



Exceptional Dispatch Report

Table 2: November 2017

Market Quality and Renewable Integration

February 28, 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 November 2017.

This report contains a price impact analysis as prescribed by FERC in its September 2 order. The price impact analysis for the month of November is presented in Appendix B. This report also includes mitigation analysis for November 2017 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 November 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 intertie 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 2017 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 November, 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 November 2017. 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 November 2017

California Independent System Operator Corporation Exceptional Dispatch Report February 28, 2018																					
Chart 2: Table of Exceptional Dispatches for Period 01/November/2017 - 30/November/2017																					
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	Conditions beyond the control of the CAISO	SCE	Big Creek-Ventura	11/11/2017	118	No	INC	6	9:00	14:59	74.64	23330.78	0.00	304.23	74.17	201.60	0.00	-64952.28	0.00	0.00
2	RT	Conditions beyond the control of the CAISO	SCE	LA Basin	11/1/2017	274-366	No	INC	3	8:05	10:59	52.95	27933.75	0.00	14524.92	34.39	-480.86	0.00	-2665.94	0.00	0.00
3	RT	Contingency Dispatch	Intertie	N/A	11/5/2017	32	No	INC	1	23:00	23:59	32.00	0.00	0.00	-763.78	0.00	0.00	0.00	0.00	0.00	0.00
4	RT	Contingency Dispatch	SCE	Big Creek-Ventura	11/7/2017	119-238	No	INC	2	17:30	18:59	54.12	0.00	2375.00	-2018.31	59.50	-2502.63	0.00	-23465.51	0.00	0.00
5	RT	Contingency Dispatch	SCE	LA Basin	11/7/2017	180	No	INC	3	17:30	19:59	43.64	18639.00	0.00	-1885.67	0.00	0.00	0.00	0.00	0.00	0.00
6	RT	Fast Start Unit Management	PG&E	Bay Area	11/21/2017	0	No	INC	2	4:30	5:34	-30.00	0.00	0.00	0.00	-30.00	0.00	0.00	0.00	0.00	0.00
7	RT	Fast Start Unit Management	SCE	LA Basin	11/2/2017	0	No	INC	3	20:00	22:34	-29.16	0.00	0.00	-43.13	-30.28	0.00	0.00	0.00	0.00	0.00
8	RT	Fast Start Unit Management	SCE	LA Basin	11/6/2017	0	No	INC	2	0:30	2:04	-11.35	0.00	0.00	0.00	-11.35	0.00	0.00	0.00	0.00	0.00
9	RT	Fast Start Unit Management	SCE	LA Basin	11/7/2017	0	No	INC	21	1:30	22:04	-0.16	42420.25	862.00	-952.31	-22.66	0.00	0.00	0.00	0.00	0.00
10	RT	Fast Start Unit Management	SCE	LA Basin	11/8/2017	0	No	INC	1	20:00	20:29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	RT	Fast Start Unit Management	SCE	LA Basin	11/17/2017	0	No	INC	2	0:00	1:04	-11.35	0.00	0.00	0.00	-11.35	0.00	0.00	0.00	0.00	0.00
12	RT	Fast Start Unit Management	SCE	LA Basin	11/29/2017	0	No	INC	2	12:55	13:59	-11.39	0.00	0.00	0.00	-11.39	0.00	0.00	0.00	0.00	0.00
13	RT	Fast Start Unit Management	SDG&E	San Diego-IV	11/7/2017	0	No	DEC	1	19:45	20:44	-10.00	-4233.10	0.00	0.00	-10.00	0.00	0.00	0.00	0.00	0.00
14	RT	Incomplete or Inaccurate Transmission	PG&E	N/A	11/24/2017	6-16	No	DEC	8	16:30	23:59	-50.37	0.00	0.00	1392.23	-36.99	0.00	1028.27	0.00	-5510.55	0.00
15	RT	Incomplete or Inaccurate Transmission	PG&E	N/A	11/25/2017	10	No	DEC	7	0:00	6:44	13.15	0.00	0.00	-291.38	0.00	0.00	0.00	0.00	-8504.94	0.00
16	RT	Incomplete or Inaccurate Transmission	PG&E	N/A	11/30/2017	15-25	No	DEC	4	16:44	19:59	-14.39	0.00	0.00	2610.88	-15.13	0.00	2612.39	0.00	-5996.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/November/2017 - 30/November/2017

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
17	RT	Load Forecast Uncertainty	Intertie	N/A	11/11/2017	23	No	INC	1	16:00	16:59	5.75	0.00	0.00	-126.17	3.25	-71.32	0.00	-63.18	0.00	0.00
18	RT	Load Forecast Uncertainty	N/A	N/A	11/7/2017	0	No	INC	2	17:35	19:34	8.16	0.00	0.00	-771.60	0.10	-6.62	0.00	-132.15	0.00	0.00
