18:48	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/13/2014 19:07	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/13/2014 23:30	0:01	KWP	0.002	0.096	AGC MAVG - calculated
9/15/2014 1:55	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/15/2014 2:07	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/15/2014 2:13	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/15/2014 3:51	0:03	KWPII	0.082	8.701	AGC MAVG - calculated
9/15/2014 8:44	0:01	KWP	0.000	0.018	AGC MAVG - calculated and Good Engineering and Operating Practices
9/15/2014 8:48	0:01	KWP	0.000	0.018	AGC MAVG - calculated and Good Engineering and Operating Practices
9/15/2014 12:13	0:01	AWE	0.003	0.200	AGC MAVG - calculated and Good Engineering and Operating Practices
9/15/2014 13:15	0:01	AWE	0.003	0.200	AGC MAVG - calculated and Good Engineering and Operating Practices
9/15/2014 22:37	0:30	KWPII	1.404	20.085	AGC MAVG - calculated
9/15/2014 23:08	0:01	KWPII	0.014	19.243	AGC MAVG - calculated
9/15/2014 23:11	0:02	KWPII	0.011	18.448	AGC MAVG - calculated
9/15/2014 23:17	0:03	KWPII	0.010	19.825	AGC MAVG - calculated
9/15/2014 23:58	0:01	KWPII	0.004	20.368	AGC MAVG - calculated
9/15/2014 23:58	0:01	KWPII	0.006	20.112	AGC MAVG - calculated
9/16/2014 0:00	0:01	KWPII	0.000	19.832	AGC MAVG - calculated
9/16/2014 0:02	0:05	KWPII	0.082	19.557	AGC MAVG - calculated
9/16/2014 0:08	0:04	KWPII	0.090	19.083	AGC MAVG - calculated
9/16/2014 0:13	0:02	KWPII	0.038	18.871	AGC MAVG - calculated
9/16/2014 0:17	2:58	KWPII	12.212	19.500	AGC MAVG - calculated
9/16/2014 3:00	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/16/2014 3:19	0:01	KWPII	0.004	10.257	AGC MAVG - calculated
9/16/2014 3:28	0:01	KWPII	0.010	11.912	AGC MAVG - calculated
9/16/2014 8:32	0:01	AWE	0.006	0.300	AGC MAVG - calculated and Good Engineering and Operating Practices
9/16/2014 9:21	0:01	AWE	0.002	0.100	AGC MAVG - calculated and Good Engineering and Operating Practices
9/16/2014 16:41	0:01	KWP	0.001	0.032	AGC MAVG - calculated and Good Engineering and Operating Practices
9/16/2014 21:21	0:01	AWE	0.008	0.300	AGC MAVG - calculated
9/16/2014 23:44	0:01	KWPII	0.003	18.942	AGC MAVG - calculated
9/16/2014 23:52	0:01	KWPII	0.013	13.969	AGC MAVG - calculated
9/16/2014 23:54	0:01	KWPII	0.024	14.837	AGC MAVG - calculated
9/16/2014 23:58	0:01	KWPII	0.022	14.212	AGC MAVG - calculated
9/17/2014 1:48	0:01	AWE	0.003	0.200	AGC MAVG - calculated
9/17/2014 5:12	0:01	AWE	0.007	0.400	AGC MAVG - calculated
9/17/2014 8:22	0:01	KWP	0.000	0.018	AGC MAVG - calculated
9/17/2014 9:14	0:01	AWE	0.005	0.300	AGC MAVG - calculated
9/17/2014 13:00	0:01	KWP	0.002	0.068	AGC MAVG - calculated
9/17/2014 18:50	0:01	AWE	0.003	0.200	AGC MAVG - calculated
9/18/2014 11:24	0:01	KWP	0.000	0.018	AGC MAVG - calculated and Good Engineering and Operating Practices
9/18/2014 13:56	0:01	KWPII	0.000	0.018	AGC MAVG - calculated and Good Engineering and Operating Practices
