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PUBLIC UTILITIES
COMMISSION



November 27, 2013

Dean K. Matsuura
Manager
Regulatory Affairs

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 October 2013 on (1) system frequency control performance during month; (2) significant system events during month; and (3) curtailment of non-dispatchable renewable resources.

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

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

Very truly yours,

Enclosure

cc: Service List

¹ Hawaiian Electric Company, Inc., 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)

JEFFREY T. ONO EXECUTIVE DIRECTOR DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS DIVISION OF CONSUMER ADVOCACY P.O. Box 541 Honolulu, HI 96809	2 Copies Via Hand Delivery
GREGG J. KINKLEY, ESQ. DEPARTMENT OF THE ATTORNEY GENERAL 425 Queen Street Honolulu, Hawaii 96813 Counsel for DBEDT	1 Copy Electronically Transmitted
DANIEL W.S. LAWRENCE, ESQ. DEPARTMENT OF THE CORPORATION COUNSEL CITY AND COUNTY OF HONOLULU 530 S. King Street, Room 110 Honolulu, HI 96813 Counsel for the CITY AND COUNTY OF HONOLULU	1 Copy Electronically Transmitted
LINCOLN S.T. ASHIDA, ESQ. WILLIAM V. BRILHANTE, JR., ESQ. MICHAEL J. UDOVIC, ESQ. DEPARTMENT OF THE CORPORATION COUNSEL COUNTY OF HAWAII 101 Aupuni Street, Suite 325 Hilo, HI 96720 Counsel for the COUNTY OF HAWAII	1 Copy Electronically Transmitted
HENRY Q CURTIS KAT BRADY LIFE OF THE LAND P.O. Box 37158 Honolulu, HI 96837-0158	1 Copy Electronically Transmitted
WARREN S. BOLLMEIER II PRESIDENT HAWAII RENEWABLE ENERGY ALLIANCE 46-040 Konane Place, #3816 Kaneohe, HI 96744	1 Copy Electronically Transmitted

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(Docket No. 2011-0206)

DOUGLAS A. CODIGA, ESQ.
SCHLACK ITO LLLC
Topa Financial Center
745 Fort Street, Suite 1500
Honolulu, HI 96813
Counsel for BLUE PLANET FOUNDATION

1 Copy
Electronically Transmitted

ISAAC MORIWAKE, ESQ.
DAVID HENKIN, ESQ.
EARTHJUSTICE
850 Richards Street, Suite 400
Honolulu, HI 96813-4501
Counsel for HAWAII SOLAR ENERGY ASSOCIATION

1 Copy
Electronically Transmitted

KENT D. MORIHARA, ESQ.
KRIS N. NAKAGAWA, ESQ.
LAUREN M. IMADA-LEE, ESQ.
Morihara Lau & Fong LLP
841 Bishop Street, Suite 400
Honolulu, Hawaii 96813
Counsel for KAUAI ISLAND UTILITY COOPERATIVE

1 Copy
Electronically Transmitted

ERIK W. KVAM
CHIEF EXECUTIVE OFFICER
ZERO EMISSIONS LEASING LLC
1110 University Avenue, Suite 402
Honolulu, HI 96826

1 Copy
Electronically Transmitted

SANDRA-ANN Y.H. WONG, ESQ.
ATTORNEY AT LAW, A LAW CORPORATION
1050 Bishop Street, #514
Honolulu, HI 96813
Counsel for TAWHIRI POWER LLC

1 Copy
Electronically Transmitted

RILEY SAITO
73-1294 Awakea Street
Kailua-Kona, HI 96740
For SOLAR ENERGY INDUSTRIES ASSOCIATION

1 Copy
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DEAN T. YAMAMOTO, ESQ.
YAMAMOTO & SETTLE
700 Bishop Street, Suite 200
Honolulu, HI 96813
Counsel for CASTLE & COOKE HOMES HAWAII, INC.,
CASTLE & COOKE RESORTS, LLC and
LANAI SUSTAINABILITY RESEARCH, LLC

1 Copy
Electronically Transmitted

MICHAEL J. HOPPER, ESQ.
DEPUTY CORPORATION COUNSEL
DEPARTMENT OF THE CORPORATION COUNSEL
COUNTY OF MAUI
200 S. High Street
Wailuku, HI 96793
Counsel for the COUNTY OF MAUI

1 Copy
Electronically Transmitted

MONA W. CLARK, ESQ.
OFFICE OF THE COUNTY ATTORNEY
COUNTY OF KAUAI
4444 Rice Street, Suite 200
Lihue, HI 96766-1300

1 Copy
Electronically Transmitted

BRADLEY ALBERT
PRESIDENT
HAWAII PV COALITION
P.O. Box 81501
Haiku, HI 96708

1 Copy
Electronically Transmitted

HILTON H. UNEMORI
ECM, INC.
130 N. Market Street
Wailuku, HI 96793-1716
For SOUTH MAUI RENEWABLE RESOURCES, LLC

1 Copy
Electronically Transmitted

KEVIN T. FOX
KEYES & FOX, LLP
436 14th Street, Suite 1305
Oakland, CA 94612
For the INTERSTATE RENEWABLE ENERGY COUNCIL

1 Copy
Electronically Transmitted

SERVICE LIST
(Docket No. 2011-0206)

HUGH D. BAKER, JR.
HDBAKER & COMPANY HAWAII LLC
78-7000 Kewalo Street
Kailua-Kona, HI 96740

1 Copy
Electronically Transmitted

PETE COOPER
SOLARCITY CORPORATION
REGIONAL DIRECTOR, HAWAII
599 Kahelu Street
Mililani, HI 96789

1 Copy
Electronically Transmitted

STANLEY ALLEN GRAY, SENIOR DEVELOPER
Pier 1, Bay 3
San Francisco, CA 94111
For MOLOKAI RENEWABLES LLC

1 Copy
Electronically Transmitted

ALISON SILVERSTEIN
19213 Luedtke Lane
Pflugerville, TX 78660

1 Copy
Electronically Transmitted

BRENDAN KIRBY
12011 SW Pineapple Court
Palm City, FL 34990

1 Copy
Electronically Transmitted

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 October 31, 2013):

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

The frequency duration plots for Hawaiian Electric, 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 October 31, 2013):

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:

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

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.
Maui Electric and Hawai'i Electric Light currently do not have demand response programs.