19	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/5/2017	240	No	INC	1	22:49	23:39	274.46	2201.99	0.00	-6497.98	0.00	0.00	0.00	0.00	0.00	0.00
20	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/6/2017	180	No	DEC	16	6:00	21:59	-12.38	0.00	0.00	-12155.80	0.00	0.00	0.00	0.00	0.00	0.00
21	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/6/2017	180-400	No	INC	16	6:00	21:59	-22.71	118506.98	10955.92	30409.42	0.00	0.00	0.00	0.00	0.00	0.00
22	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/7/2017	4-9	No	INC	2	17:35	19:34	4.63	0.00	0.00	-376.87	1.07	-47.32	0.00	0.00	0.00	0.00
23	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/7/2017	370-740	No	DEC	2	17:35	19:34	-4.37	0.00	0.00	128.53	0.00	0.00	0.00	0.00	0.00	0.00
24	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/13/2017	180-543	No	INC	13	11:00	23:59	420.86	170940.27	39907.92	-19734.18	0.00	0.00	0.00	-7.70	0.00	0.00
25	RT	Load Forecast Uncertainty	PG&E	Bay Area	11/23/2017	175	No	INC	6	16:30	21:59	35.72	39213.25	0.00	-956.26	0.00	0.00	0.00	0.00	0.00	0.00
26	RT	Load Forecast Uncertainty	PG&E	Fresno	11/7/2017	90-180	No	DEC	2	17:16	18:59	-34.39	0.00	430.07	1363.68	0.00	0.00	0.00	0.00	0.00	0.00
27	RT	Load Forecast Uncertainty	PG&E	Fresno	11/7/2017	90-270	No	INC	3	17:16	19:59	109.14	12284.86	0.00	-5706.69	96.84	-4058.82	0.00	1040.46	0.00	0.00
28	RT	Load Forecast Uncertainty	PG&E	Fresno	11/15/2017	83	No	INC	1	23:15	23:59	-5.19	0.00	0.00	141.85	0.00	0.00	0.00	0.00	0.00	0.00
29	RT	Load Forecast Uncertainty	PG&E	Humboldt	11/22/2017	28	No	INC	1	7:25	7:34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	RT	Load Forecast Uncertainty	PG&E	N/A	11/1/2017	47	No	DEC	14	8:50	21:59	-72.42	9538.63	0.00	2238.04	0.00	0.00	0.00	0.00	0.00	0.00
31	RT	Load Forecast Uncertainty	PG&E	N/A	11/1/2017	182	No	INC	2	9:05	10:29	9.52	8131.36	0.00	-489.42	0.00	0.00	0.00	0.00	0.00	0.00
32	RT	Load Forecast Uncertainty	PG&E	Sierra	11/7/2017	64-128	No	INC	2	17:35	19:34	22.33	0.00	0.00	-1724.97	7.17	-315.96	0.00	0.00	0.00	0.00
33	RT	Load Forecast Uncertainty	PG&E	Stockton	11/7/2017	4-8	No	INC	2	17:35	19:34	0.59	0.00	0.00	-60.04	0.03	-3.14	0.00	0.00	0.00	0.00
34	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	11/7/2017	3	No	INC	2	17:35	19:34	0.07	0.00	0.00	-7.28	0.08	-7.99	0.00	0.00	0.00	0.00

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35	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	11/13/2017	140	No	INC	7	12:00	18:59	1045.48	0.00	0.00	-34632.96	0.00	0.00	0.00	0.00	0.00	0.00
36	RT	Load Forecast Uncertainty	SCE	LA Basin	11/5/2017	45-232	No	INC	1	22:49	23:50	211.84	2756.67	287.33	-4934.23	1.13	-25.76	0.00	-1.66	0.00	0.00
37	RT	Load Forecast Uncertainty	SCE	LA Basin	11/6/2017	194	No	DEC	7	14:50	20:59	-220.37	0.00	0.00	8685.59	0.00	0.00	0.00	0.00	0.00	0.00
38	RT	Load Forecast Uncertainty	SCE	LA Basin	11/6/2017	194	No	INC	7	14:50	20:59	-74.12	0.00	0.00	18054.66	0.00	0.00	0.00	0.00	0.00	0.00
39	RT	Load Forecast Uncertainty	SCE	LA Basin	11/7/2017	388	No	DEC	8	12:05	19:59	-289.13	0.00	0.00	97671.63	0.00	0.00	0.00	0.00	0.00	0.00
40	RT	Load Forecast Uncertainty	SCE	LA Basin	11/7/2017	388-899	No	INC	8	12:05	19:59	-814.57	62813.53	0.00	48418.40	26.13	-1177.13	0.00	-401.74	0.00	0.00
41	RT	Load Forecast Uncertainty	SCE	LA Basin	11/8/2017	20-30	No	INC	17	7:00	23:59	-709.66	77501.93	0.00	28711.19	0.00	0.00	0.00	0.00	0.00	0.00
42	RT	Load Forecast Uncertainty	SCE	LA Basin	11/13/2017	25-50	No	INC	12	12:00	23:59	-134.30	94184.82	0.00	6127.38	0.00	0.00	0.00	0.00	0.00	0.00
43	RT	Load Forecast Uncertainty	SCE	LA Basin	11/22/2017	20-55	Yes	INC	12	12:00	23:59	-924.22	94936.12	45852.78	59840.98	0.00	0.00	0.00	0.00	0.00	0.00
44	RT	Load Forecast Uncertainty	SCE	N/A	11/7/2017	49-99	No	INC	2	17:35	19:34	44.36	0.00	0.00	-2079.06	39.19	-1682.32	0.00	0.00	0.00	0.00
