



June 26, 2019

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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 May 2019 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,

Kevin M. Katsura
Director
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 May 31, 2019):

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 May 31, 2019):

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, Hawai'i Electric Light, and Maui Electric did not have any under frequency load shed activations for the month of May. 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 did not have any demand response activations for system events for the month of April. 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. Therefore, Attachment 5 is not being provided for this reporting period.

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

The following provides information with respect to items 3a) through 3b) – (all statements are current as of the month ending May 31, 2019):

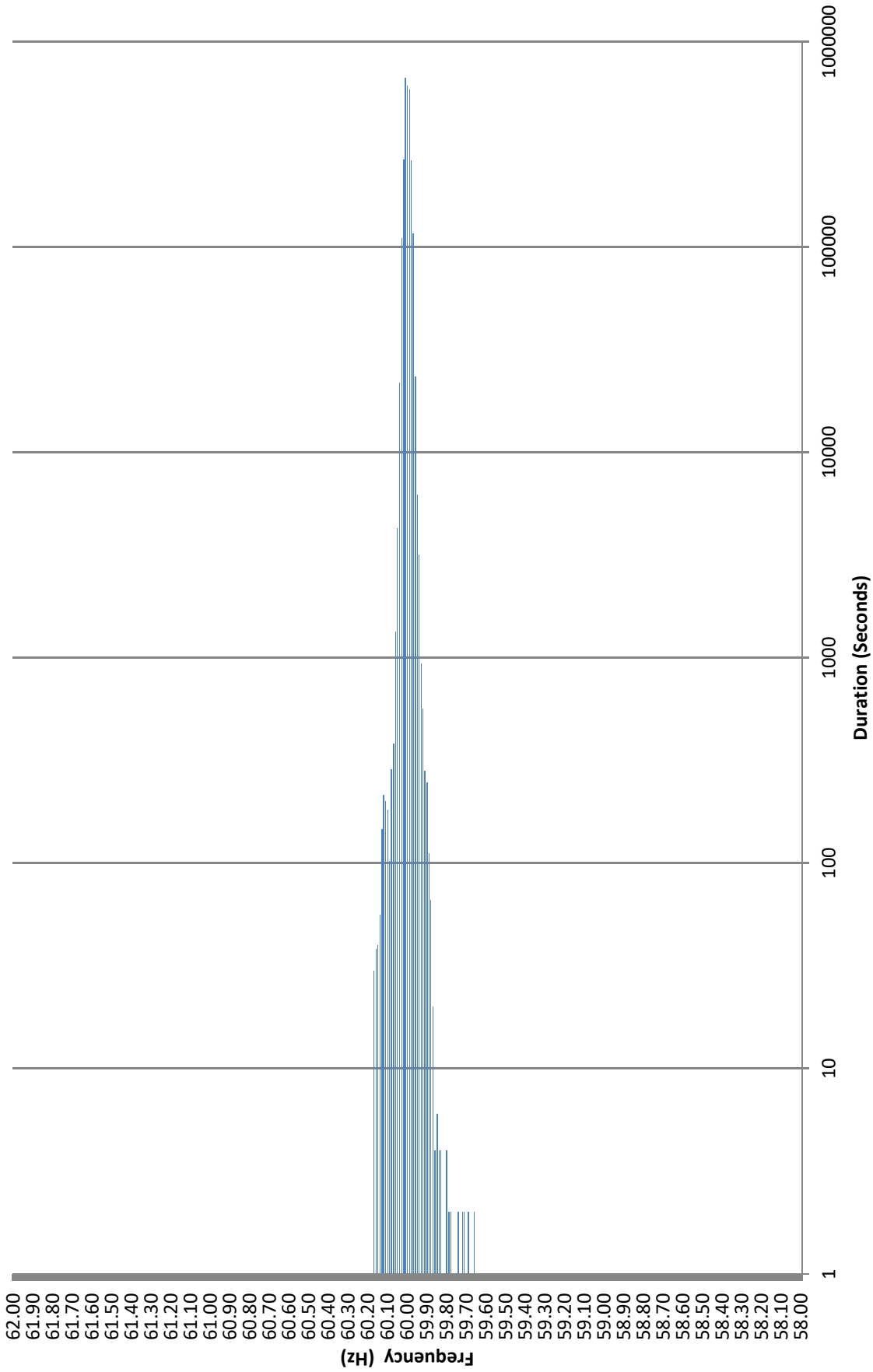
3a) Tabulation of each curtailment event for each resource including the starting date and time, duration, megawatt hours curtailed, peak MW curtailed, and reason for curtailment:

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

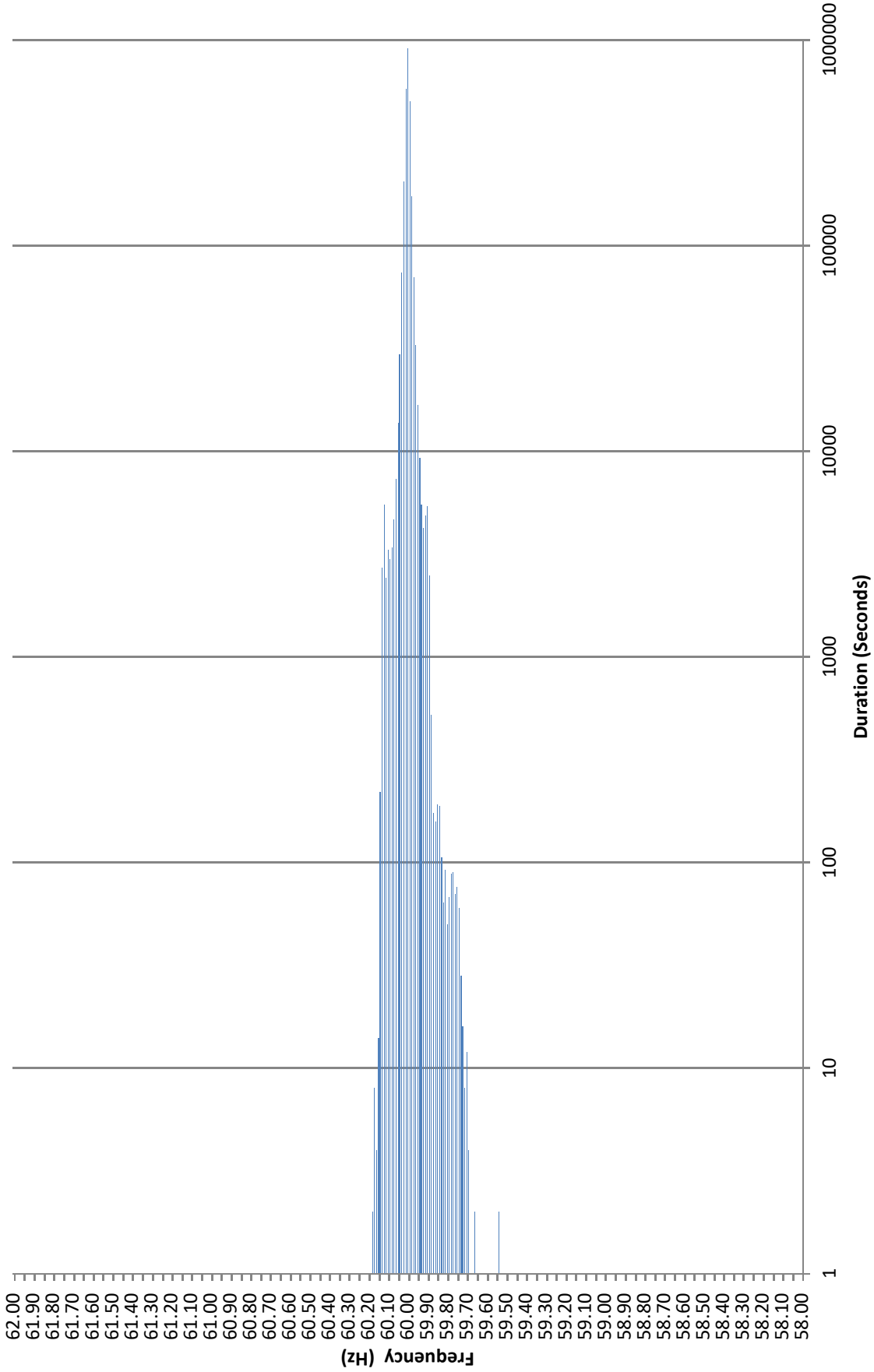
3b) Total MWh of non-dispatchable renewable resources curtailed for the month:

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.

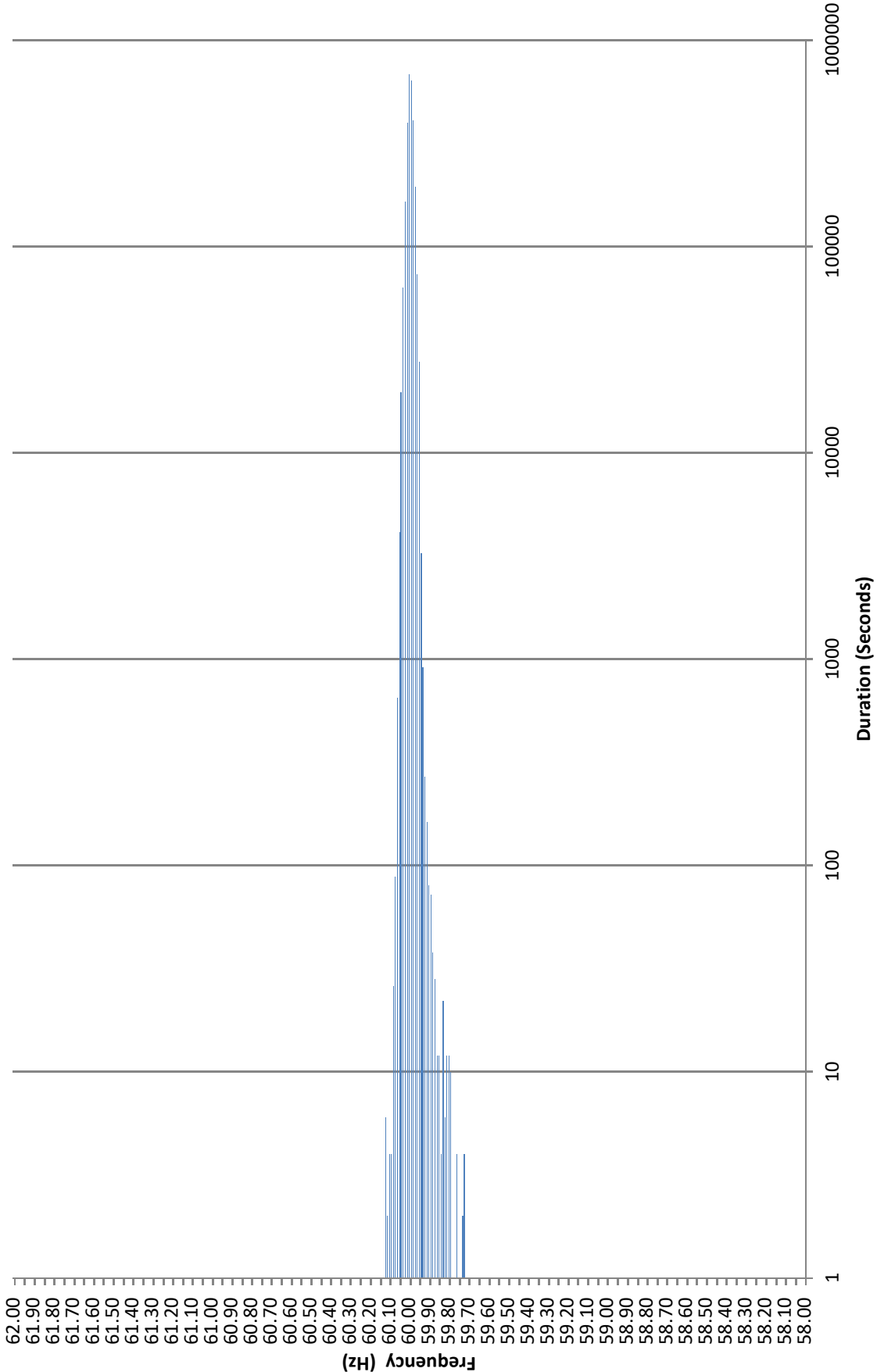
Frequency Distribution Plot - Hawaiian Electric May 2019



Frequency Distribution Plot - Maui Electric May 2019



**Frequency Distribution Plot - Hawai'i Electric Light
May 2019**



Hawaiian Electric Frequency Excursion Statistics May 2019		
Data Rounded to the nearest	<59.95 Hz	>60.05 Hz
Number of Excursions	598	304
Maximum Duration (sec)	296	554
Maximum Deviation (Hz)	59.658	60.17
Total Duration of Excursions (sec)	7512	4190

Maui Electric Frequency Excursion Statistics May 2019		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3929	2704
Maximum Duration (sec)	4974	7902
Maximum Deviation (Hz)	59.544	60.182
Total Duration of Excursions (sec)	40996	38058

Hawai'i Electric Light Frequency Excursion Statistics May 2019		
	<59.95 Hz	>60.05 Hz
Number of Excursions	3012	501
Maximum Duration (sec)	186	34
Maximum Deviation (Hz)	59.716	60.121
Total Duration of Excursions (sec)	17316	2014

HAWAIIAN ELECTRIC COMPANY, INC.
CONTINGENCY RESERVE ACTIVATION EVENTS
May 2019

Event #	Date & Time	Frequency (Hz)			Spinning Reserve Shortfall (MW)	Duration (HH:MM)	Description
		Prior to Event	Nadir	Trigger			
1	5/30/2019 20:31	60.00	59.66	NA	-46	0:40	HRRV TG1 tripped offline while generating ~30MW.

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Hawaiian Electric Curtailment Report May 2019

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
05/02/19 05:34	0.0	0.00	05/02/19 16:15	0	*	KREP	System Constraints
05/03/19 07:44	0.0	0.00	05/03/19 08:09	0	*	KWF	System Constraints
05/03/19 07:43	0.0	0.00	05/03/19 08:06	0	*	Makai	System Constraints
05/03/19 16:26	0.0	0.30	05/03/19 16:38	0	*	KWF	System Constraints
05/03/19 16:26	0.0	0.90	05/03/19 16:33	0	*	Makai	System Constraints
05/04/19 06:17	0.0	0.00	05/04/19 06:30	0	*	KREP	System Constraints
05/08/19 05:32	0.0	0.00	05/08/19 05:38	0	*	North	System Constraints
05/08/19 05:33	0.0	0.00	05/08/19 05:38	0	*	South	System Constraints
05/08/19 15:35	0.0	1.00	05/08/19 16:22	0	*	North	System Constraints
05/08/19 15:36	0.0	0.00	05/08/19 16:22	0	*	South	System Constraints
05/08/19 15:33	0.0	1.00	05/08/19 16:20	0	*	Mauka	System Constraints
05/10/19 06:20	0.0	0.00	05/11/19 08:23	0	*	KWF	System Constraints
05/10/19 06:26	0.0	0.00	05/10/19 22:41	0	*	Makai	System Constraints
05/10/19 06:27	0.0	3.00	05/10/19 06:52	0	*	Mauka	System Constraints
05/10/19 20:24	0.0	0.00	05/10/19 21:04	0	*	Mauka	System Constraints
05/12/19 06:42	0.0	1.00	05/12/19 07:03	0	*	KLS2	System Constraints
05/12/19 14:07	0.0	5.00	05/12/19 14:19	0	*	KLS2	System Constraints
05/13/19 07:23	0.0	0.90	05/13/19 15:41	0	*	KWF	System Constraints
05/13/19 07:31	0.0	3.80	05/13/19 07:56	0	*	Mauka	System Constraints
05/13/19 07:32	0.0	0.00	05/13/19 15:29	0	*	Makai	System Constraints
05/13/19 15:09	0.0	4.80	05/13/19 15:29	0	*	Mauka	System Constraints
05/14/19 06:40	0.0	1.70	05/14/19 15:19	0	*	KWF	System Constraints
05/14/19 06:50	0.0	0.00	05/14/19 15:10	0	*	Makai	System Constraints
05/14/19 06:51	0.0	1.70	05/14/19 07:07	0	*	Mauka	System Constraints
05/14/19 14:22	0.0	7.00	05/14/19 15:10	0	*	Mauka	System Constraints
05/15/19 05:26	0.0	14.50	05/15/19 16:03	0	*	KWF	System Constraints
05/15/19 05:30	0.0	0.00	05/15/19 15:58	0	*	Makai	System Constraints
05/15/19 05:32	0.0	4.90	05/15/19 06:14	0	*	Mauka	System Constraints
05/15/19 15:45	0.0	4.10	05/15/19 15:58	0	*	Mauka	System Constraints
05/16/19 05:46	0.0	0.00	05/16/19 19:36	0	*	Mauka	System Constraints
05/16/19 17:51	0.0	2.40	05/16/19 18:10	0	*	KLS2	System Constraints
05/17/19 04:13	0.0	0.00	05/17/19 04:46	0	*	KLS2	System Constraints
05/21/19 05:28	0.0	0.00	05/21/19 05:47	0	*	North	System Constraints
05/21/19 05:29	0.0	0.00	05/21/19 05:47	0	*	South	System Constraints
05/21/19 07:37	0.0	0.30	05/21/19 12:00	0	*	Mauka	System Constraints
05/21/19 15:08	0.0	1.40	05/21/19 15:43	0	*	Mauka	System Constraints
05/21/19 15:12	0.0	4.00	05/21/19 16:00	0	*	North	System Constraints
05/21/19 15:12	0.0	1.30	05/21/19 16:00	0	*	South	System Constraints
05/22/19 05:12	0.0	0.00	05/22/19 05:46	0	*	KREP	System Constraints
05/22/19 14:36	0.0	3.90	05/22/19 14:53	0	*	KREP	System Constraints
05/25/19 09:27	0.0	9.00	05/25/19 11:39	0	*	KWF	Facility Requested
05/25/19 14:35	0.0	1.00	05/25/19 15:19	0	*	KREP	System Constraints
05/25/19 13:53	22.5	10.00	05/30/19 07:21	0	*	KWF	Facility Requested
05/28/19 04:52	0.0	0.00	05/28/19 05:02	0	*	KREP	System Constraints
05/28/19 07:19	0.0	0.00	05/28/19 20:20	0	*	Makai	System Constraints
05/28/19 14:03	0.0	1.70	05/28/19 14:15	0	*	KREP	System Constraints
05/29/19 05:49	0.0	0.00	05/29/19 06:00	0	*	KREP	System Constraints
05/29/19 15:24	0.0	0.80	05/29/19 15:34	0	*	KREP	System Constraints
05/30/19 05:38	0.0	0.00	05/30/19 05:43	0	*	KREP	System Constraints
05/30/19 07:08	0.0	2.70	05/30/19 08:11	0	*	Makai	System Constraints
05/30/19 07:21	0.0	8.00	05/30/19 08:36	0	*	KWF	System Constraints
05/30/19 08:36	22.5	0.00	05/30/19 10:41	0	*	KWF	Facility Requested
05/30/19 10:41	22.5	6.47	05/30/19 17:50	0	*	KWF	Facility Requested
05/30/19 14:45	0.0	1.00	05/30/19 14:57	0	*	KREP	System Constraints
05/30/19 17:50	0.0	5.20	05/30/19 18:36	0	*	KWF	System Constraints
05/30/19 17:57	0.0	9.00	05/30/19 18:27	0	*	Makai	System Constraints
05/30/19 18:36	22.5	0.00	05/31/19 06:40	0	*	KWF	Facility Requested
05/31/19 05:16	0.0	0.00	05/31/19 05:40	0	*	KREP	System Constraints
05/31/19 06:40	0.0	4.60	05/31/19 07:21	0	*	KWF	System Constraints
05/31/19 06:44	0.0	2.30	05/31/19 07:30	0	*	Makai	System Constraints
05/31/19 06:48	0.0	4.80	05/31/19 07:30	0	*	Waianae	System Constraints
05/31/19 07:21	22.5	0.00	05/31/19 15:45	0	*	KWF	Facility Requested

Hawaiian Electric Curtailment Report May 2019

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
05/31/19 15:45	0.0	12.30	05/31/19 16:42	0	*	KWF	System Constraints
05/31/19 15:47	0.0	8.40	05/31/19 16:37	0	*	Makai	System Constraints
05/31/19 16:02	0.0	12.30	05/31/19 16:19	0	*	Waianae	System Constraints
05/31/19 15:30	0.0	3.40	05/31/19 15:56	0	*	KREP	System Constraints

Aloha1 = Aloha Solar 1 PV Farm

KLS2 = Kalaeloa Solar 2 PV Farm

KREP = Kalaeloa Renewable Energy Park

KWF = Kahuku Wind Farm

Makai = Kawaioloa Makai Wind Farm

Mauka = Kawaioloa 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 Kawaioloa Wind Farm, and HECO does not make any representations as to its accuracy.