9/18/2014 20:31	0:01	KWP	0.002	0.128	AGC MAVG - calculated
9/18/2014 16:07	0:01	KWP	0.001	0.032	AGC MAVG - calculated and Good Engineering and Operating Practices
9/21/2014 10:05	0:01	KWP	0.001	0.048	AGC MAVG - calculated
9/21/2014 13:44	0:02	KWPII	0.001	0.032	AGC MAVG - calculated
9/21/2014 13:20	0:01	KWP	0.000	0.018	AGC MAVG - calculated
9/21/2014 13:47	0:01	KWP	0.000	0.018	AGC MAVG - calculated
9/21/2014 17:17	0:01	KWP	0.000	0.018	AGC MAVG - calculated
9/22/2014 4:48	0:01	KWPII	0.004	13.282	AGC MAVG - calculated
9/22/2014 4:50	0:02	KWPII	0.051	13.723	AGC MAVG - calculated
9/22/2014 4:54	0:01	KWPII	0.012	14.224	AGC MAVG - calculated
9/22/2014 4:58	0:01	KWPII	0.033	14.587	AGC MAVG - calculated
9/22/2014 4:59	0:08	KWPII	0.080	14.242	AGC MAVG - calculated
9/22/2014 5:06	0:01	KWPII	0.013	12.531	AGC MAVG - calculated
9/22/2014 5:17	0:01	KWPII	0.007	13.743	AGC MAVG - calculated
9/22/2014 5:20	0:02	KWPII	0.057	15.188	AGC MAVG - calculated
9/22/2014 5:23	0:04	KWPII	0.208	15.840	AGC MAVG - calculated
9/22/2014 5:32	0:02	KWPII	0.118	18.586	AGC MAVG - calculated
9/22/2014 11:10	0:01	KWPII	0.036	16.882	AGC MAVG - calculated
9/22/2014 11:18	0:05	KWPII	0.298	19.751	AGC MAVG - calculated
9/22/2014 11:25	0:01	KWPII	0.089	20.022	AGC MAVG - calculated
9/22/2014 11:28	0:08	KWPII	0.585	20.345	AGC MAVG - calculated
9/22/2014 11:35	0:02	KWPII	0.001	0.181	AGC MAVG - calculated
9/22/2014 11:41	0:02	KWPII	0.148	20.288	AGC MAVG - calculated
9/22/2014 11:45	0:01	KWPII	0.070	18.004	AGC MAVG - calculated
9/22/2014 12:04	0:01	KWPII	0.024	19.847	AGC MAVG - calculated
9/22/2014 12:08	0:03	KWPII	0.145	19.861	AGC MAVG - calculated
9/22/2014 12:13	0:03	KWPII	0.110	19.631	AGC MAVG - calculated
9/22/2014 12:53	0:01	KWPII	0.047	18.938	AGC MAVG - calculated
9/22/2014 13:15	0:01	KWPII	0.008	19.302	AGC MAVG - calculated
9/22/2014 13:38	0:01	KWPII	0.018	19.884	AGC MAVG - calculated
9/22/2014 13:59	0:01	KWPII	0.017	20.044	AGC MAVG - calculated
9/22/2014 22:00	0:04	KWPII	0.065	20.708	AGC MAVG - calculated
9/22/2014 23:18	0:08	KWPII	0.218	20.708	AGC MAVG - calculated
9/22/2014 23:40	0:10	KWPII	0.483	20.708	AGC MAVG - calculated
9/23/2014 0:00	0:03	KWPII	0.082	20.708	AGC MAVG - calculated
9/23/2014 0:51	1:44	KWPII	10.594	20.708	AGC MAVG - calculated
9/23/2014 2:44	1:18	KWPII	9.545	20.708	AGC MAVG - calculated
9/23/2014 4:18	0:01	KWPII	0.008	20.708	AGC MAVG - calculated
9/23/2014 10:58	0:01	KWPII	0.005	19.840	AGC MAVG - calculated
9/23/2014 14:08	0:08	KWPII	0.070	20.531	AGC MAVG - calculated
9/23/2014 14:15	0:08	KWPII	0.018	20.583	AGC MAVG - calculated
9/23/2014 14:34	0:01	KWPII	0.001	20.288	AGC MAVG - calculated
9/23/2014 14:51	0:01	KWPII	0.008	20.236	AGC MAVG - calculated
9/23/2014 22:27	0:01	KWPII	0.000	20.318	AGC MAVG - calculated
9/24/2014 0:18	0:01	KWPII	0.022	9.960	AGC MAVG - calculated
9/24/2014 1:59	0:28	KWPII	2.371	11.182	AGC MAVG - calculated