45	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/3/2017	63	No	INC	3	18:00	20:59	-30.75	15840.27	0.00	1417.63	0.00	0.00	0.00	0.00	0.00	0.00
46	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/8/2017	20-88	No	INC	13	11:00	23:59	-100.27	51959.38	0.00	4591.51	0.18	-6.40	0.00	0.00	-5.43	0.00
47	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/8/2017	68	No	DEC	6	15:15	20:59	-466.63	-72.00	0.00	20277.49	0.00	0.00	0.00	0.00	0.00	0.00
48	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/9/2017	20	No	INC	12	12:00	23:59	-49.27	52351.72	23740.96	3590.75	0.00	0.00	0.00	0.00	0.00	0.00
49	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/13/2017	20	No	INC	18	6:00	23:59	14.85	51416.04	22730.11	-479.63	0.00	0.00	0.00	0.00	0.00	0.00
50	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/14/2017	20-136	No	INC	12	10:00	21:59	81.71	59795.85	0.00	-3331.06	0.03	-2.19	0.00	0.00	0.00	0.00
51	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/15/2017	20-83	No	INC	19	5:00	23:59	-123.11	151276.62	48764.66	6353.84	0.08	-3.09	0.00	-2.27	0.00	0.00
52	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/16/2017	20-40	No	INC	17	5:00	21:59	-676.82	129085.65	0.00	9029.05	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
53	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/17/2017	20	No	INC	16	4:00	19:59	-150.26	80350.12	20888.96	-23650.39	0.04	-0.99	0.00	0.00	-1.03	0.00
54	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/21/2017	20	No	INC	9	15:00	23:59	-503.74	44253.60	0.00	25365.14	0.00	0.00	0.00	0.00	0.00	0.00
55	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	11/22/2017	20-126	No	INC	22	0:00	21:59	135.74	81134.99	0.00	-6822.20	0.03	-1.65	0.00	-0.57	0.00	0.00
56	RT	Load Pull	SCE	LA Basin	11/2/2017	194	No	DEC	5	16:30	20:59	-356.18	0.00	0.00	13155.57	0.00	0.00	0.00	0.00	0.00	0.00
57	RT	Load Pull	SCE	LA Basin	11/2/2017	194	No	INC	5	16:30	20:59	-10.86	0.00	0.00	733.57	0.39	-16.13	0.00	0.00	0.00	0.00
58	RT	Load Pull	SCE	LA Basin	11/3/2017	194	No	DEC	3	17:20	19:59	-155.84	0.00	0.00	6902.34	0.00	0.00	0.00	0.00	0.00	0.00
59	RT	Load Pull	SCE	LA Basin	11/4/2017	194	No	DEC	4	16:00	19:59	-187.26	0.00	0.00	5439.51	0.00	0.00	0.00	0.00	0.00	0.00
60	RT	Load Pull	SCE	LA Basin	11/4/2017	194	No	INC	4	16:00	19:59	-35.53	0.00	0.00	4337.56	1.90	-74.66	0.00	0.00	0.00	0.00
61	RT	Load Pull	SCE	LA Basin	11/5/2017	194	No	DEC	5	15:25	19:59	-107.72	0.00	0.00	4512.58	0.00	0.00	0.00	0.00	0.00	0.00
62	RT	Load Pull	SCE	LA Basin	11/5/2017	194	No	INC	5	15:25	19:59	-19.15	0.00	0.00	905.68	1.79	-70.18	0.00	0.00	0.00	0.00
63	RT	Load Pull	SCE	LA Basin	11/14/2017	190	No	DEC	6	15:40	20:59	-215.24	0.00	0.00	15625.90	0.00	0.00	0.00	0.00	0.00	0.00
64	RT	Load Pull	SCE	LA Basin	11/14/2017	190	No	INC	6	15:40	20:59	3.26	0.00	0.00	-68.64	0.00	0.00	0.00	0.00	0.00	0.00
65	RT	Load Pull	SDG&E	San Diego-IV	11/14/2017	68	No	INC	1	15:45	16:14	4.02	1822.06	0.00	-95.34	0.02	-1.09	0.00	0.00	0.00	0.00
66	RT	Operating Procedure Number and Constraint (6510)	SDG&E	San Diego-IV	11/18/2017	20-68	No	INC	16	4:00	19:59	-358.20	77918.45	23522.39	13285.82	0.08	-4.27	0.00	0.00	0.00	0.00
67	RT	Operating Procedure Number and Constraint (7110)	PG&E	Fresno	11/27/2017	48	No	INC	1	20:45	21:29	6.71	407.72	0.00	-997.62	3.46	-865.99	0.00	0.00	0.00	0.00
68	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/14/2017	47-48	No	INC	1	23:00	23:59	67.35	0.00	0.00	-2289.58	0.00	0.00	0.00	0.00	0.00	0.00
69	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/15/2017	48-60	No	INC	16	0:00	15:14	497.18	-6623.84	0.00	-19793.08	31.49	-2643.41	0.00	0.00	0.00	0.00
70	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/17/2017	14	No	INC	6	18:05	23:59	5.91	0.00	0.00	-137.91	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