* Data has not been provided by IPP.



Maui Curtailment Report

May 2019

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/1/2019 1:55	0:01	KWP II	0.005433655	20.42814445	Oversupply
5/1/2019 1:58	0:01	KWP II	0.001925278	20.4111805	Oversupply
5/1/2019 2:00	0:59	KWP II	1.887601058	20.70358086	Oversupply
5/1/2019 3:00	0:01	KWP II	0.002736251	20.40818596	Oversupply
5/1/2019 9:56	0:01	SMRR	0.000793883	2.424	Oversupply
5/1/2019 9:56	0:01	SMRR	0.000811525	2.145	Oversupply
5/1/2019 9:57	0:01	SMRR	0.000811525	1.802	Oversupply
5/1/2019 9:58	0:01	KS	-0.00070671	2.361	Oversupply
5/1/2019 9:58	0:01	SMRR	0.000811525	1.028	Oversupply
5/1/2019 9:59	0:01	KS	-0.00073497	2.371	Oversupply
5/1/2019 9:59	0:01	SMRR	0.000793883	1.302	Oversupply
5/1/2019 9:59	0:01	KS	0.01712503	1.844	Oversupply
5/1/2019 10:00	0:01	KS	0.02099149	1.152	Oversupply
5/1/2019 10:01	0:01	KS	0.02099149	1.405	Oversupply
5/1/2019 10:02	0:01	SMRR	0.022358939	2.378	Oversupply
5/1/2019 10:02	0:01	SMRR	0.021872875	1.634	Oversupply
5/1/2019 10:03	0:01	SMRR	0.022358939	1.523	Oversupply
5/1/2019 10:04	0:01	KS	0.02099149	2.415	Oversupply
5/1/2019 10:04	0:01	SMRR	0.022358939	0.858	Oversupply
5/1/2019 10:05	0:01	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 10:05	0:01	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 10:05	0:01	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 10:05	0:01	KS	0.02099149	1.610	Oversupply
5/1/2019 10:05	0:01	SMRR	0.022358939	0.047	Oversupply
5/1/2019 10:05	0:01	KS	0.02018412	1.397	Oversupply
5/1/2019 10:05	0:01	SMRR	0.022358939	0.277	Oversupply
5/1/2019 10:06	0:01	KWP II	0.002248859	19.447155	Oversupply
5/1/2019 10:06	0:01	SMRR	0.021872875	0.505	Oversupply
5/1/2019 10:06	0:01	KS	0.02099149	0.586	Oversupply
5/1/2019 10:07	0:01	SMRR	0.022845003	0.266	Oversupply
5/1/2019 10:07	0:01	KS	0.02099149	0.026	Oversupply
5/1/2019 10:08	0:04	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 10:08	0:04	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 10:08	0:04	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 10:08	0:03	SMRR	0.089921818	0.010	Oversupply
5/1/2019 10:08	0:01	KS	0.02099149	0.633	Oversupply
5/1/2019 10:09	0:03	KWP II	0.043228785	19.99503136	Oversupply
5/1/2019 10:09	0:01	KS	0.02099149	0.290	Oversupply
5/1/2019 10:10	0:03	KS	0.08396594	0.028	Oversupply
5/1/2019 10:11	0:01	SMRR	0.022358939	0.101	Oversupply
5/1/2019 10:12	0:01	SMRR	0.022358939	0.191	Oversupply
5/1/2019 10:12	0:01	SMRR	0.022358938	0.223	Oversupply
5/1/2019 10:13	0:01	SMRR	0.021872875	0.528	Oversupply
5/1/2019 10:13	0:01	KS	0.02099149	-0.002	Oversupply
5/1/2019 10:14	0:01	SMRR	0.024693383	0.628	Oversupply
5/1/2019 10:14	0:01	KS	0.02730704	-0.002	Oversupply
5/1/2019 10:15	0:01	SMRR	0.030844933	0.297	Oversupply
5/1/2019 10:15	0:01	KS	0.03321037	-0.002	Oversupply
5/1/2019 10:15	0:01	SMRR	0.031530377	0.079	Oversupply
5/1/2019 10:16	1:29	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 10:16	1:29	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 10:16	1:29	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 10:16	1:43	KWP II	7.629060952	20.60777664	Oversupply
5/1/2019 10:16	0:01	KS	0.03321037	0.210	Oversupply
5/1/2019 10:16	1:42	SMRR	4.352978492	0.015	Oversupply
5/1/2019 10:17	0:01	KS	0.03321037	0.581	Oversupply
5/1/2019 10:18	0:01	KS	0.03321037	1.011	Oversupply
5/1/2019 10:18	1:42	KS	4.60153672	0.060	Oversupply
5/1/2019 11:46	0:12	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 11:46	0:12	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 11:46	0:12	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 11:58	0:01	SMRR	0.036415300	0.447	Oversupply
5/1/2019 11:59	0:01	SMRR	0.034865713	0.665	Oversupply
5/1/2019 11:59	0:01	SMRR	0.036040507	0.407	Oversupply
5/1/2019 12:00	0:01	SMRR	0.036365556	0.012	Oversupply
5/1/2019 12:00	0:01	KS	0.03863889	0.520	Oversupply
5/1/2019 12:01	0:10	KWP II	0.176863861	19.73456573	Oversupply
5/1/2019 12:01	0:01	SMRR	0.036365555	0.037	Oversupply
5/1/2019 12:01	0:01	KS	0.04018444	0.602	Oversupply
5/1/2019 12:02	1:13	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 12:02	1:13	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 12:02	1:13	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 12:02	0:08	SMRR	0.397649444	0.005	Oversupply



Maui Curtailment Report

May 2019

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/1/2019 12:02	0:01	KS	0.04018444	0.150	Oversupply
5/1/2019 12:03	0:01	KS	0.04018444	0.145	Oversupply
5/1/2019 12:04	0:09	KS	0.40184444	0.011	Oversupply
5/1/2019 12:10	0:01	SMRR	0.03636556	0.034	Oversupply
5/1/2019 12:11	1:03	SMRR	3.030167778	-0.001	Oversupply
5/1/2019 12:12	1:03	KWPIL	4.276575327	20.44810295	Oversupply
5/1/2019 12:12	0:01	KS	0.03863889	0.122	Oversupply
5/1/2019 12:13	1:03	KS	2.97732056	0.000	Oversupply
5/1/2019 13:14	0:01	SMRR	0.025371111	0.092	Oversupply
5/1/2019 13:15	0:01	SMRR	0.016877416	0.831	Oversupply
5/1/2019 13:16	0:01	SMRR	0.017627523	0.539	Oversupply
5/1/2019 13:16	0:01	KS	0.02348667	0.114	Oversupply
5/1/2019 13:16	0:01	SMRR	0.017252470	0.540	Oversupply
5/1/2019 13:17	0:01	KS	0.02348667	0.911	Oversupply
5/1/2019 13:17	0:01	SMRR	0.016877417	0.779	Oversupply
5/1/2019 13:18	0:01	SMRR	0.017252469	1.333	Oversupply
5/1/2019 13:18	0:01	KS	0.02348667	0.717	Oversupply
5/1/2019 13:19	0:01	SMRR	0.017252470	1.717	Oversupply
5/1/2019 13:19	0:01	KS	0.02348667	0.406	Oversupply
5/1/2019 13:20	0:01	SMRR	0.017252470	1.684	Oversupply
5/1/2019 13:20	0:01	KS	0.02348667	0.985	Oversupply
5/1/2019 13:20	0:01	SMRR	0.016877417	1.275	Oversupply
5/1/2019 13:21	0:01	KS	0.02348667	1.713	Oversupply
5/1/2019 13:21	0:01	SMRR	0.017252469	1.140	Oversupply
5/1/2019 13:22	0:01	KS	0.02348667	1.780	Oversupply
5/1/2019 13:22	0:01	SMRR	0.017252470	0.678	Oversupply
5/1/2019 13:22	0:01	KS	0.02348667	1.238	Oversupply
5/1/2019 13:23	0:01	SMRR	0.017252470	1.066	Oversupply
5/1/2019 13:23	0:01	KS	0.02348667	1.060	Oversupply
5/1/2019 13:23	0:01	SMRR	0.016877416	1.834	Oversupply
5/1/2019 13:24	0:01	SMRR	0.017252470	2.024	Oversupply
5/1/2019 13:24	0:01	KS	0.02348667	0.555	Oversupply
5/1/2019 13:25	0:01	SMRR	0.017252470	2.072	Oversupply
5/1/2019 13:25	0:01	KS	0.02348667	1.432	Oversupply
5/1/2019 13:26	0:01	SMRR	0.017252470	2.668	Oversupply
5/1/2019 13:26	0:01	KS	0.02303500	1.895	Oversupply
5/1/2019 13:26	0:01	SMRR	0.017252470	2.786	Oversupply
5/1/2019 13:27	0:01	KS	0.02348667	2.033	Oversupply
5/1/2019 13:27	0:01	SMRR	0.016877416	2.079	Oversupply
5/1/2019 13:28	0:01	KS	0.02348667	2.620	Oversupply
5/1/2019 13:28	0:01	SMRR	0.017627524	1.907	Oversupply
5/1/2019 13:28	0:01	KS	0.02348667	2.896	Oversupply
5/1/2019 13:29	0:01	SMRR	0.017252470	2.818	Oversupply
5/1/2019 13:29	0:01	KS	0.01420000	2.167	Oversupply
5/1/2019 13:30	0:01	KS	0.01198889	1.938	Oversupply
5/1/2019 13:31	0:01	SMRR	0.007248318	2.875	Oversupply
5/1/2019 13:31	0:01	KS	0.01198889	2.745	Oversupply
5/1/2019 13:32	0:01	KS	0.01198889	2.723	Oversupply
5/1/2019 13:33	0:01	SMRR	0.007248318	1.886	Oversupply
5/1/2019 13:33	0:01	SMRR	0.007248317	1.221	Oversupply
5/1/2019 13:34	0:01	SMRR	0.007090746	0.906	Oversupply
5/1/2019 13:35	0:01	KS	0.01198889	2.408	Oversupply
5/1/2019 13:35	0:01	SMRR	0.007248318	0.701	Oversupply
5/1/2019 13:35	0:01	KS	0.01198889	1.218	Oversupply
5/1/2019 13:36	0:01	SMRR	0.007248318	1.201	Oversupply
5/1/2019 13:36	0:02	KS	0.02397778	0.982	Oversupply
5/1/2019 13:36	0:01	SMRR	0.007248317	0.957	Oversupply
5/1/2019 13:37	0:01	SMRR	0.007090746	1.943	Oversupply
5/1/2019 13:38	0:01	SMRR	0.007405889	2.681	Oversupply
5/1/2019 13:38	0:01	KS	0.01198889	0.992	Oversupply
5/1/2019 13:39	0:01	KS	0.01198889	1.395	Oversupply
5/1/2019 13:40	0:01	KS	0.01198889	2.532	Oversupply
5/1/2019 13:49	0:01	SMRR	0.020889078	2.624	Oversupply
5/1/2019 13:49	0:01	SMRR	0.020889078	1.551	Oversupply
5/1/2019 13:50	0:01	SMRR	0.020889078	1.186	Oversupply
5/1/2019 13:50	0:01	KS	0.02025111	2.852	Oversupply
5/1/2019 13:51	0:01	SMRR	0.020434968	0.513	Oversupply
5/1/2019 13:51	0:01	KS	0.01947222	2.396	Oversupply
5/1/2019 13:52	0:01	SMRR	0.020889078	0.062	Oversupply
5/1/2019 13:52	0:01	KS	0.02025111	1.435	Oversupply
5/1/2019 13:52	0:01	SMRR	0.020889078	0.032	Oversupply
5/1/2019 13:53	0:01	KS	0.02025111	1.003	Oversupply
5/1/2019 13:53	0:01	SMRR	0.021343188	0.505	Oversupply



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/1/2019 13:54	0:01	KS	0.02064056	0.295	Oversupply
5/1/2019 13:54	0:01	SMRR	0.020434968	0.735	Oversupply
5/1/2019 13:54	0:01	KS	0.02025111	0.029	Oversupply
5/1/2019 13:55	0:01	SMRR	0.020889078	0.524	Oversupply
5/1/2019 13:55	0:01	KS	0.02025111	0.362	Oversupply
5/1/2019 13:55	0:08	SMRR	0.274846296	0.088	Oversupply
5/1/2019 13:56	0:09	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 13:56	0:09	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 13:56	0:09	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 13:56	0:01	KS	0.02025111	0.667	Oversupply
5/1/2019 13:57	0:08	KWPPII	0.225518894	18.9162426	Oversupply
5/1/2019 13:57	0:01	KS	0.02025111	0.548	Oversupply
5/1/2019 13:58	0:09	KS	0.32876889	0.115	Oversupply
5/1/2019 14:04	0:01	SMRR	0.028956763	0.011	Oversupply
5/1/2019 14:05	0:01	SMRR	0.028956763	0.536	Oversupply
5/1/2019 14:05	0:01	SMRR	0.028956763	1.154	Oversupply
5/1/2019 14:06	0:01	SMRR	0.028327268	1.774	Oversupply
5/1/2019 14:07	0:01	KS	0.03436111	0.232	Oversupply
5/1/2019 14:07	0:01	SMRR	0.028956763	2.280	Oversupply
5/1/2019 14:07	0:01	KS	0.03573556	1.160	Oversupply
5/1/2019 14:08	1:09	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 14:08	1:09	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 14:08	1:09	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 14:08	1:09	SMRR	2.787238670	1.447	Oversupply
5/1/2019 14:08	0:01	KS	0.03573556	1.684	Oversupply
5/1/2019 14:09	1:08	KWPPII	12.8260897	20.19761658	Oversupply
5/1/2019 14:09	0:01	KS	0.03573556	2.678	Oversupply
5/1/2019 14:10	1:08	KS	3.05381264	1.267	Oversupply
5/1/2019 15:16	0:01	SMRR	0.021864919	0.506	Oversupply
5/1/2019 15:17	0:01	SMRR	0.021864919	1.004	Oversupply
5/1/2019 15:18	0:01	SMRR	0.021389595	1.093	Oversupply
5/1/2019 15:18	0:01	KS	0.03679868	-0.002	Oversupply
5/1/2019 15:19	0:04	SMRR	0.108849271	0.959	Oversupply
5/1/2019 15:19	0:01	KS	0.03679868	0.708	Oversupply
5/1/2019 15:20	0:03	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 15:20	0:03	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 15:20	0:03	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 15:20	0:03	KWPPII	0.100534948	20.39321709	Oversupply
5/1/2019 15:20	0:01	KS	0.03679868	0.727	Oversupply
5/1/2019 15:21	0:01	KS	0.03679868	1.097	Oversupply
5/1/2019 15:22	0:03	KS	0.14719471	1.017	Oversupply
5/1/2019 15:23	0:01	SMRR	0.021864919	0.177	Oversupply
5/1/2019 15:23	0:01	SMRR	0.021864919	0.577	Oversupply
5/1/2019 15:24	0:01	SMRR	0.021864919	0.290	Oversupply
5/1/2019 15:25	0:01	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 15:25	0:01	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 15:25	0:01	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 15:25	0:01	SMRR	0.021389595	0.029	Oversupply
5/1/2019 15:25	0:01	KS	0.03679868	-0.002	Oversupply
5/1/2019 15:26	0:01	KWPPII	0.004080963	20.46207619	Oversupply
5/1/2019 15:26	0:01	SMRR	0.021864919	0.206	Oversupply
5/1/2019 15:26	0:02	KS	0.07288969	-0.003	Oversupply
5/1/2019 15:26	0:01	SMRR	0.021864919	0.208	Oversupply
5/1/2019 15:27	0:01	SMRR	0.021864919	0.495	Oversupply
5/1/2019 15:28	0:01	KS	0.03679868	-0.003	Oversupply
5/1/2019 15:28	0:01	SMRR	0.021389595	1.107	Oversupply
5/1/2019 15:28	0:01	KS	0.03679868	-0.003	Oversupply
5/1/2019 15:29	0:01	SMRR	0.022340244	2.087	Oversupply
5/1/2019 15:29	0:01	KS	0.03311201	0.098	Oversupply
5/1/2019 15:29	0:01	SMRR	0.017776030	2.198	Oversupply
5/1/2019 15:30	0:01	SMRR	0.015172902	1.323	Oversupply
5/1/2019 15:31	0:01	SMRR	0.015510078	0.829	Oversupply
5/1/2019 15:31	0:01	KS	0.02272705	0.626	Oversupply
5/1/2019 15:32	0:01	SMRR	0.015510078	1.209	Oversupply
5/1/2019 15:32	0:01	KS	0.02272705	1.627	Oversupply
5/1/2019 15:32	0:01	SMRR	0.015510078	1.913	Oversupply
5/1/2019 15:33	0:01	KS	0.02272705	1.146	Oversupply
5/1/2019 15:33	0:01	SMRR	0.015510078	2.403	Oversupply
5/1/2019 15:34	0:01	KS	0.02272705	0.617	Oversupply
5/1/2019 15:34	0:01	SMRR	0.015510078	2.474	Oversupply
5/1/2019 15:35	0:01	KS	0.02272705	0.981	Oversupply
5/1/2019 15:35	0:01	SMRR	0.015172902	2.517	Oversupply
5/1/2019 15:36	0:18	SMRR	0.339652572	2.192	Oversupply