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

The following provides information with respect to items 3a) through 3b) – (all statements are current as of the month ending October 31, 2013):

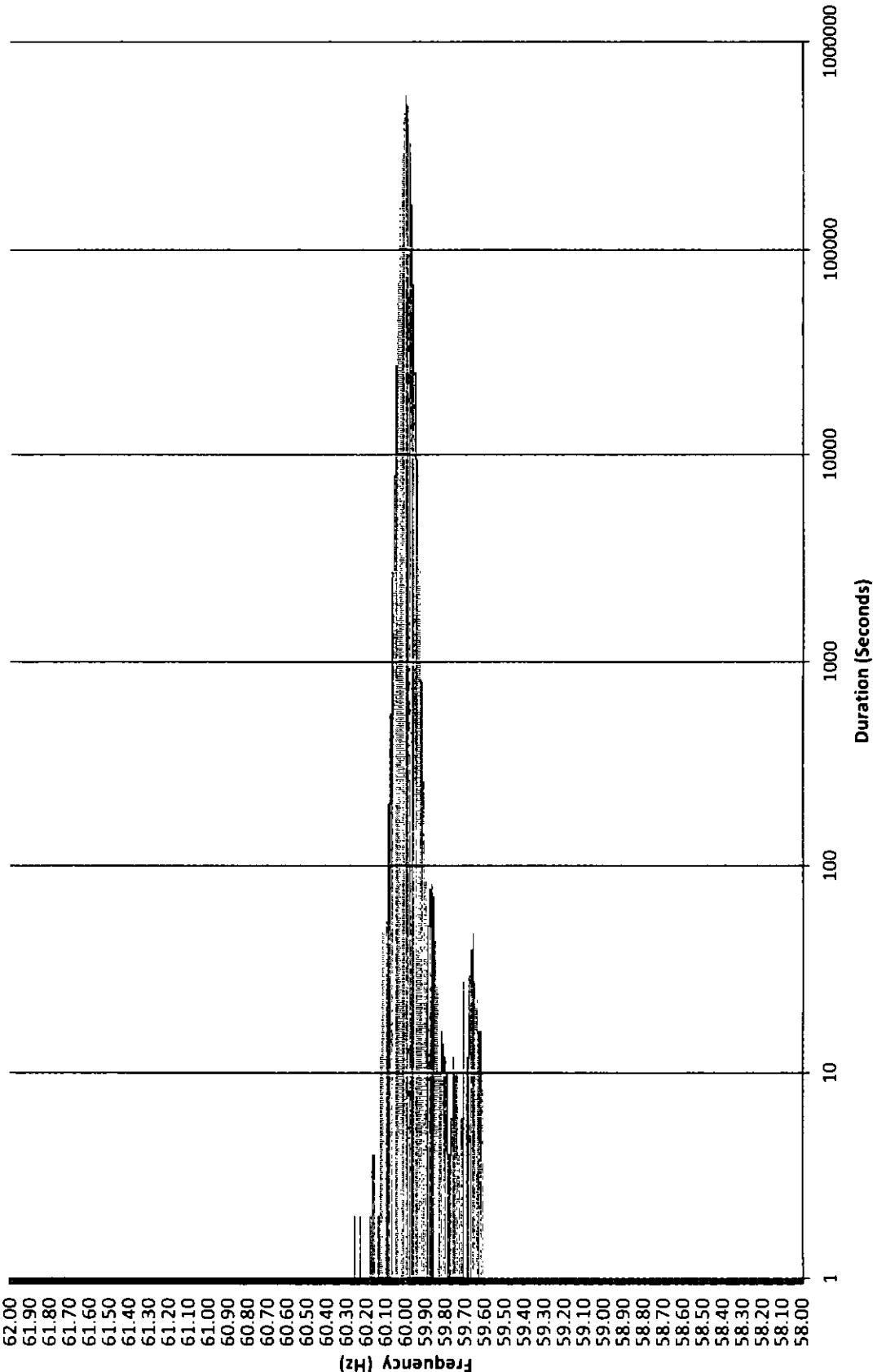
3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:

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

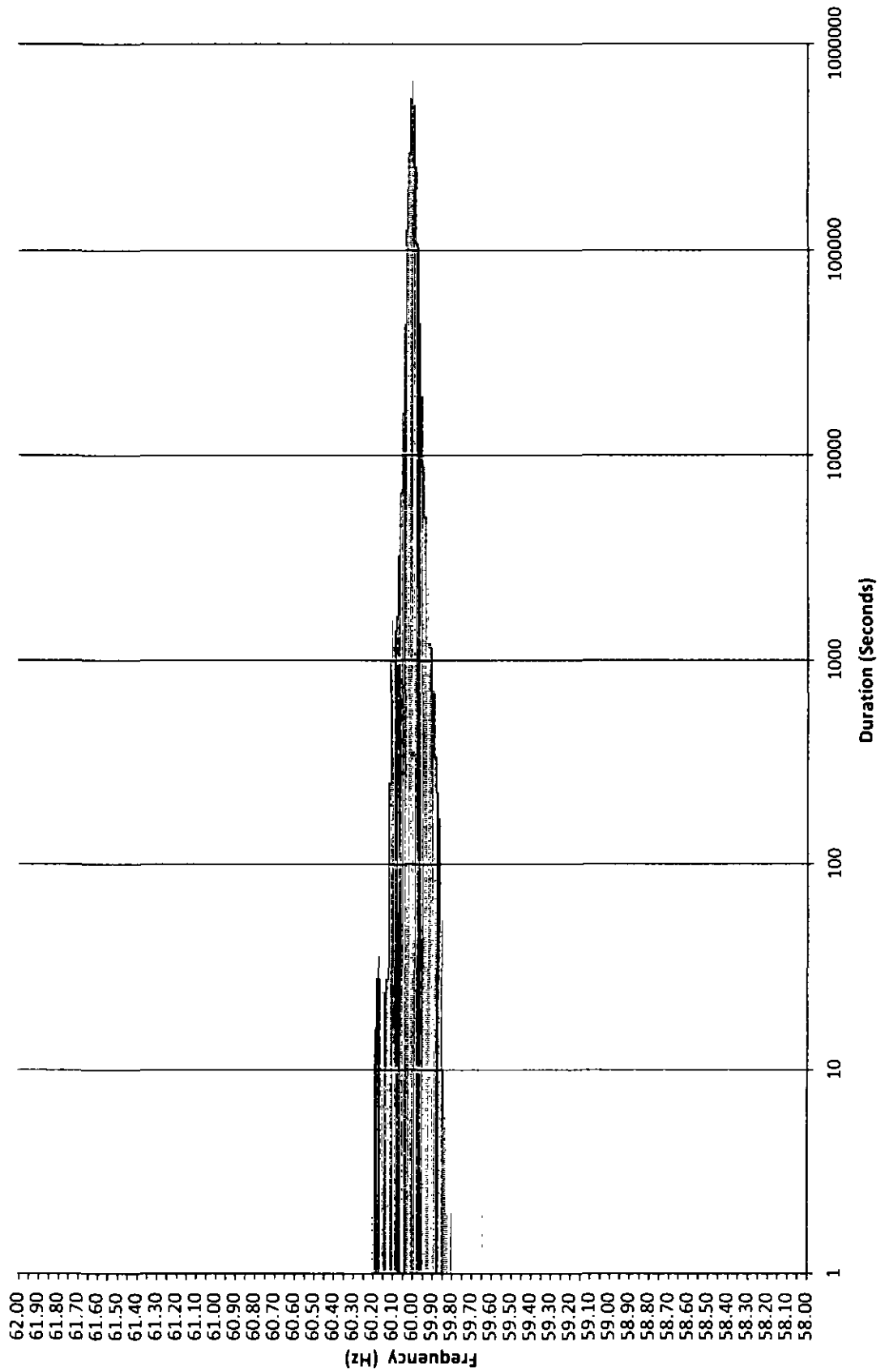
3b) Total MWh of non-dispatchable renewable resources curtailed for the month:

Curtailed MWh from non-dispatchable resources are difficult to determine due to the variability of the resource during curtailment periods. In some cases, the curtailed MWh estimates were provided by the IPPs under curtailment. 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.

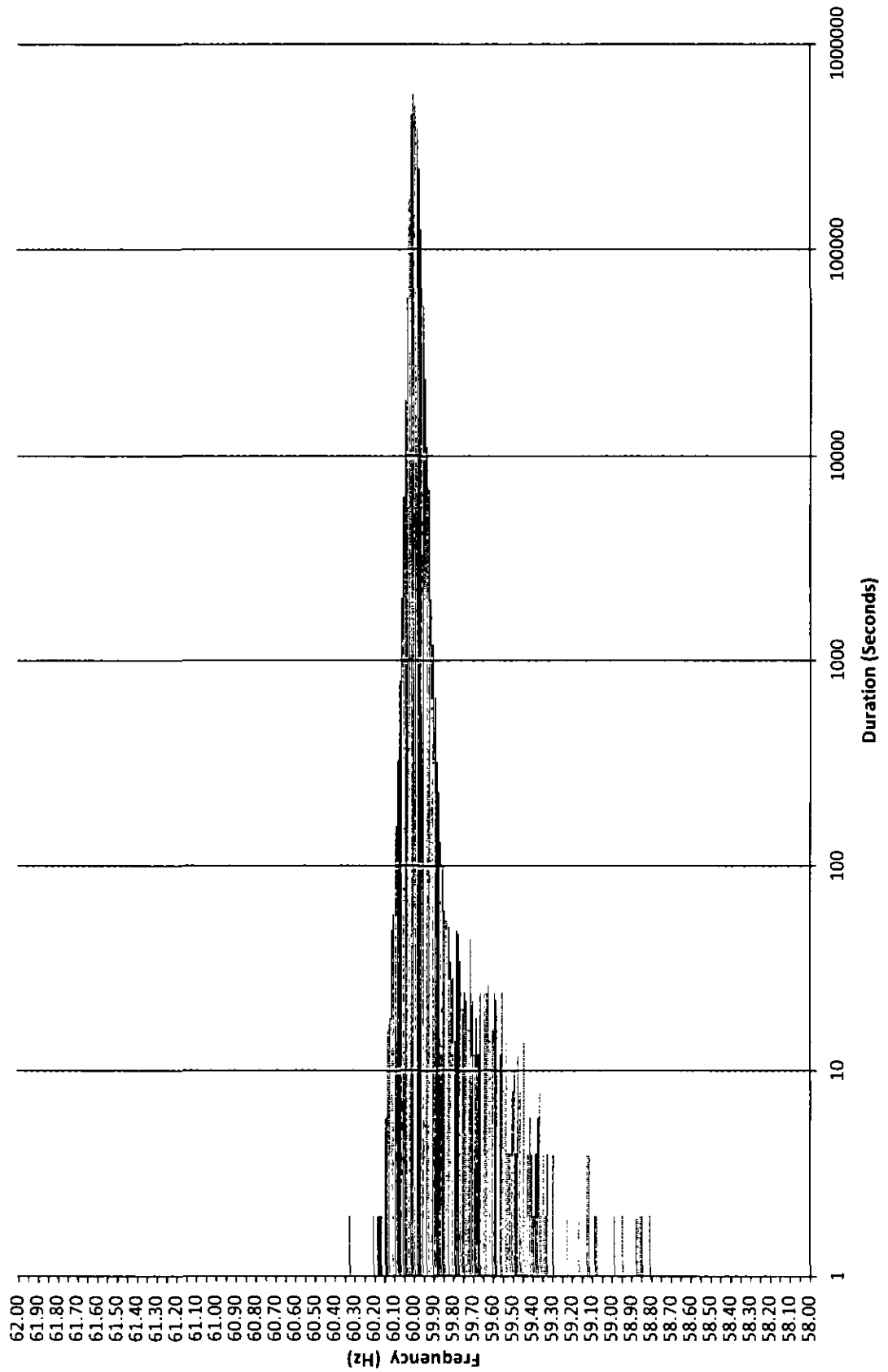
Frequency Distribution Plot - Hawaiian Electric October 2013



