



Exceptional Dispatch Report

Table 2: August 2018

Market Quality and Renewable Integration

December 3, 2018

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Introduction

This report is filed pursuant to FERC's September 2, 2009, and May 4, 2010, orders in ER08-1178. These orders require two monthly Exceptional Dispatch reports—one issued on the 15th of each month and one issued on the 30th of each month. This report provides data on the frequency, reasons and costs for Exceptional Dispatches issued in August 2018.

This report contains a price impact analysis as prescribed by FERC in its September 2 order. The price impact analysis for the month of August is presented in Appendix B. This report also includes mitigation analysis for August 2018 required by section 34.11.4 of the CAISO tariff. This analysis compares those Exceptional Dispatches subject to bid mitigation (i.e. Exceptional Dispatches to address noncompetitive constraints and Delta Dispatch), and determines the cost difference between the Exceptional Dispatch bid mitigation settlement rules and what the settlement amount would have been had the Exceptional Dispatches not been subject to bid mitigation. The Exceptional Dispatch bid mitigation analysis for August is presented in Appendix C.

The Nature of Exceptional Dispatch

The CAISO can issue exceptional dispatch instructions for a resource as a pre-day-ahead unit commitment, a post day-ahead unit commitment or a real-time exceptional dispatch. A pre-day-ahead unit commitment is an exceptional dispatch instruction committing a resource at or above its physical minimum (Pmin) operating level in the day-ahead market. A post-day-ahead unit commitment is an exceptional dispatch instruction committing a resource at or above its (Pmin) operating level in the real-time market. A real-time exceptional dispatch instructs a resource to operate at or above its physical minimum operating point. A real-time exceptional dispatch above the resource's day-ahead award is an incremental exceptional dispatch instruction and a real-time exceptional dispatch below the day-ahead award is considered a decremental dispatch instruction. The CAISO issues exceptional dispatch instructions to maintain the reliability of the grid when the market software cannot do so. Whenever the CAISO issues an exceptional dispatch instruction, the operator logs the dispatch and the associated reason. Reliability requirements are calculated for both local area and the system wide needs, and are classified into various requirements including local generation, transmission management, non-modeled transmission outages, ramping and inertia emergency assistance. Whenever the CAISO issues an exceptional dispatch instruction, the operators log these instructions and the associated reason for each instruction.

Most of the generation procedures are internal to the CAISO and not available publicly on the CAISO website; however, all of the transmission procedures are available on the CAISO website.¹

The following additional reason for exceptional dispatch instructions in 2018 includes Software Limitation. When an exceptional dispatch instruction was used to bridge schedules across days for resources with a minimum down time of 24 hours, as the CAISO software does not handle multi day commitment. For instance, a resource has a day-ahead schedule from 0600 till 2300, and then is shut down in 2400. If this resource had a minimum down time of 24 hours and it is required the following day, then the CAISO issues an exceptional dispatch to commit this resource in 2400 so it can be dispatched economically in the following day. Software limitation reason was also used for exceptional dispatches to manually issue shut down instructions to a resource because of a temporary Automatic Dispatch System (“ADS”) failure, or similar issues. There were a few other reasons used to explain exceptional dispatch instructions in August, which are self explanatory.

The data in Table 1 is based on a template specified in the September 2009 order.² This table contains all the information published in Table 1 of the first report for August 2018. In addition, it contains volume (MWh) and cost information. Each entry in Table 1 is a summary of exceptional dispatches classified by (1) the reason for the exceptional dispatch; (2) the location of the resource by Participating Transmission Owner (PTO) service area; (3) the Local Reliability Area (LRA) where applicable; (4) the market in which the exceptional dispatch occurred (day-ahead vs. real-time); and (5) the date of the exceptional dispatch. For each classification the following information is provided: (1) Megawatts (MW); (2) Commitment; (3) Inc or Dec; (4) Hours; (5) Begin Time; (6) End Time; (7) Total Volume (MWh); (8) Min Load Cost; (9) Start Up Cost; (10) CC6470; (11) ED Volume (MWh INC/DEC); (12) CC6470 INC; (13) CC6470 DEC; (14) CC6482; (15) CC6488; and (16) CC6620. Each column is defined:

- The MW column shows the range of exceptional dispatch instruction in MW for the classification.
- The Commitment column specifies if there was a unit commitment for the classification.
- The INC/DEC/NA column specifies if there was an incremental dispatch (INC), a decremental dispatch (DEC), or only a unit commitment (NA). The Begin Time and End Time columns show the start and end time of exceptional dispatch for the classification respectively.

¹ A list of all of the CAISO’s Operating Procedures and all the publicly available Operating Procedures are available at the following link:
<http://www.caiso.com/thegrid/operations/opsdoc/index.html>

² The data in Table 1 is principally SLIC information supplemented with data from the Market Quality System (MQS) and Settlements database. The volume and cost information is based on t+51B Recalculation Statements.

- The Hours column is the time difference between begin time and end time rounded up to the next hour.
- The total volume column shows the total MWh dispatch quantity dispatched for that classification. This quantity includes the minimum load quantity, the imbalance energy quantity, and the exceptional dispatch quantity.
- The Min-Load Cost column shows eligible minimum load cost for the classification.
- The Start-Up Cost column shows the eligible start up cost for the classification. The CAISO does not explicitly pay resources for its start up and minimum load costs; however, it ensures that resources are compensated adequately through its bid cost recovery.³
- The CC6470 column shows the total imbalance energy costs for the classification. This cost contains the portion of exceptional dispatch instruction settled as optimal energy due to its bid price being less than the LMP in the relevant settlement interval.
- The ED Volume MWh (MWh INC/DEC) column shows the incremental or the decremental portion of the real-time exceptional dispatch MWh for the classification. The CC6470-INC shows that portion of incremental exceptional dispatch instruction settled at the resource LMP.
- The CC6470-DEC column shows that portion of decremental exceptional dispatch instruction settled at the resource specific LMP. Both these charge codes are portions of the real-time instructed imbalance energy charge code (6470).⁴
- The CC6482 column shows the real-time excess cost for the classification.⁵
- The CC6488 column shows the real-time exceptional dispatch uplift settlement for the classification.⁶ The CC6620 shows the bid cost recovery payment for the classification. This cost is shown for all pre-day-ahead unit commitments only.

Charge codes 6470, 6470 INC, 6470 DEC, 6482 and 6488 are shown in Table 1 because all these charge codes pertain to real-time exceptional dispatch MWh quantities. The classification of data is further explained for example in Attachment A. Many of the exceptional dispatches with the reason “Other Reliability Requirement” were due to Real Time Contingency Analysis.

³ For further details regarding the Bid Cost Recovery process please refer to section 11.8 of the CAISO tariff.

⁴ For further details please refer to the BPM configuration Guide: Real-Time Instructed Imbalance Energy Settlement published on the CAISO’s website.

⁵ For further details please refer to the BPM configuration Guide: Real Time Excess Cost for Instructed Energy Settlement published on the CAISO’s website.

⁶ For further details please refer to the BPM configuration Guide: Real Time Exceptional Dispatch Uplift Settlement published on the CAISO’s website.

Table 1: Exceptional Dispatches in August 2018

**California Independent System Operator Corporation
Exceptional Dispatch Report
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Chart 2: Table of Exceptional Dispatches for Period 01/August/2018 - 31/August/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
1	RT	Bridging Schedules	SCE	LA Basin	8/9/2018	10-270	Yes	INC	2	22:00	23:59	126.86	59687.10	0.00	-7158.31	0.00	0.00	0.00	0.00	0.00	0.00
2	RT	Contingency Dispatch	PG&E	Bay Area	8/2/2018	360	No	INC	1	0:19	1:09	233.10	9391.50	13115.67	-9161.22	0.00	0.00	0.00	0.00	0.00	0.00
3	RT	Contingency Dispatch	PG&E	Fresno	8/5/2018	83	No	DEC	1	20:30	20:59	7.68	0.00	0.00	605.51	-0.27	0.00	-11.60	0.00	0.00	0.00
4	RT	Contingency Dispatch	PG&E	Fresno	8/5/2018	83-166	No	INC	1	20:10	20:59	66.87	7964.03	0.00	-1937.68	0.00	0.00	0.00	0.00	0.00	0.00
5	RT	Contingency Dispatch	PG&E	N/A	8/2/2018	400-800	No	INC	3	0:40	2:44	741.44	6426.38	0.00	-30248.64	114.35	-4684.58	0.00	-1477.95	0.00	0.00
6	RT	Contingency Dispatch	PG&E	Stockton	8/2/2018	258-323	No	INC	3	0:35	2:59	-2.53	-1462.91	0.00	103.85	63.36	-2524.34	0.00	-114.34	0.00	0.00
7	RT	Contingency Dispatch	SCE	LA Basin	8/2/2018	45	No	INC	1	0:19	1:09	38.18	755.75	335.83	-1860.99	0.00	0.00	0.00	0.00	0.00	0.00
8	RT	Contingency Dispatch	SCE	LA Basin	8/5/2018	182	No	INC	1	20:10	20:59	94.21	7683.21	22.19	-20172.64	0.83	-176.00	0.00	-7.32	0.00	0.00
9	RT	Fast Start Unit Management	PG&E	Bay Area	8/7/2018	24	No	DEC	9	12:45	20:59	-82.93	-11308.12	0.00	4619.03	0.00	0.00	0.00	0.00	0.00	0.00
10	RT	Fast Start Unit Management	PG&E	Bay Area	8/8/2018	24-404	No	DEC	15	6:55	21:29	83.51	-21867.68	544.55	-1238.51	0.00	0.00	0.00	0.00	0.00	0.00
11	RT	Fast Start Unit Management	PG&E	Fresno	8/5/2018	0	No	INC	1	21:15	22:14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	RT	Fast Start Unit Management	PG&E	Fresno	8/6/2018	0	No	INC	1	20:30	21:29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	RT	Fast Start Unit Management	SCE	Big Creek-Ventura	8/1/2018	0	No	INC	1	6:30	7:29	-11.78	0.00	0.00	0.00	-11.78	0.00	0.00	0.00	0.00	0.00
14	RT	Fast Start Unit Management	SCE	LA Basin	8/5/2018	0	No	INC	1	1:00	1:59	-23.45	2712.55	0.00	0.00	-23.45	0.00	0.00	0.00	0.00	0.00
15	RT	Fast Start Unit Management	SCE	LA Basin	8/18/2018	0	No	INC	1	22:30	23:29	-11.72	0.00	0.00	0.00	-11.72	0.00	0.00	0.00	0.00	0.00
16	RT	Fast Start Unit Management	SDG&E	San Diego-IV	8/1/2018	0	No	DEC	1	15:40	16:09	-7.83	-1241.00	0.00	3745.86	0.00	0.00	0.00	0.00	0.00	0.00
17	RT	Fast Start Unit Management	SDG&E	San Diego-IV	8/7/2018	25	No	DEC	11	10:45	20:59	0.78	0.00	0.00	-742.76	0.00	0.00	0.00	0.00	0.00	0.00

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18	RT	Fast Start Unit Management	SDG&E	San Diego-IV	8/7/2018	25	No	INC	11	10:45	20:59	4.05	0.00	0.00	-40.85	0.38	-73.47	0.00	0.00	0.00	0.00
19	RT	Incomplete or Inaccurate Transmission	PG&E	Stockton	8/20/2018	80	No	INC	2	7:05	8:14	-1.13	0.00	0.00	33.69	0.00	0.00	0.00	0.00	0.00	0.00
20	RT	Incomplete or Inaccurate Transmission	PG&E	Stockton	8/20/2018	80-85	No	DEC	2	6:40	8:14	-7.05	0.00	0.00	254.42	-11.87	0.00	358.38	0.00	-22.51	0.00
21	RT	Load Forecast Uncertainty	Intertie	N/A	8/9/2018	412	No	INC	1	19:00	19:59	102.50	0.00	0.00	-32308.16	69.67	-19927.20	0.00	-34199.06	0.00	0.00
22	RT	Load Forecast Uncertainty	Intertie	N/A	8/12/2018	500	No	INC	1	17:00	17:59	189.17	0.00	0.00	-11330.62	193.75	-11606.53	0.00	-18323.73	0.00	0.00
23	RT	Load Forecast Uncertainty	PG&E	Bay Area	8/8/2018	20	No	DEC	1	17:50	17:54	-3.97	0.00	58.64	543.84	0.00	0.00	0.00	0.00	0.00	0.00
24	RT	Load Forecast Uncertainty	PG&E	Bay Area	8/9/2018	240	No	DEC	14	7:55	20:59	-16.79	-1245.48	0.00	1054.14	0.00	0.00	0.00	0.00	0.00	0.00
25	RT	Load Forecast Uncertainty	PG&E	Bay Area	8/13/2018	120	No	DEC	6	15:30	20:59	-9.11	0.00	0.00	273.27	0.00	0.00	0.00	0.00	0.00	0.00
26	RT	Load Forecast Uncertainty	PG&E	Bay Area	8/14/2018	300	No	DEC	1	16:25	16:59	-18.58	0.00	0.00	566.25	0.00	0.00	0.00	0.00	0.00	0.00
27	RT	Load Forecast Uncertainty	PG&E	Fresno	8/5/2018	14-250	No	INC	1	19:53	20:43	14.78	0.00	0.00	-928.06	3.06	-148.36	0.00	0.00	0.00	0.00
28	RT	Load Forecast Uncertainty	PG&E	Fresno	8/9/2018	49-400	No	INC	9	12:55	20:59	84.11	29628.66	0.00	2772.35	40.70	-2044.10	0.00	-647.89	0.00	0.00
29	RT	Load Forecast Uncertainty	PG&E	Fresno	8/9/2018	83-166	No	DEC	8	13:20	20:59	1.36	0.00	0.00	3684.85	0.00	0.00	0.00	0.00	0.00	0.00
30	RT	Load Forecast Uncertainty	PG&E	Fresno	8/10/2018	23-101	No	DEC	9	11:40	19:59	52.29	0.00	0.00	-2993.53	1.47	-67.82	0.00	0.00	0.00	0.00
31	RT	Load Forecast Uncertainty	PG&E	Fresno	8/14/2018	14	No	INC	1	16:50	16:59	2.33	0.00	0.00	-72.39	0.00	0.00	0.00	0.00	0.00	0.00
32	RT	Load Forecast Uncertainty	PG&E	N/A	8/13/2018	130	No	INC	7	15:00	21:59	-166.15	81299.68	0.00	11012.09	0.00	0.00	0.00	0.00	0.00	0.00
33	RT	Load Forecast Uncertainty	PG&E	N/A	8/14/2018	76	No	DEC	4	16:30	19:59	48.73	-30104.49	0.00	-1683.31	2.83	-68.97	0.00	-2.38	0.00	0.00
34	RT	Load Forecast Uncertainty	PG&E	N/A	8/17/2018	47	No	DEC	11	10:55	21:14	-228.38	-6996.11	0.00	6706.98	0.00	0.00	0.00	0.00	0.00	0.00