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5/1/2019 15:36	0:18	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 15:36	0:18	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 15:36	0:18	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 15:36	0:18	KWP2	1.788556703	20.25250435	Oversupply
5/1/2019 15:37	0:01	KS	0.02272705	1.410	Oversupply
5/1/2019 15:38	0:17	KS	0.60535818	0.420	Oversupply
5/1/2019 15:53	0:01	SMRR	0.013891817	0.117	Oversupply
5/1/2019 15:54	0:01	SMRR	0.013891817	0.372	Oversupply
5/1/2019 15:55	0:01	SMRR	0.013891817	0.031	Oversupply
5/1/2019 15:55	0:01	KS	0.03524373	0.069	Oversupply
5/1/2019 15:55	0:02	SMRR	0.027481638	0.018	Oversupply
5/1/2019 15:56	0:01	ESA	Data is not available	Data is not available	Oversupply
5/1/2019 15:56	0:01	ESB	Data is not available	Data is not available	Oversupply
5/1/2019 15:56	0:01	BS250	Data is not available	Data is not available	Oversupply
5/1/2019 15:56	0:02	KWP2	0.013126055	20.44411278	Oversupply
5/1/2019 15:56	0:01	KS	0.03524373	0.770	Oversupply
5/1/2019 15:57	0:01	SMRR	0.013891817	0.091	Oversupply
5/1/2019 15:57	0:02	KS	0.07048746	0.399	Oversupply
5/1/2019 15:58	0:01	SMRR	0.013891817	0.578	Oversupply
5/1/2019 15:59	0:01	KS	0.03471706	-0.003	Oversupply
5/1/2019 16:00	0:01	KS	0.00663532	-0.003	Oversupply
5/1/2019 16:00	0:01	KS	0.00663532	-0.003	Oversupply
5/2/2019 0:20	0:01	KWP2	0.004265213	20.28344154	Oversupply
5/2/2019 0:27	0:01	KWP2	0.005890401	20.4980011	Oversupply
5/2/2019 0:36	0:02	KWP2	0.013792992	20.41517067	Oversupply
5/2/2019 0:42	0:49	KWP2	2.802797683	20.69659424	Oversupply
5/2/2019 1:33	0:02	KWP2	0.014201609	20.47405052	Oversupply
5/2/2019 1:36	0:05	KWP2	0.040797329	20.63172722	Oversupply
5/2/2019 1:43	0:09	KWP2	0.349429496	20.63172722	Oversupply
5/2/2019 2:18	0:01	KWP2	0.001366456	17.75861359	Oversupply
5/2/2019 2:23	0:34	KWP2	2.748180262	20.28443909	Oversupply
5/2/2019 2:48	0:01	AWE	0.001666667	0.100000001	Oversupply
5/2/2019 3:39	0:02	KWP2	0.003128052	16.42933846	Oversupply
5/2/2019 3:42	0:01	KWP2	0.007838186	16.95226669	Oversupply
5/2/2019 4:00	0:04	KWP2	0.066490157	16.05809784	Oversupply
5/2/2019 9:13	0:01	ESA	Data is not available	Data is not available	Oversupply
5/2/2019 9:13	0:01	ESB	Data is not available	Data is not available	Oversupply
5/2/2019 9:13	0:01	BS250	Data is not available	Data is not available	Oversupply
5/2/2019 9:24	0:01	SMRR	0.002320949	2.177	Oversupply
5/2/2019 9:25	0:01	SMRR	0.002320949	1.923	Oversupply
5/2/2019 9:25	0:01	SMRR	0.002270493	1.770	Oversupply
5/2/2019 9:26	0:01	SMRR	0.002320949	2.099	Oversupply
5/2/2019 9:27	0:01	KS	-0.00048848	0.687	Oversupply
5/2/2019 9:27	0:01	SMRR	0.002320949	2.158	Oversupply
5/2/2019 9:27	0:01	KS	-0.00048848	0.645	Oversupply
5/2/2019 9:28	0:13	ESA	Data is not available	Data is not available	Oversupply
5/2/2019 9:28	0:13	ESB	Data is not available	Data is not available	Oversupply
5/2/2019 9:28	0:13	BS250	Data is not available	Data is not available	Oversupply
5/2/2019 9:28	0:13	SMRR	0.398289452	0.912	Oversupply
5/2/2019 9:29	0:12	KWP2	0.381614065	14.35059738	Oversupply
5/2/2019 9:29	0:01	KS	0.00462809	0.426	Oversupply
5/2/2019 9:30	0:12	KS	0.17678662	0.018	Oversupply
5/2/2019 9:41	0:01	SMRR	0.026394810	0.264	Oversupply
5/2/2019 9:41	0:01	SMRR	0.026981361	0.677	Oversupply
5/2/2019 9:42	0:01	KS	0.01264498	0.003	Oversupply
5/2/2019 9:42	0:01	SMRR	0.026981361	0.929	Oversupply
5/2/2019 9:43	0:01	SMRR	0.026981361	0.427	Oversupply
5/2/2019 9:43	0:01	KS	0.01264499	0.247	Oversupply
5/2/2019 9:44	0:01	SMRR	0.025874810	0.727	Oversupply
5/2/2019 9:44	0:01	KS	0.00757832	0.259	Oversupply
5/2/2019 9:45	0:01	SMRR	0.006544309	0.585	Oversupply
5/2/2019 9:45	0:01	KS	0.00394251	0.077	Oversupply
5/2/2019 9:45	0:01	SMRR	0.006544309	1.052	Oversupply
5/2/2019 9:46	0:01	KS	0.00386669	0.391	Oversupply
5/2/2019 9:46	0:01	SMRR	0.006544309	1.673	Oversupply
5/2/2019 9:47	0:01	KS	0.00394251	0.487	Oversupply
5/2/2019 9:47	0:01	SMRR	0.006544309	1.826	Oversupply
5/2/2019 9:47	0:01	KS	0.00394251	0.787	Oversupply
5/2/2019 9:48	0:01	SMRR	0.006402041	1.868	Oversupply
5/2/2019 9:48	0:01	KS	0.00394251	1.166	Oversupply
5/2/2019 9:48	0:01	SMRR	0.006686577	1.785	Oversupply
5/2/2019 9:49	0:01	SMRR	0.006402041	1.135	Oversupply
5/2/2019 9:49	0:01	KS	0.00394251	0.922	Oversupply



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5/2/2019 9:50	0:01	SMRR	0.006544309	1.461	Oversupply
5/2/2019 9:50	0:01	KS	0.00394251	0.814	Oversupply
5/2/2019 9:51	0:01	SMRR	0.006544309	1.679	Oversupply
5/2/2019 9:51	0:01	KS	0.00379087	0.395	Oversupply
5/2/2019 9:51	0:01	SMRR	0.006544309	1.968	Oversupply
5/2/2019 9:52	0:01	KS	0.00394251	0.676	Oversupply
5/2/2019 9:53	0:01	KS	0.00394251	0.877	Oversupply
5/2/2019 9:53	0:01	SMRR	0.006544309	2.519	Oversupply
5/2/2019 9:53	0:01	KS	0.00394251	1.002	Oversupply
5/2/2019 9:54	0:01	SMRR	0.006402041	1.887	Oversupply
5/2/2019 9:54	0:01	SMRR	0.006544309	2.648	Oversupply
5/2/2019 9:55	0:01	KS	0.00394251	1.203	Oversupply
5/2/2019 9:55	0:01	SMRR	0.006544309	2.645	Oversupply
5/2/2019 9:56	0:01	KS	0.00379087	1.314	Oversupply
5/2/2019 9:57	0:01	KS	0.00386669	1.036	Oversupply
5/2/2019 10:01	0:01	SMRR	0.008534383	2.499	Oversupply
5/2/2019 10:01	0:01	SMRR	0.008534383	2.283	Oversupply
5/2/2019 10:02	0:01	KS	0.00432034	2.436	Oversupply
5/2/2019 10:02	0:01	SMRR	0.008348853	1.908	Oversupply
5/2/2019 10:03	0:01	SMRR	0.008534383	1.533	Oversupply
5/2/2019 10:03	0:01	KS	0.00449315	2.629	Oversupply
5/2/2019 10:04	0:01	KS	0.00449315	2.120	Oversupply
5/2/2019 10:05	0:01	KS	0.00449315	1.539	Oversupply
5/2/2019 10:05	0:01	SMRR	0.008348854	2.228	Oversupply
5/2/2019 10:06	0:01	SMRR	0.008534383	1.683	Oversupply
5/2/2019 10:07	0:01	SMRR	0.008534383	1.745	Oversupply
5/2/2019 10:07	0:01	KS	0.00449315	2.561	Oversupply
5/2/2019 10:07	0:01	SMRR	0.008534383	1.347	Oversupply
5/2/2019 10:08	0:01	KS	0.00449315	1.844	Oversupply
5/2/2019 10:08	0:01	SMRR	0.008348853	1.871	Oversupply
5/2/2019 10:09	0:01	KS	0.00449315	1.837	Oversupply
5/2/2019 10:09	0:01	SMRR	0.008534383	1.392	Oversupply
5/2/2019 10:10	0:01	SMRR	0.008534383	2.087	Oversupply
5/2/2019 10:10	0:02	KS	0.00898630	1.479	Oversupply
5/2/2019 10:10	0:01	SMRR	0.008534383	1.620	Oversupply
5/2/2019 10:11	0:01	SMRR	0.008348853	1.301	Oversupply
5/2/2019 10:12	0:01	KS	0.00449315	1.363	Oversupply
5/2/2019 10:12	0:01	SMRR	0.008534383	1.143	Oversupply
5/2/2019 10:12	0:01	KS	0.00449315	1.564	Oversupply
5/2/2019 10:13	0:01	SMRR	0.008534383	1.479	Oversupply
5/2/2019 10:13	0:01	KS	0.00449315	0.739	Oversupply
5/2/2019 10:14	0:01	KS	0.00986648	0.852	Oversupply
5/2/2019 10:15	0:01	KS	-0.00088682	0.899	Oversupply
5/2/2019 15:03	0:01	KWP2	0.000249489	0.014969329	Oversupply
5/4/2019 4:02	0:04	KWP2	0.082970556	19.56990242	Oversupply
5/4/2019 4:26	0:01	KWP2	0.001122952	18.75557137	Oversupply
5/4/2019 4:28	0:06	KWP2	0.080003039	19.52798843	Oversupply
5/4/2019 6:27	0:01	AWE	0.001666667	0.100000001	Oversupply
5/4/2019 7:52	0:01	SMRR	0.005363808	1.222	Oversupply
5/4/2019 7:53	0:01	SMRR	0.005363808	1.254	Oversupply
5/4/2019 7:54	1:59	SMRR	3.161328581	0.406	Oversupply
5/4/2019 7:54	0:01	KS	0.00330111	0.708	Oversupply
5/4/2019 7:55	2:17	ESA	Data is not available	Data is not available	Oversupply
5/4/2019 7:55	2:17	ESB	Data is not available	Data is not available	Oversupply
5/4/2019 7:55	2:17	BS250	Data is not available	Data is not available	Oversupply
5/4/2019 7:55	1:57	KWP2	11.76786621	20.66665649	Oversupply
5/4/2019 7:55	0:01	KS	0.00330111	0.697	Oversupply
5/4/2019 7:56	0:01	KS	0.00330111	0.302	Oversupply
5/4/2019 7:57	1:58	KS	2.26679491	0.153	Oversupply
5/4/2019 9:52	0:01	SMRR	0.024116641	0.294	Oversupply
5/4/2019 9:53	0:02	SMRR	0.048233281	0.003	Oversupply
5/4/2019 9:54	0:18	KWP2	0.892989953	20.70557594	Oversupply
5/4/2019 9:55	0:01	SMRR	0.023592366	0.061	Oversupply
5/4/2019 9:55	0:01	KS	0.01541350	0.192	Oversupply
5/4/2019 9:55	0:16	SMRR	0.498082610	0.013	Oversupply
5/4/2019 9:56	0:18	KS	0.26331868	0.005	Oversupply
5/4/2019 10:12	0:01	SMRR	0.023685623	0.242	Oversupply
5/4/2019 10:12	0:01	SMRR	0.023685623	0.664	Oversupply
5/4/2019 10:13	0:01	SMRR	0.023685623	1.241	Oversupply
5/4/2019 10:14	0:01	SMRR	0.023852289	1.153	Oversupply
5/4/2019 10:14	0:01	KS	0.01126653	0.203	Oversupply
5/4/2019 10:15	0:01	SMRR	0.016644573	0.702	Oversupply
5/4/2019 10:15	0:01	KS	0.01312730	0.395	Oversupply



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/4/2019 10:15	0:09	SMRR	0.203803551	0.020	Oversupply
5/4/2019 10:16	0:09	ESA	Data is not available	Data is not available	Oversupply
5/4/2019 10:16	0:09	ESB	Data is not available	Data is not available	Oversupply
5/4/2019 10:16	0:09	BS250	Data is not available	Data is not available	Oversupply
5/4/2019 10:16	0:09	KWP2	0.455781698	20.70757294	Oversupply
5/4/2019 10:16	0:01	KS	0.01312730	0.618	Oversupply
5/4/2019 10:16	0:01	KS	0.01312730	0.342	Oversupply
5/4/2019 10:17	0:10	KS	0.14414784	0.031	Oversupply
5/4/2019 10:25	0:01	SMRR	0.016644573	0.013	Oversupply
5/4/2019 10:25	0:01	SMRR	0.017014453	0.308	Oversupply
5/4/2019 10:26	2:08	ESA	Data is not available	Data is not available	Oversupply
5/4/2019 10:26	2:08	ESB	Data is not available	Data is not available	Oversupply
5/4/2019 10:26	2:08	BS250	Data is not available	Data is not available	Oversupply
5/4/2019 10:26	2:08	SMRR	4.565340977	0.004	Oversupply
5/4/2019 10:27	2:07	KWP2	37.44998589	20.70757294	Oversupply
5/4/2019 10:27	0:01	KS	0.01312730	0.194	Oversupply
5/4/2019 10:28	2:08	KS	4.74946801	0.118	Oversupply
5/4/2019 10:55	0:12	AWE	0.611072556	17.29999924	Oversupply
5/4/2019 11:08	0:14	AWE	0.782693386	16.79999924	Oversupply
5/4/2019 11:23	1:08	AWE	5.700257198	19.39999962	Oversupply
5/4/2019 12:34	0:01	SMRR	0.034372222	0.608	Oversupply
5/4/2019 12:34	0:01	SMRR	0.034372222	1.314	Oversupply
5/4/2019 12:35	1:18	SMRR	3.535576126	1.362	Oversupply
5/4/2019 12:36	1:18	ESA	Data is not available	Data is not available	Oversupply
5/4/2019 12:36	1:18	ESB	Data is not available	Data is not available	Oversupply
5/4/2019 12:36	1:18	BS250	Data is not available	Data is not available	Oversupply
5/4/2019 12:36	1:18	KWP2	19.42134798	20.64769554	Oversupply
5/4/2019 12:36	0:01	KS	0.01775200	0.297	Oversupply
5/4/2019 12:37	0:01	KS	0.01775200	0.843	Oversupply
5/4/2019 12:37	1:18	KS	0.95371337	0.903	Oversupply
5/4/2019 12:45	0:02	AWE	0.006127771	20.69999886	Oversupply
5/4/2019 12:50	0:14	AWE	0.471074756	20.39999962	Oversupply
5/4/2019 13:53	0:01	SMRR	0.023704368	0.087	Oversupply
5/4/2019 13:54	0:01	SMRR	0.023189056	0.164	Oversupply
5/4/2019 13:55	0:01	SMRR	0.023704368	0.620	Oversupply
5/4/2019 13:55	0:02	KS	0.01529631	0.068	Oversupply
5/4/2019 13:57	0:01	KS	0.00764815	0.283	Oversupply
5/4/2019 18:20	0:35	KWP2	2.100838645	19.14776802	Oversupply
5/4/2019 18:58	0:06	KWP2	0.057683372	19.1427784	Oversupply
5/4/2019 19:05	0:01	KWP2	0.002918243	18.74559212	Oversupply
5/4/2019 19:07	0:01	KWP2	0.00203104	18.74359703	Oversupply
5/4/2019 19:10	0:03	KWP2	0.014520105	19.13479424	Oversupply
5/4/2019 19:18	0:05	KWP2	0.039658578	19.03699493	Oversupply
5/4/2019 19:27	0:02	KWP2	0.004689248	19.02002907	Oversupply
5/4/2019 21:29	0:02	KWP2	0.025704861	15.45533371	Oversupply
5/4/2019 21:42	0:03	KWP2	0.090254736	16.89139175	Oversupply
5/4/2019 21:46	0:04	KWP2	0.094671567	17.37639809	Oversupply
5/4/2019 21:51	0:02	KWP2	0.019345125	16.79558754	Oversupply
5/4/2019 22:08	0:04	KWP2	0.060348654	17.48717117	Oversupply
5/4/2019 22:27	0:01	KWP2	0.02751228	16.29760742	Oversupply
5/4/2019 22:38	0:02	KWP2	0.011349392	18.20669556	Oversupply
5/4/2019 22:50	0:04	KWP2	0.121659787	17.87537575	Oversupply
5/5/2019 0:51	0:03	KWP2	0.049947516	11.35872746	Oversupply
5/5/2019 0:55	3:07	KWP2	51.45882868	20.64869308	Oversupply
5/5/2019 1:24	0:03	AWE	0.031827164	21	Oversupply
5/5/2019 1:33	0:06	AWE	0.178862572	21	Oversupply
5/5/2019 1:44	2:03	AWE	9.185607036	21	Oversupply
5/5/2019 3:01	0:32	KWP2	1.052417294	19.03300285	Oversupply
5/5/2019 3:52	0:02	AWE	0.024311034	21	Oversupply
5/5/2019 3:57	0:01	AWE	7.47681E-05	21	Oversupply
5/5/2019 4:04	1:22	KWP2	13.40243887	17.75362396	Oversupply
5/5/2019 5:27	0:03	KWP2	0.011361392	14.8375988	Oversupply
5/5/2019 10:10	0:01	SMRR	0.001225362	1.397	Oversupply
5/5/2019 10:11	0:01	SMRR	0.001225362	1.203	Oversupply
5/5/2019 10:11	0:01	SMRR	0.001225362	0.165	Oversupply
5/5/2019 10:12	0:01	SMRR	0.001198723	0.030	Oversupply
5/5/2019 10:12	0:01	KS	0.00049640	2.651	Oversupply
5/5/2019 10:13	0:01	SMRR	0.001225362	0.235	Oversupply
5/5/2019 10:13	0:01	KS	0.00050613	1.478	Oversupply
5/5/2019 10:14	0:02	SMRR	0.013697390	0.120	Oversupply
5/5/2019 10:14	0:01	KS	0.01793947	0.195	Oversupply
5/5/2019 10:15	0:01	ESA	Data is not available	Data is not available	Oversupply
5/5/2019 10:15	0:01	ESB	Data is not available	Data is not available	Oversupply