9/24/2014 2:08	0:02	AWE	0.006	18.200	AGC MAVG - calculated
9/24/2014 2:11	0:03	AWE	0.037	19.000	AGC MAVG - calculated
9/24/2014 2:19	0:01	AWE	0.005	19.100	AGC MAVG - calculated
9/24/2014 2:28	0:52	KWPII	6.741	18.498	AGC MAVG - calculated
9/24/2014 3:21	0:01	KWPII	0.038	14.719	AGC MAVG - calculated
9/24/2014 3:23	0:02	KWPII	0.044	14.882	AGC MAVG - calculated
9/24/2014 3:28	0:01	KWPII	0.013	15.228	AGC MAVG - calculated
9/24/2014 3:31	0:02	KWPII	0.007	14.425	AGC MAVG - calculated
9/24/2014 3:35	0:01	KWPII	0.014	13.080	AGC MAVG - calculated



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWh	Peak MW Curtailed	Reasons for Curtailment
9/24/2014 3:41	0:01	KWPII	0.013	14.576	AGC MAVG - calculated
9/24/2014 3:45	0:01	KWPII	0.008	12.890	AGC MAVG - calculated
9/24/2014 3:48	0:01	KWPII	0.031	12.237	AGC MAVG - calculated
9/24/2014 3:51	0:01	KWPII	0.012	12.884	AGC MAVG - calculated
9/24/2014 3:53	0:02	KWPII	0.007	13.795	AGC MAVG - calculated
9/24/2014 11:00	0:01	KWPII	0.003	20.691	AGC MAVG - calculated
9/24/2014 11:03	0:01	KWPII	0.006	20.196	AGC MAVG - calculated
9/24/2014 11:06	0:04	KWPII	0.006	20.631	AGC MAVG - calculated
9/24/2014 11:13	0:11	KWPII	0.223	20.694	AGC MAVG - calculated
9/24/2014 11:27	0:36	KWPII	2.796	20.708	AGC MAVG - calculated
9/24/2014 12:29	0:04	KWPII	0.031	20.708	AGC MAVG - calculated
9/24/2014 12:34	0:04	KWPII	0.010	20.708	AGC MAVG - calculated
9/24/2014 12:42	0:01	KWPII	0.000	20.708	AGC MAVG - calculated
9/24/2014 12:45	0:02	KWPII	0.004	20.708	AGC MAVG - calculated
9/24/2014 12:48	0:07	KWPII	0.060	20.708	AGC MAVG - calculated
9/24/2014 12:50	0:01	KWPII	0.013	20.708	AGC MAVG - calculated
9/24/2014 13:10	0:02	KWPII	0.004	20.708	AGC MAVG - calculated
9/24/2014 13:20	0:01	AWE	0.002	0.100	AGC MAVG - calculated
9/25/2014 8:39	0:01	KWPII	0.013	20.491	AGC MAVG - calculated and Good Engineering and Operating Practices
9/25/2014 8:42	0:19	KWPII	1.122	20.567	AGC MAVG - calculated, Good Engineering and Operating Practices, and Operating Conditions on Company's
9/25/2014 8:22	0:02	KWPII	0.013	19.180	System
9/25/2014 8:25	0:52	KWPII	4.871	20.701	System
9/25/2014 10:20	0:04	KWPII	0.031	20.697	System
9/25/2014 10:49	0:01	KWPII	0.002	20.574	System
9/25/2014 10:56	0:04	KWPII	0.026	20.521	System
9/25/2014 12:36	0:02	KWPII	0.067	18.807	System
9/25/2014 12:42	0:31	KWPII	1.335	20.706	System
9/25/2014 13:16	0:10	KWPII	0.797	20.599	System
9/25/2014 13:28	0:03	KWPII	0.273	20.661	System
9/25/2014 13:32	0:03	KWPII	0.251	20.674	System
9/25/2014 13:36	0:05	KWPII	0.389	20.658	System
9/25/2014 13:43	0:03	KWPII	0.253	20.649	System
9/25/2014 13:49	0:26	KWPII	3.638	20.704	System
9/26/2014 0:23	0:06	KWPII	0.115	7.595	AGC MAVG - calculated
9/26/2014 1:54	0:01	KWPII	0.028	7.705	AGC MAVG - calculated
9/26/2014 1:56	0:01	KWPII	0.002	8.868	AGC MAVG - calculated
9/26/2014 2:02	0:02	KWPII	0.023	12.580	AGC MAVG - calculated