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35	RT	Load Forecast Uncertainty	PG&E	N/A	8/17/2018	47	No	INC	11	10:55	21:14	19.91	4780.51	788.27	-676.06	0.00	0.00	0.00	0.00	0.00	0.00
36	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/5/2018	50	No	INC	12	12:00	23:59	34.90	0.00	0.00	-8686.71	10.94	-3685.82	0.00	0.00	0.00	0.00
37	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/6/2018	50-150	No	INC	15	0:00	14:59	120.66	1176015.64	0.00	-4855.10	116.50	-4845.95	0.00	0.00	0.00	0.00
38	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/7/2018	100	No	INC	2	22:00	23:59	100.10	114488.33	0.00	-16211.77	0.00	0.00	0.00	0.00	0.00	0.00
39	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/8/2018	100	No	INC	2	22:00	23:59	0.00	72427.37	0.00	-0.16	0.00	0.00	0.00	0.00	0.00	0.00
40	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/9/2018	74	No	DEC	2	18:30	19:44	0.00	0.00	0.00	1.65	0.00	0.00	0.00	0.00	0.00	0.00
41	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/9/2018	100-430	No	INC	22	0:00	21:29	-296.38	729655.48	0.00	58117.49	14.33	-1504.75	0.00	-4185.27	0.00	0.00
42	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	8/10/2018	100-860	No	INC	11	13:15	23:59	35.61	1399365.24	0.00	-1944.96	39.97	-2163.67	0.00	-83723.64	0.00	0.00
43	RT	Load Forecast Uncertainty	SCE	LA Basin	8/1/2018	80-910	Yes	INC	24	0:00	23:59	276.21	639917.53	0.00	-67495.56	0.00	0.00	0.00	-337.49	0.00	0.00
44	RT	Load Forecast Uncertainty	SCE	LA Basin	8/1/2018	250-650	No	DEC	5	15:00	19:59	-10.19	-113607.36	0.00	-18003.45	4.85	-458.93	0.00	-89.26	0.00	0.00
45	RT	Load Forecast Uncertainty	SCE	LA Basin	8/2/2018	20-644	Yes	INC	24	0:00	23:59	1621.77	128397.60	0.00	-130148.31	178.36	-12460.73	0.00	-248918.02	0.00	0.00
46	RT	Load Forecast Uncertainty	SCE	LA Basin	8/2/2018	384	No	DEC	9	13:55	21:59	-24.29	0.00	0.00	2332.93	0.00	0.00	0.00	0.00	0.00	0.00
47	RT	Load Forecast Uncertainty	SCE	LA Basin	8/3/2018	80-894	No	INC	24	0:00	23:59	1092.42	1023539.76	0.00	-197496.53	197.62	-20071.39	0.00	-161884.56	0.00	0.00
48	RT	Load Forecast Uncertainty	SCE	LA Basin	8/3/2018	520-904	No	DEC	8	15:00	22:14	-210.26	-211474.16	0.00	13005.46	0.00	0.00	0.00	0.00	0.00	0.00
49	RT	Load Forecast Uncertainty	SCE	LA Basin	8/4/2018	70-80	Yes	INC	24	0:00	23:59	24.86	1139985.42	0.00	-1576.97	15.22	-4226.67	0.00	0.00	0.00	0.00
50	RT	Load Forecast Uncertainty	SCE	LA Basin	8/5/2018	80-501	Yes	INC	24	0:00	23:59	707.30	2457207.50	14.79	-72398.20	37.19	-11067.92	0.00	-3489.06	0.00	0.00

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51	RT	Load Forecast Uncertainty	SCE	LA Basin	8/6/2018	130-1645	Yes	INC	24	0:00	23:59	551.69	1667908.37	0.00	-71597.43	348.59	-71355.59	0.00	-170702.35	0.00	0.00
52	RT	Load Forecast Uncertainty	SCE	LA Basin	8/6/2018	294	No	DEC	5	15:10	19:59	12.24	-106824.35	0.00	-19804.95	0.00	0.00	0.00	0.00	0.00	0.00
53	RT	Load Forecast Uncertainty	SCE	LA Basin	8/7/2018	270-330	Yes	INC	24	0:00	23:59	1726.30	3762994.85	0.00	-582820.97	722.14	250162.14	0.00	0.00	0.00	0.00
54	RT	Load Forecast Uncertainty	SCE	LA Basin	8/8/2018	60-200	Yes	INC	24	0:00	23:59	-526.37	810497.93	0.00	28411.07	77.89	-48469.75	0.00	0.00	0.00	0.00
55	RT	Load Forecast Uncertainty	SCE	LA Basin	8/9/2018	140-2276	No	INC	24	0:00	23:59	840.43	1962331.19	0.00	-533089.14	261.42	-35431.82	0.00	-100444.94	0.00	0.00
56	RT	Load Forecast Uncertainty	SCE	LA Basin	8/9/2018	520-1294	No	DEC	7	15:00	21:59	-718.33	0.00	0.00	107985.37	0.00	0.00	0.00	0.00	0.00	0.00
57	RT	Load Forecast Uncertainty	SCE	LA Basin	8/10/2018	410-2826	Yes	INC	24	0:00	23:59	5004.94	3791678.93	144677.14	-392220.22	677.70	-41998.68	0.00	-193200.517	0.00	0.00
58	RT	Load Forecast Uncertainty	SCE	LA Basin	8/11/2018	514-1024	No	INC	7	15:00	21:59	226.64	49038.49	0.00	-11181.23	139.14	-6199.06	0.00	-519070.77	0.00	0.00
59	RT	Load Forecast Uncertainty	SCE	LA Basin	8/12/2018	514	No	INC	9	13:35	21:59	197.78	0.00	0.00	-33413.91	75.57	-5326.19	0.00	-594634.97	0.00	0.00
60	RT	Load Forecast Uncertainty	SCE	LA Basin	8/13/2018	10-30	No	INC	9	13:00	21:59	3.08	108984.32	69066.14	-461.92	0.00	0.00	0.00	0.00	0.00	0.00
61	RT	Load Forecast Uncertainty	SCE	LA Basin	8/14/2018	10-50	No	INC	13	11:50	23:59	25.87	150190.58	0.00	-52622.28	0.00	0.00	0.00	0.00	0.00	0.00
62	RT	Load Forecast Uncertainty	SCE	LA Basin	8/14/2018	251-502	No	DEC	4	17:00	20:44	-698.01	-26124.24	0.00	46487.52	86.17	-3619.06	0.00	-1666.44	0.00	0.00
63	RT	Load Forecast Uncertainty	SCE	LA Basin	8/15/2018	20-727	No	INC	24	0:00	23:59	-931.51	300025.61	28.60	27641.47	8.17	-643.06	0.00	-1647.80	0.00	0.00
64	RT	Load Forecast Uncertainty	SCE	LA Basin	8/16/2018	30-973	Yes	INC	24	0:00	23:59	1058.06	4729.86	0.00	84984.05	41.18	-3121.52	0.00	-4700.02	0.00	0.00
65	RT	Load Forecast Uncertainty	SCE	LA Basin	8/17/2018	20-620	No	INC	15	9:25	23:59	-176.61	64029.00	26368.99	24017.92	24.81	-1251.59	0.00	-175698.53	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620	
66	RT	Load Forecast Uncertainty	SCE	LA Basin	8/18/2018	10-30	No	INC	24	0:00	23:59	-176.26	99267.73	31823.82	8224.43	0.00	0.00	0.00	0.00	0.00	0.00	
67	RT	Load Forecast Uncertainty	SCE	LA Basin	8/19/2018	10-394	Yes	INC	24	0:00	23:59	-217.57	102364.49	0.00	12218.59	32.90	-811.98	0.00	-	223711.45	0.00	0.00
68	RT	Load Forecast Uncertainty	SCE	LA Basin	8/20/2018	10-960	No	INC	21	0:00	20:59	476.38	2476.79	0.00	-27770.10	439.28	-20872.72	0.00	-	149452.43	0.00	0.00
69	RT	Load Forecast Uncertainty	SCE	LA Basin	8/20/2018	370-890	No	DEC	7	14:00	20:59	2296.36	-58381.51	46539.83	-116149.23	79.17	-3263.17	0.00	-349.88	0.00	0.00	
70	RT	Load Forecast Uncertainty	SCE	LA Basin	8/21/2018	190-650	No	INC	8	14:00	21:29	-3.48	113579.61	0.00	-3590.35	120.16	-6162.93	0.00	-	64666.57	0.00	0.00
71	RT	Load Forecast Uncertainty	SCE	LA Basin	8/21/2018	260	No	DEC	7	14:00	20:59	24.01	0.00	0.00	-1094.11	0.00	0.00	0.00	0.00	0.00	0.00	
72	RT	Load Forecast Uncertainty	SCE	LA Basin	8/22/2018	15	No	DEC	7	14:00	20:59	-22.95	0.00	0.00	623.94	0.00	0.00	0.00	0.00	0.00	0.00	
73	RT	Load Forecast Uncertainty	SCE	LA Basin	8/22/2018	765	No	INC	7	14:00	20:59	41.33	99287.84	0.00	7098.76	186.64	-4072.74	0.00	-	73407.76	0.00	0.00
74	RT	Load Forecast Uncertainty	SCE	LA Basin	8/25/2018	251	No	INC	3	18:00	20:59	380.59	0.00	0.00	-10716.90	1.91	-55.14	0.00	0.00	0.00	0.00	
75	RT	Load Forecast Uncertainty	SCE	LA Basin	8/27/2018	255	No	INC	7	15:30	21:59	893.87	0.00	0.00	-47956.69	19.64	-93.46	0.00	-933.13	0.00	0.00	
76	RT	Load Forecast Uncertainty	SCE	LA Basin	8/30/2018	514	No	INC	6	15:00	20:59	-133.04	0.00	0.00	3819.27	0.00	0.00	0.00	-	220052.33	0.00	0.00
77	RT	Load Forecast Uncertainty	SCE	LA Basin	8/31/2018	449	No	INC	7	14:00	20:59	-107.98	17261.75	0.00	2153.05	0.00	0.00	0.00	-	302586.14	0.00	0.00
78	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/1/2018	70	No	DEC	5	15:00	19:59	-50.01	0.00	0.00	-85.06	0.00	0.00	0.00	0.00	0.00	0.00	
79	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/5/2018	20	No	INC	7	9:00	15:59	15.00	75466.50	30708.93	-294.27	0.00	0.00	0.00	0.00	0.00	0.00	
80	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/6/2018	20-40	Yes	INC	22	2:00	23:59	0.00	215465.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
81	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/6/2018	300	No	DEC	1	18:00	18:59	-1.77	0.00	0.00	2106.70	13.29	-1530.13	0.00	-	1822.90	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
82	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/7/2018	20	Yes	INC	24	0:00	23:59	-186.51	217262.39	0.00	44467.75	0.00	0.00	0.00	0.00	0.00	0.00
83	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/9/2018	20-131	Yes	INC	9	15:00	23:59	-24.75	11776.78	0.00	2417.34	0.00	0.00	0.00	0.00	0.00	0.00
84	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/9/2018	131	No	DEC	7	15:00	21:59	-656.72	0.00	0.00	97717.33	0.00	0.00	0.00	0.00	0.00	0.00
85	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/10/2018	40-428	Yes	INC	24	0:00	23:59	-168.31	362922.20	0.00	-10858.59	0.00	0.00	0.00	-100572.66	0.00	0.00
86	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/12/2018	68	No	INC	9	13:40	21:59	136.64	0.00	0.00	-30356.89	0.00	0.00	0.00	0.00	0.00	0.00
87	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/13/2018	20	No	INC	11	11:00	21:59	-15.45	51087.41	19880.77	-12635.19	0.00	0.00	0.00	0.00	0.00	0.00
88	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/14/2018	20	No	INC	22	2:00	23:59	-412.50	152455.49	0.00	42438.04	0.00	0.00	0.00	0.00	0.00	0.00
89	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/15/2018	20-290	No	INC	24	0:00	23:59	-426.16	376524.41	31259.93	29624.05	3.02	-187.64	0.00	-213.06	0.00	0.00
90	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/15/2018	22	No	DEC	3	17:15	20:14	-28.03	-11836.79	553.23	2268.16	0.00	0.00	0.00	0.00	0.00	0.00
91	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/16/2018	20-136	No	INC	24	0:00	23:59	-56.39	215141.39	0.00	-15873.63	7.98	-1565.17	0.00	0.00	0.00	0.00
92	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/17/2018	22	No	INC	1	18:45	19:44	23.51	5275.00	653.82	-1055.25	0.00	0.00	0.00	0.00	0.00	0.00
93	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/19/2018	68	No	INC	4	16:00	19:59	-471.64	10151.35	0.00	28975.87	0.00	0.00	0.00	0.00	0.00	0.00
94	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/20/2018	131	No	DEC	7	14:00	20:59	-604.81	0.00	0.00	30497.71	0.00	0.00	0.00	0.00	0.00	0.00
95	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/20/2018	131	No	INC	7	14:00	20:59	-27.53	0.00	0.00	1512.05	0.00	0.00	0.00	0.00	0.00	0.00
96	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/21/2018	68	No	DEC	16	5:45	20:59	-227.40	0.00	0.00	11840.10	0.00	0.00	0.00	0.00	0.00	0.00
97	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/21/2018	68-70	No	INC	16	5:45	20:59	-129.76	1622.48	0.00	13651.24	0.03	-0.84	0.00	-324.35	0.00	0.00
98	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/22/2018	68	No	DEC	7	14:00	20:59	11.23	0.00	0.00	-1864.45	0.00	0.00	0.00	0.00	0.00	0.00
99	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/22/2018	68	No	INC	7	14:00	20:59	-43.94	0.00	0.00	3099.81	0.00	0.00	0.00	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
100	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/26/2018	63	No	INC	3	18:05	20:59	-85.97	0.00	0.00	3857.96	0.00	0.00	0.00	0.00	0.00	0.00
101	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	8/31/2018	68	No	INC	7	14:00	20:59	0.84	0.00	0.00	-26.80	0.00	0.00	0.00	0.00	0.00	0.00
102	RT	Load Pull	SCE	Big Creek-Ventura	8/4/2018	410	No	INC	9	14:00	22:29	-29.78	445678.60	0.00	10513.30	0.76	-183.01	0.00	0.00	0.00	0.00
103	RT	Load Pull	SCE	Big Creek-Ventura	8/6/2018	406	No	INC	11	10:30	21:29	89.20	790312.63	0.00	-10031.94	66.50	-2495.03	0.00	0.00	0.00	0.00
104	RT	Load Pull	SCE	Big Creek-Ventura	8/7/2018	406	No	DEC	11	10:45	21:29	-151.87	82146.28	0.00	47555.02	44.75	-15964.41	0.00	0.00	0.00	0.00
105	RT	Load Pull	SCE	Big Creek-Ventura	8/7/2018	406	No	INC	11	10:45	21:29	34.00	282352.76	0.00	5869.53	59.34	-9386.00	0.00	0.00	0.00	0.00
106	RT	Load Pull	SCE	Big Creek-Ventura	8/8/2018	406	No	INC	11	10:40	20:59	-342.20	518531.65	0.00	58618.27	82.00	-4953.53	0.00	0.00	0.00	0.00
107	RT	Load Pull	SCE	LA Basin	8/4/2018	190-935	No	INC	9	14:00	22:14	343.03	546428.72	0.00	-105581.11	350.97	-104059.78	0.00	0.00	0.00	0.00
108	RT	Load Pull	SCE	LA Basin	8/4/2018	255	No	DEC	5	17:45	21:59	673.79	-59053.56	0.00	-138022.19	8.75	-1229.47	0.00	0.00	0.00	0.00
109	RT	Load Pull	SCE	LA Basin	8/5/2018	190-700	No	INC	7	16:00	22:29	-117.27	32963.40	0.00	1554.90	1.96	-1193.62	0.00	0.00	0.00	0.00
110	RT	Load Pull	SCE	LA Basin	8/5/2018	510	No	DEC	7	16:00	22:29	-1075.09	-0.01	0.00	230739.41	0.00	0.00	0.00	0.00	0.00	0.00
111	RT	Load Pull	SCE	LA Basin	8/6/2018	245-1360	No	INC	11	10:20	20:59	297.74	964088.00	0.00	-112527.22	412.18	115455.05	0.00	-22860.21	0.00	0.00
112	RT	Load Pull	SCE	LA Basin	8/6/2018	251-1126	No	DEC	11	11:10	21:14	-601.77	-302612.65	37505.39	49666.21	80.86	-10722.90	0.00	0.00	0.00	0.00
113	RT	Load Pull	SCE	LA Basin	8/7/2018	255-1634	No	DEC	12	10:10	21:29	883.81	-480078.56	34225.62	-180074.26	55.42	-9096.59	0.00	0.00	0.00	0.00
114	RT	Load Pull	SCE	LA Basin	8/7/2018	690-1934	No	INC	12	10:10	21:29	1323.27	1988782.27	0.00	-602813.20	1070.20	-409580.89	0.00	0.00	0.00	0.00
115	RT	Load Pull	SCE	LA Basin	8/8/2018	251-1467	No	DEC	12	10:20	21:59	2690.81	-340285.34	17916.39	-369008.78	91.00	-8785.08	0.00	0.00	0.00	0.00
116	RT	Load Pull	SCE	LA Basin	8/8/2018	831-1617	No	INC	12	10:20	21:59	183.69	624907.77	0.00	-168813.66	1033.47	-267123.89	0.00	0.00	0.00	0.00