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5/5/2019 10:15	0:01	BS250	Data is not available	Data is not available	Oversupply
5/5/2019 10:15	0:01	KS	0.02974878	0.184	Oversupply
5/5/2019 10:15	0:01	SMRR	0.015921749	0.567	Oversupply
5/5/2019 10:16	0:01	KS	0.02974878	0.380	Oversupply
5/5/2019 10:16	0:01	SMRR	0.015921749	0.089	Oversupply
5/5/2019 10:17	0:14	ESA	Data is not available	Data is not available	Oversupply
5/5/2019 10:17	0:14	ESB	Data is not available	Data is not available	Oversupply
5/5/2019 10:17	0:14	BS250	Data is not available	Data is not available	Oversupply
5/5/2019 10:17	0:11	AWE	0.394438712	21	Oversupply
5/5/2019 10:17	0:01	KS	0.02974878	0.033	Oversupply
5/5/2019 10:17	0:14	SMRR	0.294654560	0.040	Oversupply
5/5/2019 10:18	0:01	KS	0.02974878	0.920	Oversupply
5/5/2019 10:18	0:01	KS	0.02974878	0.561	Oversupply
5/5/2019 10:19	0:10	KS	0.35687553	0.017	Oversupply
5/5/2019 10:29	0:03	AWE	0.023237133	19.1000038	Oversupply
5/5/2019 10:30	0:01	KS	0.03526648	0.064	Oversupply
5/5/2019 10:30	0:01	SMRR	0.025066437	0.020	Oversupply
5/5/2019 10:31	3:58	KS	10.46036125	0.022	Oversupply
5/5/2019 10:31	3:55	SMRR	7.488983420	0.020	Oversupply
5/5/2019 10:32	3:55	ESA	Data is not available	Data is not available	Oversupply
5/5/2019 10:32	3:55	ESB	Data is not available	Data is not available	Oversupply
5/5/2019 10:32	3:55	BS250	Data is not available	Data is not available	Oversupply
5/5/2019 10:33	3:54	AWE	43.81509104	21	Oversupply
5/5/2019 10:34	0:33	KWPPII	0.585833019	2.437006712	Oversupply
5/5/2019 11:08	0:13	KWPPII	0.073549305	0.590789557	Oversupply
5/5/2019 11:26	0:10	KWPPII	0.022670218	0.344294578	Oversupply
5/5/2019 12:19	2:08	KWPPII	4.087774594	5.052647591	Oversupply
5/5/2019 13:44	0:01	BS	Data is not available	Data is not available	Oversupply
5/5/2019 13:44	0:01	5A	Data is not available	Data is not available	Oversupply
5/5/2019 14:26	0:01	SMRR	0.033990841	0.050	Oversupply
5/5/2019 14:27	0:01	SMRR	0.033990841	0.006	Oversupply
5/5/2019 14:27	0:01	SMRR	0.033990841	0.107	Oversupply
5/5/2019 14:28	0:01	ESA	Data is not available	Data is not available	Oversupply
5/5/2019 14:28	0:01	ESB	Data is not available	Data is not available	Oversupply
5/5/2019 14:28	0:01	KWPPII	0.000314892	0.303378403	Oversupply
5/5/2019 14:28	0:01	SMRR	0.033990841	0.194	Oversupply
5/5/2019 14:29	0:02	KS	0.06332111	0.157	Oversupply
5/5/2019 14:29	0:01	SMRR	0.028709687	0.163	Oversupply
5/5/2019 14:30	0:01	SMRR	0.020755600	0.271	Oversupply
5/5/2019 14:31	0:01	SMRR	0.018680040	0.610	Oversupply
5/5/2019 14:31	0:01	KS	0.02678000	0.273	Oversupply
5/5/2019 14:31	0:01	SMRR	0.019095152	0.731	Oversupply
5/5/2019 14:32	0:01	KS	0.02678000	0.076	Oversupply
5/5/2019 14:32	0:01	SMRR	0.019510263	0.742	Oversupply
5/5/2019 14:32	0:01	KS	0.02678000	0.665	Oversupply
5/5/2019 14:33	0:01	SMRR	0.018680040	0.499	Oversupply
5/5/2019 14:33	0:01	KS	0.02575000	0.607	Oversupply
5/5/2019 14:34	0:01	SMRR	0.019095152	0.782	Oversupply
5/5/2019 14:34	0:01	KS	0.02678000	0.733	Oversupply
5/5/2019 14:34	0:01	SMRR	0.019095152	1.025	Oversupply
5/5/2019 14:35	0:01	KS	0.02678000	0.583	Oversupply
5/5/2019 14:35	0:01	SMRR	0.018680040	1.214	Oversupply
5/5/2019 14:36	0:01	KS	0.02678000	0.859	Oversupply
5/5/2019 14:36	0:01	SMRR	0.019095151	2.251	Oversupply
5/5/2019 14:37	0:02	SMRR	0.038190304	2.234	Oversupply
5/5/2019 14:37	0:01	KS	0.02678000	1.038	Oversupply
5/5/2019 14:38	0:01	KS	0.02678000	1.327	Oversupply
5/5/2019 14:38	0:01	SMRR	0.018680040	1.430	Oversupply
5/5/2019 14:38	0:01	KS	0.02575000	2.268	Oversupply
5/5/2019 14:39	0:01	SMRR	0.019095152	1.059	Oversupply
5/5/2019 14:39	0:01	KS	0.02678000	2.102	Oversupply
5/5/2019 14:40	0:01	SMRR	0.019095152	1.031	Oversupply
5/5/2019 14:40	0:01	KS	0.02678000	1.999	Oversupply
5/5/2019 14:40	0:01	SMRR	0.019095152	1.143	Oversupply
5/5/2019 14:41	0:01	KS	0.02678000	1.241	Oversupply
5/5/2019 14:41	0:01	SMRR	0.018680040	1.362	Oversupply
5/5/2019 14:42	0:01	KS	0.02678000	1.202	Oversupply
5/5/2019 14:42	0:01	SMRR	0.019095152	1.426	Oversupply
5/5/2019 14:43	0:01	KS	0.02678000	1.090	Oversupply
5/5/2019 14:43	0:01	SMRR	0.019510264	1.576	Oversupply
5/5/2019 14:44	0:01	SMRR	0.019510263	1.608	Oversupply
5/5/2019 14:44	0:01	KS	0.02678000	1.371	Oversupply
5/5/2019 14:44	0:01	SMRR	0.010280040	1.696	Oversupply



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5/5/2019 14:44	0:01	KS	0.01365889	1.470	Oversupply
5/5/2019 14:45	0:01	SMRR	0.005729289	1.241	Oversupply
5/5/2019 14:45	0:01	KS	0.01285556	1.710	Oversupply
5/5/2019 14:46	0:01	SMRR	0.005729288	1.028	Oversupply
5/5/2019 14:46	0:01	KS	0.01236111	1.537	Oversupply
5/5/2019 14:47	0:01	SMRR	0.005729289	1.525	Oversupply
5/5/2019 14:47	0:01	KS	0.01285556	1.581	Oversupply
5/5/2019 14:47	0:01	SMRR	0.005604739	1.756	Oversupply
5/5/2019 14:48	0:01	KS	0.01285556	0.937	Oversupply
5/5/2019 14:48	0:01	SMRR	0.005729288	1.869	Oversupply
5/5/2019 14:49	0:01	KS	0.01285556	1.463	Oversupply
5/5/2019 14:49	0:01	SMRR	0.005729289	2.026	Oversupply
5/5/2019 14:50	0:01	KS	0.01285556	1.650	Oversupply
5/5/2019 14:50	0:01	SMRR	0.005729289	2.147	Oversupply
5/5/2019 14:50	0:01	SMRR	0.005604739	2.690	Oversupply
5/5/2019 14:50	0:01	KS	0.01285556	1.717	Oversupply
5/5/2019 14:51	0:01	SMRR	0.005729288	2.447	Oversupply
5/5/2019 14:51	0:01	KS	0.01285556	2.064	Oversupply
5/5/2019 14:52	0:01	KS	0.01285556	2.364	Oversupply
5/5/2019 14:53	0:01	SMRR	0.005729289	2.693	Oversupply
5/5/2019 14:53	0:01	KS	0.01285556	2.479	Oversupply
5/5/2019 14:54	0:02	KS	0.02546389	2.675	Oversupply
5/5/2019 14:54	0:01	SMRR	0.005729289	2.677	Oversupply
5/5/2019 14:55	0:01	SMRR	0.005729289	2.272	Oversupply
5/5/2019 14:56	0:01	KS	0.01285556	2.748	Oversupply
5/5/2019 14:56	0:01	SMRR	0.005729289	2.259	Oversupply
5/5/2019 14:57	0:01	KS	0.01285556	2.585	Oversupply
5/5/2019 14:57	0:01	SMRR	0.005729289	2.656	Oversupply
5/5/2019 14:57	0:01	SMRR	0.005604739	1.780	Oversupply
5/5/2019 14:57	0:01	KS	0.01285556	1.818	Oversupply
5/5/2019 14:58	0:01	SMRR	0.005729289	2.040	Oversupply
5/5/2019 14:58	0:01	KS	0.01285556	2.143	Oversupply
5/5/2019 14:59	0:01	SMRR	0.005282622	2.623	Oversupply
5/5/2019 14:59	0:01	KS	0.01005556	2.366	Oversupply
5/5/2019 15:00	0:01	SMRR	0.000565485	2.015	Oversupply
5/5/2019 15:00	0:01	KS	0.00800222	1.781	Oversupply
5/5/2019 15:00	0:01	SMRR	0.000553192	1.947	Oversupply
5/5/2019 15:01	0:01	SMRR	0.000565485	2.443	Oversupply
5/5/2019 15:02	0:01	KS	0.00800222	1.592	Oversupply
5/5/2019 15:02	0:01	SMRR	0.000565485	2.346	Oversupply
5/5/2019 15:03	0:01	KS	0.00800222	2.090	Oversupply
5/5/2019 15:03	0:01	SMRR	0.000565485	2.104	Oversupply
5/5/2019 15:03	0:01	SMRR	0.000565485	2.105	Oversupply
5/5/2019 15:03	0:01	KS	0.00800222	2.626	Oversupply
5/5/2019 15:04	0:01	SMRR	0.000553192	2.119	Oversupply
5/5/2019 15:04	0:01	KS	0.00800222	2.431	Oversupply
5/5/2019 15:05	0:01	SMRR	0.000565485	2.552	Oversupply
5/5/2019 15:05	0:01	KS	0.00800222	2.357	Oversupply
5/5/2019 15:06	0:01	SMRR	0.000565485	2.025	Oversupply
5/5/2019 15:06	0:01	KS	0.00800222	2.173	Oversupply
5/5/2019 15:07	0:01	KS	0.00769444	2.354	Oversupply
5/5/2019 15:08	0:01	KS	0.00800222	2.299	Oversupply
5/5/2019 15:09	0:01	KS	0.00784833	2.621	Oversupply
5/5/2019 16:19	0:11	KWP2	0.156795629	19.15774727	Oversupply
5/5/2019 21:39	0:01	KWP2	8.31629E-05	0.004989776	Oversupply
5/6/2019 14:16	0:36	AWE	Data is not available	Data is not available	Facility requested
5/7/2019 8:04	0:01	AWE	0.001666667	0.100000001	Oversupply
5/7/2019 8:27	0:01	AWE	0.003333333	0.200000003	Oversupply
5/7/2019 9:43	0:01	KWP2	0.000166326	0.009979553	Oversupply
5/7/2019 12:07	0:04	AWE	Data is not available	Data is not available	Facility requested
5/7/2019 21:19	0:01	KWP2	0.000316019	0.01896115	Oversupply
5/8/2019 3:55	0:01	KWP2	0.002295297	0.137717828	Oversupply
5/8/2019 4:01	0:02	KWP2	0.034317478	9.237073898	Oversupply
5/8/2019 4:04	0:13	KWP2	1.80178285	13.79673195	Oversupply
5/8/2019 4:08	0:01	AWE	0.008726756	17.39999962	Oversupply
5/8/2019 4:10	0:03	AWE	0.027306779	16	Oversupply
5/8/2019 4:19	0:28	KWP2	1.922402525	17.59295464	Oversupply
5/8/2019 13:49	0:07	KWP2	0.091834974	16.91633987	Oversupply
5/8/2019 13:59	0:02	KWP2	0.015035709	15.94233608	Oversupply
5/8/2019 14:06	0:19	KWP2	1.109209712	17.38537979	Oversupply
5/8/2019 14:27	0:07	KWP2	0.227598429	17.29257011	Oversupply
5/8/2019 15:04	0:04	KWP2	0.042300193	17.0281105	Oversupply
5/9/2019 10:25	0:07	KWP2	0.220006045	11.15115261	Oversupply



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5/9/2019 10:42	0:42	KWP2	4.538543435	15.27470398	Oversupply
5/9/2019 11:01	0:02	AWE	0.009814135	21	Oversupply
5/9/2019 11:31	0:18	KWP2	0.822206783	15.15295315	Oversupply
5/9/2019 13:09	0:01	KWP2	0.002062441	0.123746455	Oversupply
5/9/2019 15:25	0:10	KWP2	0.309973844	13.11712456	Oversupply
5/13/2019 12:00	0:16	AWE	Data is not available	Data is not available	Facility requested
5/14/2019 12:32	0:01	SMRR	-0.000703829	1.613	Oversupply
5/14/2019 12:33	0:01	SMRR	-0.000703829	1.858	Oversupply
5/14/2019 12:34	0:01	SMRR	-0.000703830	1.521	Oversupply
5/14/2019 12:35	0:01	KS	0.00153111	2.783	Oversupply
5/14/2019 12:36	0:01	KS	0.00153111	2.391	Oversupply
5/14/2019 14:18	0:01	SMRR	0.004194957	2.517	Oversupply
5/14/2019 14:18	0:01	SMRR	0.004288178	2.677	Oversupply
5/14/2019 14:19	0:01	SMRR	0.004288178	1.850	Oversupply
5/14/2019 14:20	0:01	SMRR	0.004288178	1.609	Oversupply
5/14/2019 14:21	0:01	SMRR	0.004288178	1.053	Oversupply
5/14/2019 14:21	0:01	KS	0.00777791	2.580	Oversupply
5/14/2019 14:21	0:01	SMRR	0.004194957	0.453	Oversupply
5/14/2019 14:22	0:01	KS	0.00777791	1.917	Oversupply
5/14/2019 14:22	0:01	SMRR	0.004381399	0.989	Oversupply
5/14/2019 14:22	0:01	KS	0.00777791	2.127	Oversupply
5/14/2019 14:23	0:01	SMRR	0.004288178	0.954	Oversupply
5/14/2019 14:23	0:01	KS	0.00777791	1.415	Oversupply
5/14/2019 14:24	0:01	SMRR	0.004288178	1.235	Oversupply
5/14/2019 14:24	0:01	KS	0.00777791	0.876	Oversupply
5/14/2019 14:24	0:01	SMRR	0.004288178	1.603	Oversupply
5/14/2019 14:25	0:01	KS	0.00747876	1.645	Oversupply
5/14/2019 14:25	0:01	SMRR	0.004194957	1.735	Oversupply
5/14/2019 14:26	0:01	KS	0.00777791	1.545	Oversupply
5/14/2019 14:26	0:01	SMRR	0.004288178	1.380	Oversupply
5/14/2019 14:27	0:01	KS	0.00777791	0.922	Oversupply
5/14/2019 14:27	0:01	SMRR	0.004288178	0.896	Oversupply
5/14/2019 14:28	0:01	SMRR	0.004381400	1.391	Oversupply
5/14/2019 14:29	0:01	KS	0.02000902	0.717	Oversupply
5/14/2019 14:30	0:01	KS	0.00048716	0.646	Oversupply
5/14/2019 14:44	0:25	SMRR	0.961771626	1.991	Oversupply
5/14/2019 15:15	0:37	SMRR	1.188851156	0.000	Oversupply
5/14/2019 17:41	1:13	KS	0.52911469	0.813	Oversupply
5/14/2019 18:19	0:24	SMRR	0.035941220	0.114	Oversupply
5/14/2019 18:20	0:35	ESA	Data is not available	Data is not available	Oversupply
5/14/2019 18:20	0:35	ESB	Data is not available	Data is not available	Oversupply
5/14/2019 18:20	0:35	BS250	Data is not available	Data is not available	Oversupply
5/15/2019 16:11	0:01	SMRR	-0.001245749	1.811	Oversupply
5/15/2019 16:13	0:01	SMRR	-0.001218668	1.827	Oversupply
5/15/2019 16:14	0:01	SMRR	0.000678695	1.808	Oversupply
5/15/2019 16:14	0:01	KS	0.01612651	0.748	Oversupply
5/15/2019 16:15	0:01	SMRR	0.018210509	1.489	Oversupply
5/15/2019 16:15	0:01	KS	0.01017437	0.737	Oversupply
5/15/2019 16:15	0:01	SMRR	0.018615187	0.992	Oversupply
5/15/2019 16:16	0:03	KS	0.03052310	0.036	Oversupply
5/15/2019 16:16	0:01	SMRR	0.018615187	0.094	Oversupply
5/15/2019 16:17	0:06	ESA	Data is not available	Data is not available	Oversupply
5/15/2019 16:17	0:06	ESB	Data is not available	Data is not available	Oversupply
5/15/2019 16:17	0:06	BS250	Data is not available	Data is not available	Oversupply
5/15/2019 16:17	0:12	SMRR	0.296224279	0.025	Oversupply
5/15/2019 16:19	0:04	KS	0.05028485	-0.003	Oversupply
5/15/2019 16:23	0:06	KS	0.07102490	0.103	Oversupply
5/15/2019 16:24	0:05	ESA	Data is not available	Data is not available	Oversupply
5/15/2019 16:24	0:05	ESB	Data is not available	Data is not available	Oversupply
5/15/2019 16:24	0:05	BS250	Data is not available	Data is not available	Oversupply
5/15/2019 16:29	0:01	KS	0.00388103	0.116	Oversupply
5/15/2019 16:29	0:01	SMRR	0.013654076	0.281	Oversupply
5/15/2019 16:30	0:01	KS	0.00617851	0.282	Oversupply
5/15/2019 16:30	0:01	SMRR	0.003524719	0.942	Oversupply
5/15/2019 16:31	0:01	SMRR	0.003603046	1.393	Oversupply
5/15/2019 16:32	0:01	KS	0.00617851	0.718	Oversupply
5/15/2019 16:32	0:01	SMRR	0.003603046	0.428	Oversupply
5/15/2019 16:32	0:01	KS	0.00594087	0.789	Oversupply
5/15/2019 16:33	0:01	SMRR	0.003603046	0.713	Oversupply
5/15/2019 16:33	0:01	KS	0.00617851	0.909	Oversupply
5/15/2019 16:34	0:01	SMRR	0.003603046	0.939	Oversupply
5/15/2019 16:34	0:01	KS	0.00617851	1.124	Oversupply
5/15/2019 16:34	0:01	SMRR	0.003603046	0.250	Oversupply



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5/15/2019 16:35	0:01	KS	0.00629733	1.192	Oversupply
5/15/2019 16:35	0:01	SMRR	0.003524719	0.521	Oversupply
5/15/2019 16:36	0:01	KS	0.00617851	1.758	Oversupply
5/15/2019 16:36	0:01	SMRR	0.003603046	1.132	Oversupply
5/15/2019 16:44	0:01	SMRR	0.001917490	1.367	Oversupply
5/15/2019 16:44	0:01	KS	0.00606962	2.199	Oversupply
5/15/2019 16:45	0:01	SMRR	-0.000224219	1.239	Oversupply
5/15/2019 16:45	0:01	KS	0.00029816	1.889	Oversupply
5/15/2019 16:46	0:01	SMRR	-0.000229201	1.233	Oversupply
5/15/2019 16:46	0:01	KS	0.00029816	1.914	Oversupply
5/15/2019 16:47	0:01	SMRR	-0.000229201	1.311	Oversupply
5/15/2019 16:48	0:01	KS	0.00029816	2.179	Oversupply
5/15/2019 16:49	0:01	KS	0.00029816	2.090	Oversupply
5/15/2019 16:49	0:01	SMRR	-0.000229201	1.258	Oversupply
5/15/2019 16:50	0:01	KS	0.00029243	1.566	Oversupply
5/15/2019 16:50	0:01	SMRR	-0.000229201	1.163	Oversupply
5/15/2019 16:50	0:01	SMRR	-0.000229202	1.281	Oversupply
5/16/2019 11:34	0:01	KS	-0.00008127	2.626	System Constraint
5/16/2019 11:35	0:01	KS	-0.00008127	2.711	System Constraint
5/16/2019 14:02	0:01	KS	0.00102881	1.454	System Constraint
5/16/2019 14:02	0:01	SMRR	0.004413551	1.846	System Constraint
5/16/2019 14:03	0:01	KS	0.00102881	1.460	System Constraint
5/16/2019 14:03	0:01	SMRR	0.004413551	1.300	System Constraint
5/16/2019 14:04	0:01	KS	0.00102881	0.933	System Constraint
5/16/2019 14:04	0:01	SMRR	0.004413551	1.478	System Constraint
5/16/2019 14:05	0:01	KS	0.00102881	0.630	System Constraint
5/16/2019 14:05	0:01	SMRR	0.004317604	1.180	System Constraint
5/16/2019 14:08	0:01	KS	0.00102881	2.540	System Constraint
5/18/2019 8:01	0:01	SMRR	0.000335865	1.224	Oversupply
5/18/2019 8:01	0:01	KS	0.00022522	0.648	Oversupply
5/18/2019 8:03	0:01	SMRR	0.000335865	0.862	Oversupply
5/18/2019 8:04	0:01	SMRR	0.000335865	0.706	Oversupply
5/18/2019 8:04	0:01	KS	0.00022522	0.695	Oversupply
5/18/2019 8:05	0:01	KS	0.00022522	0.652	Oversupply
5/18/2019 8:06	0:01	KS	0.00022522	0.711	Oversupply
5/18/2019 8:07	0:01	KS	0.00022522	0.491	Oversupply
5/18/2019 8:13	0:01	SMRR	0.000335865	1.403	Oversupply
5/18/2019 8:14	0:01	SMRR	0.000343166	1.369	Oversupply
5/18/2019 8:14	0:01	SMRR	-0.001493659	1.356	Oversupply
5/18/2019 11:09	0:01	SMRR	0.001728563	2.875	Oversupply
5/18/2019 11:09	0:01	KS	0.00236159	1.374	Oversupply
5/18/2019 11:12	0:01	SMRR	0.001728563	2.882	Oversupply
5/18/2019 11:13	0:01	SMRR	0.001728563	2.807	Oversupply
5/18/2019 11:14	0:01	KS	0.00359493	1.369	Oversupply
5/18/2019 11:14	0:01	SMRR	0.002258563	2.703	Oversupply
5/18/2019 11:15	0:01	SMRR	0.004532651	2.740	Oversupply
5/18/2019 11:15	0:01	KS	0.00516064	1.445	Oversupply
5/18/2019 11:15	0:01	SMRR	0.004532650	2.643	Oversupply
5/18/2019 11:16	0:01	KS	0.00516064	1.472	Oversupply
5/18/2019 11:16	0:01	SMRR	0.004434115	1.941	Oversupply
5/18/2019 11:16	0:01	KS	0.00496215	0.813	Oversupply
5/18/2019 11:17	0:01	SMRR	0.004631186	0.977	Oversupply
5/18/2019 11:17	0:01	KS	0.00516064	0.793	Oversupply
5/18/2019 11:18	0:01	SMRR	0.004434115	1.687	Oversupply
5/18/2019 11:18	0:01	KS	0.00516064	1.141	Oversupply
5/18/2019 11:18	0:01	SMRR	0.004532651	1.833	Oversupply
5/18/2019 11:19	0:01	KS	0.00516064	1.302	Oversupply
5/18/2019 11:19	0:01	SMRR	0.004532651	2.098	Oversupply
5/18/2019 11:20	0:01	KS	0.00516064	2.083	Oversupply
5/18/2019 11:20	0:01	SMRR	0.004532651	2.077	Oversupply
5/18/2019 11:21	0:01	SMRR	0.004532651	2.471	Oversupply
5/18/2019 11:21	0:01	KS	0.00516064	2.478	Oversupply
5/18/2019 11:40	0:01	SMRR	0.000206885	2.895	Oversupply
5/18/2019 11:41	0:01	KS	0.00232259	2.450	Oversupply
5/18/2019 11:41	0:01	SMRR	0.000202387	2.657	Oversupply
5/18/2019 11:41	0:01	KS	0.00241368	2.050	Oversupply
5/18/2019 11:41	0:01	SMRR	0.000206885	2.253	Oversupply
5/18/2019 11:42	0:01	SMRR	0.000206885	2.879	Oversupply
5/18/2019 11:44	0:01	SMRR	0.000254663	2.695	Oversupply
5/18/2019 11:45	0:01	KS	0.00214281	2.445	Oversupply
5/18/2019 11:45	0:01	SMRR	0.000635463	2.198	Oversupply
5/18/2019 11:46	0:01	KS	0.00214281	2.329	Oversupply
5/18/2019 13:36	0:01	SMRR	0.009225000	2.735	Oversupply