Maui Electric Frequency Distribution Plot - Maui October 2013



Frequency Distribution Plot - Hawai'i Electric Light October 2013



Hawaiian Electric Frequency Excursion Statistics October 2013		
Data Rounded to the nearest	<59.95 Hz	>60.05 Hz
Number of Excursions	916	862
Maximum Duration (sec)	516	788
Maximum Deviation (Hz)	59.607	60.258
Total Duration of Excursions (sec)	23594	21206

Maui Electric Frequency Excursion Statistics October 2013		
	<59.95 Hz	>60.05 Hz
Number of Excursions	2938	2023
Maximum Duration (sec)	690	598
Maximum Deviation (Hz)	59.635	60.196
Total Duration of Excursions (sec)	28342	20820

Hawai'i Electric Light Frequency Excursion Statistics October 2013		
	<59.95 Hz	>60.05 Hz
Number of Excursions	9028	1052
Maximum Duration (sec)	284	74
Maximum Deviation (Hz)	58.797	60.315
Total Duration of Excursions (sec)	69284	5778

Hawaiian Electric Curtailment Report October 2013

Start Date/Time	Curtailment Set Point	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released	Estimated MWh of curtailed energy during event (1)	IPP	Reason for Curtailment
10/09/13 04:36	0.0	4.40	10/09/13 04:59	0	*	KWF	Pole upgrades on Koolau Kahuku 46kV line and pole installation at Wahee substation
10/09/13 04:37	0.0	8.00	10/09/13 05:00	0	*	Makai	Pole upgrades on Koolau Kahuku 46kV line and pole installation at Wahee substation
10/09/13 16:08	0.0	4.70	10/09/13 16:25	0	*	KWF	Pole upgrades on Koolau Kahuku 46kV line and pole installation at Wahee substation
10/09/13 16:09	0.0	4.50	10/09/13 16:26	0	*	Makai	Pole upgrades on Koolau Kahuku 46kV line and pole installation at Wahee substation
10/10/13 05:01	0.0	2.50	10/10/13 05:36	0	*	KWF	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/10/13 05:02	0.0	0.00	10/10/13 05:36	0	*	Makai	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/10/13 16:57	0.0	7.00	10/10/13 18:06	0	*	Makai	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/10/13 16:58	0.0	3.00	10/10/13 18:06	0	*	KWF	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/15/13 06:38	0.0	0.00	10/15/13 07:34	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/15/13 06:39	0.0	1.20	10/15/13 07:33	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/15/13 15:44	0.0	6.00	10/15/13 16:23	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/15/13 15:44	0.0	4.00	10/15/13 16:23	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/17/13 09:15	0.0	0.90	10/17/13 09:57	0	*	KWF	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/17/13 09:15	0.0	0.10	10/17/13 09:57	0	*	Makai	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/17/13 15:04	0.0	0.00	10/17/13 16:03	0	*	KWF	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/17/13 15:07	0.0	0.00	10/17/13 16:02	0	*	Makai	Pole replacement and upgrades on Koolau Kahuku 46kV line
10/23/13 05:15	0.0	4.00	10/23/13 05:51	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/23/13 05:15	0.0	0.00	10/23/13 05:51	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/23/13 15:41	0.0	2.50	10/23/13 16:14	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/23/13 15:41	0.0	7.50	10/23/13 16:14	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/24/13 07:22	0.0	1.00	10/24/13 08:49	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/24/13 07:22	0.0	0.00	10/24/13 08:09	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/24/13 16:04	0.0	3.90	10/24/13 16:35	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/24/13 16:04	0.0	6.10	10/24/13 16:35	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/29/13 05:42	0.0	4.00	10/29/13 06:21	0	*	KWF	Pole upgrades on Koolau Kahuku 46kV line
10/29/13 05:42	0.0	0.00	10/29/13 06:21	0	*	Makai	Pole upgrades on Koolau Kahuku 46kV line
10/29/13 15:33	0.0	3.10	10/29/13 16:33	0	*	KWF	Pole upgrades on Koolau Kahuku 46kV line
10/29/13 15:54	0.0	3.60	10/29/13 16:34	0	*	Makai	Pole upgrades on Koolau Kahuku 46kV line
10/30/13 05:32	0.0	4.60	10/30/13 06:19	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/30/13 05:32	0.0	0.10	10/30/13 06:19	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/30/13 15:35	0.0	2.00	10/30/13 16:27	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/30/13 15:36	0.0	5.60	10/30/13 16:17	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/31/13 05:30	0.0	1.10	10/31/13 06:17	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/31/13 05:31	0.0	0.10	10/31/13 06:17	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line
10/31/13 15:58	0.0	4.70	10/31/13 16:28	0	*	KWF	Pole replacement on Koolau Kahuku 46kV line
10/31/13 15:58	0.0	4.50	10/31/13 16:28	0	*	Makai	Pole replacement on Koolau Kahuku 46kV line