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117	RT	Load Pull	SCE	LA Basin	8/10/2018	510	No	DEC	5	17:50	21:59	174.58	-271596.07	9055.88	-17347.57	174.58	-17347.57	0.00	0.00	0.00	0.00
118	RT	Load Pull	SCE	LA Basin	8/13/2018	255	No	DEC	4	16:00	19:59	-236.71	-14249.19	5530.74	12892.72	2.31	-147.95	0.00	0.00	0.00	0.00
119	RT	Load Pull	SCE	LA Basin	8/13/2018	514-769	No	INC	6	15:15	21:14	417.84	63920.83	0.00	-40695.93	48.86	-14168.02	0.00	0.00	0.00	0.00
120	RT	Load Pull	SCE	LA Basin	8/14/2018	190	No	INC	5	15:15	19:59	-87.26	0.00	0.00	16711.99	3.71	-933.74	0.00	0.00	0.00	0.00
121	RT	Load Pull	SCE	LA Basin	8/15/2018	384	No	INC	5	16:50	20:59	-4.12	0.00	0.00	-12520.01	75.59	-17914.65	0.00	0.00	0.00	0.00
122	RT	Load Pull	SCE	LA Basin	8/17/2018	255	No	INC	8	14:10	21:14	1296.93	25582.70	0.00	-59856.78	95.76	-4256.80	0.00	0.00	0.00	0.00
123	RT	Load Pull	SCE	LA Basin	8/18/2018	404-804	No	INC	6	15:00	20:29	144.59	30449.65	0.00	-8348.51	78.09	-2818.05	0.00	0.00	0.00	0.00
124	RT	Load Pull	SCE	LA Basin	8/21/2018	190	No	INC	1	18:06	18:14	1.08	0.00	0.00	-201.17	1.08	-201.17	0.00	0.00	0.00	0.00
125	RT	Load Pull	SCE	LA Basin	8/23/2018	639-959	No	INC	9	14:10	22:29	70.74	14806.50	2921.75	-1535.82	81.51	-3147.62	0.00	0.00	0.00	0.00
126	RT	Load Pull	SCE	LA Basin	8/24/2018	65-704	No	INC	7	15:45	22:29	46.72	15647.74	0.00	-2526.86	143.04	-4756.19	0.00	0.00	0.00	0.00
127	RT	Load Pull	SCE	LA Basin	8/25/2018	194-384	No	INC	6	16:05	21:14	82.65	0.00	0.00	-12496.27	84.75	-11207.80	0.00	0.00	0.00	0.00
128	RT	Load Pull	SCE	LA Basin	8/26/2018	384	No	INC	6	15:30	20:59	24.74	0.00	0.00	-4204.97	33.08	-4388.21	0.00	0.00	0.00	0.00
129	RT	Load Pull	SCE	LA Basin	8/27/2018	194-259	No	INC	8	14:30	22:14	310.36	0.00	0.00	-22306.07	0.70	-99.31	0.00	0.00	0.00	0.00
130	RT	Load Pull	SCE	LA Basin	8/28/2018	255-579	No	INC	8	14:20	22:14	999.04	45580.43	9773.50	-38533.29	92.10	-3084.52	0.00	0.00	0.00	0.00
131	RT	Load Pull	SCE	LA Basin	8/29/2018	194	No	INC	9	13:30	21:59	2.16	0.00	0.00	-6275.05	12.44	-1762.55	0.00	0.00	0.00	0.00
132	RT	Load Pull	SDG&E	San Diego-IV	8/6/2018	68	No	DEC	8	14:30	21:59	-147.06	0.00	0.00	18614.85	0.00	0.00	0.00	0.00	0.00	0.00
133	RT	Load Pull	SDG&E	San Diego-IV	8/6/2018	68	No	INC	8	14:30	21:59	27.13	6814.16	0.00	-2058.94	0.02	-5.36	0.00	0.00	0.00	0.00
134	RT	Load Pull	SDG&E	San Diego-IV	8/8/2018	104	No	INC	2	18:00	19:59	-9.18	0.00	0.00	990.09	3.37	-846.46	0.00	0.00	0.00	0.00