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5/18/2019 13:37	0:01	SMRR	0.009430000	2.438	Oversupply
5/18/2019 13:37	0:01	KS	0.01018489	2.139	Oversupply
5/18/2019 13:37	0:01	SMRR	0.009430000	1.999	Oversupply
5/18/2019 13:38	0:01	KS	0.01018489	1.436	Oversupply
5/18/2019 13:38	0:01	SMRR	0.009430000	1.249	Oversupply
5/18/2019 13:38	0:01	KS	0.00998903	0.726	Oversupply
5/18/2019 13:39	0:01	SMRR	0.009225000	0.813	Oversupply
5/18/2019 13:39	0:01	KS	0.00979317	1.020	Oversupply
5/18/2019 13:40	0:01	SMRR	0.009430000	1.449	Oversupply
5/18/2019 13:40	0:01	KS	0.01018489	1.399	Oversupply
5/18/2019 13:41	0:01	SMRR	0.009430000	1.512	Oversupply
5/18/2019 13:41	0:01	KS	0.01018489	1.227	Oversupply
5/18/2019 13:41	0:01	SMRR	0.009430000	2.315	Oversupply
5/18/2019 13:42	0:01	KS	0.01018489	0.821	Oversupply
5/18/2019 13:42	0:01	SMRR	0.009430000	1.798	Oversupply
5/18/2019 13:43	0:01	KS	0.01018489	0.386	Oversupply
5/18/2019 13:43	0:01	SMRR	0.009225000	0.749	Oversupply
5/18/2019 13:44	0:01	SMRR	0.009430000	1.003	Oversupply
5/18/2019 13:44	0:01	KS	0.00998903	0.599	Oversupply
5/18/2019 13:44	0:01	SMRR	0.027272222	2.164	Oversupply
5/18/2019 13:44	0:01	KS	0.03251823	1.173	Oversupply
5/18/2019 13:45	0:01	SMRR	0.028350069	2.371	Oversupply
5/18/2019 13:45	0:01	KS	0.01587624	0.840	Oversupply
5/18/2019 13:46	0:01	SMRR	0.027733764	1.283	Oversupply
5/18/2019 13:46	0:01	KS	0.01587624	0.356	Oversupply
5/18/2019 13:47	0:01	SMRR	0.028350070	0.913	Oversupply
5/18/2019 13:47	0:01	KS	0.01587624	0.266	Oversupply
5/18/2019 13:47	0:01	SMRR	0.028350070	0.385	Oversupply
5/18/2019 13:48	0:01	KS	0.01587624	0.215	Oversupply
5/18/2019 13:48	0:08	SMRR	0.282884389	0.209	Oversupply
5/18/2019 13:49	0:07	ESA	Data is not available	Data is not available	Oversupply
5/18/2019 13:49	0:07	ESB	Data is not available	Data is not available	Oversupply
5/18/2019 13:49	0:07	BS250	Data is not available	Data is not available	Oversupply
5/18/2019 13:49	0:01	KS	0.01587624	0.037	Oversupply
5/18/2019 13:50	0:05	KS	0.09525743	0.086	Oversupply
5/18/2019 13:55	0:01	KS	0.01587624	0.153	Oversupply
5/18/2019 13:56	0:01	KS	0.01587624	0.245	Oversupply
5/18/2019 13:56	0:01	SMRR	0.028350070	0.264	Oversupply
5/18/2019 13:57	0:01	SMRR	0.028350070	0.437	Oversupply
5/18/2019 13:57	0:01	KS	0.01587624	0.469	Oversupply
5/18/2019 13:57	0:01	SMRR	0.027733764	0.004	Oversupply
5/18/2019 13:57	0:01	KS	0.01587624	0.026	Oversupply
5/18/2019 13:58	0:02	SMRR	0.056984584	-0.004	Oversupply
5/18/2019 13:58	0:02	KS	0.03049383	0.011	Oversupply
5/18/2019 13:59	0:01	ESA	Data is not available	Data is not available	Oversupply
5/18/2019 13:59	0:01	ESB	Data is not available	Data is not available	Oversupply
5/18/2019 13:59	0:01	BS250	Data is not available	Data is not available	Oversupply
5/18/2019 14:00	0:01	SMRR	0.025918756	0.064	Oversupply
5/18/2019 14:00	0:01	KS	0.03735333	0.474	Oversupply
5/18/2019 14:00	0:01	SMRR	0.025355305	0.816	Oversupply
5/18/2019 14:01	0:01	KS	0.03735333	0.716	Oversupply
5/18/2019 14:01	0:01	SMRR	0.025918756	0.960	Oversupply
5/18/2019 14:02	0:01	KS	0.03735333	1.438	Oversupply
5/18/2019 14:02	0:01	SMRR	0.025918756	1.348	Oversupply
5/18/2019 14:03	0:01	KS	0.03735333	1.335	Oversupply
5/18/2019 14:03	0:01	SMRR	0.025918756	0.995	Oversupply
5/18/2019 14:03	0:01	SMRR	0.025355305	0.630	Oversupply
5/18/2019 14:04	0:01	KS	0.03735333	0.445	Oversupply
5/18/2019 14:04	0:01	SMRR	0.025918756	0.537	Oversupply
5/18/2019 14:04	0:01	KS	0.03663500	0.496	Oversupply
5/18/2019 14:05	0:20	ESA	Data is not available	Data is not available	Oversupply
5/18/2019 14:05	0:20	ESB	Data is not available	Data is not available	Oversupply
5/18/2019 14:05	0:20	BS250	Data is not available	Data is not available	Oversupply
5/18/2019 14:05	0:20	SMRR	0.663434477	0.049	Oversupply
5/18/2019 14:05	0:19	KS	0.76789211	0.019	Oversupply
5/18/2019 14:24	0:01	KS	0.03240341	0.085	Oversupply
5/18/2019 14:25	0:01	SMRR	0.025114116	0.220	Oversupply
5/18/2019 14:25	0:08	KS	0.25967527	0.140	Oversupply
5/18/2019 14:26	0:08	ESA	Data is not available	Data is not available	Oversupply
5/18/2019 14:26	0:08	ESB	Data is not available	Data is not available	Oversupply
5/18/2019 14:26	0:08	BS250	Data is not available	Data is not available	Oversupply
5/18/2019 14:26	0:08	SMRR	0.207046214	0.006	Oversupply
5/18/2019 14:33	0:01	KS	0.02672222	0.271	Oversupply



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5/18/2019 14:33	0:01	SMRR	0.016205320	0.224	Oversupply
5/18/2019 14:34	0:01	KS	0.02569444	0.370	Oversupply
5/18/2019 14:34	0:01	SMRR	0.016205320	0.645	Oversupply
5/18/2019 14:35	0:01	KS	0.02672222	0.491	Oversupply
5/18/2019 14:35	0:01	SMRR	0.016557610	0.559	Oversupply
5/18/2019 14:35	0:01	KS	0.02672222	1.561	Oversupply
5/18/2019 14:36	0:01	SMRR	0.016205320	0.611	Oversupply
5/18/2019 14:36	0:01	KS	0.02672222	2.492	Oversupply
5/18/2019 14:37	0:01	SMRR	0.015853031	0.588	Oversupply
5/18/2019 14:37	0:01	KS	0.02672222	1.828	Oversupply
5/18/2019 14:38	0:01	SMRR	0.016205320	0.636	Oversupply
5/18/2019 14:38	0:01	KS	0.02672222	0.644	Oversupply
5/18/2019 14:39	0:01	SMRR	0.016205320	0.149	Oversupply
5/18/2019 14:39	0:01	KS	0.02672222	0.922	Oversupply
5/18/2019 14:39	0:01	SMRR	0.015853031	0.335	Oversupply
5/18/2019 14:40	0:01	KS	0.02672222	0.849	Oversupply
5/18/2019 14:40	0:01	SMRR	0.016205320	0.224	Oversupply
5/18/2019 14:41	0:01	KS	0.02672222	0.730	Oversupply
5/18/2019 14:41	0:01	SMRR	0.016205320	0.203	Oversupply
5/18/2019 14:42	0:01	KS	0.02672222	0.931	Oversupply
5/18/2019 14:42	0:01	SMRR	0.016205320	0.721	Oversupply
5/18/2019 14:42	0:01	KS	0.02672222	1.439	Oversupply
5/18/2019 14:42	0:01	SMRR	0.015853031	1.414	Oversupply
5/18/2019 14:43	0:01	KS	0.02672222	2.547	Oversupply
5/18/2019 14:55	0:01	SMRR	-0.000068567	2.100	Oversupply
5/18/2019 14:55	0:01	KS	0.00421280	1.994	Oversupply
5/18/2019 14:55	0:01	SMRR	-0.000067075	1.642	Oversupply
5/18/2019 14:56	0:01	SMRR	-0.000068566	1.465	Oversupply
5/18/2019 14:56	0:01	KS	0.00438131	1.647	Oversupply
5/18/2019 14:57	0:01	SMRR	-0.000068566	0.758	Oversupply
5/18/2019 14:57	0:01	KS	0.00438131	1.806	Oversupply
5/18/2019 14:58	0:01	SMRR	-0.000068567	1.272	Oversupply
5/18/2019 14:58	0:01	KS	0.00438131	3.025	Oversupply
5/18/2019 14:58	0:01	SMRR	-0.000068566	1.171	Oversupply
5/18/2019 14:59	0:01	KS	0.00675947	1.955	Oversupply
5/18/2019 14:59	0:01	SMRR	0.011630702	1.579	Oversupply
5/18/2019 15:00	0:01	KS	0.02684443	1.727	Oversupply
5/18/2019 15:01	0:01	SMRR	0.011546908	2.630	Oversupply
5/18/2019 15:01	0:01	KS	0.02684443	2.735	Oversupply
5/18/2019 15:01	0:01	SMRR	0.011803505	2.130	Oversupply
5/18/2019 15:02	0:01	KS	0.02684443	1.413	Oversupply
5/18/2019 15:02	0:01	SMRR	0.011803505	1.142	Oversupply
5/18/2019 15:03	0:01	SMRR	0.011803505	0.040	Oversupply
5/18/2019 15:03	0:01	KS	0.02581195	0.037	Oversupply
5/18/2019 15:04	0:03	SMRR	0.046957424	0.066	Oversupply
5/18/2019 15:04	0:03	KS	0.10737772	0.027	Oversupply
5/18/2019 15:05	0:03	ESA	Data is not available	Data is not available	Oversupply
5/18/2019 15:05	0:03	ESB	Data is not available	Data is not available	Oversupply
5/18/2019 15:05	0:03	BS250	Data is not available	Data is not available	Oversupply
5/18/2019 15:07	0:01	SMRR	0.011803505	0.013	Oversupply
5/18/2019 15:07	0:01	KS	0.02684443	0.245	Oversupply
5/18/2019 15:08	0:01	SMRR	0.011803505	0.217	Oversupply
5/18/2019 15:08	0:01	KS	0.02684443	0.563	Oversupply
5/18/2019 15:08	0:01	SMRR	0.011546907	0.170	Oversupply
5/18/2019 15:09	0:01	ESA	Data is not available	Data is not available	Oversupply
5/18/2019 15:09	0:01	ESB	Data is not available	Data is not available	Oversupply
5/18/2019 15:09	0:01	BS250	Data is not available	Data is not available	Oversupply
5/18/2019 15:09	0:01	KS	0.02632819	0.408	Oversupply
5/18/2019 15:09	0:01	SMRR	0.011803505	0.152	Oversupply
5/18/2019 15:10	0:01	SMRR	0.012060104	0.347	Oversupply
5/18/2019 15:10	0:01	KS	0.02581195	0.673	Oversupply
5/18/2019 15:11	0:01	SMRR	0.011803505	0.404	Oversupply
5/18/2019 15:11	0:01	SMRR	0.011803505	0.698	Oversupply
5/18/2019 15:15	0:01	KS	0.00340657	2.517	Oversupply
5/18/2019 15:15	0:01	SMRR	-0.000116144	0.707	Oversupply
5/18/2019 15:18	0:01	KS	0.00340657	2.039	Oversupply
5/19/2019 9:46	0:01	KS	0.00036628	2.337	System Constraint
5/19/2019 9:49	0:01	KS	0.00036628	2.322	System Constraint
5/19/2019 9:58	0:01	KS	0.00036628	2.395	System Constraint
5/19/2019 9:58	0:01	SMRR	0.000656698	1.729	System Constraint
5/19/2019 9:58	0:01	SMRR	0.000671291	2.322	System Constraint
5/19/2019 9:59	0:01	SMRR	-0.006724265	2.600	System Constraint
5/19/2019 9:59	0:01	KS	-0.00062743	2.242	System Constraint



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/19/2019 10:00	0:01	SMRR	0.002715874	2.050	System Constraint
5/19/2019 10:00	0:01	KS	0.00303015	2.146	System Constraint
5/19/2019 10:01	0:01	SMRR	0.002715874	1.596	System Constraint
5/19/2019 10:01	0:01	KS	0.00297298	1.635	System Constraint
5/19/2019 10:01	0:01	SMRR	0.002656834	2.395	System Constraint
5/19/2019 10:03	0:01	KS	0.00285864	2.492	System Constraint
5/19/2019 10:03	0:01	SMRR	0.002715874	1.430	System Constraint
5/19/2019 10:04	0:01	KS	0.00297298	1.773	System Constraint
5/19/2019 10:14	0:01	KS	0.00890409	2.431	System Constraint
5/19/2019 10:14	0:01	SMRR	0.006915874	2.269	System Constraint
5/19/2019 10:15	0:01	KS	0.00957589	1.957	System Constraint
5/19/2019 10:15	0:01	SMRR	0.015213271	2.277	System Constraint
5/19/2019 10:16	0:01	KS	0.00957589	1.812	System Constraint
5/19/2019 10:16	0:01	SMRR	0.015213271	1.956	System Constraint
5/19/2019 10:19	0:01	SMRR	0.015213271	2.588	System Constraint
5/19/2019 10:19	0:01	KS	0.00957589	0.829	System Constraint
5/19/2019 10:20	0:01	SMRR	0.015213271	1.596	System Constraint
5/19/2019 10:20	0:01	KS	0.00957589	0.392	System Constraint
5/19/2019 10:21	0:01	SMRR	0.014882547	1.546	System Constraint
5/19/2019 10:21	0:01	KS	0.00957589	0.732	System Constraint
5/19/2019 10:21	0:01	SMRR	0.015213271	2.611	System Constraint
5/19/2019 10:22	0:01	KS	0.00957589	0.824	System Constraint
5/19/2019 10:22	0:01	SMRR	0.015213271	1.482	System Constraint
5/19/2019 10:23	0:01	KS	0.00957589	1.161	System Constraint
5/19/2019 10:23	0:01	SMRR	0.015213271	1.798	System Constraint
5/19/2019 10:23	0:01	KS	0.00920759	0.424	System Constraint
5/19/2019 10:24	0:08	SMRR	0.175207764	0.522	System Constraint
5/19/2019 10:24	0:07	KS	0.08786011	0.025	System Constraint
5/19/2019 10:25	0:07	ESA	Data is not available	Data is not available	System Constraint
5/19/2019 10:25	0:07	ESB	Data is not available	Data is not available	System Constraint
5/19/2019 10:25	0:07	BS250	Data is not available	Data is not available	System Constraint
5/19/2019 10:31	0:01	KS	0.01728999	0.176	System Constraint
5/19/2019 10:31	0:01	SMRR	0.025273314	0.306	System Constraint
5/19/2019 10:32	0:01	KS	0.01728999	0.571	System Constraint
5/19/2019 10:32	0:01	SMRR	0.025273314	0.944	System Constraint
5/19/2019 10:33	0:01	SMRR	0.025273314	2.192	System Constraint
5/19/2019 10:33	0:01	KS	0.01728999	1.305	System Constraint
5/19/2019 10:34	0:01	SMRR	0.025822733	1.360	System Constraint
5/19/2019 10:34	0:01	KS	0.01728999	0.827	System Constraint
5/19/2019 10:34	0:01	SMRR	0.025273314	1.606	System Constraint
5/19/2019 10:35	0:01	KS	0.01728999	0.542	System Constraint
5/19/2019 10:35	0:01	SMRR	0.024723894	1.220	System Constraint
5/19/2019 10:36	0:01	KS	0.01728999	0.531	System Constraint
5/19/2019 10:36	0:01	SMRR	0.025273314	1.195	System Constraint
5/19/2019 10:36	0:01	KS	0.01728999	0.600	System Constraint
5/19/2019 10:37	0:01	SMRR	0.025273314	1.343	System Constraint
5/19/2019 10:37	0:01	KS	0.01728999	0.918	System Constraint
5/19/2019 10:37	0:01	SMRR	0.024723894	2.125	System Constraint
5/19/2019 10:38	0:01	KS	0.01728999	0.623	System Constraint
5/19/2019 10:38	0:01	SMRR	0.025273314	1.356	System Constraint
5/19/2019 10:39	0:01	SMRR	0.025273314	1.088	System Constraint
5/19/2019 10:39	0:01	KS	0.01662499	0.298	System Constraint
5/19/2019 10:40	0:01	SMRR	0.025273314	0.393	System Constraint
5/19/2019 10:40	0:01	KS	0.01728999	0.136	System Constraint
5/19/2019 10:40	0:43	SMRR	1.854670263	0.028	System Constraint
5/19/2019 10:41	0:43	ESA	Data is not available	Data is not available	System Constraint
5/19/2019 10:41	0:43	ESB	Data is not available	Data is not available	System Constraint
5/19/2019 10:41	0:43	BS250	Data is not available	Data is not available	System Constraint
5/19/2019 10:41	0:42	KS	0.92376667	0.018	System Constraint
5/19/2019 11:23	0:01	KS	0.01577808	0.087	System Constraint
5/19/2019 11:23	0:01	SMRR	0.031340660	0.584	System Constraint
5/19/2019 11:24	0:01	KS	0.01577808	0.420	System Constraint
5/19/2019 11:24	0:01	SMRR	0.031340660	1.225	System Constraint
5/19/2019 11:25	0:01	KS	0.01577808	0.439	System Constraint
5/19/2019 11:25	0:01	SMRR	0.030659341	1.844	System Constraint
5/19/2019 11:26	0:01	KS	0.01577808	0.448	System Constraint
5/19/2019 11:26	0:01	SMRR	0.032021978	1.270	System Constraint
5/19/2019 11:26	0:01	KS	0.01577808	0.466	System Constraint
5/19/2019 11:26	0:01	SMRR	0.031340660	1.154	System Constraint
5/19/2019 11:27	0:01	SMRR	0.031340660	0.499	System Constraint
5/19/2019 11:27	0:01	KS	0.01577808	0.308	System Constraint
5/19/2019 11:28	0:01	ESA	Data is not available	Data is not available	System Constraint
5/19/2019 11:28	0:01	ESB	Data is not available	Data is not available	System Constraint