9/26/2014 2:07	0:12	KWPII	0.573	12.061	AGC MAVG - calculated
9/26/2014 7:17	0:39	KWPII	7.147	17.827	AGC MAVG - calculated
9/26/2014 7:33	0:07	AWE	0.178	21.000	AGC MAVG - calculated
9/26/2014 7:41	0:01	AWE	0.006	21.000	AGC MAVG - calculated
9/26/2014 7:43	0:05	AWE	0.050	21.000	AGC MAVG - calculated
9/26/2014 7:58	0:09	KWPII	0.796	14.749	AGC MAVG - calculated
9/26/2014 8:00	0:03	KWPII	0.060	13.798	AGC MAVG - calculated
9/26/2014 8:14	0:01	KWPII	0.001	13.888	AGC MAVG - calculated
9/26/2014 8:18	0:02	KWPII	0.008	13.191	AGC MAVG - calculated
9/26/2014 12:22	0:01	KWPII	0.000	0.018	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
9/26/2014 18:18	0:01	KWPII	0.000	0.018	AGC MAVG - calculated and Testing
9/26/2014 22:26	0:01	KWPII	0.001	0.032	AGC MAVG - calculated
9/26/2014 23:19	0:29	AWE	2.735	21.000	AGC MAVG - calculated
9/26/2014 23:23	0:29	KWPII	4.140	17.340	AGC MAVG - calculated
9/26/2014 23:54	0:38	KWPII	10.672	19.172	AGC MAVG - calculated
9/27/2014 0:08	0:01	AWE	0.005	21.000	AGC MAVG - calculated
9/27/2014 0:10	0:12	AWE	0.070	21.000	AGC MAVG - calculated
9/27/2014 0:34	0:24	KWPII	2.561	18.621	AGC MAVG - calculated
9/27/2014 1:02	0:01	KWPII	0.024	12.658	AGC MAVG - calculated
9/27/2014 1:05	0:44	KWPII	3.351	17.067	AGC MAVG - calculated
9/27/2014 1:50	1:26	KWPII	20.830	19.156	AGC MAVG - calculated
9/27/2014 2:07	0:30	AWE	1.108	21.000	AGC MAVG - calculated
9/27/2014 2:44	0:02	AWE	0.046	20.300	AGC MAVG - calculated
9/27/2014 2:47	0:03	AWE	0.043	21.000	AGC MAVG - calculated
9/27/2014 2:52	0:05	AWE	0.023	21.000	AGC MAVG - calculated
9/27/2014 2:58	0:01	AWE	0.000	21.000	AGC MAVG - calculated
9/27/2014 3:01	0:01	AWE	0.007	21.000	AGC MAVG - calculated
9/27/2014 3:03	0:01	AWE	0.007	21.000	AGC MAVG - calculated
9/27/2014 3:17	0:19	KWPII	2.184	14.170	AGC MAVG - calculated
9/27/2014 3:18	0:02	AWE	0.014	20.900	AGC MAVG - calculated
9/27/2014 3:21	0:00	AWE	0.090	21.000	AGC MAVG - calculated
9/27/2014 3:28	0:01	AWE	0.024	21.000	AGC MAVG - calculated
9/27/2014 3:30	0:19	KWPII	2.769	16.164	AGC MAVG - calculated
9/27/2014 3:40	0:01	AWE	0.015	21.000	AGC MAVG - calculated
9/27/2014 3:42	0:01	AWE	0.008	21.000	AGC MAVG - calculated
9/27/2014 3:44	0:02	AWE	0.037	21.000	AGC MAVG - calculated
9/27/2014 3:47	0:02	AWE	0.023	21.000	AGC MAVG - calculated
9/27/2014 4:31	0:01	KWPII	0.003	3.153	AGC MAVG - calculated
9/27/2014 4:33	1:28	KWPII	6.261	18.018	AGC MAVG - calculated
9/27/2014 8:02	0:40	KWPII	2.407	19.183	AGC MAVG - calculated
9/27/2014 8:43	0:01	KWPII	0.015	18.868	AGC MAVG - calculated
9/27/2014 8:48	0:02	KWPII	0.011	19.000	AGC MAVG - calculated
9/27/2014 8:52	0:02	KWPII	0.012	19.083	AGC MAVG - calculated
9/27/2014 13:17	0:03	KWPII	0.042	18.364	AGC MAVG - calculated
9/27/2014 23:04	0:01	AWE	0.005	0.100	AGC MAVG - calculated
9/27/2014 23:58	0:01	KWPII	0.006	20.443	AGC MAVG - calculated
9/27/2014 22:46	0:13	KWPII	1.246	20.635	AGC MAVG - calculated and Operating Conditions on Company's System