KLS2 = Kalaheo Solar 2 PV Farm

KWF = Kahuku Wind Farm

Makai = Kawaihoa Makai Wind Farm

Mauka = Kawaihoa Mauka Wind Farm

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

* Data has not been provided by IPP

RSWG Maul Curtailment Report October 2013



Start Date and Time	Duration	HPF Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
10/1/2013 1:01	0:04	KWPII	0.031	3.309	AGC MAVG - calculated
10/1/2013 1:19	0:07	KWPII	0.156	4.735	AGC MAVG - calculated
10/1/2013 1:29	0:01	KWPII	0.005	4.321	AGC MAVG - calculated
10/1/2013 1:39	0:01	KWPII	0.008	6.560	AGC MAVG - calculated
10/1/2013 1:44	0:02	KWPII	0.024	7.993	AGC MAVG - calculated
10/1/2013 1:47	0:01	KWPII	0.004	6.501	AGC MAVG - calculated
10/1/2013 1:49	0:01	KWPII	0.018	6.157	AGC MAVG - calculated
10/1/2013 12:04	0:01	KWPI	0.002	0.112	AGC MAVG - calculated
10/2/2013 11:23	0:01	KWPI	0.000	0.016	AGC MAVG - calculated
10/2/2013 11:50	0:02	KWPI	0.003	0.160	AGC MAVG - calculated
10/3/2013 13:15	0:01	KWPI	0.001	0.032	AGC MAVG - calculated
10/3/2013 13:28	0:01	KWPI	0.001	0.032	AGC MAVG - calculated
10/3/2013 14:14	0:04	KWPII	0.040	0.946	AGC MAVG - calculated
10/3/2013 14:14	0:03	AWE	0.001	20.700	AGC MAVG - calculated
10/4/2013 1:28	0:05	KWPII	0.060	4.248	AGC MAVG - calculated
10/4/2013 5:26	0:01	KWPI	0.001	0.032	AGC MAVG - calculated
10/4/2013 8:00	0:24	KWPII	1.811	15.085	AGC MAVG - calculated
10/4/2013 8:50	0:07	KWPII	0.268	14.257	AGC MAVG - calculated
10/4/2013 8:59	0:03	KWPII	0.050	17.031	AGC MAVG - calculated
10/4/2013 9:03	0:15	KWPII	1.054	16.805	AGC MAVG - calculated
10/4/2013 9:19	0:04	KWPII	0.183	14.981	AGC MAVG - calculated
10/4/2013 9:24	0:01	KWPII	0.024	13.212	AGC MAVG - calculated
10/4/2013 9:46	0:07	KWPII	0.066	12.101	AGC MAVG - calculated
10/4/2013 9:49	0:07	KWPII	0.070	12.744	AGC MAVG - calculated
10/4/2013 9:52	0:03	KWPII	0.132	13.358	AGC MAVG - calculated
10/4/2013 9:58	0:05	KWPII	0.361	13.723	AGC MAVG - calculated
10/4/2013 10:15	0:04	KWPII	0.081	12.186	AGC MAVG - calculated
10/4/2013 10:23	0:03	KWPII	0.075	13.330	AGC MAVG - calculated
10/4/2013 10:27	0:04	KWPII	0.104	11.887	AGC MAVG - calculated
10/4/2013 10:36	0:04	KWPII	0.220	14.156	AGC MAVG - calculated
10/4/2013 10:58	0:01	KWPII	0.004	9.760	AGC MAVG - calculated
10/4/2013 11:00	0:02	KWPII	0.073	11.772	AGC MAVG - calculated
10/4/2013 11:04	0:01	KWPII	0.017	11.168	AGC MAVG - calculated
10/4/2013 11:16	0:01	KWPII	0.007	10.429	AGC MAVG - calculated
10/4/2013 11:23	0:01	KWPII	0.007	9.900	AGC MAVG - calculated
10/4/2013 11:26	0:01	KWPII	0.013	10.206	AGC MAVG - calculated
10/4/2013 12:51	0:06	KWPII	0.183	14.441	AGC MAVG - calculated
10/4/2013 13:00	0:02	KWPII	0.015	13.437	AGC MAVG - calculated
10/4/2013 13:04	0:02	KWPII	0.021	13.441	AGC MAVG - calculated
10/4/2013 14:41	0:01	KWPII	0.010	14.828	AGC MAVG - calculated
10/4/2013 14:43	0:02	KWPII	0.080	16.854	AGC MAVG - calculated
10/4/2013 14:48	0:03	KWPII	0.123	18.018	AGC MAVG - calculated
10/4/2013 14:57	0:01	KWPII	0.023	18.886	AGC MAVG - calculated
10/4/2013 14:54	0:04	KWPII	0.099	17.836	AGC MAVG - calculated
10/4/2013 19:55	2:50	KWPII	31.421	20.700	AGC MAVG - entered - Maintaining Regulating Reserves and AGC MAVG - calculated
10/4/2013 22:46	0:01	KWPII	0.051	20.270	AGC MAVG - calculated
10/4/2013 22:50	0:58	KWPII	7.779	20.687	AGC MAVG - calculated
10/5/2013 0:20	0:48	KWPII	5.473	18.803	AGC MAVG - calculated, AGC MAVG - entered - Excess Energy, and AGC MAVG - calculated
10/5/2013 0:48	0:01	AWE	0.000	14.300	AGC MAVG - entered - Excess Energy
10/5/2013 0:57	0:01	AWE	0.000	15.000	AGC MAVG - calculated
10/5/2013 1:06	0:03	KWPII	0.183	13.300	AGC MAVG - calculated
10/5/2013 1:13	0:35	KWPII	5.961	19.586	AGC MAVG - calculated, AGC MAVG - entered - Excess Energy, and AGC MAVG - calculated
10/5/2013 1:36	0:01	AWE	0.001	15.400	AGC MAVG - entered - Excess Energy