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5/19/2019 11:28	0:01	BS250	Data is not available	Data is not available	System Constraint
5/19/2019 11:28	0:01	SMRR	0.031340660	0.360	System Constraint
5/19/2019 11:28	0:01	KS	0.01577808	0.302	System Constraint
5/19/2019 11:29	0:01	SMRR	0.030659341	0.257	System Constraint
5/19/2019 11:29	0:01	KS	0.01590456	0.438	System Constraint
5/19/2019 11:29	0:01	SMRR	0.035115104	0.410	System Constraint
5/19/2019 11:30	0:18	KS	0.50823768	0.011	System Constraint
5/19/2019 11:30	0:18	SMRR	0.630187847	0.023	System Constraint
5/19/2019 11:31	0:17	ESA	Data is not available	Data is not available	System Constraint
5/19/2019 11:31	0:17	ESB	Data is not available	Data is not available	System Constraint
5/19/2019 11:31	0:17	BS250	Data is not available	Data is not available	System Constraint
5/19/2019 11:48	0:01	SMRR	0.018320000	0.554	System Constraint
5/19/2019 11:48	0:01	KS	0.02082286	0.668	System Constraint
5/19/2019 11:49	0:01	SMRR	0.017556667	0.590	System Constraint
5/19/2019 11:49	0:01	KS	0.02082286	0.850	System Constraint
5/19/2019 11:49	0:01	SMRR	0.017556667	1.315	System Constraint
5/19/2019 11:50	0:01	KS	0.02082286	1.487	System Constraint
5/19/2019 11:50	0:01	SMRR	0.017175000	1.370	System Constraint
5/19/2019 11:51	0:01	KS	0.02082286	1.106	System Constraint
5/19/2019 11:51	0:01	SMRR	0.017556666	0.806	System Constraint
5/19/2019 11:52	0:01	KS	0.02082286	1.735	System Constraint
5/19/2019 11:52	0:01	SMRR	0.017556667	1.754	System Constraint
5/19/2019 11:52	0:01	KS	0.02002198	2.103	System Constraint
5/19/2019 11:52	0:01	SMRR	0.017556667	1.990	System Constraint
5/19/2019 11:53	0:01	KS	0.02082286	2.074	System Constraint
5/19/2019 11:53	0:01	SMRR	0.017175000	2.082	System Constraint
5/19/2019 11:54	0:01	SMRR	0.017556667	2.641	System Constraint
5/19/2019 11:54	0:01	KS	0.02002198	2.628	System Constraint
5/19/2019 11:55	0:01	SMRR	0.017556667	2.408	System Constraint
5/19/2019 11:55	0:01	KS	0.02082286	2.192	System Constraint
5/19/2019 11:56	0:01	SMRR	0.017556667	2.336	System Constraint
5/19/2019 11:56	0:01	KS	0.02082286	1.897	System Constraint
5/19/2019 11:57	0:01	SMRR	0.017556667	2.598	System Constraint
5/19/2019 12:05	0:01	SMRR	0.001303333	2.816	System Constraint
5/19/2019 12:05	0:01	KS	0.00024291	1.823	System Constraint
5/19/2019 12:05	0:01	SMRR	0.001303333	2.545	System Constraint
5/19/2019 12:06	0:01	KS	0.00024291	1.631	System Constraint
5/19/2019 12:06	0:01	SMRR	0.001275000	1.819	System Constraint
5/19/2019 12:07	0:01	SMRR	0.001275000	1.810	System Constraint
5/19/2019 12:07	0:01	KS	0.00024291	1.376	System Constraint
5/19/2019 12:15	0:01	KS	0.00435090	2.063	System Constraint
5/19/2019 12:31	0:01	SMRR	0.000485556	2.544	System Constraint
5/19/2019 12:52	0:01	KS	0.00748274	1.960	System Constraint
5/19/2019 12:52	0:01	SMRR	0.006516602	2.633	System Constraint
5/19/2019 12:53	0:01	KS	0.00748274	1.496	System Constraint
5/19/2019 12:53	0:01	SMRR	0.006661416	1.945	System Constraint
5/19/2019 12:54	0:01	SMRR	0.006661416	2.012	System Constraint
5/19/2019 12:54	0:01	KS	0.00748274	1.401	System Constraint
5/19/2019 12:54	0:01	SMRR	0.006661416	1.644	System Constraint
5/19/2019 12:54	0:01	KS	0.00748274	0.795	System Constraint
5/19/2019 12:55	0:01	SMRR	0.006516602	1.271	System Constraint
5/19/2019 12:55	0:01	KS	0.00719494	0.850	System Constraint
5/19/2019 12:56	0:01	SMRR	0.006661416	1.111	System Constraint
5/19/2019 12:56	0:01	KS	0.00748274	0.458	System Constraint
5/19/2019 12:57	0:01	SMRR	0.006661416	0.999	System Constraint
5/19/2019 12:57	0:01	KS	0.00748274	0.761	System Constraint
5/19/2019 12:57	0:01	SMRR	0.006661416	1.449	System Constraint
5/19/2019 12:58	0:01	KS	0.00748274	1.127	System Constraint
5/19/2019 13:01	0:01	KS	0.01531215	1.585	System Constraint
5/19/2019 13:02	0:01	SMRR	0.011175000	2.368	System Constraint
5/19/2019 13:02	0:01	KS	0.01531215	1.255	System Constraint
5/19/2019 13:03	0:01	SMRR	0.011423333	1.836	System Constraint
5/19/2019 13:03	0:01	KS	0.01531215	1.595	System Constraint
5/19/2019 13:03	0:01	SMRR	0.011423333	1.831	System Constraint
5/19/2019 13:04	0:01	KS	0.01531215	1.558	System Constraint
5/19/2019 13:04	0:01	SMRR	0.011423333	1.603	System Constraint
5/19/2019 13:05	0:01	KS	0.01531215	1.194	System Constraint
5/19/2019 13:05	0:01	SMRR	0.011175000	1.992	System Constraint
5/19/2019 13:06	0:01	KS	0.01531215	1.424	System Constraint
5/19/2019 13:06	0:01	SMRR	0.011423333	2.280	System Constraint
5/19/2019 13:08	0:01	SMRR	0.011423333	2.716	System Constraint
5/19/2019 13:08	0:01	KS	0.01531215	2.436	System Constraint
5/19/2019 13:09	0:01	SMRR	0.011175000	2.355	System Constraint



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5/19/2019 13:09	0:01	KS	0.01531215	1.849	System Constraint
5/19/2019 13:10	0:01	SMRR	0.011423333	1.776	System Constraint
5/19/2019 13:10	0:01	KS	0.01531215	1.072	System Constraint
5/19/2019 13:10	0:01	SMRR	0.011423333	0.666	System Constraint
5/19/2019 13:11	0:01	KS	0.01472322	0.519	System Constraint
5/19/2019 13:11	0:01	SMRR	0.011423333	0.692	System Constraint
5/19/2019 13:12	0:01	KS	0.01531215	1.131	System Constraint
5/19/2019 13:12	0:01	SMRR	0.011175000	1.183	System Constraint
5/19/2019 13:13	0:01	KS	0.01531215	1.157	System Constraint
5/19/2019 13:13	0:01	SMRR	0.011423333	1.311	System Constraint
5/19/2019 13:13	0:01	SMRR	0.011671666	1.464	System Constraint
5/19/2019 13:13	0:01	KS	0.01531215	1.483	System Constraint
5/19/2019 13:14	0:01	SMRR	0.005761667	1.957	System Constraint
5/19/2019 13:14	0:01	KS	0.00785768	2.090	System Constraint
5/19/2019 13:15	0:01	SMRR	0.001047778	2.304	System Constraint
5/19/2019 13:15	0:01	KS	0.00302448	2.314	System Constraint
5/19/2019 13:54	0:01	SMRR	0.000657625	2.765	System Constraint
5/19/2019 13:54	0:01	KS	-0.00002833	2.759	System Constraint
5/19/2019 14:09	0:01	SMRR	0.001658117	2.312	System Constraint
5/19/2019 14:10	0:01	KS	0.00144500	1.774	System Constraint
5/19/2019 14:10	0:01	SMRR	0.001658116	1.995	System Constraint
5/19/2019 15:21	0:01	SMRR	0.010732309	1.722	System Constraint
5/19/2019 15:21	0:01	KS	0.00871007	1.375	System Constraint
5/19/2019 15:22	0:01	SMRR	0.010732309	2.023	System Constraint
5/19/2019 15:22	0:01	KS	0.00905847	1.164	System Constraint
5/19/2019 15:23	0:01	SMRR	0.010732309	1.023	System Constraint
5/19/2019 15:23	0:01	KS	0.00871007	1.103	System Constraint
5/19/2019 15:23	0:10	SMRR	0.117937776	0.034	System Constraint
5/19/2019 15:24	0:10	ESA	Data is not available	Data is not available	System Constraint
5/19/2019 15:24	0:10	ESB	Data is not available	Data is not available	System Constraint
5/19/2019 15:24	0:10	BS250	Data is not available	Data is not available	System Constraint
5/19/2019 15:24	0:09	KS	0.15803290	0.032	System Constraint
5/19/2019 15:33	0:01	KS	0.02273053	-0.003	System Constraint
5/19/2019 15:33	0:01	SMRR	0.003960348	0.030	System Constraint
5/19/2019 15:34	0:01	KS	0.02363975	-0.002	System Constraint
5/19/2019 15:34	0:01	SMRR	0.003960348	0.197	System Constraint
5/19/2019 15:35	0:01	SMRR	0.003960348	0.155	System Constraint
5/19/2019 15:35	0:01	KS	0.02363975	-0.002	System Constraint
5/19/2019 15:36	0:01	SMRR	0.003874253	0.352	System Constraint
5/19/2019 15:36	0:01	KS	0.02363975	0.051	System Constraint
5/21/2019 17:07	0:01	KWP II	0.000914792	0.054887541	System Constraint
5/22/2019 10:47	0:01	KWP II	9.97955E-05	0.005987732	System Constraint
5/23/2019 10:03	0:01	KWP II	0.001378063	0.162666708	System Constraint
5/23/2019 10:10	0:01	KWP II	0.000401624	1.033881664	System Constraint
5/23/2019 13:55	0:01	KWP II	0.000798364	0.047901854	System Constraint
5/25/2019 8:26	0:01	SMRR	0.001373905	1.501	System Constraint
5/25/2019 8:27	0:01	KS	0.00268203	1.332	System Constraint
5/25/2019 8:27	0:01	SMRR	0.001404436	1.426	System Constraint
5/25/2019 8:28	0:03	ESA	Data is not available	Data is not available	System Constraint
5/25/2019 8:28	0:03	ESB	Data is not available	Data is not available	System Constraint
5/25/2019 8:28	0:03	KS	0.02143962	1.207	System Constraint
5/25/2019 8:28	0:03	BS250	Data is not available	Data is not available	System Constraint
5/25/2019 8:28	0:04	KWP II	0.155354659	16.37844276	System Constraint
5/25/2019 8:28	0:03	SMRR	0.010733546	0.273	System Constraint
5/25/2019 8:31	0:01	SMRR	0.005270769	0.073	System Constraint
5/25/2019 8:31	0:01	KS	0.00974958	-0.003	System Constraint
5/25/2019 8:49	0:01	KS	0.00251420	1.077	System Constraint
5/25/2019 8:49	0:01	SMRR	-0.000596198	1.652	System Constraint
5/25/2019 8:50	0:01	KS	0.00261477	1.056	System Constraint
5/25/2019 8:50	0:01	SMRR	-0.000622695	1.483	System Constraint
5/25/2019 8:51	0:01	SMRR	-0.000609447	1.776	System Constraint
5/25/2019 8:52	0:01	KS	0.00261477	1.520	System Constraint
5/25/2019 8:52	0:01	KS	0.00261477	1.438	System Constraint
5/25/2019 8:57	0:01	KS	0.00261477	0.782	System Constraint
5/25/2019 8:57	0:01	SMRR	-0.000609447	1.830	System Constraint
5/25/2019 9:19	0:01	KS	0.00342029	1.314	System Constraint
5/25/2019 9:20	0:01	SMRR	0.003031023	2.063	System Constraint
5/25/2019 9:20	0:01	KS	0.00342029	1.933	System Constraint
5/25/2019 9:20	0:01	SMRR	0.003031023	1.752	System Constraint
5/25/2019 9:21	0:01	KS	0.00342029	1.948	System Constraint
5/25/2019 9:21	0:01	SMRR	0.003031023	1.614	System Constraint
5/25/2019 9:22	0:01	KS	0.00342029	1.956	System Constraint
5/25/2019 9:22	0:01	SMRR	0.002965131	1.011	System Constraint



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5/25/2019 9:23	0:01	KS	0.00342029	0.637	System Constraint
5/25/2019 9:23	0:01	SMRR	0.003031023	0.367	System Constraint
5/25/2019 9:24	0:01	SMRR	0.003031023	0.239	System Constraint
5/25/2019 9:24	0:01	KS	0.00342029	0.286	System Constraint
5/25/2019 9:24	0:01	SMRR	0.003031023	1.282	System Constraint
5/25/2019 9:24	0:01	KS	0.00328874	0.725	System Constraint
5/25/2019 9:25	0:01	SMRR	0.002965131	1.445	System Constraint
5/25/2019 9:25	0:01	KS	0.00342029	1.230	System Constraint
5/25/2019 9:26	0:01	SMRR	0.003031023	1.915	System Constraint
5/25/2019 9:31	0:01	SMRR	0.000221524	2.175	System Constraint
5/25/2019 9:31	0:01	KS	0.00201482	0.432	System Constraint
5/25/2019 9:32	0:01	SMRR	0.000216709	1.955	System Constraint
5/25/2019 9:32	0:01	KS	0.00201482	0.491	System Constraint
5/25/2019 9:33	0:01	SMRR	0.000221524	1.478	System Constraint
5/25/2019 9:33	0:01	KS	0.00201482	0.597	System Constraint
5/25/2019 9:33	0:01	SMRR	0.000221524	1.150	System Constraint
5/25/2019 9:47	0:01	SMRR	0.017731474	2.292	System Constraint
5/25/2019 9:48	0:01	KS	0.01877727	0.737	System Constraint
5/25/2019 9:48	0:01	SMRR	0.017731474	1.990	System Constraint
5/25/2019 9:49	0:03	ESA	Data is not available	Data is not available	System Constraint
5/25/2019 9:49	0:03	ESB	Data is not available	Data is not available	System Constraint
5/25/2019 9:49	0:03	BS250	Data is not available	Data is not available	System Constraint
5/25/2019 9:49	0:03	KS	0.07438687	1.038	System Constraint
5/25/2019 9:49	0:03	SMRR	0.070540429	0.822	System Constraint
5/25/2019 9:50	0:02	KWPPII	0.041234461	12.89657593	System Constraint
5/25/2019 9:52	0:01	SMRR	0.017731473	0.309	System Constraint
5/25/2019 9:52	0:01	KS	0.01877727	-0.003	System Constraint
5/25/2019 9:53	0:01	SMRR	0.017346007	0.704	System Constraint
5/25/2019 9:53	0:01	KS	0.01877727	-0.002	System Constraint
5/25/2019 9:53	0:01	SMRR	0.018116940	0.799	System Constraint
5/25/2019 9:54	0:01	KS	0.01841617	-0.003	System Constraint
5/25/2019 9:54	0:01	SMRR	0.017731474	0.636	System Constraint
5/25/2019 9:55	0:01	ESA	Data is not available	Data is not available	System Constraint
5/25/2019 9:55	0:01	ESB	Data is not available	Data is not available	System Constraint
5/25/2019 9:55	0:01	BS250	Data is not available	Data is not available	System Constraint
5/25/2019 9:55	0:01	KS	0.01877727	-0.002	System Constraint
5/25/2019 9:55	0:01	SMRR	0.017731474	0.260	System Constraint
5/25/2019 9:55	0:02	KS	0.03755454	0.112	System Constraint
5/25/2019 9:56	0:02	KWPPII	0.009374301	12.11517715	System Constraint
5/25/2019 9:56	0:01	SMRR	0.017731474	0.033	System Constraint
5/25/2019 9:56	0:01	SMRR	0.017346007	0.007	System Constraint
5/25/2019 9:57	0:01	KS	0.01877727	0.308	System Constraint
5/25/2019 9:57	0:01	SMRR	0.017731474	0.327	System Constraint
5/25/2019 9:58	0:01	SMRR	0.017731474	0.589	System Constraint
5/25/2019 9:58	0:01	KS	0.01877727	0.609	System Constraint
5/25/2019 9:59	0:03	SMRR	0.063932339	0.090	System Constraint
5/25/2019 9:59	0:01	KS	0.01809282	0.155	System Constraint
5/25/2019 10:00	0:02	ESA	Data is not available	Data is not available	System Constraint
5/25/2019 10:00	0:02	ESB	Data is not available	Data is not available	System Constraint
5/25/2019 10:00	0:02	BS250	Data is not available	Data is not available	System Constraint
5/25/2019 10:00	0:02	KS	0.03667433	0.018	System Constraint
5/25/2019 10:01	0:02	KWPPII	0.015782785	12.33871937	System Constraint
5/25/2019 10:01	0:01	KS	0.01833716	-0.003	System Constraint
5/25/2019 10:02	0:01	SMRR	0.016018813	0.432	System Constraint
5/25/2019 10:02	0:01	KS	0.01833716	-0.002	System Constraint
5/25/2019 10:02	0:01	SMRR	0.016018813	0.493	System Constraint
5/25/2019 10:03	0:01	KS	0.01868980	-0.002	System Constraint
5/25/2019 10:03	0:01	SMRR	0.016367048	0.801	System Constraint
5/25/2019 10:04	0:01	SMRR	0.015670578	1.084	System Constraint
5/25/2019 10:04	0:01	KS	0.01833716	-0.002	System Constraint
5/25/2019 10:05	0:01	SMRR	0.016018813	1.228	System Constraint
5/25/2019 10:05	0:01	KS	0.01833716	-0.002	System Constraint
5/25/2019 10:06	0:01	SMRR	0.016018813	1.161	System Constraint
5/25/2019 10:06	0:01	KS	0.01833716	0.121	System Constraint
5/25/2019 10:06	0:01	SMRR	0.016018813	0.811	System Constraint
5/25/2019 10:07	0:01	KS	0.01833716	0.380	System Constraint
5/25/2019 10:07	0:01	SMRR	0.015670578	0.833	System Constraint
5/25/2019 10:08	0:01	KS	0.01833716	0.662	System Constraint
5/25/2019 10:08	0:01	SMRR	0.016018813	1.101	System Constraint
5/25/2019 10:08	0:01	KS	0.01833716	1.328	System Constraint
5/25/2019 10:09	0:01	SMRR	0.016018813	0.581	System Constraint
5/25/2019 10:09	0:01	KS	0.01798453	1.326	System Constraint
5/25/2019 10:09	0:01	SMRR	0.016018813	1.541	System Constraint