9/27/2014 23:09	8:19	KWPII	131.300	20.707	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 0:46	0:05	AWE	0.199	9.800	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 0:54	0:15	AWE	0.896	13.900	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 1:13	0:06	AWE	0.069	6.400	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 1:25	0:02	AWE	0.031	4.600	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 1:29	1:12	AWE	9.422	20.600	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 2:42	3:32	AWE	20.628	21.000	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 8:15	0:02	AWE	0.030	21.000	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 8:33	0:02	AWE	0.008	21.000	AGC MAVG - calculated and Operating Conditions on Company's System
9/28/2014 7:30	0:03	KWPII	0.107	18.316	AGC MAVG - calculated
9/28/2014 7:55	0:01	KWPII	0.000	18.289	AGC MAVG - calculated
9/28/2014 8:21	0:01	KWPII	0.000	18.965	AGC MAVG - calculated
9/28/2014 8:24	0:01	KWPII	0.013	20.164	AGC MAVG - calculated
9/28/2014 11:33	0:03	KWPII	0.075	13.430	AGC MAVG - calculated
9/28/2014 11:58	0:02	KWPII	0.098	17.305	AGC MAVG - calculated
9/28/2014 12:04	0:01	KWPII	0.008	16.515	AGC MAVG - calculated
9/28/2014 12:08	0:34	KWPII	2.129	20.362	AGC MAVG - calculated
9/28/2014 12:45	0:03	KWPII	0.048	19.242	AGC MAVG - calculated
9/28/2014 12:49	0:01	KWPII	0.032	19.711	AGC MAVG - calculated
9/28/2014 12:52	0:01	KWPII	0.007	19.708	AGC MAVG - calculated
9/28/2014 13:41	0:01	KWPII	0.035	15.822	AGC MAVG - calculated
9/28/2014 13:55	0:01	KWPII	0.028	17.998	AGC MAVG - calculated
9/28/2014 13:57	0:01	KWPII	0.033	18.315	AGC MAVG - calculated



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
9/28/2014 21:19	0:01	KWPII	0.005	19.959	AGC MAVG - calculated
9/28/2014 21:40	0:01	KWPII	0.006	18.225	AGC MAVG - calculated
9/28/2014 22:11	0:02	KWPII	0.036	19.052	AGC MAVG - calculated
9/28/2014 22:14	0:01	KWPII	0.015	18.388	AGC MAVG - calculated
9/28/2014 22:18	0:01	KWPII	0.016	19.208	AGC MAVG - calculated
9/28/2014 23:24	0:03	KWPII	0.028	17.805	AGC MAVG - calculated
9/28/2014 0:49	0:01	KWPII	0.020	8.391	AGC MAVG - calculated
9/28/2014 3:08	0:07	KWPII	0.157	7.458	AGC MAVG - calculated
9/28/2014 3:26	0:02	KWPII	0.028	11.940	AGC MAVG - calculated
9/28/2014 10:53	0:01	KWPII	0.000	0.017	AGC MAVG - calculated and Testing
9/28/2014 22:19	0:01	KWPII	0.001	0.033	AGC MAVG - calculated
9/30/2014 18:12	0:01	KWPII	0.003	0.207	AGC MAVG - calculated

Notes

- Curtailment for Kahaeae Wind Power ("KWP"), Maui hydroelectric ("MH"), AAAAA Rent-A-Space Maui LTD ("SA"), BioSolar, LLC ("BS"), Aunahi Wind Energy ("AWE") and Kahaeae Wind Power II ("KWPII") 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 SA, BS, or MH.

- Curtailment signals sent to SA or BS during nighttime hours are not recorded as curtailment events because no energy generation is possible during that time.