71	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/17/2017	14-15	No	DEC	9	15:00	23:59	-3.44	-4200.86	0.00	129.19	-0.90	0.00	10.79	0.00	-9.97	0.00
72	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/20/2017	15	No	DEC	4	20:45	23:59	0.15	0.00	0.00	-3.71	0.00	0.00	0.00	0.00	0.00	0.00
73	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/20/2017	15-32	No	INC	16	8:40	23:59	4.35	-1008.89	0.00	-150.91	0.47	-17.25	0.00	0.00	0.00	0.00
74	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/22/2017	14-28	No	DEC	17	7:35	23:59	9.75	-232.86	0.00	-284.82	0.00	0.00	0.00	0.00	0.00	0.00
75	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/22/2017	28-30	No	INC	16	7:35	22:59	23.36	-6519.99	0.00	-649.53	1.79	-52.26	0.00	0.00	0.00	0.00
76	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/23/2017	14	No	DEC	1	0:00	0:44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/23/2017	14	No	INC	14	8:15	21:59	27.93	0.00	0.00	-563.71	0.00	0.00	0.00	0.00	0.00	0.00
78	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/24/2017	29-42	No	INC	15	9:15	23:59	27.95	-5004.10	166.62	-707.06	0.57	-10.48	0.00	0.00	0.00	0.00
79	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/25/2017	16	No	INC	3	21:00	23:59	-5.85	0.00	0.00	196.34	0.50	-14.66	0.00	0.00	0.00	0.00
80	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/25/2017	16-32	No	DEC	8	0:00	7:59	2.05	-7876.99	0.00	-41.03	0.00	0.00	0.00	0.00	0.00	0.00
81	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/26/2017	16-60	No	INC	24	0:00	23:59	34.81	-1207.89	0.00	-1003.18	3.23	-89.22	0.00	0.00	0.00	0.00
82	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/26/2017	30	No	DEC	8	13:15	20:29	1.99	0.00	0.00	-41.06	0.00	0.00	0.00	0.00	0.00	0.00
83	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/27/2017	14	No	DEC	12	8:25	19:59	-1.73	0.00	0.00	580.88	0.00	0.00	0.00	0.00	0.00	0.00
84	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/27/2017	14-80	No	INC	24	0:00	23:59	64.47	-690.22	0.00	-2568.66	15.20	-1475.88	0.00	0.00	0.00	0.00
85	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/28/2017	16-32	No	INC	9	0:00	8:44	9.63	0.00	0.00	-896.81	0.17	-6.09	0.00	0.00	0.00	0.00
86	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/29/2017	14-70	No	DEC	19	5:30	23:59	71.74	-15579.92	0.00	-2022.60	0.00	0.00	0.00	0.00	0.00	0.00
87	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/29/2017	42-84	No	INC	19	5:30	23:59	157.05	-2489.37	0.00	-3763.45	3.03	-85.08	0.00	0.00	0.00	0.00
88	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/30/2017	28-32	No	DEC	6	2:25	7:59	3.48	0.00	0.00	-81.23	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
89	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	11/30/2017	28-60	No	INC	8	0:00	7:59	60.75	-1078.95	0.00	-1302.23	5.03	-115.44	0.00	0.00	0.00	0.00
90	RT	Other Reliability Requirement	PG&E	N/A	11/23/2017	16	No	DEC	3	17:05	19:59	-12.35	0.00	0.00	0.12	-12.35	0.00	0.12	0.00	0.00	0.00
91	RT	Other Reliability Requirement	PG&E	N/A	11/25/2017	10-30	No	DEC	17	7:30	23:59	-27.65	0.00	0.00	23.32	-27.33	0.00	0.27	0.00	0.00	0.00
92	RT	Other Reliability Requirement	PG&E	N/A	11/25/2017	25-30	No	INC	9	7:30	15:59	-1.99	0.00	0.00	56.60	0.00	0.00	0.00	0.00	0.00	0.00
93	RT	Other Reliability Requirement	PG&E	N/A	11/26/2017	6-25	No	DEC	24	0:00	23:59	-6.03	0.00	0.00	-1761.75	-74.67	0.00	0.75	0.00	0.00	0.00
94	RT	Other Reliability Requirement	PG&E	N/A	11/27/2017	25-30	No	DEC	6	0:00	5:59	2.30	0.00	0.00	-118.68	0.00	0.00	0.00	0.00	0.00	0.00
95	RT	Other Reliability Requirement	PG&E	N/A	11/29/2017	0	No	DEC	8	16:18	23:59	-16.66	0.00	0.00	252.66	-10.92	0.00	0.11	0.00	0.00	0.00
96	RT	Other Reliability Requirement	PG&E	N/A	11/29/2017	0	No	INC	8	16:18	23:59	-1.50	0.00	0.00	54.37	0.00	0.00	0.00	0.00	0.00	0.00