10/5/2013 1:41	0:01	AWE	0.000	16.700	AGC MAVG - entered - Excess Energy
10/5/2013 1:50	1:14	KWPII	16.244	19.586	AGC MAVG - calculated, AGC MAVG - entered - Excess Energy, AGC MAVG - calculated and AGC MAVG - entered - Excess Energy
10/5/2013 2:44	0:04	AWE	0.124	13.000	AGC MAVG - entered - Excess Energy and AGC MAVG - calculated
10/5/2013 2:58	0:01	AWE	0.001	8.300	AGC MAVG - calculated
10/5/2013 3:00	0:04	AWE	0.182	11.000	AGC MAVG - calculated and AGC MAVG - entered - Excess Energy
10/5/2013 3:05	0:30	KWPII	8.476	17.370	AGC MAVG - entered - Excess Energy and AGC MAVG - calculated
10/5/2013 3:06	0:28	AWE	2.250	12.700	AGC MAVG - entered - Excess Energy and AGC MAVG - calculated
10/5/2013 3:39	0:33	KWPII	7.168	17.746	AGC MAVG - calculated
10/5/2013 3:43	0:01	AWE	0.000	13.900	AGC MAVG - calculated
10/5/2013 3:49	0:01	AWE	0.001	15.600	AGC MAVG - calculated
10/5/2013 3:56	0:01	AWE	0.000	14.900	AGC MAVG - calculated
10/5/2013 4:14	1:32	KWPII	20.345	18.812	AGC MAVG - calculated
10/5/2013 4:27	0:01	AWE	0.001	14.400	AGC MAVG - calculated
10/5/2013 4:32	0:01	AWE	0.000	11.000	AGC MAVG - calculated
10/5/2013 5:26	0:01	AWE	0.000	17.000	AGC MAVG - calculated
10/5/2013 5:32	0:02	AWE	0.013	14.500	AGC MAVG - calculated
10/5/2013 5:47	0:50	KWPII	6.496	18.691	AGC MAVG - calculated
10/5/2013 6:40	0:21	KWPII	3.244	17.440	AGC MAVG - calculated
10/5/2013 7:02	0:28	KWPII	2.823	18.883	AGC MAVG - calculated
10/5/2013 7:33	0:46	KWPII	3.213	17.374	AGC MAVG - calculated
10/5/2013 8:23	0:01	KWPII	0.016	10.375	AGC MAVG - calculated
10/5/2013 8:53	6:31	KWPII	73.334	19.211	AGC MAVG - calculated
10/5/2013 12:17	0:01	AWE	0.001	19.100	AGC MAVG - calculated
10/5/2013 12:20	0:02	AWE	0.000	18.300	AGC MAVG - calculated
10/5/2013 12:42	0:01	AWE	0.001	18.300	AGC MAVG - calculated
10/5/2013 12:47	0:01	AWE	0.000	17.600	AGC MAVG - calculated
10/5/2013 12:59	0:01	AWE	0.001	17.800	AGC MAVG - calculated
10/5/2013 13:04	0:01	AWE	0.000	18.300	AGC MAVG - calculated
10/5/2013 15:27	0:01	KWPII	0.007	19.162	AGC MAVG - calculated
10/5/2013 15:29	0:02	KWPII	0.048	19.205	AGC MAVG - calculated
10/5/2013 15:35	2:20	KWPII	13.634	19.208	AGC MAVG - calculated
10/5/2013 17:57	0:01	KWPII	0.005	18.355	AGC MAVG - calculated
10/5/2013 18:00	0:01	KWPII	0.006	18.702	AGC MAVG - calculated
10/5/2013 18:04	0:01	KWPII	0.010	18.749	AGC MAVG - calculated
10/5/2013 18:06	0:06	KWPII	0.127	19.154	AGC MAVG - calculated
10/5/2013 19:18	0:03	KWPII	0.023	19.075	AGC MAVG - calculated
10/5/2013 19:23	2:32	KWPII	14.721	19.211	AGC MAVG - calculated
10/5/2013 22:10	0:06	KWPII	0.211	19.102	AGC MAVG - calculated
10/5/2013 22:33	4:51	KWPII	71.055	19.211	AGC MAVG - calculated
10/6/2013 0:43	0:01	AWE	0.001	14.000	AGC MAVG - calculated
10/6/2013 0:45	0:01	AWE	0.001	14.100	AGC MAVG - calculated
10/6/2013 0:47	0:01	AWE	0.001	12.900	AGC MAVG - calculated
10/6/2013 0:49	0:23	AWE	0.820	15.600	AGC MAVG - calculated
10/6/2013 1:13	0:01	AWE	0.001	13.000	AGC MAVG - calculated
10/6/2013 1:15	0:03	AWE	0.061	12.900	AGC MAVG - calculated
10/6/2013 1:19	0:01	AWE	0.015	12.500	AGC MAVG - calculated
10/6/2013 1:22	0:47	AWE	1.756	14.400	AGC MAVG - calculated
10/6/2013 2:10	0:01	AWE	0.008	6.700	AGC MAVG - calculated
10/6/2013 2:12	0:08	AWE	0.138	7.300	AGC MAVG - calculated
10/6/2013 2:24	0:02	AWE	0.036	8.000	AGC MAVG - calculated
10/6/2013 2:28	0:31	AWE	1.859	9.700	AGC MAVG - calculated
10/6/2013 3:00	0:24	AWE	1.068	10.000	AGC MAVG - calculated
10/6/2013 3:25	2:33	KWPII	45.950	19.201	AGC MAVG - entered - Excess Energy and AGC MAVG - calculated
10/6/2013 3:26	0:47	AWE	3.229	11.100	AGC MAVG - entered - Excess Energy and AGC MAVG - calculated
10/6/2013 4:24	0:01	AWE	0.000	7.900	AGC MAVG - calculated
10/6/2013 4:29	0:52	AWE	4.188	15.900	AGC MAVG - calculated
10/6/2013 5:27	0:01	AWE	0.000	15.500	AGC MAVG - calculated
10/6/2013 5:31	0:01	AWE	0.001	16.100	AGC MAVG - calculated