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Start Date/Time	Stop Date/Time	Duration (h:mm)	IPP Curtained	Estimated MWH Curtained	Peak MW Curtained	Reasons for Curtailment
9/21/2014 12:30	9/21/2014 12:34	0:05	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 12:50	9/21/2014 13:08	0:19	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 13:10	9/21/2014 13:13	0:04	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 13:18	9/21/2014 13:23	0:06	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 13:44	9/21/2014 13:48	0:05	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 13:55	9/21/2014 13:55	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 13:59	9/21/2014 14:00	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 14:06	9/21/2014 14:19	0:11	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/21/2014 14:21	9/21/2014 14:21	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 6:49	9/22/2014 7:50	1:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 10:25	9/22/2014 10:25	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 10:32	9/22/2014 10:37	0:06	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 10:57	9/22/2014 10:58	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 11:57	9/22/2014 11:58	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 12:01	9/22/2014 12:01	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 12:52	9/22/2014 12:52	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 13:06	9/22/2014 13:06	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 14:04	9/22/2014 14:05	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 14:07	9/22/2014 14:56	1:50	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 15:59	9/22/2014 16:03	0:05	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 16:06	9/22/2014 16:06	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 16:21	9/22/2014 16:22	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 16:26	9/22/2014 16:30	0:05	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/22/2014 16:38	9/22/2014 17:04	0:27	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 7:34	9/23/2014 8:32	0:59	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 9:11	9/23/2014 9:11	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 9:14	9/23/2014 9:36	0:23	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 9:41	9/23/2014 9:47	0:07	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 9:51	9/23/2014 9:52	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 9:55	9/23/2014 9:55	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 10:02	9/23/2014 10:04	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 10:06	9/23/2014 10:08	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 10:27	9/23/2014 10:27	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 10:29	9/23/2014 12:08	1:40	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 12:17	9/23/2014 12:24	0:08	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 12:30	9/23/2014 12:32	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 12:39	9/23/2014 12:41	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 12:52	9/23/2014 12:52	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 12:55	9/23/2014 13:00	0:06	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 13:02	9/23/2014 13:14	0:13	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 13:25	9/23/2014 13:25	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 13:29	9/23/2014 13:29	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 13:32	9/23/2014 13:33	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 13:45	9/23/2014 13:45	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/23/2014 17:43	9/23/2014 17:57	0:15	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/24/2014 7:21	9/24/2014 8:32	1:12	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/24/2014 8:34	9/24/2014 8:35	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/24/2014 8:37	9/24/2014 8:44	0:08	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/24/2014 8:47	9/24/2014 9:06	0:20	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/24/2014 9:11	9/24/2014 9:41	0:31	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/29/2014 7:42	9/29/2014 7:42	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 7:14	9/30/2014 7:24	0:11	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 7:27	9/30/2014 7:33	0:07	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 7:47	9/30/2014 7:48	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 8:02	9/30/2014 8:02	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 9:10	9/30/2014 9:16	0:07	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 10:16	9/30/2014 10:18	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 10:30	9/30/2014 10:30	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:02	9/30/2014 11:09	0:08	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:13	9/30/2014 11:16	0:04	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:19	9/30/2014 11:27	0:09	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:33	9/30/2014 11:35	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:37	9/30/2014 11:40	0:04	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:43	9/30/2014 11:44	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 11:55	9/30/2014 11:58	0:04	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 12:01	9/30/2014 12:06	0:06	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 12:09	9/30/2014 12:09	0:01	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 12:14	9/30/2014 12:16	0:03	LSR	Data is not available	Data is not available	Good engineering and operating practices
9/30/2014 15:56	9/30/2014 15:57	0:02	LSR	Data is not available	Data is not available	Good engineering and operating practices

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.

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Start Date/Time	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released ¹	Reason for Curtailment
09/08/14 10:53	4.0 MW	09/13/14 13:30	8.9 MW	Tawhiri request self-curtail to various levels, while it investigated, tested, and performed repairs on its communication link after wind farm trip on 9/8/14.
09/13/14 13:30	8.9 MW	09/16/14 08:29	0.0 MW	Tawhiri request self-curtail to zero, after wind farm trip on 9/13/14 at 13.30. Tawhiri kept their turbines offline until replacement UPS installed at switching station.
09/16/14 16:29	10.0 MW	09/19/14 12:07	6.4 MW	Tawhiri request self-curtail to various levels, while it installed additional equipment to better ensure power stability and monitoring of its communications equipment.
09/26/14 01:48	19.8 MW	09/26/14 04:09	12.9 MW	Tawhiri Group B curtailed for excess energy.

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.