97	RT	Other Reliability Requirement	PG&E	N/A	11/30/2017	20	No	INC	2	0:00	1:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	RT	Other Reliability Requirement	SCE	LA Basin	11/28/2017	65	No	INC	6	9:15	14:59	31.11	15497.97	0.00	-1926.84	0.00	0.00	0.00	0.00	0.00	0.00
99	RT	Other Reliability Requirement	SDG&E	San Diego-IV	11/21/2017	68	No	INC	4	16:30	19:59	-440.46	19264.52	0.00	22045.94	0.00	0.00	0.00	0.00	0.00	0.00
100	RT	Planned Transmission Outage	Intertie	N/A	11/1/2017	800	No	INC	2	10:05	11:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	RT	Planned Transmission Outage	Intertie	N/A	11/10/2017	800	No	INC	1	12:00	12:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	RT	Planned Transmission Outage	Intertie	N/A	11/10/2017	800	No	INC	1	11:00	11:59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	RT	Planned Transmission Outage	PG&E	Bay Area	11/1/2017	54	No	INC	1	11:00	11:59	24.75	629.79	800.12	-566.43	0.00	0.00	0.00	0.00	0.00	0.00
104	RT	Planned Transmission Outage	PG&E	Bay Area	11/2/2017	54-60	No	INC	11	9:30	19:59	2.04	26684.99	0.00	-941.83	1.37	-39.01	0.00	0.00	-121.00	0.00
105	RT	Planned Transmission Outage	PG&E	Bay Area	11/3/2017	54	No	INC	12	7:45	18:59	5.84	26884.05	0.00	-382.69	0.00	0.00	0.00	0.00	0.00	0.00
106	RT	Planned Transmission Outage	PG&E	Bay Area	11/4/2017	54-128	No	INC	13	5:55	17:59	65.08	44363.11	0.00	-2448.30	49.94	-995.24	0.00	0.00	-1136.72	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
107	RT	Planned Transmission Outage	PG&E	Bay Area	11/6/2017	175-363	No	INC	10	4:30	13:59	379.64	90639.80	32441.22	-19106.15	6.25	-136.30	0.00	0.00	-171.05	0.00
108	RT	Planned Transmission Outage	PG&E	Bay Area	11/10/2017	54	No	INC	5	12:45	17:29	4.49	12530.09	0.00	-137.04	0.01	-0.01	0.00	0.00	-0.84	0.00
109	RT	Planned Transmission Outage	PG&E	Bay Area	11/14/2017	54	No	INC	5	8:00	12:59	0.00	13100.20	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
110	RT	Planned Transmission Outage	PG&E	Bay Area	11/15/2017	54	No	INC	6	8:00	13:59	-1.37	15394.62	0.00	6.52	0.00	0.00	0.00	0.00	0.00	0.00
111	RT	Planned Transmission Outage	PG&E	Bay Area	11/16/2017	54	No	INC	13	8:00	20:59	-17.19	38351.47	0.00	477.54	0.00	0.00	0.00	0.00	0.00	0.00
112	RT	Planned Transmission Outage	PG&E	Humboldt	11/1/2017	16-42	No	DEC	24	0:40	23:59	5.03	0.00	0.00	-436.91	0.00	0.00	0.00	0.00	0.00	0.00
113	RT	Planned Transmission Outage	PG&E	Humboldt	11/1/2017	16-48	No	INC	24	0:00	23:59	172.67	-6146.25	0.00	-6146.47	21.43	-714.32	0.00	0.00	-11.88	0.00
114	RT	Planned Transmission Outage	PG&E	Humboldt	11/2/2017	16-58	No	INC	24	0:00	23:59	21.65	-4139.22	0.00	-677.60	13.25	-484.13	0.00	0.00	0.00	0.00
115	RT	Planned Transmission Outage	PG&E	Humboldt	11/2/2017	16-64	No	DEC	24	0:00	23:59	23.41	-4754.69	0.00	-429.56	0.00	0.00	0.00	0.00	-16.14	0.00
116	RT	Planned Transmission Outage	PG&E	Humboldt	11/3/2017	16-76	No	DEC	24	0:00	23:59	14.55	-25757.44	0.00	1875.43	4.45	-421.11	2448.16	0.00	-4906.65	0.00
117	RT	Planned Transmission Outage	PG&E	Humboldt	11/3/2017	16-76	No	INC	24	0:00	23:59	79.40	-17908.46	0.00	-2084.19	67.18	-1908.50	0.00	0.00	0.00	0.00
118	RT	Planned Transmission Outage	PG&E	Humboldt	11/4/2017	16-28	No	DEC	24	0:00	23:59	6.74	-1058.30	0.00	-193.68	0.00	0.00	0.00	0.00	-80.82	0.00
119	RT	Planned Transmission Outage	PG&E	Humboldt	11/4/2017	28-70	No	INC	24	0:00	23:59	14.14	-8642.75	0.00	-433.28	2.35	-92.82	0.00	0.00	-32.49	0.00
120	RT	Planned Transmission Outage	PG&E	Humboldt	11/5/2017	28-56	No	INC	4	0:00	3:59	-2.56	-3529.30	0.00	66.82	0.07	-2.03	0.00	0.00	0.00	0.00
121	RT	Planned Transmission Outage	PG&E	Humboldt	11/5/2017	14-28	No	DEC	24	0:00	23:59	-2.79	-294.11	0.00	78.29	0.00	0.00	0.00	0.00	-372.25	0.00
122	RT	Planned Transmission Outage	PG&E	Humboldt	11/5/2017	14-70	No	INC	24	0:00	23:59	15.05	-24234.53	0.00	-619.92	7.61	-281.40	0.00	0.00	0.00	0.00
123	RT	Planned Transmission Outage	PG&E	Humboldt	11/6/2017	15-32	No	DEC	23	0:00	22:14	0.48	-588.22	0.00	-29.15	1.33	-59.02	0.00	0.00	0.00	0.00