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135	RT	Load Pull	SDG&E	San Diego-IV	8/14/2018	68	No	INC	5	15:30	19:59	-384.04	48453.92	0.00	41225.82	0.00	0.00	0.00	0.00	0.00	0.00
136	RT	Load Pull	SDG&E	San Diego-IV	8/16/2018	63	No	INC	5	16:45	21:14	30.87	39646.64	728.44	-10443.09	0.00	-0.32	0.00	0.00	0.00	0.00
137	RT	Load Pull	SDG&E	San Diego-IV	8/18/2018	68	No	INC	6	15:00	20:29	-10.59	38203.74	0.00	631.38	0.06	-4.38	0.00	0.00	0.00	0.00
138	RT	Market Disruption	PG&E	Bay Area	8/14/2018	600	No	DEC	1	16:14	16:44	-35.20	0.00	0.00	795.41	-38.52	0.00	1071.64	0.00	0.00	0.00
139	RT	Market Disruption	PG&E	Fresno	8/14/2018	166	No	INC	1	16:07	16:54	57.58	19396.04	294.17	-3708.52	0.00	0.00	0.00	0.00	0.00	0.00
140	RT	Market Disruption	PG&E	N/A	8/14/2018	300	No	DEC	1	16:07	16:54	-0.94	0.00	0.00	30.14	-0.94	0.00	30.14	0.00	0.00	0.00
141	RT	Market Disruption	SCE	Big Creek-Ventura	8/23/2018	904	No	DEC	1	0:02	0:59	-4.93	0.00	0.00	496.62	-7.47	0.00	188.16	0.00	0.00	0.00
142	RT	Market Disruption	SCE	LA Basin	8/2/2018	10	No	INC	11	1:00	11:59	12.50	0.00	0.00	-935.38	0.00	0.00	0.00	0.00	0.00	0.00
143	RT	Market Disruption	SCE	LA Basin	8/8/2018	1050	No	INC	1	14:42	14:54	134.71	0.00	0.00	-13675.26	0.00	0.00	0.00	0.00	0.00	0.00
144	RT	Market Disruption	SCE	LA Basin	8/14/2018	350	No	INC	1	16:00	16:39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	RT	Market Disruption	SDG&E	San Diego-IV	8/14/2018	300	No	DEC	1	16:11	16:29	2.24	0.00	0.00	-1496.53	-0.21	0.00	17.33	0.00	0.00	0.00
146	RT	Operating Procedure Number and Constraint	SCE	Big Creek-Ventura	8/9/2018	0	No	DEC	1	23:25	23:59	-6.12	-2149.65	0.00	40.22	-6.12	0.00	40.22	0.00	0.00	0.00
147	RT	Operating Procedure Number and Constraint	SCE	Big Creek-Ventura	8/10/2018	0	No	INC	1	0:00	0:24	-3.06	0.00	0.00	242.54	0.00	0.00	0.00	0.00	0.00	0.00
148	RT	Operating Procedure Number and Constraint (6410)	SCE	Big Creek-Ventura	8/7/2018	700	No	INC	1	19:35	20:29	85.88	13101.30	0.00	-24726.17	47.70	-16994.70	0.00	0.00	0.00	0.00
149	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/8/2018	32	No	DEC	1	16:00	16:04	-1.39	0.00	0.00	47.70	-0.82	0.00	0.45	0.00	0.00	0.00
150	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/16/2018	65	No	DEC	3	17:00	19:59	1.61	-4205.48	0.00	-28.94	-0.02	0.00	0.26	0.00	0.00	0.00
151	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/17/2018	14	No	INC	1	23:00	23:59	16.19	0.00	0.00	-530.83	1.17	-39.63	0.00	0.00	0.00	0.00
152	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/17/2018	48-176	No	DEC	6	17:40	22:59	7.88	-7350.42	0.00	-221.48	-1.24	0.00	16.40	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/August/2018 - 31/August/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
153	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/18/2018	48	No	INC	10	14:38	23:59	2.04	0.00	0.00	-65.06	0.00	0.00	0.00	0.00	0.00	0.00
154	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/18/2018	65-113	No	DEC	10	14:38	23:59	-11.84	-18127.73	0.00	-2.87	-11.12	0.00	18.74	0.00	0.00	0.00
155	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/19/2018	14-15	No	INC	1	22:00	22:44	7.55	0.00	0.00	-322.40	0.00	0.00	0.00	0.00	0.00	0.00
156	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/20/2018	15	No	INC	13	7:00	19:59	6.32	2148.03	465.80	-198.13	0.58	-17.92	0.00	0.00	0.00	0.00
157	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/20/2018	15-30	No	DEC	13	7:00	19:59	-21.64	-1792.15	0.00	488.15	0.00	0.00	0.00	0.00	0.00	0.00
158	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/21/2018	15	No	INC	13	7:35	19:59	14.44	0.00	0.00	-402.59	0.27	-8.21	0.00	0.00	0.00	0.00
159	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/21/2018	15-30	No	DEC	13	7:35	19:59	-15.82	0.00	0.00	274.16	0.00	0.00	0.00	0.00	0.00	0.00
160	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/22/2018	16	No	DEC	2	22:25	23:59	10.58	-1097.37	0.00	-381.50	0.00	0.00	0.00	0.00	0.00	0.00
161	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/23/2018	16	No	DEC	23	0:00	22:59	6.55	-1423.82	0.00	-142.93	0.13	-1.64	0.00	0.00	0.00	0.00
162	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/28/2018	16-32	No	INC	18	6:18	23:59	34.25	0.00	0.00	-1002.00	30.66	-903.60	0.00	0.00	0.00	0.00
163	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	8/29/2018	16-30	No	INC	19	0:00	18:59	-2.40	0.00	0.00	75.00	3.43	-94.17	0.00	0.00	0.00	0.00
164	RT	Operating Procedure Number and Constraint (7230)	PG&E	Sierra	8/8/2018	0	No	INC	1	23:00	23:59	-15.00	0.00	0.00	0.00	-15.00	0.00	0.00	0.00	0.00	0.00
165	RT	Operating Procedure Number and Constraint (7430)	PG&E	Fresno	8/10/2018	72-75	No	INC	4	1:55	5:14	0.47	0.00	0.00	-176.03	0.00	0.00	0.00	0.00	0.00	0.00
166	RT	Operating Procedure Number and Constraint (7430)	PG&E	Fresno	8/16/2018	83	No	INC	2	21:00	22:59	28.87	10774.06	0.00	-1763.98	0.00	0.00	0.00	0.00	0.00	0.00
167	RT	Operating Procedure Number and Constraint (7430)	PG&E	Fresno	8/25/2018	70	No	INC	5	0:15	4:59	0.84	0.00	0.00	-39.94	0.00	0.00	0.00	0.00	0.00	0.00
168	RT	Operating Procedure Number and Constraint (7430)	PG&E	Fresno	8/28/2018	75	No	DEC	9	15:15	23:59	-11.61	0.00	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00
169	RT	Operating Procedure Number and Constraint (7430)	PG&E	Fresno	8/28/2018	75	No	INC	9	15:15	23:59	-9.00	0.00	0.00	241.05	0.00	0.00	0.00	0.00	0.00	0.00
170	RT	Operating Procedure Number and Constraint (7450)	PG&E	Kern	8/10/2018	32	No	INC	4	18:00	21:59	-12.45	21108.20	10034.12	763.67	0.00	0.00	0.00	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
171	RT	Operating Procedure Number and Constraint (7630)	SCE	LA Basin	8/13/2018	190-237	No	INC	7	14:00	20:59	131.91	296714.56	15271.64	-7773.17	0.00	0.00	0.00	0.00	0.00	0.00
172	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	8/16/2018	430-460	No	DEC	6	15:05	20:59	-64.04	-37434.27	0.00	14186.28	-2.19	0.00	38.77	0.00	0.00	0.00
173	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	8/16/2018	475	No	INC	2	14:05	15:29	-61.99	-1555.78	0.00	8930.58	-2.19	0.00	38.77	0.00	0.00	0.00
174	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	8/25/2018	476-478	No	DEC	6	16:50	21:59	-11.42	0.00	0.00	317.29	-4.95	0.00	118.30	0.00	0.00	0.00
175	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	8/25/2018	478	No	INC	1	16:50	17:44	-0.03	944.29	0.00	13.04	0.00	0.00	0.00	0.00	0.00	0.00
176	RT	Operating Procedure Number and Constraint (7750)	SCE	N/A	8/17/2018	410-475	No	DEC	10	10:45	19:59	13.78	-29817.78	0.00	-433.18	0.00	0.00	-0.17	0.00	0.00	0.00
177	RT	Operating Procedure Number and Constraint (7750)	SCE	N/A	8/17/2018	450	No	INC	7	10:45	17:29	21.37	-1242.61	0.00	1196.12	0.00	0.00	-0.17	0.00	0.00	0.00
178	RT	Operating Procedure Number and Constraint (7750)	SCE	N/A	8/18/2018	450	No	DEC	9	12:40	20:59	-32.86	-7709.63	0.00	812.80	0.00	0.00	0.00	0.00	0.00	0.00
179	RT	Operating Procedure Number and Constraint (7750)	SCE	N/A	8/18/2018	450	No	INC	9	12:40	20:59	-59.93	0.00	0.00	1371.82	0.00	0.00	0.00	0.00	0.00	0.00
180	RT	Operating Procedure Number and Constraint (7750)	SCE	N/A	8/19/2018	470	No	DEC	5	16:30	20:59	6.53	-10480.09	0.00	-393.07	-2.45	0.00	80.37	0.00	0.00	0.00
181	RT	Operating Procedure Number and Constraint (7820)	SDG&E	San Diego-IV	8/10/2018	25	No	DEC	6	14:25	19:59	0.31	0.00	0.00	-54.86	0.44	-63.11	0.00	0.00	0.00	0.00
182	RT	Operating Procedure Number and Constraint (7820)	SDG&E	San Diego-IV	8/11/2018	40-262	No	INC	22	2:00	23:59	-75.95	445414.43	0.00	3694.76	0.00	0.00	0.00	0.00	0.00	0.00
183	RT	Other Reliability Requirement	Intertie	N/A	8/9/2018	200	No	INC	1	19:00	19:59	50.00	0.00	0.00	-18192.56	45.83	-14141.31	0.00	29562.86	0.00	0.00
184	RT	Other Reliability Requirement	PG&E	Fresno	8/8/2018	22	No	INC	1	19:30	20:29	10.97	4071.14	94.65	-1181.75	3.33	-400.00	0.00	0.00	0.00	0.00
185	RT	Other Reliability Requirement	PG&E	Fresno	8/30/2018	10	No	DEC	7	11:05	17:59	-1.58	0.00	0.00	-4.40	-1.21	0.00	-3.82	0.00	0.00	0.00
186	RT	Other Reliability Requirement	PG&E	Fresno	8/30/2018	10	No	INC	7	11:05	17:59	-0.05	0.00	0.00	4.87	0.00	0.00	0.00	0.00	0.00	0.00
187	RT	Other Reliability Requirement	PG&E	Humboldt	8/10/2018	80-97	No	DEC	15	9:50	23:59	-15.21	-38477.91	0.00	523.04	-9.45	0.00	102.41	0.00	0.00	0.00
188	RT	Other Reliability Requirement	PG&E	Humboldt	8/11/2018	32-80	No	DEC	24	0:00	23:59	-16.15	-62278.53	0.00	122.69	-16.40	0.00	86.81	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
189	RT	Other Reliability Requirement	PG&E	Humboldt	8/12/2018	32-77	No	INC	24	0:00	23:59	19.90	-7187.00	0.00	-735.07	4.00	-158.36	0.00	0.00	0.00	0.00
190	RT	Other Reliability Requirement	PG&E	Humboldt	8/12/2018	32-80	No	DEC	24	0:00	23:59	-1.20	-35817.12	0.00	-58.49	-4.20	0.00	1.79	0.00	0.00	0.00
191	RT	Other Reliability Requirement	PG&E	Humboldt	8/13/2018	28-72	No	DEC	18	6:45	23:59	-4.39	-23813.09	0.00	128.65	-2.27	0.00	30.12	0.00	0.00	0.00
192	RT	Other Reliability Requirement	PG&E	Humboldt	8/13/2018	44-80	No	INC	24	0:00	23:59	13.78	-28568.47	0.00	-514.81	1.50	-69.28	0.00	0.00	0.00	0.00
193	RT	Other Reliability Requirement	PG&E	Humboldt	8/14/2018	16-73	No	DEC	24	0:00	23:59	3.84	-27743.17	0.00	-714.98	-15.12	0.00	15.06	0.00	0.00	0.00
194	RT	Other Reliability Requirement	PG&E	Humboldt	8/14/2018	28-72	No	INC	24	0:00	23:59	-8.70	-11085.20	0.00	304.93	0.00	0.00	0.00	0.00	0.00	0.00
195	RT	Other Reliability Requirement	PG&E	Humboldt	8/15/2018	28-73	No	DEC	18	6:50	23:59	-2.54	-26424.50	0.00	89.29	0.00	0.00	0.00	0.00	0.00	0.00
196	RT	Other Reliability Requirement	PG&E	Humboldt	8/15/2018	28-75	No	INC	24	0:00	23:59	4.99	-9905.05	0.00	-148.08	6.88	-222.48	0.00	0.00	0.00	0.00
197	RT	Other Reliability Requirement	PG&E	Humboldt	8/16/2018	42-130	No	INC	17	0:00	16:14	5.85	-13199.03	0.00	-115.30	11.16	-354.18	0.00	0.00	0.00	0.00
198	RT	Other Reliability Requirement	PG&E	Humboldt	8/16/2018	86-88	No	DEC	9	7:50	16:14	6.60	-4781.36	0.00	-141.09	0.00	0.00	0.00	0.00	0.00	0.00
199	RT	Other Reliability Requirement	PG&E	Kern	8/3/2018	32	No	INC	7	16:20	22:29	-6.55	15667.71	6463.38	269.26	0.00	0.00	0.00	0.00	0.00	0.00
200	RT	Other Reliability Requirement	PG&E	N/A	8/7/2018	17	No	INC	8	16:05	23:59	-1.74	0.00	0.00	-9.06	0.00	0.00	0.00	0.00	0.00	0.00
201	RT	Other Reliability Requirement	PG&E	N/A	8/7/2018	17-25	No	DEC	13	11:30	23:59	-33.96	0.00	0.00	635.30	-22.47	0.00	88.78	0.00	0.00	0.00
202	RT	Other Reliability Requirement	PG&E	N/A	8/8/2018	12	No	INC	9	15:35	23:59	-13.43	0.00	0.00	511.70	-10.86	0.00	354.51	0.00	0.00	0.00
203	RT	Other Reliability Requirement	PG&E	N/A	8/8/2018	17	No	DEC	9	15:15	23:59	-6.41	0.00	0.00	249.46	0.00	0.00	0.00	0.00	0.00	0.00
204	RT	Other Reliability Requirement	PG&E	N/A	8/9/2018	5	No	DEC	7	1:35	7:59	-7.14	0.00	0.00	-253.29	-16.08	0.00	51.46	0.00	0.00	0.00
205	RT	Other Reliability Requirement	PG&E	N/A	8/9/2018	26	No	INC	9	0:00	8:14	-1.10	0.00	0.00	-37.06	-2.34	0.00	12.67	0.00	0.00	0.00
206	RT	Other Reliability Requirement	PG&E	Sierra	8/7/2018	50	No	DEC	7	16:45	22:59	12.83	0.00	0.00	-12694.46	14.39	-13289.48	475.96	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
207	RT	Other Reliability Requirement	PG&E	Sierra	8/7/2018	70-95	No	INC	5	16:50	20:59	77.74	0.00	0.00	-28721.62	77.14	-28643.35	0.00	0.00	0.00	0.00
208	RT	Other Reliability Requirement	SCE	LA Basin	8/1/2018	200-260	No	INC	3	19:05	21:59	-35.81	80234.42	18313.78	4804.61	3.82	-599.59	0.00	0.00	0.00	0.00
209	RT	Other Reliability Requirement	SCE	LA Basin	8/17/2018	120	No	INC	10	12:00	21:29	130.45	0.00	0.00	-34776.99	81.33	-23725.08	0.00	0.00	0.00	0.00
210	RT	Other Reliability Requirement	SCE	LA Basin	8/17/2018	240	No	DEC	1	12:00	12:59	-62.02	-4.78	0.00	4397.24	0.00	0.00	0.00	0.00	0.00	0.00
211	RT	Other Reliability Requirement	SCE	N/A	8/17/2018	380	No	DEC	2	11:20	12:59	-97.15	0.00	0.00	648.05	-73.80	0.00	-708.32	0.00	0.00	0.00
212	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/1/2018	19	No	DEC	13	7:50	19:59	4.59	0.00	0.00	-1674.48	0.00	0.00	0.00	0.00	0.00	0.00
213	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/1/2018	19	No	INC	13	7:50	19:59	4.55	41038.94	0.00	-543.21	0.60	-67.12	0.00	0.00	0.00	0.00
214	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/2/2018	18-65	No	INC	10	10:45	19:59	55.25	41128.09	389.78	-5690.26	0.72	-87.65	0.00	0.00	0.00	0.00
215	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/2/2018	25	No	DEC	4	16:45	19:59	-10.59	-1159.50	525.33	1084.14	0.00	0.00	0.00	0.00	0.00	0.00
216	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/7/2018	21-108	No	DEC	14	7:00	20:59	-97.40	-855.32	989.40	22101.91	0.00	0.00	0.00	0.00	0.00	0.00
217	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/7/2018	21-129	No	INC	14	7:00	20:59	16.11	82340.07	10735.59	-1328.57	0.06	-13.61	0.00	0.00	0.00	0.00
218	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/8/2018	68	No	DEC	10	10:00	19:59	-99.17	0.00	0.00	11489.65	0.00	0.00	0.00	0.00	0.00	0.00
219	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/8/2018	68	No	INC	10	10:00	19:59	-80.05	63032.80	4467.89	14057.44	0.02	-3.16	0.00	0.00	0.00	0.00
220	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/10/2018	19-58	No	INC	14	9:40	22:59	11.90	72956.61	949.88	-1361.54	0.14	-24.68	0.00	0.00	0.00	0.00
221	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/10/2018	19-131	No	DEC	14	9:40	22:59	3.25	-5954.62	0.00	-48.71	0.06	-11.06	0.00	0.00	0.00	0.00
222	RT	Other Reliability Requirement	SDG&E	San Diego-IV	8/17/2018	45	No	INC	6	14:50	19:59	27.96	17298.23	0.00	-840.62	3.24	-146.78	0.00	0.00	0.00	0.00
223	RT	Planned Transmission Outage	PG&E	Humboldt	8/1/2018	30-77	No	DEC	24	0:00	23:59	-5.80	-18303.61	0.00	228.88	0.78	-32.86	5.96	0.00	-	15584.04
224	RT	Planned Transmission Outage	PG&E	Humboldt	8/1/2018	45-77	No	INC	24	0:00	23:59	4.24	-6932.76	0.00	-100.06	3.67	-83.47	1.30	0.00	-16.84	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620		
225	RT	Planned Transmission Outage	PG&E	Humboldt	8/2/2018	77	No	DEC	24	0:00	23:59	-2.24	-28487.73	0.00	89.27	0.00	0.00	0.00	0.00	0.00	-	16157.36	0.00
226	RT	Planned Transmission Outage	PG&E	Humboldt	8/2/2018	77	No	INC	24	0:00	23:59	33.60	-25191.68	0.00	-1225.66	8.25	-300.92	0.00	0.00	0.00	0.00	0.00	0.00
227	RT	Planned Transmission Outage	PG&E	Humboldt	8/3/2018	45-77	No	INC	24	0:00	23:59	60.22	-20577.42	0.00	-1886.28	3.18	-106.07	19.52	0.00	0.00	-19.52	0.00	
228	RT	Planned Transmission Outage	PG&E	Humboldt	8/3/2018	45-90	No	DEC	24	0:00	23:59	-34.09	-24719.00	0.00	1246.48	-28.15	0.00	1032.84	0.00	-	13550.43	0.00	
229	RT	Planned Transmission Outage	PG&E	Humboldt	8/4/2018	30-45	No	DEC	24	0:00	23:59	-2.43	-1103.32	0.00	74.27	-3.78	0.00	118.96	0.00	0.00	-823.84	0.00	
230	RT	Planned Transmission Outage	PG&E	Humboldt	8/4/2018	30-75	No	INC	24	0:00	23:59	24.25	-17648.51	0.00	-824.41	2.00	-68.94	0.00	0.00	0.00	0.00	0.00	
231	RT	Planned Transmission Outage	PG&E	Humboldt	8/5/2018	30-90	No	DEC	19	5:10	23:59	-0.74	-16488.35	0.00	17.74	-0.64	0.00	28.07	0.00	-	14841.36	0.00	
232	RT	Planned Transmission Outage	PG&E	Humboldt	8/5/2018	30-90	No	INC	24	0:00	23:59	14.94	-12947.92	0.00	-263.41	-1.93	-47.84	100.28	0.00	0.00	-117.64	0.00	
233	RT	Planned Transmission Outage	PG&E	Humboldt	8/6/2018	30-96	No	DEC	18	6:35	23:59	8.22	-27904.62	0.00	-328.20	-11.90	-46.88	669.98	0.00	-	35181.44	0.00	
234	RT	Planned Transmission Outage	PG&E	Humboldt	8/6/2018	45-90	No	INC	24	0:00	23:59	33.22	-588.54	0.00	-1068.37	4.20	-157.33	18.76	0.00	0.00	-27.52	0.00	
235	RT	Planned Transmission Outage	PG&E	Humboldt	8/7/2018	16-64	No	INC	24	0:00	23:59	1.46	-713.60	0.00	-8.02	1.57	-72.14	0.00	0.00	0.00	0.00	0.00	
236	RT	Planned Transmission Outage	PG&E	Humboldt	8/7/2018	30-78	No	DEC	18	6:20	23:59	-12.47	-33783.85	0.00	1570.05	-7.84	0.00	1240.66	0.00	-	97369.93	0.00	
237	RT	Planned Transmission Outage	PG&E	Humboldt	8/8/2018	32-80	No	DEC	14	8:40	21:59	-35.31	-14958.55	0.00	3209.92	-28.09	0.00	2399.13	0.00	-	68583.65	0.00	
238	RT	Planned Transmission Outage	PG&E	Humboldt	8/8/2018	60-64	No	INC	16	8:40	23:59	15.07	-5736.11	0.00	-647.48	12.20	-532.42	0.00	0.00	0.00	0.00	0.00	
239	RT	Planned Transmission Outage	PG&E	Humboldt	8/9/2018	30-75	No	DEC	24	0:00	23:59	-37.28	-33280.73	0.00	6925.33	-38.95	0.00	6827.71	0.00	-	184318.12	0.00	
240	RT	Planned Transmission Outage	PG&E	Humboldt	8/9/2018	30-75	No	INC	24	0:00	23:59	20.35	-9069.15	0.00	-931.04	18.49	-836.29	0.00	0.00	0.00	0.00	0.00	
241	RT	Planned Transmission Outage	PG&E	Humboldt	8/10/2018	32-64	No	DEC	5	0:00	4:59	2.15	-362.74	0.00	-118.11	-0.04	0.00	2.60	0.00	-196.65	0.00		
242	RT	Planned Transmission Outage	PG&E	Humboldt	8/10/2018	45	No	INC	1	0:00	0:29	-0.87	-725.48	0.00	43.66	-0.04	0.00	2.60	0.00	0.00	-1.45	0.00	