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5/25/2019 10:10	0:01	KS	0.01833716	1.330	System Constraint
5/25/2019 10:10	0:01	SMRR	0.015670578	2.034	System Constraint
5/25/2019 10:11	0:01	SMRR	0.016018813	2.550	System Constraint
5/25/2019 10:11	0:01	KS	0.01833716	0.865	System Constraint
5/25/2019 10:12	0:01	SMRR	0.016018813	2.017	System Constraint
5/25/2019 10:12	0:01	KS	0.01833716	0.748	System Constraint
5/25/2019 10:13	0:01	SMRR	0.016018813	2.037	System Constraint
5/25/2019 10:14	0:01	KS	0.01763189	1.304	System Constraint
5/25/2019 10:14	0:01	SMRR	0.012510578	0.833	System Constraint
5/25/2019 10:14	0:01	KS	0.00622383	0.189	System Constraint
5/25/2019 10:15	0:01	SMRR	0.005562345	0.203	System Constraint
5/25/2019 10:15	0:01	KS	0.00797077	0.189	System Constraint
5/25/2019 10:15	0:01	SMRR	0.005562345	1.039	System Constraint
5/25/2019 10:16	0:01	KS	0.00766421	0.701	System Constraint
5/25/2019 10:16	0:01	SMRR	0.005562345	1.291	System Constraint
5/25/2019 10:17	0:01	KS	0.00797077	0.787	System Constraint
5/25/2019 10:17	0:01	SMRR	0.005441424	2.224	System Constraint
5/25/2019 10:18	0:01	SMRR	0.005562345	2.624	System Constraint
5/25/2019 10:18	0:01	KS	0.00797077	0.705	System Constraint
5/25/2019 10:19	0:01	SMRR	0.005683265	1.750	System Constraint
5/25/2019 10:19	0:01	KS	0.00766420	0.370	System Constraint
5/25/2019 10:19	0:01	SMRR	0.005562344	0.967	System Constraint
5/25/2019 10:20	0:01	KS	0.00797077	0.456	System Constraint
5/25/2019 10:20	0:01	SMRR	0.005562345	1.597	System Constraint
5/25/2019 10:20	0:01	KS	0.00797077	1.247	System Constraint
5/25/2019 10:21	0:01	SMRR	0.005562345	1.741	System Constraint
5/25/2019 10:27	0:01	KS	0.00797077	2.205	System Constraint
5/25/2019 10:28	0:01	SMRR	0.005562345	2.698	System Constraint
5/25/2019 10:28	0:01	KS	0.00797077	2.632	System Constraint
5/25/2019 10:28	0:01	SMRR	0.005562345	2.401	System Constraint
5/25/2019 10:29	0:01	KS	0.00366522	2.392	System Constraint
5/25/2019 10:29	0:01	SMRR	0.000602344	2.222	System Constraint
5/26/2019 3:31	0:03	KWP11	0.082068809	11.63017082	System Constraint
5/26/2019 6:35	0:01	KS	0.00014144	0.154	System Constraint
5/26/2019 8:04	0:01	SMRR	0.002064827	1.262	System Constraint
5/26/2019 8:04	0:01	KS	0.00258546	0.969	System Constraint
5/26/2019 8:05	0:01	SMRR	0.002110712	1.116	System Constraint
5/26/2019 8:05	0:01	KS	0.00258546	0.944	System Constraint
5/26/2019 8:05	0:01	SMRR	0.002110712	0.438	System Constraint
5/26/2019 8:06	0:01	KS	0.00258546	0.984	System Constraint
5/26/2019 8:06	0:01	SMRR	0.002110712	0.578	System Constraint
5/26/2019 8:07	0:01	KS	0.00258546	0.788	System Constraint
5/26/2019 8:07	0:01	SMRR	0.002110712	1.002	System Constraint
5/26/2019 8:08	0:01	KS	0.00258546	0.621	System Constraint
5/26/2019 8:12	0:01	SMRR	0.002156597	1.343	System Constraint
5/26/2019 8:13	0:01	KS	0.00258546	0.773	System Constraint
5/26/2019 8:13	0:18	SMRR	0.355230874	0.379	System Constraint
5/26/2019 8:14	0:18	ESA	Data is not available	Data is not available	System Constraint
5/26/2019 8:14	0:18	ESB	Data is not available	Data is not available	System Constraint
5/26/2019 8:14	0:18	BS250	Data is not available	Data is not available	System Constraint
5/26/2019 8:14	0:18	KS	0.21931815	0.015	System Constraint
5/26/2019 8:15	0:17	KWP11	0.536709865	17.57299423	System Constraint
5/26/2019 8:31	0:01	SMRR	0.007298895	0.469	System Constraint
5/26/2019 8:32	0:01	KS	0.00821080	0.496	System Constraint
5/26/2019 8:32	0:01	SMRR	0.007298895	0.686	System Constraint
5/26/2019 8:33	0:01	KS	0.00821080	0.845	System Constraint
5/26/2019 8:34	0:01	KS	0.00836870	0.741	System Constraint
5/26/2019 8:37	0:01	KS	0.00821080	0.939	System Constraint
5/26/2019 8:38	0:01	SMRR	0.007298895	1.585	System Constraint
5/26/2019 8:39	0:01	KS	0.00789500	1.427	System Constraint
5/26/2019 8:39	0:01	SMRR	0.007298895	1.216	System Constraint
5/26/2019 8:39	0:01	KS	0.00821080	1.234	System Constraint
5/26/2019 8:40	0:01	SMRR	0.007140223	1.027	System Constraint
5/26/2019 8:40	0:01	KS	0.00821080	0.783	System Constraint
5/26/2019 8:41	0:01	SMRR	0.007298895	0.434	System Constraint
5/26/2019 8:41	0:01	KS	0.00821080	0.393	System Constraint
5/26/2019 8:41	0:01	SMRR	0.007298895	0.455	System Constraint
5/26/2019 8:42	0:01	KS	0.00821080	0.152	System Constraint
5/26/2019 8:42	0:01	SMRR	0.007298895	0.355	System Constraint
5/26/2019 8:43	0:01	ESA	Data is not available	Data is not available	System Constraint
5/26/2019 8:43	0:01	ESB	Data is not available	Data is not available	System Constraint
5/26/2019 8:43	0:01	BS250	Data is not available	Data is not available	System Constraint
5/26/2019 8:43	0:01	KS	0.00821080	0.506	System Constraint



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5/26/2019 8:43	0:01	SMRR	0.007298895	0.500	System Constraint
5/26/2019 8:44	0:01	SMRR	0.007140223	1.107	System Constraint
5/26/2019 8:44	0:01	KS	0.01034413	1.261	System Constraint
5/26/2019 8:44	0:01	SMRR	0.018001117	0.673	System Constraint
5/26/2019 8:45	2:53	KS	5.30088434	0.323	System Constraint
5/26/2019 8:45	2:53	SMRR	6.275890413	-0.004	System Constraint
5/26/2019 8:46	2:52	ESA	Data is not available	Data is not available	System Constraint
5/26/2019 8:46	2:52	ESB	Data is not available	Data is not available	System Constraint
5/26/2019 8:46	2:52	BS250	Data is not available	Data is not available	System Constraint
5/26/2019 8:46	2:53	KWP2	29.94063174	17.23768234	System Constraint
5/26/2019 10:16	0:04	AWE	0.023216407	21	System Constraint
5/26/2019 10:54	0:01	AWE	0.004906336	20.79999924	System Constraint
5/26/2019 10:56	0:01	AWE	0.000836595	21	System Constraint
5/26/2019 10:59	0:11	AWE	0.389520486	21	System Constraint
5/26/2019 11:11	0:01	AWE	0.009067504	19.5	System Constraint
5/26/2019 11:13	0:09	AWE	0.299116166	21	System Constraint
5/26/2019 11:24	0:07	AWE	0.16497701	21	System Constraint
5/26/2019 11:37	0:01	KS	0.04099333	0.036	System Constraint
5/26/2019 11:38	0:01	SMRR	0.029734685	-0.004	System Constraint
5/26/2019 11:38	0:01	KS	0.04099333	0.352	System Constraint
5/26/2019 11:39	0:01	SMRR	0.029734685	0.101	System Constraint
5/26/2019 11:39	0:01	KS	0.04099333	0.113	System Constraint
5/26/2019 11:39	1:18	SMRR	3.398422948	0.322	System Constraint
5/26/2019 11:40	1:18	ESA	Data is not available	Data is not available	System Constraint
5/26/2019 11:40	1:18	ESB	Data is not available	Data is not available	System Constraint
5/26/2019 11:40	1:17	BS250	Data is not available	Data is not available	System Constraint
5/26/2019 11:40	1:17	KS	3.64761000	0.014	System Constraint
5/26/2019 11:41	1:17	KWP2	10.62128484	15.09507179	System Constraint
5/26/2019 11:57	0:01	AWE	0.004583581	21	System Constraint
5/26/2019 11:59	0:04	AWE	0.039183489	21	System Constraint
5/26/2019 12:57	0:01	KS	0.03989556	0.142	System Constraint
5/26/2019 12:57	0:01	SMRR	0.034675000	0.472	System Constraint
5/26/2019 12:58	0:01	KS	0.03989556	0.894	System Constraint
5/26/2019 12:58	0:01	SMRR	0.035445556	0.902	System Constraint
5/26/2019 12:58	0:01	KS	0.03989556	0.642	System Constraint
5/26/2019 12:59	0:01	SMRR	0.035445555	0.450	System Constraint
5/26/2019 12:59	0:01	KS	0.01540667	0.424	System Constraint
5/26/2019 12:59	0:01	SMRR	0.009884444	0.422	System Constraint
5/26/2019 13:00	0:01	KS	0.00806000	1.145	System Constraint
5/26/2019 13:00	0:01	SMRR	0.008101111	1.059	System Constraint
5/26/2019 13:01	0:01	SMRR	0.007925000	1.004	System Constraint
5/26/2019 13:01	0:01	KS	0.00806000	1.153	System Constraint
5/26/2019 13:02	0:01	SMRR	0.008101111	1.375	System Constraint
5/26/2019 13:02	0:01	KS	0.00806000	1.416	System Constraint
5/26/2019 13:03	0:01	SMRR	0.007925000	1.749	System Constraint
5/26/2019 13:03	0:01	KS	0.00806000	1.952	System Constraint
5/26/2019 13:03	0:01	SMRR	0.008101111	2.420	System Constraint
5/26/2019 13:05	0:01	KS	0.00806000	2.706	System Constraint
5/26/2019 13:06	0:01	SMRR	0.007925000	2.798	System Constraint
5/26/2019 13:06	0:01	SMRR	0.008101111	2.905	System Constraint
5/26/2019 13:08	0:01	SMRR	0.008101111	2.682	System Constraint
5/26/2019 13:08	0:01	KS	0.00806000	2.723	System Constraint
5/26/2019 13:09	0:01	SMRR	0.008101111	2.286	System Constraint
5/26/2019 13:09	0:01	KS	0.00806000	2.182	System Constraint
5/26/2019 13:09	0:01	SMRR	0.007925000	2.029	System Constraint
5/26/2019 13:10	0:01	KS	0.00790500	2.105	System Constraint
5/26/2019 13:10	0:01	SMRR	0.008101111	2.252	System Constraint
5/26/2019 13:11	0:01	KS	0.00806000	2.597	System Constraint
5/26/2019 13:11	0:01	SMRR	0.008101111	2.629	System Constraint
5/26/2019 13:11	0:01	KS	0.00806000	2.823	System Constraint
5/26/2019 13:12	0:01	SMRR	0.008101111	2.804	System Constraint
5/28/2019 10:30	0:01	SMRR	0.004258695	2.850	System Constraint
5/28/2019 10:30	0:01	KS	0.00081513	0.749	System Constraint
5/28/2019 10:31	0:01	SMRR	0.004166114	2.129	System Constraint
5/28/2019 10:31	0:01	KS	0.00079946	0.799	System Constraint
5/28/2019 10:31	0:01	SMRR	0.004351275	2.073	System Constraint
5/28/2019 10:32	0:01	KS	0.00081513	0.630	System Constraint
5/28/2019 10:32	0:01	SMRR	0.004258695	1.710	System Constraint
5/28/2019 10:33	0:01	SMRR	0.004258695	2.181	System Constraint
5/28/2019 10:33	0:01	KS	0.00081513	0.850	System Constraint
5/28/2019 10:34	0:01	SMRR	0.004166115	2.501	System Constraint
5/28/2019 10:34	0:01	KS	0.00081513	0.908	System Constraint
5/28/2019 10:34	0:01	SMRR	0.004351275	2.392	System Constraint



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/28/2019 10:35	0:01	KS	0.00081513	0.950	System Constraint
5/28/2019 10:35	0:01	SMRR	0.004166114	1.859	System Constraint
5/28/2019 10:35	0:01	KS	0.00078378	0.859	System Constraint
5/28/2019 10:36	0:01	SMRR	0.004258695	1.943	System Constraint
5/28/2019 10:36	0:01	KS	0.00081513	1.209	System Constraint
5/28/2019 10:37	0:01	SMRR	0.004258695	2.120	System Constraint
5/28/2019 10:37	0:01	KS	0.00081513	1.378	System Constraint
5/28/2019 10:37	0:01	SMRR	0.004166114	2.634	System Constraint
5/28/2019 10:38	0:01	KS	0.00081513	1.076	System Constraint
5/28/2019 10:38	0:01	SMRR	0.004258695	2.604	System Constraint
5/28/2019 10:39	0:01	KS	0.00081513	1.878	System Constraint
5/28/2019 10:39	0:01	SMRR	0.004258695	1.827	System Constraint
5/28/2019 10:40	0:01	SMRR	0.004351275	2.172	System Constraint
5/28/2019 10:40	0:01	KS	0.00081513	2.259	System Constraint
5/28/2019 10:40	0:01	SMRR	0.004258695	2.356	System Constraint
5/28/2019 10:41	0:01	KS	0.00081513	2.389	System Constraint
5/28/2019 10:41	0:01	SMRR	0.004258694	2.490	System Constraint
5/28/2019 10:41	0:01	KS	0.00078378	2.342	System Constraint
5/30/2019 3:23	0:10	AWE	0.338590129	20.29999924	System Constraint
5/30/2019 3:24	0:09	KWPPII	0.017913297	0.308368176	System Constraint
5/30/2019 4:48	0:01	KWPPII	0.001365288	2.126642704	System Constraint
5/30/2019 5:09	0:09	KWPPII	0.309098109	10.45557785	System Constraint
5/30/2019 5:21	0:02	KWPPII	0.026312995	7.120410919	System Constraint
5/30/2019 5:25	0:05	KWPPII	0.110463738	9.771978378	System Constraint
5/30/2019 5:35	0:01	KWPPII	0.004961491	8.39978981	System Constraint
5/30/2019 5:37	0:06	KWPPII	0.16272134	9.253041267	System Constraint
5/30/2019 7:01	0:01	SMRR	0.000525140	0.000	System Constraint
5/30/2019 7:06	0:01	SMRR	0.000502794	0.000	System Constraint
5/30/2019 8:05	0:08	KS	0.09514678	0.947	Facility Requested
5/30/2019 9:25	0:11	KS	0.18927600	0.041	Facility Requested
5/30/2019 9:36	0:08	KS	0.15516558	0.001	Facility Requested
5/30/2019 9:44	0:17	KS	0.52412365	1.004	Facility Requested
5/30/2019 10:01	0:07	KS	0.13991081	0.375	Facility Requested
5/30/2019 10:08	0:03	KS	0.05233827	1.464	Facility Requested
5/30/2019 10:10	0:25	KS	0.41911988	1.005	Facility Requested
5/30/2019 10:35	0:01	KS	0.02358911	0.719	Facility Requested
5/30/2019 10:35	0:01	SMRR	0.014147163	2.415	System Constraint
5/30/2019 10:36	0:01	KS	0.02313547	0.711	Facility Requested
5/30/2019 10:36	0:01	SMRR	0.014147163	1.379	System Constraint
5/30/2019 10:37	0:01	KS	0.02358911	0.474	Facility Requested
5/30/2019 10:37	0:01	SMRR	0.014147163	0.574	System Constraint
5/30/2019 10:38	0:01	SMRR	0.013839616	0.019	System Constraint
5/30/2019 10:38	0:01	KS	0.02358911	0.712	Facility Requested
5/30/2019 10:38	0:01	SMRR	0.014147163	0.184	System Constraint
5/30/2019 10:38	0:01	KS	0.02358911	0.712	Facility Requested
5/30/2019 10:39	0:02	SMRR	0.028294326	0.023	System Constraint
5/30/2019 10:39	0:01	KS	0.02358911	0.709	Facility Requested
5/30/2019 10:40	0:01	ESA	Data is not available	Data is not available	System Constraint
5/30/2019 10:40	0:01	ESB	Data is not available	Data is not available	System Constraint
5/30/2019 10:40	0:01	BS250	Data is not available	Data is not available	System Constraint
5/30/2019 10:40	0:01	KWPPII	0.002055033	7.132386684	System Constraint
5/30/2019 10:40	0:01	KS	0.02358911	0.709	Facility Requested
5/30/2019 10:41	0:01	SMRR	0.013839616	0.373	System Constraint
5/30/2019 10:41	0:01	KS	0.02358911	0.706	Facility Requested
5/30/2019 10:41	0:01	SMRR	0.014454710	0.294	System Constraint
5/30/2019 10:42	0:01	KS	0.02358911	0.704	Facility Requested
5/30/2019 10:42	0:01	SMRR	0.014147163	0.252	System Constraint
5/30/2019 10:43	0:02	KS	0.04717600	0.712	Facility Requested
5/30/2019 10:44	0:01	SMRR	0.013839616	1.555	System Constraint
5/30/2019 10:44	0:01	SMRR	0.003338274	1.125	System Constraint
5/30/2019 10:45	0:01	KS	0.02583191	0.715	Facility Requested
5/30/2019 10:45	0:01	SMRR	0.002223991	1.167	System Constraint
5/30/2019 11:08	0:03	KS	0.10445778	0.019	Facility Requested
5/30/2019 11:10	0:02	KS	0.07009667	0.044	Facility Requested
5/30/2019 11:33	0:02	KS	0.04396396	0.123	Facility Requested
5/30/2019 11:35	0:08	KS	0.19869987	0.130	Facility Requested
5/30/2019 12:10	0:13	KS	0.30256679	0.257	Facility Requested
5/30/2019 12:23	0:03	KS	0.11445816	0.022	Facility Requested
5/30/2019 12:26	0:03	KS	0.11559141	0.592	Facility Requested
5/30/2019 12:27	0:01	SMRR	0.001712222	2.848	Facility Requested
5/30/2019 12:28	0:01	SMRR	0.001712222	2.273	Facility Requested
5/30/2019 12:29	0:01	SMRR	0.011472222	1.062	Facility Requested
5/30/2019 12:29	0:01	KS	0.02914559	0.762	Facility Requested