124	RT	Planned Transmission Outage	PG&E	Humboldt	11/6/2017	28-80	No	INC	24	0:00	23:59	89.52	-23175.74	0.00	-5319.39	66.16	-4608.95	0.00	0.00	-0.36	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
125	RT	Planned Transmission Outage	PG&E	Humboldt	11/7/2017	30-80	No	INC	24	0:00	23:59	95.90	-23748.72	0.00	-8406.60	94.38	-8352.99	0.00	0.00	0.00	0.00
126	RT	Planned Transmission Outage	PG&E	Humboldt	11/7/2017	32	No	DEC	13	7:40	19:59	1.34	0.00	0.00	-43.31	0.00	0.00	0.00	0.00	0.00	0.00
127	RT	Planned Transmission Outage	PG&E	Humboldt	11/8/2017	14-64	No	INC	24	0:00	23:59	22.94	-1512.50	0.00	-825.17	2.76	-97.63	0.00	0.00	0.00	0.00
128	RT	Planned Transmission Outage	PG&E	Humboldt	11/8/2017	15-80	No	DEC	20	4:10	23:59	12.52	-20328.37	0.00	-386.72	-5.17	0.00	232.40	0.00	-9566.52	0.00
129	RT	Planned Transmission Outage	PG&E	Humboldt	11/9/2017	14-70	No	INC	24	0:00	23:59	33.27	-107.98	0.00	-1059.53	9.03	-328.38	206.22	0.00	-231.28	0.00
130	RT	Planned Transmission Outage	PG&E	Humboldt	11/9/2017	16-76	No	DEC	24	0:00	23:59	76.09	-1229.85	0.00	-5443.15	2.12	-61.78	0.00	0.00	-53.30	0.00
131	RT	Planned Transmission Outage	PG&E	Humboldt	11/10/2017	14-60	No	DEC	21	3:20	23:59	6.14	-2015.25	0.00	-1290.07	0.19	-62.73	45.88	0.00	-295.67	0.00
132	RT	Planned Transmission Outage	PG&E	Humboldt	11/10/2017	28-60	No	INC	24	0:00	23:59	44.02	-8815.08	0.00	-740.98	15.96	-212.56	0.00	0.00	-122.39	0.00
133	RT	Planned Transmission Outage	PG&E	Humboldt	11/11/2017	15-48	No	DEC	23	1:05	23:59	2.60	1663.43	0.00	-248.52	0.00	0.00	0.00	0.00	0.00	0.00
134	RT	Planned Transmission Outage	PG&E	Humboldt	11/11/2017	28-32	No	INC	24	0:00	23:59	16.45	-9104.00	0.00	-369.20	9.02	-228.68	0.00	0.00	-103.47	0.00
135	RT	Planned Transmission Outage	PG&E	Humboldt	11/12/2017	14-42	No	DEC	24	0:00	23:59	30.50	0.00	0.00	-831.16	0.00	0.00	0.00	0.00	0.00	0.00
136	RT	Planned Transmission Outage	PG&E	Humboldt	11/12/2017	28-32	No	INC	24	0:00	23:59	138.34	0.00	0.00	-4291.70	5.00	-138.10	0.00	0.00	0.00	0.00
137	RT	Planned Transmission Outage	PG&E	Humboldt	11/13/2017	14-60	No	DEC	23	0:00	22:59	7.07	-242.82	0.00	-266.17	-1.25	-66.08	73.87	0.00	-144.27	0.00
138	RT	Planned Transmission Outage	PG&E	Humboldt	11/13/2017	28-62	No	INC	24	0:00	23:59	47.26	-19389.59	0.00	-1652.60	31.20	-1070.45	0.00	0.00	-2.73	0.00
139	RT	Planned Transmission Outage	PG&E	Humboldt	11/14/2017	16-64	No	INC	16	0:00	15:59	61.22	-7122.47	0.00	-1130.97	20.96	-415.75	0.00	0.00	-64.53	0.00
140	RT	Planned Transmission Outage	PG&E	Humboldt	11/14/2017	28-32	No	DEC	14	1:00	14:59	3.54	0.00	0.00	-61.17	0.00	0.00	0.00	0.00	-8.37	0.00
141	RT	Planned Transmission Outage	PG&E	Humboldt	11/15/2017	62-90	No	INC	6	18:00	23:59	18.04	-3870.32	0.00	-603.59	12.48	-420.78	0.00	0.00	0.00	0.00
142	RT	Planned Transmission Outage	PG&E	Humboldt	11/15/2017	90	No	DEC	4	18:00	21:29	2.64	-2381.57	0.00	-88.02	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
143	RT	Planned Transmission Outage	PG&E	Humboldt	11/16/2017	16-57	No	DEC	24	0:05	23:59	2.13	-4151.45	0.00	-50.71	0.00	0.00	0.00	0.00	0.00	0.00
144	RT	Planned Transmission Outage	PG&E	Humboldt	11/16/2017	16-114	No	INC	24	0:00	23:59	56.10	-11173.56	0.00	-3210.26	2.36	-67.81	0.00	0.00	0.00	0.00
145	RT	Planned Transmission Outage	PG&E	Humboldt	11/17/2017	14-15	No	DEC	15	1:20	15:29	-1.84	-654.45	0.00	47.00	-0.43	0.00	10.99	0.00	-140.50	0.00
146	RT	Planned Transmission Outage	PG&E	Humboldt	11/17/2017	42-61	No	INC	15	0:00	14:59	3.16	-8626.90	0.00	-207.24	5.53	-165.50	10.99	0.00	-140.84	0.00
147	RT	Planned Transmission Outage	PG&E	Humboldt	11/28/2017	28-84	No	DEC	16	8:45	23:59	22.67	-8567.65	0.00	-752.24	0.00	0.00	0.00	0.00	0.00	0.00
148	RT	Planned Transmission Outage	PG&E	Humboldt	11/28/2017	42-84	No	INC	16	8:45	23:59	77.19	-6303.33	0.00	-2019.60	0.77	-11.54	0.00	0.00	-2.54	0.00