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Chart 2: Table of Exceptional Dispatches for Period 01/August/2018 - 31/August/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
243	RT	Planned Transmission Outage	PG&E	Humboldt	8/23/2018	30	No	INC	6	18:25	23:59	7.69	0.00	0.00	-233.12	0.92	-28.50	0.00	0.00	-0.65	0.00
244	RT	Planned Transmission Outage	PG&E	Humboldt	8/24/2018	30	No	INC	1	0:00	0:59	22.50	0.00	0.00	-777.78	1.50	-51.85	0.00	0.00	0.00	0.00
245	RT	Planned Transmission Outage	PG&E	Humboldt	8/27/2018	16-30	No	INC	18	6:50	23:59	22.03	0.00	0.00	-846.75	10.42	-340.47	0.00	0.00	0.00	0.00
246	RT	Planned Transmission Outage	PG&E	Humboldt	8/28/2018	15-30	No	INC	5	0:00	4:29	2.98	0.00	0.00	-63.78	0.50	-13.57	0.00	0.00	0.00	0.00
247	RT	Planned Transmission Outage	PG&E	Humboldt	8/29/2018	16-46	No	INC	4	20:45	23:59	57.33	-2056.95	0.00	-1755.63	4.00	-123.95	0.00	0.00	0.00	0.00
248	RT	Planned Transmission Outage	PG&E	Humboldt	8/30/2018	15-30	No	INC	18	6:00	23:59	52.97	0.00	0.00	-1428.66	8.29	-234.12	0.00	0.00	0.00	0.00
249	RT	Planned Transmission Outage	PG&E	Humboldt	8/31/2018	16	No	DEC	18	6:20	23:59	-1.41	-4071.26	0.00	31.95	-0.02	0.00	0.54	0.00	-1464.67	0.00
250	RT	Planned Transmission Outage	PG&E	Humboldt	8/31/2018	32-48	No	INC	18	6:15	23:59	9.16	2757.60	0.00	-309.11	6.55	-241.38	11.54	0.00	-6.20	0.00
251	RT	Planned Transmission Outage	PG&E	Humboldt	9/1/2018	16-32	No	INC	8	0:00	7:14	0.50	0.00	0.00	-14.44	0.00	0.00	0.00	0.00	-9.66	0.00
252	RT	Planned Transmission Outage	PG&E	N/A	8/26/2018	175-300	No	DEC	3	18:20	20:59	-87.99	0.00	0.00	3810.97	-87.69	0.00	3799.74	0.00	-4867.73	0.00
253	RT	Planned Transmission Outage	PG&E	NCNB	8/21/2018	59	No	INC	10	7:45	17:14	4.29	0.00	0.00	-150.30	0.00	0.00	0.00	0.00	0.00	0.00
254	RT	Planned Transmission Outage	PG&E	NCNB	8/21/2018	119-129	No	DEC	10	7:45	17:14	23.25	0.00	0.00	-306.36	-8.50	0.00	180.59	0.00	-7741.45	0.00
255	RT	Planned Transmission Outage	PG&E	Sierra	8/8/2018	2	No	DEC	3	2:13	4:29	-0.58	0.00	0.00	22.01	-3.88	0.00	143.43	0.00	-390.34	0.00
256	RT	Planned Transmission Outage	PG&E	Sierra	8/13/2018	255	No	DEC	7	6:51	13:14	-9.74	0.00	0.00	365.32	-21.76	0.00	711.47	0.00	-3589.21	0.00
257	RT	Planned Transmission Outage	SCE	LA Basin	8/20/2018	20	No	INC	4	20:00	23:59	25.74	13175.67	0.00	-1418.11	0.00	0.00	0.00	0.00	0.00	0.00
258	RT	Planned Transmission Outage	SCE	LA Basin	8/21/2018	40	No	INC	24	0:00	23:59	-172.56	205006.99	0.00	12815.69	0.00	0.00	0.00	-1101.49	0.00	0.00
259	RT	Planned Transmission Outage	SCE	LA Basin	8/23/2018	151	No	INC	1	22:10	22:44	74.21	0.00	0.00	-1826.54	2.00	-49.82	0.00	0.00	-37.67	0.00
260	RT	Planned Transmission Outage	SCE	LA Basin	8/28/2018	484-743	No	INC	5	12:00	16:44	80.46	32743.08	0.00	-20351.38	51.85	-1433.92	0.00	0.00	-28137.42	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
261	RT	Planned Transmission Outage	SCE	N/A	8/29/2018	465	No	DEC	2	20:30	21:59	-6.69	0.00	0.00	193.62	0.00	0.00	0.00	0.00	-1.69	0.00
262	RT	Planned Transmission Outage	SCE	N/A	8/29/2018	465	No	INC	2	20:30	21:59	-5.52	0.00	0.00	215.95	0.00	0.00	0.00	0.00	0.00	0.00
263	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/2/2018	63-355	No	INC	12	8:05	19:59	-71.30	5580.22	0.00	18911.04	64.41	-3723.30	0.00	0.00	-4548.17	0.00
264	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/2/2018	68-270	No	DEC	13	7:00	19:59	-40.17	0.00	0.00	-3325.90	19.61	-1038.61	0.00	0.00	-1059.42	0.00
265	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/3/2018	40-126	No	INC	15	6:00	20:59	349.32	413356.31	37029.74	-86513.62	0.12	-4.47	0.00	0.00	-11.78	0.00
266	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/4/2018	20	No	INC	13	6:00	18:59	0.01	156970.32	0.00	-1.83	0.00	0.00	0.00	0.00	0.00	0.00
267	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/7/2018	20	No	INC	3	8:00	10:59	0.06	52703.71	36293.75	-13.61	0.06	-13.61	0.00	0.00	0.00	0.00
268	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/8/2018	20	No	INC	6	7:00	12:59	19.18	73306.52	31275.26	-1403.41	0.02	-3.16	0.00	0.00	0.00	0.00
269	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/9/2018	20-100	No	INC	11	1:00	11:59	121.54	111582.65	0.00	-18312.18	0.00	0.00	0.00	0.00	0.00	0.00
270	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/12/2018	68	No	INC	2	7:55	8:59	-0.60	6309.85	0.00	71.00	0.00	0.00	0.00	0.00	-2.57	0.00
271	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/13/2018	21-42	No	INC	2	7:36	8:59	0.70	7011.84	0.00	-19.83	0.00	0.00	0.00	0.00	0.00	0.00
272	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/17/2018	20-40	No	INC	18	6:00	23:59	1005.21	132676.30	41917.62	58906.50	0.00	0.00	0.00	0.00	0.00	0.00
273	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/18/2018	20	No	INC	22	0:00	21:59	-10.52	101990.35	0.00	624.66	0.06	-4.38	0.00	0.00	0.00	0.00
274	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/20/2018	20-40	No	INC	6	6:00	11:59	12.01	22491.82	0.00	-849.90	0.00	0.00	0.00	0.00	0.00	0.00
275	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/21/2018	26-225	No	INC	13	7:00	19:59	-24.72	49519.33	9599.19	945.06	0.56	-28.52	0.00	0.00	-19.06	0.00
276	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/22/2018	25-225	No	INC	23	1:45	23:59	-10.62	85110.34	9620.77	4423.61	0.49	-20.62	0.00	0.00	-117.30	0.00
277	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/23/2018	40-361	No	INC	21	0:00	20:59	385.35	348094.32	32547.20	-20407.80	0.03	-0.67	0.00	0.00	-436.81	0.00
278	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/23/2018	68	No	DEC	17	4:00	20:59	-170.79	0.00	0.00	7360.14	0.00	0.00	0.00	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
279	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/24/2018	20-131	No	INC	18	4:00	21:59	190.17	106365.63	23273.56	-13408.20	0.01	-0.31	0.00	0.00	-0.04	0.00
280	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/24/2018	68	No	DEC	16	6:20	21:59	-416.92	0.00	0.00	11187.54	0.00	0.00	0.00	0.00	0.00	0.00
281	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/26/2018	39	No	INC	1	11:00	11:59	3.20	0.00	0.00	-45.45	0.15	-2.47	0.00	0.00	-5.13	0.00
282	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/28/2018	40-321	No	INC	17	7:00	23:59	48.39	126527.01	49635.97	-1861.86	5.06	-137.02	0.00	0.00	-8.19	0.00
283	RT	Planned Transmission Outage	SDG&E	San Diego-IV	8/29/2018	20-349	No	INC	24	0:00	23:59	69.43	198304.20	17325.31	-2945.37	0.25	-6.40	0.00	0.00	0.00	0.00
284	RT	Software Limitation	PG&E	Bay Area	8/2/2018	0	No	INC	2	17:00	18:04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	RT	Software Limitation	PG&E	Bay Area	8/10/2018	120	No	DEC	2	2:15	3:59	102.79	0.00	0.00	1138.16	0.00	0.00	0.00	0.00	0.00	0.00
286	RT	Software Limitation	PG&E	Bay Area	8/13/2018	40	No	DEC	1	17:00	17:59	5.37	0.00	0.00	-284.24	0.00	0.00	0.00	0.00	0.00	0.00
287	RT	Software Limitation	PG&E	Fresno	8/6/2018	0	No	INC	1	0:00	0:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
288	RT	Software Limitation	PG&E	Fresno	8/9/2018	0	No	DEC	3	15:00	17:59	0.00	-4269.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
289	RT	Software Limitation	PG&E	Fresno	8/9/2018	0	No	INC	3	15:00	17:59	-5.75	0.00	0.00	-340.42	-8.75	0.00	0.00	0.00	0.00	0.00
290	RT	Software Limitation	PG&E	Fresno	8/10/2018	0	No	INC	1	9:00	9:54	-74.14	8203.91	0.00	813.70	-74.30	0.00	822.52	0.00	0.00	0.00
291	RT	Software Limitation	PG&E	Fresno	8/11/2018	0	No	INC	3	5:45	7:59	-62.25	5880.50	0.00	0.00	-62.25	0.00	0.00	0.00	0.00	0.00
292	RT	Software Limitation	PG&E	Fresno	8/12/2018	-1E3-0	No	INC	12	1:15	12:59	-369.00	0.00	0.00	18595.65	-20.75	0.00	0.00	0.00	0.00	0.00
293	RT	Software Limitation	PG&E	Fresno	8/13/2018	-316	No	DEC	2	4:10	5:29	-21.61	16229.63	0.00	-247.18	-27.67	0.00	0.00	0.00	0.00	0.00
294	RT	Software Limitation	PG&E	Fresno	8/13/2018	-316-0	No	INC	17	1:30	17:59	-183.56	48688.88	0.00	-3353.97	-276.67	0.00	0.00	0.00	0.00	0.00
295	RT	Software Limitation	PG&E	Fresno	8/14/2018	-316	No	DEC	2	8:30	10:29	-79.04	0.00	0.00	2216.63	0.00	0.00	0.00	0.00	0.00	0.00
296	RT	Software Limitation	PG&E	Fresno	8/14/2018	-317-0	No	INC	11	0:20	10:59	-221.35	0.00	0.00	6365.55	-31.62	0.00	0.00	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
297	RT	Software Limitation	PG&E	Fresno	8/15/2018	-318	No	INC	6	0:00	5:59	-21.13	0.00	0.00	923.80	0.00	0.00	0.00	0.00	0.00	0.00
298	RT	Software Limitation	PG&E	Humboldt	8/8/2018	32	No	DEC	1	0:30	0:59	-0.12	0.00	0.00	-0.21	-0.13	0.00	0.00	0.00	0.00	0.00
299	RT	Software Limitation	PG&E	Humboldt	8/16/2018	42	No	DEC	5	15:55	19:59	-0.28	-570.36	0.00	-1.41	0.00	0.00	0.00	0.00	0.00	0.00
300	RT	Software Limitation	PG&E	Humboldt	8/16/2018	42	No	INC	5	15:55	19:59	-0.51	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00
301	RT	Software Limitation	PG&E	Humboldt	8/17/2018	16	No	INC	1	23:05	23:59	12.63	0.00	0.00	-423.71	1.17	-39.63	0.00	0.00	0.00	0.00
302	RT	Software Limitation	PG&E	Humboldt	8/30/2018	16	No	INC	1	22:45	23:44	13.30	0.00	0.00	-273.15	0.00	0.00	0.00	0.00	0.00	0.00
303	RT	Software Limitation	PG&E	N/A	8/6/2018	22	No	INC	1	23:45	23:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
304	RT	Software Limitation	PG&E	N/A	8/7/2018	22	No	INC	4	0:00	3:59	-36.00	0.00	0.00	115.20	-36.00	0.00	115.20	0.00	0.00	0.00
305	RT	Software Limitation	PG&E	N/A	8/9/2018	0	No	INC	1	23:00	23:59	14.39	1636.96	0.00	-931.06	0.00	0.00	0.00	0.00	0.00	0.00
306	RT	Software Limitation	PG&E	N/A	8/10/2018	0	No	INC	2	0:00	1:44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
307	RT	Software Limitation	PG&E	Sierra	8/7/2018	0	No	DEC	1	22:05	23:04	0.00	-1470.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
308	RT	Software Limitation	PG&E	Sierra	8/13/2018	0	No	DEC	6	18:15	23:59	-21.00	0.00	0.00	0.28	-21.00	0.00	0.28	0.00	0.00	0.00
309	RT	Software Limitation	PG&E	Sierra	8/13/2018	0	No	INC	6	18:15	23:59	-1.92	0.00	0.00	100.53	0.00	0.00	0.00	0.00	0.00	0.00
310	RT	Software Limitation	PG&E	Sierra	8/14/2018	0	No	INC	1	0:00	0:14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
311	RT	Software Limitation	SCE	Big Creek-Ventura	8/6/2018	0	No	INC	1	0:00	0:59	-11.78	0.00	0.00	0.00	-11.78	0.00	0.00	0.00	0.00	0.00
312	RT	Software Limitation	SCE	Big Creek-Ventura	8/6/2018	70	No	DEC	4	16:20	19:39	-0.15	-8535.40	0.00	-4354.91	-18.82	0.00	61.98	0.00	0.00	0.00
313	RT	Software Limitation	SCE	Big Creek-Ventura	8/8/2018	0	No	INC	2	0:30	1:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
314	RT	Software Limitation	SCE	Big Creek-Ventura	8/9/2018	0	No	DEC	1	23:05	23:59	5.90	-4392.83	0.00	-450.98	0.00	0.00	0.00	0.00	0.00	0.00