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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
10/25/2013 18:10	0:01	KWPII	0.0011	0.002	AGC MAVG - calculated
10/27/2013 7:36	0:01	KWPII	0.0008	0.016	AGC MAVG - calculated
10/28/2013 9:02	0:01	KWPII	0.0008	0.016	AGC MAVG - calculated
10/28/2013 17:39	0:03	KWPII	0.115	17.123	AGC MAVG - calculated and Testing
10/28/2013 17:45	0:02	KWPII	0.066	17.315	AGC MAVG - calculated and Testing
10/28/2013 17:48	0:01	KWPII	0.035	18.306	AGC MAVG - calculated and Testing
10/28/2013 17:51	0:01	KWPII	0.014	18.850	AGC MAVG - calculated and Testing
10/28/2013 23:36	0:01	KWPII	0.015	18.414	AGC MAVG - calculated
10/28/2013 23:39	0:02	KWPII	0.066	17.398	AGC MAVG - calculated
10/28/2013 23:45	0:02	KWPII	0.038	15.727	AGC MAVG - calculated
10/28/2013 23:48	0:04	KWPII	0.080	15.385	AGC MAVG - calculated
10/29/2013 0:23	0:16	KWPII	0.442	18.806	AGC MAVG - calculated
10/29/2013 1:38	0:06	KWPII	0.328	16.635	AGC MAVG - calculated
10/29/2013 1:47	0:53	KWPII	5.104	15.508	AGC MAVG - calculated
10/29/2013 2:45	0:03	KWPII	0.061	11.016	AGC MAVG - calculated
10/29/2013 2:49	0:01	KWPII	0.014	10.784	AGC MAVG - calculated
10/29/2013 2:59	0:25	KWPII	1.646	14.720	AGC MAVG - calculated
10/29/2013 3:25	0:36	KWPII	4.455	13.950	AGC MAVG - calculated
10/29/2013 3:38	0:01	AWE	0.001	6.500	AGC MAVG - calculated
10/29/2013 3:50	0:02	AWE	0.001	7.800	AGC MAVG - calculated
10/29/2013 4:03	0:01	KWPII	0.023	9.313	AGC MAVG - calculated
10/29/2013 4:05	0:04	KWPII	0.101	11.350	AGC MAVG - calculated
10/29/2013 4:58	0:01	KWPII	0.038	9.410	AGC MAVG - calculated
10/29/2013 5:01	0:01	KWPII	0.022	9.389	AGC MAVG - calculated
10/29/2013 5:03	0:03	KWPII	0.073	10.257	AGC MAVG - calculated
10/29/2013 5:07	0:03	KWPII	0.084	10.065	AGC MAVG - calculated
10/29/2013 5:11	0:24	KWPII	1.290	17.889	AGC MAVG - calculated
10/29/2013 5:59	0:01	KWPII	0.006	18.573	AGC MAVG - calculated
10/29/2013 7:12	0:02	KWPII	0.033	18.385	AGC MAVG - calculated
10/29/2013 7:21	0:41	KWPII	3.983	20.146	AGC MAVG - calculated
10/29/2013 8:04	0:05	KWPII	0.203	20.001	AGC MAVG - calculated
10/29/2013 8:13	0:01	KWPII	0.015	19.534	AGC MAVG - calculated
10/29/2013 17:47	0:02	KWPII	0.053	17.873	AGC MAVG - calculated and Good Engineering and Operating Practices
10/29/2013 17:50	0:01	KWPII	0.033	18.404	AGC MAVG - calculated and Good Engineering and Operating Practices
10/29/2013 17:57	0:01	KWPII	0.023	19.858	AGC MAVG - calculated and Good Engineering and Operating Practices
10/29/2013 21:18	0:01	AWE	0.002	0.100	AGC MAVG - calculated and Good Engineering and Operating Practices
10/29/2013 22:40	0:01	AWE	0.003	0.200	AGC MAVG - calculated and Good Engineering and Operating Practices
10/29/2013 22:48	0:01	AWE	0.003	0.200	AGC MAVG - calculated
10/30/2013 0:01	0:01	AWE	0.007	0.400	AGC MAVG - calculated
10/30/2013 0:04	0:01	KWPII	0.006	18.388	AGC MAVG - calculated
10/30/2013 0:58	0:01	KWPII	0.000	18.724	AGC MAVG - calculated
10/30/2013 1:00	0:01	KWPII	0.002	18.508	AGC MAVG - calculated
10/30/2013 1:02	0:01	KWPII	0.014	17.425	AGC MAVG - calculated
10/30/2013 1:13	0:01	KWPII	0.007	16.484	AGC MAVG - calculated
10/30/2013 1:15	0:02	KWPII	0.017	17.339	AGC MAVG - calculated
10/30/2013 1:23	0:01	AWE	0.002	0.100	AGC MAVG - calculated
10/30/2013 1:34	0:01	KWPII	0.005	16.446	AGC MAVG - calculated
10/30/2013 2:11	0:04	KWPII	0.040	16.070	AGC MAVG - calculated
10/30/2013 2:16	0:01	KWPII	0.019	16.031	AGC MAVG - calculated
10/30/2013 2:21	0:15	KWPII	0.606	19.893	AGC MAVG - calculated
10/30/2013 2:53	0:01	AWE	0.007	0.400	AGC MAVG - calculated
10/30/2013 2:57	0:01	KWPII	0.008	10.874	AGC MAVG - calculated
10/30/2013 2:58	1:38	KWPII	8.558	19.846	AGC MAVG - calculated
10/30/2013 4:40	0:08	KWPII	0.221	17.819	AGC MAVG - calculated
10/30/2013 4:49	0:01	KWPII	0.002	15.626	AGC MAVG - calculated
10/30/2013 4:56	0:02	KWPII	0.005	15.483	AGC MAVG - calculated
10/30/2013 5:02	0:32	KWPII	2.772	20.613	AGC MAVG - calculated
10/30/2013 8:02	0:01	KWPII	0.020	16.543	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 8:05	0:01	KWPII	0.034	17.026	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 8:13	0:01	KWPII	0.026	14.663	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 8:34	0:01	KWPII	0.031	15.860	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 8:36	0:01	KWPII	0.005	15.518	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 8:43	0:01	KWPII	0.014	13.660	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 8:45	0:14	KWPII	0.658	15.580	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 14:06	0:01	KWPII	0.001	0.032	AGC MAVG - calculated and Good Engineering and Operating Practices
10/30/2013 19:22	0:01	KWPII	0.001	0.048	AGC MAVG - calculated
10/31/2013 2:06	0:01	KWPII	0.003	0.198	AGC MAVG - calculated
10/31/2013 7:36	0:03	KWPII	0.016	7.314	AGC MAVG - calculated and Testing
10/31/2013 7:40	0:04	KWPII	0.044	8.753	AGC MAVG - calculated and Testing
10/31/2013 7:45	0:17	KWPII	1.363	16.282	AGC MAVG - calculated and Testing
10/31/2013 11:15	0:01	KWPII	0.001	0.080	AGC MAVG - calculated and Testing
10/31/2013 12:46	0:01	KWPII	0.001	0.048	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 13:01	0:01	KWPII	0.000	0.016	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 15:18	0:01	KWPII	0.013	11.417	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 15:22	0:01	KWPII	0.019	10.856	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 15:24	0:02	KWPII	0.064	14.327	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 15:27	0:02	KWPII	0.022	15.255	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 15:33	0:02	KWPII	0.037	16.952	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 15:36	1:03	KWPII	7.836	20.592	AGC MAVG - calculated, Testing, and Good Engineering and Operating Practices
10/31/2013 16:40	0:02	KWPII	0.041	20.384	AGC MAVG - calculated and Testing
10/31/2013 16:44	0:01	KWPII	0.006	20.263	AGC MAVG - calculated and Testing
10/31/2013 16:46	0:05	KWPII	0.031	20.570	AGC MAVG - calculated and Testing
10/31/2013 16:55	0:01	KWPII	0.002	20.398	AGC MAVG - calculated and Testing
10/31/2013 16:57	0:26	KWPII	0.724	20.524	AGC MAVG - calculated and Testing
10/31/2013 17:25	0:25	KWPII	0.984	20.705	AGC MAVG - calculated and Testing
10/31/2013 17:31	0:04	KWPII	0.050	20.708	AGC MAVG - calculated and Testing
10/31/2013 17:56	0:01	KWPII	0.009	20.570	AGC MAVG - calculated and Testing
10/31/2013 17:58	0:04	KWPII	0.049	20.617	AGC MAVG - calculated and Testing
10/31/2013 23:14	0:01	KWPII	0.008	20.701	AGC MAVG - calculated
10/31/2013 23:38	0:21	KWPII	0.818	20.701	AGC MAVG - calculated
10/31/2013 23:47	0:01	AWE	0.002	0.100	AGC MAVG - calculated