149	RT	Planned Transmission Outage	PG&E	Humboldt	11/29/2017	42-56	No	INC	6	0:00	5:44	31.36	-3378.44	0.00	-747.67	-0.57	0.00	0.00	0.00	0.00	0.00
150	RT	Planned Transmission Outage	PG&E	Humboldt	11/30/2017	28-90	No	DEC	19	5:15	23:59	65.98	-3070.67	0.00	-1348.56	0.00	0.00	0.00	0.00	0.00	0.00
151	RT	Planned Transmission Outage	PG&E	Humboldt	11/30/2017	32-90	No	INC	19	5:15	23:59	59.28	-9171.08	0.00	-1496.25	10.25	-254.26	0.00	0.00	-0.07	0.00
152	RT	Planned Transmission Outage	PG&E	Humboldt	12/1/2017	45-77	No	INC	6	0:00	5:59	7.31	-4210.20	0.00	-165.43	4.50	-109.97	0.00	0.00	0.00	0.00
153	RT	Planned Transmission Outage	PG&E	N/A	11/6/2017	43-45	No	INC	15	9:13	23:59	22.90	8652.66	0.00	-485.01	6.13	-127.80	0.00	0.00	-192.90	0.00
154	RT	Planned Transmission Outage	PG&E	N/A	11/7/2017	43	No	INC	16	0:00	15:59	-0.70	25116.64	0.00	-166.74	0.00	0.00	0.00	0.00	-101.81	0.00
155	RT	Planned Transmission Outage	PG&E	N/A	11/9/2017	32	No	INC	14	6:00	19:44	6.79	21962.33	5051.65	-1748.46	0.00	0.00	0.00	0.00	0.00	0.00
156	RT	Planned Transmission Outage	PG&E	N/A	11/10/2017	32	No	INC	14	6:00	19:44	4.50	20943.08	5101.91	9.20	0.00	0.00	0.00	0.00	0.00	0.00
157	RT	Planned Transmission Outage	PG&E	N/A	11/11/2017	32	No	INC	12	6:00	17:44	-6.95	17630.88	0.00	31.06	0.00	0.00	0.00	0.00	0.00	0.00
158	RT	Planned Transmission Outage	PG&E	Stockton	11/7/2017	67	No	INC	3	17:35	19:44	12.76	0.00	0.00	-556.95	0.00	0.00	0.00	0.00	0.00	0.00
159	RT	Planned Transmission Outage	PG&E	Stockton	11/13/2017	96	No	INC	7	8:00	14:59	-8.32	27650.79	0.00	-64.39	0.00	0.00	0.00	0.00	-52.48	0.00
160	RT	Planned Transmission Outage	PG&E	Stockton	11/14/2017	191	No	INC	7	8:00	14:59	2.21	50445.80	0.00	-38.06	0.00	0.00	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/November/2017 - 30/November/2017

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
161	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	11/7/2017	3	No	INC	2	17:40	19:34	0.08	0.00	0.00	-7.99	0.08	-7.99	0.00	0.00	0.00	0.00
162	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/8/2017	63	No	INC	8	11:35	18:59	-97.42	35107.40	0.00	4537.72	0.18	-6.40	0.00	0.00	-5.43	0.00
163	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/9/2017	37-75	No	INC	5	6:55	11:44	42.74	12051.97	833.12	-1341.87	0.00	0.00	0.00	0.00	0.00	0.00
164	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/10/2017	200	No	DEC	4	6:00	9:59	-61.83	0.00	0.00	2857.08	0.00	0.00	0.00	0.00	0.00	0.00
165	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/10/2017	200	No	INC	4	6:00	9:59	-24.47	26486.38	7835.83	1446.77	0.00	0.00	0.00	0.00	0.00	0.00
166	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/11/2017	20-1150	No	INC	17	5:00	21:59	305.23	430551.84	450.00	48115.92	1033.87	-9646.18	0.00	0.00	-524826.15	0.00
167	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/16/2017	21	No	INC	3	11:45	13:59	0.76	2970.02	510.99	-1690.04	0.00	0.00	0.00	0.00	0.00	0.00
168	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/17/2017	68	No	INC	14	6:30	19:59	-150.27	73118.34	3481.49	-23650.17	0.04	-0.99	0.00	0.00	-1.03	0.00
169	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/18/2017	155-751	No	INC	11	3:00	13:59	546.57	141870.92	0.00	-28723.43	0.00	0.00	0.00	0.00	0.00	0.00
170	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/18/2017	315	No	DEC	5	5:35	9:59	-129.98	0.00	0.00	11261.80	-125.72	0.00	11172.42	0.00	-9882.70	0.00
171	RT	Planned Transmission Outage	SDG&E	San Diego-IV	11/20/2017	20-68	No	INC	11	7:00	17:59	415.76	52247.51	0.00	-23004.67	0.00	0.00	0.00	0.00	-0.35	0.00
172	RT	Software Limitation	PG&E	Bay Area	11/2/2017	0	No	DEC	1	17:00	17:29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
173	RT	Software Limitation	PG&E	Bay Area	11/6/2017	0	No	INC	1	0:15	1:14	-60.00	1651.49	0.00	0.00	-60.00	0.00	0.00	0.00	0.00	0.00