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Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
315	RT	Software Limitation	SCE	Big Creek-Ventura	8/10/2018	0	No	INC	1	0:00	0:04	-2.37	0.00	0.00	190.72	0.00	0.00	0.00	0.00	0.00	0.00
316	RT	Software Limitation	SCE	Big Creek-Ventura	8/12/2018	-177	No	INC	3	7:30	9:59	-7.38	0.00	0.00	397.08	0.00	0.00	0.00	0.00	0.00	0.00
317	RT	Software Limitation	SCE	Big Creek-Ventura	8/13/2018	0	No	DEC	1	22:25	22:59	-31.68	0.00	0.00	1013.32	-12.50	0.00	90.35	0.00	0.00	0.00
318	RT	Software Limitation	SCE	Big Creek-Ventura	8/13/2018	-177-0	No	INC	22	2:00	23:19	-95.88	1743.32	0.00	4761.00	0.00	0.00	0.00	0.00	0.00	0.00
319	RT	Software Limitation	SCE	Big Creek-Ventura	8/14/2018	-177	No	INC	3	2:00	4:59	-51.63	0.00	0.00	2231.59	0.00	0.00	0.00	0.00	0.00	0.00
320	RT	Software Limitation	SCE	LA Basin	8/6/2018	10	No	INC	24	0:00	23:59	34.15	2304.45	0.00	-16194.66	35.20	-9226.54	0.00	-53957.59	0.00	0.00
321	RT	Software Limitation	SCE	LA Basin	8/10/2018	0	No	INC	11	0:00	10:59	0.19	0.00	0.00	-14.70	0.00	0.00	0.00	0.00	0.00	0.00
322	RT	Software Limitation	SCE	LA Basin	8/10/2018	147	No	DEC	4	16:00	19:59	264.15	0.00	0.00	-18271.86	0.00	0.00	0.00	0.00	0.00	0.00
323	RT	Software Limitation	SCE	LA Basin	8/11/2018	512	No	INC	2	18:15	19:29	-37.07	0.00	0.00	2357.54	0.69	-36.92	0.00	-7.66	0.00	0.00
324	RT	Software Limitation	SCE	LA Basin	8/15/2018	151	No	DEC	2	12:00	13:29	3.15	0.00	0.00	-2047.09	0.00	0.00	0.00	0.00	0.00	0.00
325	RT	Software Limitation	SCE	N/A	8/8/2018	471	No	INC	1	8:15	8:59	127.87	-16286.33	0.00	-5094.60	15.37	-622.73	0.00	0.00	0.00	0.00
326	RT	Software Limitation	SDG&E	San Diego-IV	8/12/2018	-40	No	INC	1	2:20	3:14	-8.67	0.00	0.00	607.95	-0.88	0.00	0.00	0.00	0.00	0.00
327	RT	Software Limitation	SDG&E	San Diego-IV	8/13/2018	-40	No	INC	3	2:00	4:59	-22.26	0.00	0.00	596.64	-10.41	0.00	0.00	0.00	0.00	0.00
328	RT	Software Limitation	SDG&E	San Diego-IV	8/14/2018	-83-41	No	INC	11	0:00	10:59	-22.71	0.00	0.00	868.38	0.00	0.00	0.00	0.00	0.00	0.00
329	RT	Software Limitation	SDG&E	San Diego-IV	8/21/2018	0	No	INC	1	12:20	13:14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	RT	Software Limitation	SDG&E	San Diego-IV	8/24/2018	0	No	DEC	1	9:45	10:44	-11.25	-2364.22	0.00	72.16	-11.25	0.00	72.16	0.00	0.00	0.00
331	RT	Start-Up Instructions	SCE	Big Creek-Ventura	8/12/2018	0	No	INC	1	7:00	7:29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
332	RT	Unit Testing	Intertie	N/A	8/1/2018	1	No	INC	1	5:15	5:59	0.75	0.00	0.00	-30.71	0.75	-30.71	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/August/2018 - 31/August/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
333	RT	Unit Testing	Intertie	N/A	8/2/2018	15-20	No	INC	12	6:00	17:59	234.84	0.00	0.00	-14916.18	234.79	-14913.03	0.00	0.00	0.00	0.00
334	RT	Unit Testing	Intertie	N/A	8/3/2018	5-20	No	INC	13	5:00	17:59	239.95	0.00	0.00	-11294.43	239.79	-11289.92	0.00	0.00	0.00	0.00
335	RT	Unit Testing	Intertie	N/A	8/6/2018	5-20	No	INC	13	5:00	17:59	239.95	0.00	0.00	-13113.05	239.79	-13107.71	0.00	0.00	0.00	0.00
336	RT	Unit Testing	Intertie	N/A	8/7/2018	20	Yes	INC	11	7:00	17:59	219.79	0.00	0.00	-24888.94	219.79	-24888.94	0.00	0.00	0.00	0.00
337	RT	Unit Testing	Intertie	N/A	8/8/2018	20	No	INC	11	7:00	17:59	219.90	0.00	0.00	-15087.67	219.90	-15087.67	0.00	0.00	0.00	0.00
338	RT	Unit Testing	Intertie	N/A	8/9/2018	20	Yes	INC	12	6:00	17:59	240.00	0.00	0.00	-37308.65	240.00	-37308.65	0.00	0.00	0.00	0.00
339	RT	Unit Testing	Intertie	N/A	8/10/2018	20	Yes	INC	12	6:00	17:59	240.00	0.00	0.00	-11681.39	240.00	-11681.39	0.00	0.00	0.00	0.00
340	RT	Unit Testing	Intertie	N/A	8/11/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-22122.30	583.48	-22110.40	0.00	0.00	0.00	0.00
341	RT	Unit Testing	Intertie	N/A	8/12/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-36579.86	583.48	-36564.43	0.00	0.00	0.00	0.00
342	RT	Unit Testing	Intertie	N/A	8/13/2018	10-40	Yes	INC	13	6:00	18:59	582.95	0.00	0.00	-16464.29	577.06	-16153.46	0.00	0.00	0.00	0.00
343	RT	Unit Testing	Intertie	N/A	8/14/2018	10-20	No	INC	13	6:00	18:59	583.82	0.00	0.00	-59602.62	583.48	-59593.91	0.00	0.00	0.00	0.00
344	RT	Unit Testing	Intertie	N/A	8/15/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-32185.97	583.48	-32171.78	0.00	0.00	0.00	0.00
345	RT	Unit Testing	Intertie	N/A	8/16/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-42574.64	583.48	-42554.80	0.00	0.00	0.00	0.00
346	RT	Unit Testing	Intertie	N/A	8/17/2018	1-25	No	INC	16	6:00	21:59	612.59	0.00	0.00	-13351.66	611.20	-13327.83	0.00	0.00	0.00	0.00
347	RT	Unit Testing	Intertie	N/A	8/18/2018	1-40	Yes	INC	16	6:00	21:59	757.69	0.00	0.00	-19660.78	756.90	-19637.33	0.00	0.00	0.00	0.00
348	RT	Unit Testing	Intertie	N/A	8/19/2018	1-40	Yes	INC	16	6:00	21:59	615.76	0.00	0.00	-24377.01	615.10	-24353.10	0.00	0.00	0.00	0.00
349	RT	Unit Testing	Intertie	N/A	8/20/2018	1-40	Yes	INC	16	6:00	21:59	817.69	0.00	0.00	-24967.54	816.90	-24939.86	0.00	0.00	0.00	0.00
350	RT	Unit Testing	Intertie	N/A	8/21/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-10543.70	583.48	-10534.16	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/August/2018 - 31/August/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
351	RT	Unit Testing	Intertie	N/A	8/22/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-6642.97	583.48	-6637.41	0.00	0.00	0.00	0.00
352	RT	Unit Testing	Intertie	N/A	8/23/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-9376.23	583.48	-9370.35	0.00	0.00	0.00	0.00
353	RT	Unit Testing	Intertie	N/A	8/24/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-12082.20	583.48	-12074.71	0.00	0.00	0.00	0.00
354	RT	Unit Testing	Intertie	N/A	8/25/2018	10-20	No	INC	13	6:00	18:59	583.82	0.00	0.00	-17633.14	583.48	-17623.89	0.00	0.00	0.00	0.00
355	RT	Unit Testing	Intertie	N/A	8/26/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-10580.89	583.48	-10574.79	0.00	0.00	0.00	0.00
356	RT	Unit Testing	Intertie	N/A	8/27/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-6597.92	583.48	-6593.88	0.00	0.00	0.00	0.00
357	RT	Unit Testing	Intertie	N/A	8/28/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-8551.96	583.48	-8544.49	0.00	0.00	0.00	0.00
358	RT	Unit Testing	Intertie	N/A	8/29/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-15747.16	583.48	-15738.21	0.00	0.00	0.00	0.00
359	RT	Unit Testing	Intertie	N/A	8/30/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-13837.73	583.48	-13829.63	0.00	0.00	0.00	0.00
360	RT	Unit Testing	Intertie	N/A	8/31/2018	10-40	Yes	INC	13	6:00	18:59	583.82	0.00	0.00	-10012.45	583.48	-10005.65	0.00	0.00	0.00	0.00
361	RT	Unit Testing	PG&E	Humboldt	8/17/2018	16-42	No	INC	13	7:10	19:14	6.59	-2213.53	0.00	-223.91	0.07	-1.77	0.00	0.00	0.00	0.00
362	RT	Unit Testing	PG&E	Humboldt	8/17/2018	28-42	No	DEC	12	7:35	19:14	-3.43	-12249.45	0.00	80.94	-0.10	0.00	1.30	0.00	0.00	0.00
363	RT	Unit Testing	PG&E	Stockton	8/22/2018	262	No	INC	12	0:00	11:59	152.54	0.00	0.00	-4279.33	16.15	-789.53	0.00	0.00	0.00	0.00
364	RT	Unit Testing	SCE	Big Creek-Ventura	8/16/2018	75	No	INC	1	14:10	14:49	5.05	0.00	0.00	-320.04	0.00	0.00	0.00	0.00	0.00	0.00
365	RT	Unit Testing	SCE	LA Basin	8/16/2018	220	No	INC	10	6:20	15:59	138.75	-13361.52	0.00	-7199.95	12.92	-2922.44	0.00	0.00	0.00	0.00
366	RT	Unit Testing	SDG&E	N/A	8/30/2018	520	No	INC	4	8:35	11:59	1751.33	0.00	0.00	-33724.42	1591.33	-30646.47	0.00	0.00	0.00	0.00
367	RT	Unplanned Outage	PG&E	Bay Area	8/5/2018	480-960	No	INC	1	19:53	20:49	481.73	14470.30	0.00	-43597.42	0.00	0.00	0.00	0.00	0.00	0.00
368	RT	Unplanned Outage	PG&E	Bay Area	8/5/2018	583	No	DEC	1	20:50	21:44	-32.66	0.00	0.00	-418.22	-35.90	0.00	962.87	0.00	0.00	0.00

**California Independent System Operator Corporation
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Chart 2: Table of Exceptional Dispatches for Period 01/August/2018 - 31/August/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620	
369	RT	Unplanned Outage	PG&E	Fresno	8/5/2018	83	No	INC	2	20:00	21:59	-9.63	0.00	0.00	3064.00	0.00	0.00	0.00	0.00	0.00	0.00	
370	RT	Unplanned Outage	SCE	Big Creek-Ventura	8/5/2018	616	No	DEC	2	19:57	21:44	-116.76	0.00	0.00	11034.61	21.95	-4486.83	0.00	-	1019.16	0.00	0.00
371	RT	Unplanned Outage	SCE	LA Basin	8/5/2018	1101	No	INC	2	20:04	21:59	165.69	103822.82	0.00	-43648.44	78.01	-18851.35	0.00	-	19120.36	0.00	0.00
372	RT	Unplanned Outage	SDG&E	San Diego-IV	8/5/2018	548	No	INC	2	20:40	21:59	26.25	22036.70	0.00	-3354.64	69.82	-4991.23	0.00	-	40521.82	0.00	0.00

Appendix A: Explanation by Example

All examples listed below are based on fictitious data. Many simplified assumptions are made to explain settlement charge codes, and not all assumptions are explicitly stated in these examples.

For instance settlement charge codes are calculated based on metered quantities, whereas, in these examples the dispatch quantities are assumed to be equal to metered quantities. These assumptions have been made to simplify the understanding of settlements calculations.

Example 1: Exceptional Dispatch Instructions Prior to DAM

In this fictitious example, the CAISO issued an exceptional dispatch instruction for resource A to be committed at its Pmin of 50 MW from hours ending 5 through 10 for a generation procedure 7630. Similarly, the CAISO issued additional instructions to resources B and C for the same reason in Table 2. Exceptional dispatches prior to the day-ahead market are commitments to minimum load. Here the dispatch levels are all at minimum load. Table 2 below also shows the commitment costs and the total volume (MWh) of exceptional dispatch instruction for each resource. The minimum load costs and start up costs, shown in Table 2 are the eligible minimum load and start up costs different from the bid-in minimum load and start up costs⁷. Only those quantities which relate to pre-day-ahead unit commitments are shown in this table.

Table 2: Instructions Prior to Day-Ahead Market

Date	Market	Resource	Location	Local Reliability Area (LRA)	Begin Time	End Time	Dispatch level (MW)	Reason	Total Volume (MWh)	Min-Load Cost	Start- Up Cost	CC6620 (BCR)
01-Jul-09	DA	A	SCE	LA BASIN	05:00	10:00	50	7630	300	\$5000	\$0	0
01-Jul-09	DA	B	SCE	LA BASIN	08:00	20:00	30	7630	390	\$6000	\$500	\$4000
01-Jul-09	DA	C	SCE	LA BASIN	09:00	23:00	20	7630	300	\$400	\$1000	\$1000

This data is summarized as shown in Table 3, which is the prescribed format specified in the FERC order on September 02, 2009. This summary classifies the data by reason, resource location, local reliability area, and trade date. The MW column in Table 3 is the range of MW; in this case the minimum instruction MW is 20 MW for resource C which occurs from hours ending 21 through 23. The maximum instruction occurs in hour ending 10. In this hour resource A is committed at 50 MW, resource B is committed at 30 MW and resource C is committed at 20 MW. This adds up to 100 MW. The MW column shows the minimum and maximum of the overlaps of all the exceptional dispatch instructions. The Commitment column shows whether a resource was committed between the begin time and end time. Commitments are broken out separately from energy dispatches. In the day-ahead however, the exceptional dispatches are nearly always just commitments, as in this example. The Begin Time column shows hour ending 5 as this was the hour ending for first dispatch of the day, and the End Time column shows hour ending 23, as this was the hour with last dispatch. It is also possible there might be hours between the begin time and the end time where there might not be exceptional dispatch instructions for the reason, meaning that the range between the begin time and end time can include null hours with no dispatch. The total volume (MWh) is the MWh quantity for each resource, which adds up to 990 MWh. Similarly, all cost information is sum of individual resource costs. Some resources bid-in zero start-up cost; as seen in this example, resource A bid in zero for its start up cost. Since the CAISO does not explicitly pay a resource for bid-in minimum load costs and start-up costs; these costs are recovered through the charge code CC6620 (Bid Cost Recovery), this table shows the summary of CC6620 for the classification. Here, it is the CC6620 for all three resources which adds up to \$5000. This column shows the impact of exceptional dispatch on bid cost recovery for all pre-day-ahead exceptional dispatch commitments.

Table 3: FERC Summary of Instructions Prior to DAM

Number	Market Type	Reason	Location	Local Reliability Area (LRA)	Trade Date	MW	Commitment	INC/DEC	Hour	Begin Time	End Time	Total Volume (MWh)	Min-Load Cost	Start-Up Cost	CC6620
1	DA	7630	SCE	LA Basin	1-Jul-09	20-100	Yes	N/A	19	05:00	23:00	990	\$11,400	\$1,500	\$5000

Example 2: Incremental Exceptional Dispatch Instructions in RTM

In this fictitious example the CAISO issued an exceptional dispatch instruction to resource A to be committed at its Pmin of 30 MW from hours 6:00 through 11:00 after completion of the day-ahead market for the transmission procedure 7110. This resource had no day-ahead award in those hours. The CAISO issued another exceptional dispatch instruction to resource B, to be dispatched at 40 MW from hours 7:00 through

⁷ Please refer to the BPM configuration Guide: Bid Cost Recovery Settlements published on the CAISO's website for details about eligible minimum load and start up costs.

9:00 in real-time for the transmission procedure 7110. This resource had a day-ahead schedule of 20 MW from the day-ahead market, which implies this exceptional dispatch instruction was an incremental instruction and the exceptional dispatch MW was 20 MW. Similarly, the details of exceptional dispatch (ED) instruction for resource C are shown in Table 4. This table also shows volume (MWh) and various real-time charge codes associated with the exceptional dispatch instructions. The total MWh column for each resource shows all types of imbalance energy quantities for this resource between the begin time and end time which includes both the exceptional dispatch energy quantities and optimal energy quantities.

Resource A was committed at its Pmin so its total volume (MWh) is equal to its Pmin times the number of hours, which is calculated as 30 MW times 6 hours and is equal to 180 MWh. The resource Minimum load costs and the start up costs are its eligible commitment costs for that period. LMP at this resource is \$10/MWh, so the charge code CC6470 is calculated at (180 MWh * \$10/MWh) and is equal to \$1,800. Since this resource is not dispatched above its Pmin, it has a zero volume (MWh) of exceptional dispatch. All charge codes associated with the exceptional dispatch increment or decrement quantities are zero.

Resource B is dispatched 20 MW above its day-ahead schedule, so its total volume (MWh) is calculated as 20 MW times 3 hours which is equal to 60 MWh. Since the resource was committed in the Day-Ahead Market there are no minimum load quantity and start up costs associated with this resource. The resource had a bid price of \$100/MWh and the LMP at that resource was \$10/MWh. All of 60 MWh is considered as exceptional dispatch incremental quantity shown in ED Volume (MWH INC/DEC) column. The charge code CC6470 INC is calculated as 60 MWh * resource LMP (\$10/MWh) which is equal to \$600. Since the only imbalance energy in this timeframe was the exceptional dispatch volume, the charge code CC6470 is equal to CC6470 INC. The charge code CC6488 is calculated as MWH quantity *(bid price – LMP), which is equal to \$5400 (60 MWh * (\$100/MWh-\$10/MWh)). Similarly, volumes and real-time charge codes are calculated for resource C.

Table 4: Incremental Exceptional Dispatch Instructions in RTM

Date	Market	Resource	Location	Local Reliability Area (LRA)	Begin Time	End Time	Dispatch level (MW)	Day-Ahead Award (MW)	Commitment	INC/DEC	ED (MW)	Reason	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1-Jul-09	RT	A	PG&E	Humboldt	6:00	11:00	30	0	Yes	INC	30	7110	180	1000	50	1800	0	0	0	0	0
1-Jul-09	RT	B	PG&E	Humboldt	7:00	9:00	40	20	No	INC	20	7110	60	0	0	600	60	600	0	0	5400
1-Jul-09	RT	C	PG&E	Humboldt	12:00	15:00	50	50	No	INC	0	7110	0	0	0	0	0	0	0	0	0
1-Jul-09	RT	C	PG&E	Humboldt	16:00	20:00	50	40	No	INC	10	7110	50	0	0	300	20	300	0	0	200

This data is summarized as shown in Table 5 and is classified by reason, resource location, local reliability area, and trade date. The MW column in Table 5 is the range of MW; in this case the minimum instruction MW is 0 MW for resource C which occurs from hours ending 13 through 15. The maximum instruction occurs in hours ending 8 & 9, as during these two hours both resources A and B have an ED MW of 30MW and 20MW, respectively. This adds up to 50 MW. The MW column shows the minimum and maximum of the overlaps of all the exceptional dispatch instructions. The Commitment column shows whether a resource was committed between the begin time and end time. This column shows a commitment if there was a single commitment in the entire interval of exceptional dispatch. The Begin Time column shows the time of the first dispatch of the day. This is a time not a range. Similarly, the End Time column shows a time and not a range. Exceptional dispatches occurred between these two times. Since there was a commitment between the begin time and end time then the Commitment column displays yes for the summary. Similarly, the INC/DEC column shows an INC as there was an incremental dispatch between the begin time and end time. As mentioned in the previous example it is possible there might be hours between the begin time and end time where there were no exceptional dispatch instructions for the reason. Both volume and cost information columns are the summation for all the respective columns for resource A, B and C. For instance the Total volume (MWh) column is calculated as summation of 180,60,0 and 50 which are the individual volumes (MWh) for resources A, B and C for time periods shown in Table 4.