Start Date/Time	Stop Date/Time	Duration (h mm)	IPP Curtailed	Estimated MWH Curtailed	Peak MW Curtailed	Reasons for Curtailment
10/27/2013 9:43	10/27/2013 9:47	0 05	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 9:49	10/27/2013 9:49	0 01	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 9:53	10/27/2013 9:56	0 04	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 9:59	10/27/2013 10:00	0 02	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 10:06	10/27/2013 10:06	0 01	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 10:11	10/27/2013 10:12	0 02	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 10:37	10/27/2013 10:52	0 16	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 10:54	10/27/2013 10:56	0 03	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 12:09	10/27/2013 12:12	0 04	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 12:14	10/27/2013 12:16	0 03	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 12:22	10/27/2013 12:22	0 01	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 12:54	10/27/2013 13:00	0 07	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 13:03	10/27/2013 13:05	0 03	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 13:47	10/27/2013 13:47	0 01	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 14:27	10/27/2013 14:29	0 03	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 14:32	10/27/2013 14:39	0 08	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 15:36	10/27/2013 15:37	0 02	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 16:14	10/27/2013 16:16	0 03	LSR	Data is not available	Data is not available	Good Engineering and Operating Practices
10/27/2013 16:24	10/27/2013 16:40	0 17	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-Lana Diesel Operator was in the control room.

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

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Start Date/Time	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released	Reason for Curtailment
10/04/13 09:19	9.0 MW	10/04/13 13:51	8.9 MW	HRD curtailment at HRD's request for maintenance.
10/06/13 06:55	13.7 MW	10/06/13 07:48	13.8 MW	Tawhiri - Emergency curtailment to stabilize system.
10/14/13 07:46	1.3 MW	10/26/13 12:57	0.6 MW	HRD curtailed to limit of 5MVA spare transformer, due to work on Waimea main transformer.
10/16/13 05:32	0.4 MW	10/16/13 16:03	0.0 MW	Wailuku curtailed for scheduled switching for relay upgrade
10/24/13 07:15	34.5 MW	10/24/13 09:25	24.8 MW	PGV curtailed for scheduled switching 8700 line