Maui Curtailment Report

May 2019

Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/30/2019 12:30	0:01	SMRR	0.029125000	0.900	Facility Requested
5/30/2019 12:30	0:01	KS	0.01909076	0.470	Facility Requested
5/30/2019 12:31	0:01	SMRR	0.029772222	0.789	Facility Requested
5/30/2019 12:31	0:01	KS	0.01835650	0.564	Facility Requested
5/30/2019 12:31	0:01	SMRR	0.029772222	1.185	Facility Requested
5/30/2019 12:32	0:01	KS	0.01909076	0.759	Facility Requested
5/30/2019 12:32	0:01	SMRR	0.029772222	1.162	Facility Requested
5/30/2019 12:33	0:01	KS	0.01909076	0.697	Facility Requested
5/30/2019 12:33	0:01	SMRR	0.029772222	1.260	Facility Requested
5/30/2019 12:34	0:01	SMRR	0.029772222	1.049	Facility Requested
5/30/2019 12:34	0:01	KS	0.01909076	0.351	Facility Requested
5/30/2019 12:34	0:01	SMRR	0.029772222	1.148	Facility Requested
5/30/2019 12:34	0:01	KS	0.01909076	0.453	Facility Requested
5/30/2019 12:35	0:01	SMRR	0.029125000	0.649	Facility Requested
5/30/2019 12:35	0:01	KS	0.01909076	0.358	Facility Requested
5/30/2019 12:36	0:01	SMRR	0.029772222	0.757	Facility Requested
5/30/2019 12:36	0:01	KS	0.01909076	0.400	Facility Requested
5/30/2019 12:37	0:01	SMRR	0.029772222	0.554	Facility Requested
5/30/2019 12:37	0:01	KS	0.01909076	0.615	Facility Requested
5/30/2019 12:37	0:01	SMRR	0.029772222	0.466	Facility Requested
5/30/2019 12:38	0:01	KS	0.01909076	0.186	Facility Requested
5/30/2019 12:38	0:01	SMRR	0.029125000	0.026	Facility Requested
5/30/2019 12:39	0:07	ESA	Data is not available	Data is not available	System Constraint
5/30/2019 12:39	0:07	ESB	Data is not available	Data is not available	System Constraint
5/30/2019 12:39	0:07	BS250	Data is not available	Data is not available	System Constraint
5/30/2019 12:39	0:06	KS	0.12913752	0.018	Facility Requested
5/30/2019 12:39	0:06	SMRR	0.228357222	0.015	Facility Requested
5/30/2019 12:40	0:06	KWP2	0.13485256	9.138277054	System Constraint
5/30/2019 12:45	0:01	KS	0.02678000	0.015	Facility Requested
5/30/2019 12:45	0:01	SMRR	0.008776144	0.059	Facility Requested
5/30/2019 12:46	0:03	KS	0.10557500	0.335	Facility Requested
5/30/2019 12:49	0:03	KS	0.07931000	1.005	Facility Requested
5/30/2019 12:52	0:03	KS	0.10609000	0.583	Facility Requested
5/30/2019 12:55	0:01	SMRR	0.008971169	2.814	Facility Requested
5/30/2019 12:55	0:01	KS	0.02678000	1.511	Facility Requested
5/30/2019 12:56	0:01	SMRR	0.008776144	1.992	Facility Requested
5/30/2019 12:56	0:01	KS	0.02575000	1.864	Facility Requested
5/30/2019 12:56	0:01	SMRR	0.008971169	0.701	Facility Requested
5/30/2019 12:57	0:01	KS	0.02678000	1.307	Facility Requested
5/30/2019 12:57	0:01	SMRR	0.009166194	0.957	Facility Requested
5/30/2019 12:58	0:01	KS	0.02678000	1.151	Facility Requested
5/30/2019 12:58	0:01	SMRR	0.008776144	1.358	Facility Requested
5/30/2019 13:18	1:02	KS	2.06665050	0.958	Facility Requested
5/30/2019 14:20	0:12	KS	0.46367319	0.055	Facility Requested
5/30/2019 14:32	0:24	KS	1.03459714	0.857	Facility Requested
5/30/2019 14:56	0:02	KS	0.07844663	0.147	Facility Requested
5/30/2019 14:58	0:18	KS	0.78742010	0.123	Facility Requested
5/30/2019 15:16	0:06	KS	0.21104957	-0.008	Facility Requested
5/30/2019 15:22	0:03	KS	0.12135351	1.044	Facility Requested
5/30/2019 15:25	0:07	KS	0.23836044	0.346	Facility Requested
5/30/2019 15:32	0:04	KS	0.15288784	0.036	Facility Requested
5/30/2019 15:36	0:10	KS	0.32114830	1.036	System Constraint
5/30/2019 22:51	0:04	KWP2	0.074449285	17.44824982	System Constraint
5/30/2019 22:57	0:04	KWP2	0.070876376	16.73970222	System Constraint
5/30/2019 23:07	0:01	KWP2	0.00025212	16.01917839	System Constraint
5/30/2019 23:12	0:04	KWP2	0.070413049	16.51616096	System Constraint
5/30/2019 23:18	0:02	KWP2	0.010289892	17.10096169	System Constraint
5/31/2019 1:10	0:15	KWP2	0.76349891	16.93829536	System Constraint
5/31/2019 1:43	0:21	KWP2	1.131916229	14.04023266	System Constraint
5/31/2019 2:16	0:27	KWP2	1.33896091	12.3516922	System Constraint
5/31/2019 2:49	0:02	KWP2	0.016958268	5.221302032	System Constraint
5/31/2019 2:52	0:26	KWP2	1.36936748	11.15913582	System Constraint
5/31/2019 8:11	0:14	KS	0.07741142	0.375	Facility Requested
5/31/2019 8:26	0:09	KS	0.08662365	0.473	Facility Requested
5/31/2019 8:35	0:05	KS	0.05609523	0.047	Facility Requested
5/31/2019 8:40	0:09	KS	0.15503750	0.039	Facility Requested
5/31/2019 8:50	0:03	KS	0.07212277	0.286	Facility Requested
5/31/2019 8:53	0:10	KS	0.19428152	0.946	Facility Requested
5/31/2019 9:03	0:09	KS	0.12450291	0.002	Facility Requested
5/31/2019 9:12	0:10	KS	0.23889434	1.312	Facility Requested
5/31/2019 9:13	0:01	KWP2	0.001147649	0.068858914	System Constraint
5/31/2019 9:22	0:02	KS	0.04465301	0.054	Facility Requested
5/31/2019 9:24	0:28	KS	0.95661091	1.884	Facility Requested



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Start Date and Time	Duration	IPP Curtailed	Estimated Curtailed MWH	Peak MW Curtailed	Reasons for Curtailment
5/31/2019 9:52	0:03	KS	0.09658982	0.078	Facility Requested
5/31/2019 9:55	0:13	KS	0.48780213	0.579	Facility Requested
5/31/2019 10:07	0:05	KS	0.19751956	0.003	Facility Requested
5/31/2019 10:13	0:09	KS	0.22658871	0.831	Facility Requested
5/31/2019 10:22	0:04	KS	0.07999456	0.172	Facility Requested
5/31/2019 10:26	0:02	KS	0.03224587	0.534	Facility Requested
5/31/2019 10:28	0:03	KS	0.04454078	0.561	Facility Requested
5/31/2019 10:31	0:17	KS	0.20583347	0.387	System Constraint
5/31/2019 10:48	0:02	KS	0.01486585	0.021	System Constraint
5/31/2019 10:49	0:07	KS	0.05960914	0.073	System Constraint
5/31/2019 10:59	0:02	KS	0.01088723	0.546	System Constraint
5/31/2019 11:01	0:01	KS	0.00569189	0.827	System Constraint
5/31/2019 11:01	0:01	KS	0.00558243	0.785	System Constraint
5/31/2019 11:02	0:02	KS	0.01138379	0.706	System Constraint
5/31/2019 11:04	0:03	KS	0.01707568	0.275	System Constraint
5/31/2019 11:07	0:03	KS	0.01707568	1.013	System Constraint
5/31/2019 11:09	0:02	KS	0.01127433	1.007	System Constraint
5/31/2019 11:11	0:03	KS	0.02276757	0.680	System Constraint
5/31/2019 11:14	0:03	KS	-0.00807144	1.514	System Constraint
5/31/2019 11:27	0:01	KS	0.00384222	2.679	System Constraint
5/31/2019 12:01	0:21	SMRR	0.854352222	2.809	Facility Requested
5/31/2019 12:22	0:02	SMRR	0.072488333	0.140	Facility Requested
5/31/2019 12:24	0:07	SMRR	0.311944445	0.013	Facility Requested
5/31/2019 12:30	0:11	SMRR	0.417610556	0.012	Facility Requested
5/31/2019 12:42	0:03	SMRR	0.114788889	0.966	Facility Requested
5/31/2019 12:45	0:05	SMRR	0.200008532	0.009	Facility Requested
5/31/2019 12:50	0:09	SMRR	0.402198975	1.156	Facility Requested
5/31/2019 12:59	0:06	SMRR	0.173255332	0.105	Facility Requested
5/31/2019 13:05	0:12	SMRR	0.334448528	1.010	Facility Requested
5/31/2019 13:17	0:11	KS	0.29495848	1.516	System Constraint
5/31/2019 13:17	0:05	SMRR	0.144458889	1.680	Facility Requested
5/31/2019 13:22	0:18	SMRR	0.675089285	1.624	Facility Requested
5/31/2019 13:28	0:03	KS	0.05628157	0.033	System Constraint
5/31/2019 13:39	0:05	SMRR	0.200663619	0.000	Facility Requested
5/31/2019 13:44	0:09	SMRR	0.381572512	0.911	Facility Requested
5/31/2019 13:53	0:15	SMRR	0.497321751	0.253	System Constraint
5/31/2019 14:08	0:03	SMRR	0.077598275	1.026	System Constraint
5/31/2019 14:11	0:05	SMRR	0.159180254	0.007	System Constraint
5/31/2019 14:17	0:08	SMRR	0.325692140	0.377	System Constraint
5/31/2019 14:25	0:02	SMRR	0.089001021	0.266	System Constraint
5/31/2019 14:27	0:02	SMRR	0.089227197	1.013	System Constraint
5/31/2019 14:30	0:09	SMRR	0.362334814	1.252	System Constraint
5/31/2019 14:39	0:03	SMRR	0.120997470	0.089	System Constraint
5/31/2019 14:42	0:08	SMRR	0.253472911	0.160	System Constraint
5/31/2019 14:50	0:03	SMRR	0.091238647	0.068	System Constraint
5/31/2019 14:53	0:02	SMRR	0.067933123	1.012	System Constraint
5/31/2019 14:55	0:02	SMRR	0.067933123	1.145	System Constraint
5/31/2019 15:15	0:01	KS	-0.00051041	2.793	System Constraint
5/31/2019 15:15	0:01	SMRR	-0.000195102	2.276	System Constraint
5/31/2019 15:16	0:01	SMRR	-0.000195102	2.268	System Constraint
5/31/2019 15:16	0:01	KS	-0.00051041	2.441	System Constraint
5/31/2019 15:17	0:01	SMRR	-0.000195102	1.992	System Constraint
Total Estimated Curtailed MWh			426.184		

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"), Extra Spaces B ("ESB"), South Maui Renewable Resources ("SMRR"), and Ku'ia Solar ("KS") 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.
- Curtailment signals sent to 5A, BS, BS250, ESA, ESB, SMRR, or KS during nighttime hours only 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.
- The data to calculate the Estimated Curtailed MWH and Peak MW Curtailed is not provided by 5A, BS, BS 250, ESA, ESB, and MH
- The MH facility was offline for the entire month of May. No curtailment events recorded.
- The Estimated Curtailed MWH and Peak MW Curtailed are calculated with information provided by AWE, KWP, KWPII, KS and SMRR. Maui Electric does not make any representation as to its accuracy.



Lanai Curtailment Report

May 2019

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
5/1/2019 8:27	0:22	LSR	Data is not available	Data is not available	Oversupply
5/1/2019 8:52	0:14	LSR	Data is not available	Data is not available	Oversupply
5/1/2019 9:11	0:04	LSR	Data is not available	Data is not available	Oversupply
5/1/2019 9:18	0:09	LSR	Data is not available	Data is not available	Oversupply
5/1/2019 9:30	0:14	LSR	Data is not available	Data is not available	Oversupply
5/1/2019 9:46	0:02	LSR	Data is not available	Data is not available	Oversupply
5/1/2019 16:09	0:28	LSR	Data is not available	Data is not available	Oversupply
5/2/2019 8:00	0:01	LSR	Data is not available	Data is not available	Oversupply
5/2/2019 8:40	0:04	LSR	Data is not available	Data is not available	Oversupply
5/2/2019 9:08	0:18	LSR	Data is not available	Data is not available	Oversupply
5/2/2019 9:38	0:01	LSR	Data is not available	Data is not available	Oversupply
5/2/2019 9:42	0:06	LSR	Data is not available	Data is not available	Oversupply
5/3/2019 9:33	0:02	LSR	Data is not available	Data is not available	Oversupply
5/3/2019 9:38	0:03	LSR	Data is not available	Data is not available	Oversupply
5/3/2019 10:05	1:19	LSR	Data is not available	Data is not available	Oversupply
5/3/2019 11:25	0:07	LSR	Data is not available	Data is not available	Oversupply
5/3/2019 11:33	0:11	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 8:24	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 8:32	0:02	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 8:36	0:04	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 8:53	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 8:58	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 9:00	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 9:05	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 9:32	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 9:38	0:02	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 9:41	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 9:43	0:01	LSR	Data is not available	Data is not available	Oversupply
5/4/2019 15:34	0:02	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 7:15	0:02	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 7:37	0:01	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 7:42	0:13	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 7:59	0:01	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 8:04	0:01	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 8:06	2:17	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 10:26	0:03	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 10:31	0:01	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 10:33	0:06	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 10:40	0:02	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 10:43	0:06	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 10:50	3:05	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 13:57	0:11	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 14:09	0:31	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 14:41	0:05	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 14:47	0:13	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 15:03	0:08	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 15:13	0:13	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 15:27	0:05	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 15:33	0:02	LSR	Data is not available	Data is not available	Oversupply
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5/5/2019 15:41	0:07	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 15:51	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/5/2019 16:26	0:03	LSR	Data is not available	Data is not available	Oversupply
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5/5/2019 16:39	0:03	LSR	Data is not available	Data is not available	Oversupply
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5/5/2019 16:56	0:03	LSR	Data is not available	Data is not available	Oversupply
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5/5/2019 17:07	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/5/2019 17:13	0:01	LSR	Data is not available	Data is not available	Oversupply
5/5/2019 18:26	0:07	LSR	Data is not available	Data is not available	Oversupply
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5/7/2019 7:06	0:10	LSR	Data is not available	Data is not available	Oversupply
5/7/2019 7:17	0:02	LSR	Data is not available	Data is not available	Oversupply
5/7/2019 7:21	0:22	LSR	Data is not available	Data is not available	Oversupply
5/7/2019 7:49	0:02	LSR	Data is not available	Data is not available	Oversupply
5/7/2019 7:53	0:33	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 7:30	0:13	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 7:44	0:15	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 8:07	0:02	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 8:11	0:07	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 8:24	0:04	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 8:32	0:02	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 8:36	0:13	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 8:51	0:08	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 9:00	0:06	LSR	Data is not available	Data is not available	Oversupply



Lanai Curtailment Report

May 2019

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
5/8/2019 9:10	0:03	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 9:15	0:08	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 9:24	0:03	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 9:31	0:02	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 9:37	0:11	LSR	Data is not available	Data is not available	Oversupply
5/8/2019 12:43	0:37	LSR	Data is not available	Data is not available	Oversupply
5/9/2019 7:33	1:32	LSR	Data is not available	Data is not available	Oversupply
5/9/2019 9:45	0:01	LSR	Data is not available	Data is not available	Oversupply
5/9/2019 17:37	0:01	LSR	Data is not available	Data is not available	Oversupply
5/12/2019 7:21	0:01	LSR	Data is not available	Data is not available	Oversupply
5/14/2019 9:16	0:10	LSR	Data is not available	Data is not available	Oversupply
5/14/2019 9:43	1:10	LSR	Data is not available	Data is not available	Oversupply
5/14/2019 10:58	0:54	LSR	Data is not available	Data is not available	Oversupply
5/14/2019 11:59	1:29	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 6:50	1:35	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 8:27	0:01	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 8:34	0:13	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 8:48	0:24	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 9:15	0:20	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 9:37	0:10	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 9:52	0:05	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 10:03	0:02	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 10:11	0:04	LSR	Data is not available	Data is not available	Oversupply
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5/21/2019 11:29	0:01	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 11:33	0:02	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 11:44	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/21/2019 12:47	0:01	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 13:11	0:02	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 13:16	0:02	LSR	Data is not available	Data is not available	Oversupply
5/21/2019 13:30	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/22/2019 10:30	0:05	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 10:39	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/22/2019 10:51	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/22/2019 11:32	0:01	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 11:39	0:01	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 11:48	0:01	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 11:50	0:01	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 11:52	0:02	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 11:57	0:01	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 12:31	0:05	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 12:43	0:05	LSR	Data is not available	Data is not available	Oversupply
5/22/2019 12:59	0:04	LSR	Data is not available	Data is not available	Oversupply
5/23/2019 8:30	0:08	LSR	Data is not available	Data is not available	Oversupply
5/23/2019 8:43	0:05	LSR	Data is not available	Data is not available	Oversupply
5/23/2019 8:52	0:13	LSR	Data is not available	Data is not available	Oversupply
5/23/2019 9:11	0:12	LSR	Data is not available	Data is not available	Oversupply
5/23/2019 9:42	0:01	LSR	Data is not available	Data is not available	Oversupply
5/24/2019 7:52	0:02	LSR	Data is not available	Data is not available	Oversupply



Lanai Curtailment Report

May 2019

Start Date and Time	Duration	IPP Curtailed	Estimated MWh Curtailed	Peak MW Curtailed	Reasons for Curtailment
5/24/2019 8:56	0:02	LSR	Data is not available	Data is not available	Oversupply
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5/24/2019 9:20	0:01	LSR	Data is not available	Data is not available	Oversupply
5/24/2019 9:22	0:19	LSR	Data is not available	Data is not available	Oversupply
5/25/2019 6:37	1:12	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 7:31	0:11	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 8:26	0:01	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 8:28	0:09	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 8:40	0:02	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 8:44	0:04	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 8:49	0:02	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 9:34	0:02	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 9:37	0:09	LSR	Data is not available	Data is not available	Oversupply
5/26/2019 9:47	0:01	LSR	Data is not available	Data is not available	Oversupply
5/27/2019 6:51	0:54	LSR	Data is not available	Data is not available	Oversupply
5/27/2019 7:47	0:48	LSR	Data is not available	Data is not available	Oversupply
5/27/2019 9:11	0:08	LSR	Data is not available	Data is not available	Oversupply
5/27/2019 9:29	0:02	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 9:34	0:05	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 9:41	0:04	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 9:53	0:21	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 10:15	0:03	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 10:19	0:01	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 10:21	0:03	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 10:30	0:14	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 10:54	0:15	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 13:41	0:01	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 14:11	0:01	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 16:28	0:05	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 16:54	0:01	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 17:04	0:01	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 17:23	0:02	LSR	Data is not available	Data is not available	Oversupply
5/28/2019 17:35	0:01	LSR	Data is not available	Data is not available	Oversupply
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5/28/2019 17:46	0:02	LSR	Data is not available	Data is not available	Oversupply
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5/29/2019 7:03	0:02	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 7:08	0:06	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 7:15	0:13	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 7:38	0:07	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 7:47	0:13	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 16:09	0:01	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 16:28	0:01	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 16:52	0:03	LSR	Data is not available	Data is not available	Oversupply
5/29/2019 17:08	0:01	LSR	Data is not available	Data is not available	Oversupply
5/30/2019 6:51	0:32	LSR	Data is not available	Data is not available	Oversupply
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5/30/2019 10:21	0:01	LSR	Data is not available	Data is not available	Oversupply
5/30/2019 10:23	0:05	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 6:42	0:02	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 7:18	0:46	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 8:05	1:05	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 9:15	0:03	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 9:26	0:03	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 9:39	0:09	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 9:49	0:04	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 9:54	0:01	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:02	0:01	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:07	0:01	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:15	0:01	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:24	0:04	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:32	0:01	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:39	0:02	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:43	0:04	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 10:50	0:01	LSR	Data is not available	Data is not available	Oversupply
5/31/2019 13:34	1:39	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 May 2019

Start Date/Time	MW output prior to start of curtailment	End Date/Time	MW output after curtailment released ¹	IPP	Reason for Curtailment
05/05/19 09:10	13.8 MW	05/05/19 09:25	13.6 MW	Pakini Nui Windfarm	Facility requested
05/05/19 09:29	16.4 MW	05/05/19 16:04	15.6 MW	Pakini Nui Windfarm	Facility requested
05/17/19 11:22	8.6 MW	05/17/19 12:07	2.6 MW	Hawi Renewable Dev	System constraint

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.

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