Table 5: FERC Summary of ED Instructions in RTM

Number	Market Type	Reason	Location	Local Reliability Area (LRA)	Trade Date	MW	Commitment	INC/DEC	Hour	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1	RT	7110	PG&E	Humboldt	1-Jul-09	0-50	Yes	INC	15	6:00	20:00	290	1000	50	1700	140	1500	0	0	11000

It is possible that the CAISO would dispatch a particular resource for instance at 10 MW from hours ending 1 through 4, and all or part of its energy might settle as optimal energy. This situation occurs when the LMP at the resource pricing node is above the resource bid price. This cost will only be captured in charge code 6470. It is also possible that CAISO issues an exceptional dispatch for the resource to operate at a minimum of 10 MW which is its Pmin; however the market application might dispatch this resource above Pmin because the resource is economical. When this occurs, the charge code CC6470 and the total MWh quantity might overstate the actual exceptional dispatch MWh quantities. So, to best estimate the cost and volume (MWh) of exceptional dispatch it is appropriate to consider only the following columns: ED MWh (INC/DEC), CC6470 INC, CC6470 DEC, CC6482, CC6488.

Example 3: Decremental Exceptional Dispatch Instructions in RTM

This example highlights decremental exceptional dispatch instructions in the real-time market. In this fictitious example the CAISO issued an exceptional dispatch instruction to resource A to be committed at its Pmin of 20 MW from hours ending 15 through 20 after completion of the day-ahead market for the transmission procedure 7430. The CAISO issued additional exceptional dispatch instructions for resources B and C; details of those instructions are shown in Table 6. This table also includes volume (MWh) and cost information.

Resource A is committed in real-time at its Pmin, its total volume (MWh) is 20MW *6 hours which is equal to 120 MWh. This resource has a zero MW of incremental dispatch in all hours, so all other relevant cost and volume columns result in zeros. Resource B has a decremental MW of 20 MW in 3 hours, which results in 60 MWh of decremental volume. Since this resource is not committed in real-time, both the minimum load cost and start up costs are zero. This resource had a bid price of \$50/MWh and LMP at the resource pricing node is \$10/ MWh. Based on this information CC6470-Dec is calculated as 60 MWh *\$10/MWh which is equal to \$600. Since this resource has its ED volume (MWh) equal to its Total volume, CC6470 is equal to CC6470- DEC. The CC6488 is calculated as (60 MWh * (\$50/MWh - \$10/MWh)) which is equal to \$2400. Resource C had a bid price of \$10/MWh and the LMP at its pricing node is \$50/MWh. Based on this information, volume and cost information is calculated for resource C.

Table 6: Decremental Exceptional Dispatch Instructions in RTM

Date	Market Type	Resource	Location	Local Reliability Area (LRA)	Begin Time	End Time	Dispatch level (MW)	Day-Ahead Award (MW)	Commitment	INC/DEC	ED (MW)	Reason	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1-Jul-09	RT	A	PG&E	Fresno	15:00	20:00	20	0	Yes	INC	20	7430	120	\$ 120	\$ 100	\$ -	0	\$ -	\$ -	\$ -	\$ -
1-Jul-09	RT	B	PG&E	Fresno	7:00	9:00	40	60	No	DEC	20	7430	(60)	\$ -	\$ -	\$ 600	-60	\$ -	\$ 600	\$ -	\$2,400
1-Jul-09	RT	C	PG&E	Fresno	10:00	14:00	40	50	No	DEC	10	7430	(50)	\$ -	\$ -	\$ 500	-50	\$ -	\$ 500	\$ -	\$2,000

This data is summarized according to FERC convention in Table 7. This summary classifies the data by reason, resource location, local reliability area, and trade date. Incs and decs are broken out separately. The inc entry is self-explanatory and similar to the previous example. Regarding the dec entry the MW column is the range of MW; in this case the minimum dec instruction is 10 MW (actually -10MW as it is a dec) for resource C which occurs from hours ending 10 through 14. The maximum instruction occurs from hours ending 7 through 9, when resource B was issued a dec instruction of 20 MW. The MW column shows the minimum and maximum of the overlaps of all the exceptional dispatch instructions. The Commitment column shows whether a resource was committed between the begin time and end time. The volume and cost information are summarized by INC and DEC classification.

Table 7: FERC Summary of Decremental ED Instructions in RTM

Number	Market Type	Reason	Location	Local Reliability Area (LRA)	Trade Date	MW	Commitment	INC/DEC	Hour	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1	RT	7430	PG&E	Fresno	1-Jul-09	20	Yes	INC	6	15:00	20:00	120	\$ 120	\$ 100	\$ -	0	\$ -	\$ -	\$ -	\$ -
2	RT	7430	PG&E	Fresno	1-Jul-09	10-20	Yes	DEC	8	7:00	14:00	(110)	\$ -	\$ -	\$ (1,100)	\$ (110)	\$ -	\$ (1,100)	\$ -	\$ (4,400)

Appendix B: Price Impact Analysis

In the September 2 FERC order, FERC requested the CAISO to perform price impact analysis on two distinct pricing nodes for the entire reporting period. The order also mentioned that the CAISO must pick two pricing nodes for the entire reporting period that are most affected by the exceptional dispatch instructions, and the two pricing nodes must belong to two load aggregation points (LAPs).

Based on this requirement the CAISO implemented a methodology to perform price impact analysis. First, the CAISO identified a heavily affected pricing node from each of the Pacific Gas & Electric (PG&E) LAP and Southern California Edison (SCE) LAP. These two pricing nodes had the maximum amount of exceptional dispatch volume (MWh) in their respective LAP. Point A is in PG&E LAP and point B is in SCE LAP. Please note these two points correspond to an actual pricing node in the CAISO system. Only one resource was connected to each of these pricing nodes. For each resource the following input parameters were obtained to perform the analysis:

Exceptional dispatch information: constrained level, constraint type, start of exceptional dispatch instruction and end of exceptional dispatch instruction.
 Real-Time LMPs for each of the five minute intervals for the month.
 Real-Time hourly bid set for each trade hour.
 Day-Ahead award for the resources.

The exceptional dispatch intervals have a begin time and an end time which can span as small as one minute to as large as 24 hours. Since the market application dispatches resources on five-minute basis, the exceptional dispatch instructions for each of these resources were broken down into five-minute intervals. If the begin time or end time for an instruction was in the middle of the five-minute interval, that instruction was rounded up to the next five-minute interval. These five-minute intervals were then coupled with resource five-minute LMPs calculated by the real-time market application. Also, the hourly bid information and the hourly day-ahead schedule were put together to create a dataset that had all the information to perform price impact analysis.

An exceptional dispatch instruction can be classified as a start up instruction, an instruction to be dispatched at or above the constrained level, an instruction to be dispatched at or below a constrained level, an instruction to be dispatched at a fixed constrained level, or a shut down instruction. The Locational Marginal Price (LMP) is set by a resource which can provide the next incremental MW of energy. Based on this definition of LMP and the classification of exceptional dispatches based on constraint type, a resource may set the LMP in only those intervals in which the resource is eligible to move either up or down from its constrained level. Hence, in those intervals in which the resource was constrained up at its Pmax or the resource was exceptionally dispatched to its Pmax and forced to generate at that level, the resource was ineligible to set the price as it had no room to move up. Similarly, if the resource was constrained down at its Pmin, then the resource was not eligible to set the price. All those intervals in which the resource was ineligible to set the price were dropped from the dataset under consideration. From this dataset of only eligible intervals, for both pricing nodes A and B, LMPs were calculated for all intervals based on the resource dispatch level and the its bid set. The calculated LMP is equal to that bid price corresponding to the constrained MW segment.

Table 8 shows the price impact analysis information for node A, which is in the PG&E area. This table shows all the five minute intervals in which the resource at PNode A was issued an exceptional dispatch instruction. Out of the 8,064 five-minute intervals in August, this resource was issued exceptional dispatch instructions in 52 five-minute intervals. This resource was eligible to set the LMP in 16 intervals. Out of the 16 intervals, resource calculated LMP was larger than the market LMP in 16 intervals. In the 16 intervals, the average increase in five minute LMP was \$3.31/MWh. Out of the 16 intervals, resource calculated LMP was less than the market LMP in 0 intervals. This implies that if the CAISO could model the constraint for this exceptional dispatch, then this resource and all other pricing nodes associated with that constraint would observe an average increase of \$3.31/MWh

Table 9 shows the price impact analysis information for node B, which is in the SCE area. This table shows all the five minute intervals in which the resource at PNode B was issued an exceptional dispatch instruction. Out of the 8,064 five-minute intervals in August, this resource was issued exceptional dispatch instructions in 258 five-minute intervals. This resource was eligible to set the LMP in 202 intervals. Out of the 202 intervals, resource calculated LMP was larger than the market LMP in 148 intervals. In the 148 intervals, the average increase in five minute LMP was \$211.99/MWh. Out of the 202 intervals, resource calculated LMP was less than the market LMP in 54 intervals. In the 54 intervals, the average decrease in five minute LMP was \$115.47/MWh. This implies that if the CAISO could model the constraint for this exceptional dispatch, then this resource and all other pricing nodes associated with that constraint would observe an average increase of \$124.46/MWh

Table 8: Price Impact Analysis Information for Pricing Node A in PG&E LAP

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1	8/2/2018	1	9	39.84	Yes	43.15	3.31
2	8/2/2018	1	10	39.84	Yes	43.15	3.31
3	8/2/2018	1	11	39.84	Yes	43.15	3.31
4	8/2/2018	1	12	39.84	Yes	43.15	3.31
5	8/2/2018	2	1	39.84	Yes	43.15	3.31
6	8/2/2018	2	2	39.84	Yes	43.15	3.31
7	8/2/2018	2	3	39.84	Yes	43.15	3.31
8	8/2/2018	2	4	39.84	Yes	43.15	3.31
9	8/2/2018	2	5	39.84	Yes	43.15	3.31
10	8/2/2018	2	6	39.84	Yes	43.15	3.31
11	8/2/2018	2	7	39.84	Yes	43.15	3.31
12	8/2/2018	2	8	39.84	Yes	43.15	3.31
13	8/2/2018	2	9	39.84	Yes	43.15	3.31
14	8/2/2018	2	10	39.84	Yes	43.15	3.31
15	8/2/2018	2	11	39.84	Yes	43.15	3.31
16	8/2/2018	2	12	39.84	Yes	43.15	3.31
17	8/22/2018	1	1	21.96	No	48.9	26.94
18	8/22/2018	1	2	24.57	No	48.9	24.33
19	8/22/2018	1	3	23.49	No	48.9	25.41
20	8/22/2018	1	4	25.91	No	48.9	22.99
21	8/22/2018	1	5	27.24	No	48.9	21.66
22	8/22/2018	1	6	22.36	No	48.9	26.54
23	8/22/2018	1	7	29.74	No	48.9	19.16
24	8/22/2018	1	8	29.15	No	48.9	19.75
25	8/22/2018	1	9	29.58	No	48.9	19.32
26	8/22/2018	1	10	27.60	No	48.9	21.30
27	8/22/2018	1	11	28.02	No	48.9	20.88
28	8/22/2018	1	12	28.18	No	48.9	20.72
29	8/22/2018	11	1	24.78	No	48.9	24.12
30	8/22/2018	11	2	25.03	No	48.9	23.87
31	8/22/2018	11	3	25.26	No	48.9	23.64
32	8/22/2018	11	4	25.20	No	48.9	23.70
33	8/22/2018	11	5	25.59	No	48.9	23.31
34	8/22/2018	11	6	25.23	No	48.9	23.67

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
35	8/22/2018	11	7	27.14	No	48.9	21.76
36	8/22/2018	11	8	29.30	No	48.9	19.60
37	8/22/2018	11	9	30.93	No	48.9	17.97
38	8/22/2018	11	10	35.08	No	48.9	13.82
39	8/22/2018	11	11	31.50	No	48.9	17.40
40	8/22/2018	11	12	31.43	No	48.9	17.47
41	8/22/2018	12	1	42.81	No	48.9	6.09
42	8/22/2018	12	2	33.19	No	48.9	15.71
43	8/22/2018	12	3	32.89	No	48.9	16.01
44	8/22/2018	12	4	44.79	No	48.9	4.11
45	8/22/2018	12	5	50.32	No	48.9	-1.42
46	8/22/2018	12	6	38.56	No	48.9	10.34
47	8/22/2018	12	7	50.67	No	48.9	-1.77
48	8/22/2018	12	8	50.50	No	48.9	-1.60
49	8/22/2018	12	9	44.02	No	48.9	4.88
50	8/22/2018	12	10	53.66	No	48.9	-4.76
51	8/22/2018	12	11	51.94	No	48.9	-3.04
52	8/22/2018	12	12	49.74	No	48.9	-0.84

Table 9: Price Impact Analysis Information for Pricing Node B in SCE LAP

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1	8/1/2018	1	1	476.41	Yes	233.51	-242.90
2	8/1/2018	1	2	176.88	Yes	233.51	56.63
3	8/1/2018	1	3	179.64	Yes	233.51	53.87
4	8/1/2018	1	4	45.01	Yes	233.51	188.50
5	8/1/2018	1	5	71.44	Yes	233.51	162.07
6	8/1/2018	1	6	69.80	Yes	233.51	163.71
7	8/1/2018	1	7	103.06	Yes	233.51	130.45
8	8/1/2018	1	8	97.55	Yes	233.51	135.96
9	8/1/2018	1	9	46.72	Yes	233.51	186.79
10	8/1/2018	1	10	40.65	Yes	233.51	192.86
11	8/1/2018	1	11	41.96	Yes	233.51	191.55
12	8/1/2018	1	12	46.80	Yes	233.51	186.71
13	8/2/2018	18	1	52.72	Yes	250.00	197.28
14	8/2/2018	18	2	65.21	Yes	250.00	184.79
15	8/2/2018	18	3	49.68	Yes	250.00	200.32
16	8/2/2018	18	4	72.52	Yes	250.00	177.48
17	8/2/2018	18	5	73.64	Yes	250.00	176.36
18	8/2/2018	18	6	72.52	Yes	250.00	177.48
19	8/2/2018	18	7	58.28	Yes	250.00	191.72
20	8/2/2018	18	8	121.09	Yes	250.00	128.91
21	8/2/2018	18	9	109.91	Yes	250.00	140.09
22	8/2/2018	18	10	73.72	Yes	250.00	176.28
23	8/2/2018	18	11	86.86	Yes	250.00	163.14
24	8/2/2018	18	12	85.24	Yes	250.00	164.76
25	8/2/2018	19	1	104.13	Yes	0.00	-104.13
26	8/2/2018	19	2	100.19	Yes	0.00	-100.19
27	8/2/2018	19	3	96.94	Yes	0.00	-96.94
28	8/2/2018	19	4	72.85	Yes	0.00	-72.85
29	8/2/2018	19	5	96.51	Yes	0.00	-96.51
30	8/2/2018	19	6	98.00	Yes	0.00	-98.00
31	8/2/2018	19	7	95.81	Yes	0.00	-95.81
32	8/2/2018	19	8	99.48	Yes	0.00	-99.48
33	8/2/2018	19	9	117.56	Yes	0.00	-117.56
34	8/2/2018	19	10	99.76	Yes	0.00	-99.76

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
35	8/2/2018	19	11	112.79	Yes	0.00	-112.79
36	8/2/2018	19	12	118.83	Yes	0.00	-118.83
37	8/2/2018	21	1	112.31	No	110.08	-2.23
38	8/2/2018	21	2	124.90	No	110.08	-14.82
39	8/2/2018	21	3	123.78	No	110.08	-13.70
40	8/2/2018	21	4	117.70	No	110.08	-7.62
41	8/2/2018	21	5	118.80	No	110.08	-8.72
42	8/2/2018	21	6	117.12	No	110.08	-7.04
43	8/2/2018	21	7	65.85	No	110.08	44.23
44	8/2/2018	21	8	67.38	No	110.08	42.70
45	8/2/2018	21	9	64.67	No	110.08	45.41
46	8/2/2018	21	10	42.84	No	110.08	67.24
47	8/2/2018	21	11	50.30	No	110.08	59.78
48	8/2/2018	21	12	66.83	No	110.08	43.25
49	8/3/2018	1	1	43.80	Yes	312.02	268.22
50	8/3/2018	1	2	45.22	Yes	312.02	266.80
51	8/3/2018	1	3	48.32	Yes	312.02	263.70
52	8/3/2018	1	4	49.15	Yes	312.02	262.87
53	8/3/2018	1	5	45.41	Yes	312.02	266.61
54	8/3/2018	1	6	34.36	Yes	312.02	277.66
55	8/3/2018	1	7	42.90	Yes	312.02	269.12
56	8/3/2018	1	8	34.40	Yes	312.02	277.62
57	8/3/2018	1	9	32.13	Yes	312.02	279.89
58	8/3/2018	1	10	32.03	Yes	312.02	279.99
59	8/3/2018	1	11	32.03	Yes	312.02	279.99
60	8/3/2018	1	12	32.03	Yes	312.02	279.99
61	8/3/2018	15	1	111.07	Yes	147.43	36.36
62	8/3/2018	15	2	117.10	Yes	147.43	30.33
63	8/3/2018	15	3	126.14	Yes	147.43	21.29
64	8/3/2018	15	4	71.68	Yes	147.43	75.75
65	8/3/2018	15	5	68.33	Yes	147.43	79.10
66	8/3/2018	15	6	68.35	Yes	147.43	79.08
67	8/3/2018	15	7	79.46	Yes	147.43	67.97
68	8/3/2018	15	8	88.49	Yes	147.43	58.94
69	8/3/2018	15	9	86.83	Yes	147.43	60.60
70	8/3/2018	15	10	100.63	Yes	147.43	46.80
71	8/3/2018	15	11	119.48	Yes	147.43	27.95
72	8/3/2018	15	12	160.25	Yes	147.43	-12.82

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
73	8/3/2018	16	1	142.27	Yes	147.43	5.16
74	8/3/2018	16	2	147.68	Yes	147.43	-0.25
75	8/3/2018	16	3	96.32	Yes	147.43	51.11
76	8/3/2018	16	4	97.66	Yes	147.43	49.77
77	8/3/2018	16	5	78.18	Yes	147.43	69.25
78	8/3/2018	16	6	60.86	Yes	147.43	86.57
79	8/3/2018	16	7	65.81	Yes	147.43	81.62
80	8/3/2018	16	8	96.26	Yes	147.43	51.17
81	8/3/2018	16	9	96.26	Yes	147.43	51.17
82	8/3/2018	16	10	144.96	Yes	147.43	2.47
83	8/3/2018	16	11	134.58	Yes	147.43	12.85
84	8/3/2018	16	12	132.07	Yes	147.43	15.36
85	8/3/2018	17	1	133.86	No	0.00	-133.86
86	8/3/2018	17	2	116.68	No	0.00	-116.68
87	8/3/2018	17	3	142.63	Yes	0.00	-142.63
88	8/3/2018	17	4	106.19	Yes	0.00	-106.19
89	8/3/2018	17	5	130.85	Yes	0.00	-130.85
90	8/3/2018	17	6	136.68	Yes	0.00	-136.68
91	8/3/2018	17	7	96.17	Yes	0.00	-96.17
92	8/3/2018	17	8	96.18	Yes	0.00	-96.18
93	8/3/2018	17	9	134.50	Yes	0.00	-134.50
94	8/3/2018	17	10	108.23	Yes	0.00	-108.23
95	8/3/2018	17	11	95.35	Yes	0.00	-95.35
96	8/3/2018	17	12	95.27	Yes	0.00	-95.27
97	8/3/2018	22	1	109.26	No	145.68	36.42
98	8/3/2018	22	2	95.12	No	145.68	50.56
99	8/3/2018	22	3	78.90	No	145.68	66.78
100	8/3/2018	22	4	77.63	No	145.68	68.05
101	8/3/2018	22	5	60.23	No	145.68	85.45
102	8/3/2018	22	6	40.45	No	145.68	105.23
103	8/3/2018	22	7	40.45	No	145.68	105.23
104	8/3/2018	22	8	41.20	No	145.68	104.48
105	8/3/2018	22	9	44.43	No	115.00	70.57
106	8/3/2018	22	10	44.55	No	115.00	70.45
107	8/3/2018	22	11	69.96	No	115.00	45.04
108	8/3/2018	22	12	88.00	No	115.00	27.00
109	8/4/2018	1	1	40.36	Yes	469.03	428.67
110	8/4/2018	1	2	43.64	Yes	469.03	425.39

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
111	8/4/2018	1	3	42.80	Yes	469.03	426.23
112	8/4/2018	1	4	40.22	Yes	469.03	428.81
113	8/4/2018	1	5	42.96	Yes	469.03	426.07
114	8/4/2018	1	6	42.96	Yes	469.03	426.07
115	8/4/2018	1	7	35.42	Yes	469.03	433.61
116	8/4/2018	1	8	36.74	Yes	469.03	432.29
117	8/4/2018	1	9	33.56	Yes	469.03	435.47
118	8/4/2018	1	10	34.66	Yes	469.03	434.37
119	8/4/2018	1	11	35.14	Yes	469.03	433.89
120	8/4/2018	1	12	33.27	Yes	469.03	435.76
121	8/4/2018	16	3	129.92	Yes	336.98	207.06
122	8/4/2018	16	4	155.26	Yes	336.98	181.72
123	8/4/2018	16	5	149.93	Yes	336.98	187.05
124	8/4/2018	16	6	148.19	Yes	336.98	188.79
125	8/4/2018	16	7	212.44	Yes	336.98	124.54
126	8/4/2018	16	8	297.86	Yes	336.98	39.12
127	8/4/2018	16	9	222.31	Yes	336.98	114.67
128	8/4/2018	16	10	224.35	Yes	336.98	112.63
129	8/4/2018	16	11	224.35	Yes	336.98	112.63
130	8/4/2018	16	12	224.35	Yes	336.98	112.63
131	8/5/2018	1	1	39.94	Yes	469.03	429.09
132	8/5/2018	1	2	39.47	Yes	350.43	310.96
133	8/5/2018	1	3	36.21	Yes	350.43	314.22
134	8/5/2018	1	4	36.44	Yes	350.43	313.99
135	8/5/2018	1	5	36.44	Yes	350.43	313.99
136	8/5/2018	1	6	37.68	Yes	350.43	312.75
137	8/5/2018	1	7	35.96	Yes	350.43	314.47
138	8/5/2018	1	8	35.83	Yes	350.43	314.60
139	8/5/2018	1	9	34.52	Yes	350.43	315.91
140	8/5/2018	1	10	34.87	Yes	350.43	315.56
141	8/5/2018	1	11	35.03	Yes	350.43	315.40
142	8/5/2018	1	12	34.31	Yes	350.43	316.12
143	8/6/2018	23	1	140.95	No	112.50	-28.45
144	8/6/2018	23	2	133.88	No	112.50	-21.38
145	8/6/2018	23	3	140.98	No	112.50	-28.48
146	8/6/2018	23	4	167.27	Yes	433.91	266.64
147	8/6/2018	23	5	141.57	Yes	433.91	292.34
148	8/6/2018	23	6	140.71	Yes	433.91	293.20

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
149	8/6/2018	23	7	60.07	Yes	433.91	373.84
150	8/6/2018	23	8	98.74	Yes	433.91	335.17
151	8/6/2018	23	9	94.03	Yes	433.91	339.88
152	8/6/2018	23	10	68.80	Yes	433.91	365.11
153	8/6/2018	23	11	46.56	Yes	433.91	387.35
154	8/6/2018	23	12	59.86	Yes	433.91	374.05
155	8/7/2018	1	1	53.26	Yes	508.28	455.02
156	8/7/2018	1	2	112.80	Yes	508.28	395.48
157	8/7/2018	1	3	94.92	Yes	508.28	413.36
158	8/7/2018	1	4	68.05	Yes	508.28	440.23
159	8/7/2018	1	5	61.69	Yes	508.28	446.59
160	8/7/2018	1	6	56.73	Yes	508.28	451.55
161	8/7/2018	1	7	57.17	Yes	508.28	451.11
162	8/7/2018	1	8	49.58	Yes	508.28	458.70
163	8/7/2018	1	9	48.76	Yes	508.28	459.52
164	8/7/2018	1	10	41.28	Yes	508.28	467.00
165	8/7/2018	1	11	40.86	Yes	508.28	467.42
166	8/7/2018	1	12	41.95	Yes	508.28	466.33
167	8/8/2018	24	1	63.46	No	175.00	111.54
168	8/8/2018	24	2	65.49	No	175.00	109.51
169	8/8/2018	24	3	56.16	No	175.00	118.84
170	8/8/2018	24	4	56.66	Yes	327.72	271.06
171	8/8/2018	24	5	52.50	Yes	327.72	275.22
172	8/8/2018	24	6	52.29	Yes	327.72	275.43
173	8/8/2018	24	7	52.05	Yes	327.72	275.67
174	8/8/2018	24	8	70.82	Yes	327.72	256.90
175	8/8/2018	24	9	65.05	Yes	327.72	262.67
176	8/8/2018	24	10	43.33	Yes	327.72	284.39
177	8/8/2018	24	11	41.00	Yes	327.72	286.72
178	8/8/2018	24	12	42.00	Yes	327.72	285.72
179	8/9/2018	16	2	106.50	Yes	219.85	113.35
180	8/9/2018	16	3	97.91	Yes	219.85	121.94
181	8/9/2018	16	4	106.30	Yes	219.85	113.55
182	8/9/2018	16	5	98.53	Yes	219.85	121.32
183	8/9/2018	16	6	121.42	Yes	219.85	98.43
184	8/9/2018	16	7	164.43	Yes	219.85	55.42
185	8/9/2018	16	8	259.03	Yes	219.85	-39.18
186	8/9/2018	16	9	312.40	Yes	219.85	-92.55

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
187	8/9/2018	16	10	312.71	Yes	219.85	-92.86
188	8/9/2018	16	11	524.57	Yes	219.85	-304.72
189	8/9/2018	16	12	517.52	Yes	219.85	-297.67
190	8/9/2018	21	1	126.09	Yes	219.85	93.76
191	8/9/2018	21	2	121.47	Yes	219.85	98.38
192	8/9/2018	21	3	112.70	Yes	219.85	107.15
193	8/9/2018	21	6	113.30	Yes	219.85	106.55
194	8/9/2018	21	7	114.03	Yes	219.85	105.82
195	8/9/2018	21	8	97.44	Yes	219.85	122.41
196	8/9/2018	21	9	94.66	Yes	219.85	125.19
197	8/9/2018	21	10	89.38	Yes	219.85	130.47
198	8/9/2018	21	11	90.09	Yes	219.85	129.76
199	8/9/2018	21	12	98.23	Yes	219.85	121.62
200	8/9/2018	22	1	98.11	No	219.23	121.12
201	8/9/2018	22	2	98.11	No	219.23	121.12
202	8/9/2018	22	3	89.01	No	219.23	130.22
203	8/9/2018	22	4	98.40	No	219.23	120.83
204	8/9/2018	22	5	89.22	No	219.23	130.01
205	8/9/2018	22	6	89.22	No	219.23	130.01
206	8/9/2018	22	7	63.18	No	219.23	156.05
207	8/9/2018	22	8	57.91	No	219.23	161.32
208	8/9/2018	22	9	52.57	No	219.23	166.66
209	8/9/2018	22	10	46.34	No	152.42	106.08
210	8/9/2018	22	11	52.37	No	152.42	100.05
211	8/9/2018	22	12	52.80	No	152.42	99.62
212	8/9/2018	23	1	92.57	No	152.42	59.85
213	8/9/2018	23	2	93.80	No	152.42	58.62
214	8/9/2018	23	3	92.57	No	152.42	59.85
215	8/9/2018	23	4	96.23	No	152.42	56.19
216	8/9/2018	23	5	95.53	No	152.42	56.89
217	8/9/2018	23	6	95.55	No	152.42	56.87
218	8/9/2018	23	7	74.66	No	152.42	77.76
219	8/9/2018	23	8	73.09	No	152.42	79.33
220	8/9/2018	23	9	54.21	No	152.42	98.21
221	8/9/2018	23	10	49.96	No	152.42	102.46
222	8/9/2018	23	11	53.93	No	152.42	98.49
223	8/9/2018	23	12	47.46	No	152.42	104.96
224	8/10/2018	15	1	231.53	Yes	0.00	-231.53

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
225	8/10/2018	15	2	178.09	Yes	0.00	-178.09
226	8/10/2018	15	3	172.67	Yes	0.00	-172.67
227	8/10/2018	15	4	172.29	Yes	0.00	-172.29
228	8/10/2018	15	5	173.15	Yes	0.00	-173.15
229	8/10/2018	15	6	172.69	Yes	0.00	-172.69
230	8/10/2018	15	7	172.90	Yes	0.00	-172.90
231	8/10/2018	15	8	154.49	Yes	0.00	-154.49
232	8/10/2018	15	9	171.61	Yes	0.00	-171.61
233	8/10/2018	15	10	149.18	Yes	0.00	-149.18
234	8/10/2018	15	11	65.63	Yes	0.00	-65.63
235	8/10/2018	15	12	69.04	Yes	0.00	-69.04
236	8/20/2018	15	2	26.14	Yes	52.50	26.36
237	8/20/2018	15	3	24.59	Yes	52.50	27.91
238	8/20/2018	15	4	28.70	Yes	52.50	23.80
239	8/20/2018	15	5	28.98	Yes	52.50	23.52
240	8/20/2018	15	6	32.16	Yes	52.50	20.34
241	8/20/2018	15	7	32.57	Yes	52.50	19.93
242	8/20/2018	15	8	32.87	Yes	52.50	19.63
243	8/20/2018	15	9	28.98	Yes	52.50	23.52
244	8/20/2018	15	10	31.69	Yes	52.50	20.81
245	8/20/2018	15	11	35.77	Yes	52.50	16.73
246	8/20/2018	15	12	33.17	Yes	52.50	19.33
247	8/22/2018	15	1	116.60	Yes	0.00	-116.60
248	8/22/2018	15	2	90.60	Yes	0.00	-90.60
249	8/22/2018	15	3	67.24	Yes	0.00	-67.24
250	8/22/2018	15	4	67.24	Yes	0.00	-67.24
251	8/22/2018	15	5	67.24	Yes	0.00	-67.24
252	8/22/2018	15	6	67.24	Yes	0.00	-67.24
253	8/22/2018	15	7	67.24	Yes	0.00	-67.24
254	8/22/2018	15	8	67.24	Yes	0.00	-67.24
255	8/22/2018	15	9	102.54	Yes	0.00	-102.54
256	8/22/2018	15	10	67.24	Yes	0.00	-67.24
257	8/22/2018	15	11	66.61	Yes	0.00	-66.61
258	8/22/2018	15	12	67.22	Yes	0.00	-67.22

Appendix C: Exceptional Dispatch Bid Mitigation Analysis

In August 2018, the ISO applied the exceptional dispatch bid mitigation to the exceptional dispatches. Table 10 shows the costs by instruction type in August. With exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches were \$ 346,664. Without the exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches would be \$ 1,251,315. The cost saving from the exceptional dispatch bid mitigation was \$ 904,651.

Table 10: Bid Mitigation Analysis for August 2018

Type	Number of Resources	Costs without Bid Mitigation	Costs with Bid Mitigation	Cost Saving
NONTMOD	12	\$ 1,251,315	\$ 346,664	\$ 904,651
Total	12	\$ 1,251,315	\$ 346,664	\$ 904,651