174	RT	Software Limitation	PG&E	Bay Area	11/12/2017	562	No	INC	1	18:20	19:19	1.10	0.00	0.00	-59.03	0.00	0.00	0.00	0.00	0.00	0.00
175	RT	Software Limitation	PG&E	Fresno	11/8/2017	0	No	DEC	6	18:35	23:59	-6.95	-7637.88	0.00	247.48	0.00	0.00	0.00	0.00	0.00	0.00
176	RT	Software Limitation	PG&E	Fresno	11/8/2017	0	No	INC	6	18:35	23:59	-1.72	0.00	0.00	54.44	0.00	0.00	0.00	0.00	0.00	0.00
177	RT	Software Limitation	PG&E	Fresno	11/24/2017	-312	No	DEC	1	8:15	9:14	-157.17	0.00	0.00	-2018.12	0.00	0.00	0.00	0.00	0.00	0.00
178	RT	Software Limitation	PG&E	Humboldt	11/20/2017	32	No	DEC	5	15:40	19:59	0.92	-1642.26	0.00	-11.11	0.00	0.00	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/November/2017 - 30/November/2017

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
179	RT	Software Limitation	PG&E	Humboldt	11/20/2017	32	No	INC	5	15:40	19:59	0.17	0.00	0.00	-2.74	0.01	-0.45	0.00	0.00	0.00	0.00
180	RT	Software Limitation	PG&E	Humboldt	11/24/2017	42	No	INC	1	17:25	18:29	18.54	-345.11	13.89	-453.06	0.00	0.00	0.00	0.00	0.00	0.00
181	RT	Software Limitation	PG&E	Humboldt	11/26/2017	14-42	No	DEC	2	17:00	18:59	48.44	-723.17	0.00	-1565.80	0.00	0.00	0.00	0.00	0.00	0.00
182	RT	Software Limitation	PG&E	Humboldt	11/28/2017	32	No	INC	2	22:00	23:59	-4.24	-175.09	0.00	104.37	0.00	0.00	0.00	0.00	0.00	0.00
183	RT	Software Limitation	PG&E	Humboldt	11/29/2017	16	No	INC	1	1:45	2:14	-5.06	0.00	0.00	106.85	-0.29	0.00	0.00	0.00	0.00	0.00
184	RT	Software Limitation	PG&E	Sierra	11/17/2017	0	No	INC	5	9:30	14:29	-50.00	0.00	0.00	93.26	-50.00	0.00	93.26	0.00	0.00	0.00
185	RT	Software Limitation	SCE	Big Creek-Ventura	11/4/2017	-177	No	INC	2	12:10	13:59	-324.50	0.00	0.00	5566.18	0.00	0.00	0.00	0.00	0.00	0.00
186	RT	Software Limitation	SCE	LA Basin	11/8/2017	22	No	INC	1	19:30	20:04	5.99	406.65	0.00	-310.50	2.02	-176.58	0.00	0.00	0.00	0.00
187	RT	Software Limitation	SCE	LA Basin	11/15/2017	0	No	DEC	1	16:15	17:14	-15.00	-1070.34	0.00	44.12	-13.33	0.00	0.00	0.00	0.00	0.00
188	RT	Software Limitation	SCE	LA Basin	11/21/2017	0	No	DEC	6	1:00	6:59	-4.89	0.00	0.00	22.21	-4.90	0.00	22.46	0.00	0.00	0.00
189	RT	Software Limitation	SCE	N/A	11/2/2017	495	No	INC	4	12:15	15:59	219.43	66872.54	0.00	-7317.38	7.60	-240.72	0.00	0.00	0.00	0.00
190	RT	Software Limitation	SDG&E	San Diego-IV	11/2/2017	0	No	INC	1	15:00	15:29	-47.02	1434.81	152.30	0.00	-47.02	0.00	0.00	0.00	0.00	0.00
191	RT	Unit Testing	PG&E	Bay Area	11/6/2017	150	No	INC	3	21:35	23:59	28.47	0.00	0.00	-1069.07	-9.03	0.00	238.93	0.00	0.00	0.00
192	RT	Unit Testing	PG&E	Bay Area	11/7/2017	140-150	Yes	INC	24	0:00	23:59	1.46	1699.64	0.00	26.10	0.00	0.00	0.00	0.00	0.00	0.00
193	RT	Unit Testing	PG&E	Bay Area	11/8/2017	140	No	INC	4	0:00	3:14	11.29	7996.81	0.00	-438.23	0.00	0.00	0.00	0.00	0.00	0.00
194	RT	Unit Testing	PG&E	Bay Area	11/16/2017	195-390	Yes	INC	10	14:00	23:59	152.99	3371.75	0.00	-3217.98	12.50	-333.75	0.00	0.00	0.00	0.00
195	RT	Unit Testing	PG&E	Bay Area	11/17/2017	200	No	INC	10	14:00	23:59	48.08	0.00	0.00	-1055.65	18.08	-485.39	0.00	0.00	0.00	0.00
196	RT	Unit Testing	PG&E	Bay Area	11/18/2017	200	Yes	INC	2	0:00	1:59	-38.84	0.00	0.00	913.04	0.00	0.00	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/November/2017 - 30/November/2017

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
197	RT	Unit Testing	PG&E	Bay Area	11/21/2017	148	No	INC	1	3:09	3:59	29.37	0.00	0.00	-828.35	7.00	-248.29	0.00	0.00	0.00	0.00
198	RT	Unit Testing	PG&E	Fresno	11/1/2017	96	No	INC	4	4:10	7:19	-4.77	1407.57	0.00	-155.48	-7.40	-120.52	0.00	0.00	0.00	0.00
199	RT	Unit Testing	PG&E	Fresno	11/12/2017	300	Yes	INC	4	12:30	15:59	355.07	0.00	0.00	-13262.83	226.51	-8779.42	0.00	0.00	0.00	0.00
200	RT	Unit Testing	PG&E	Fresno	11/16/2017	-308	No	DEC	2	0:45	2:44	10.27	0.00	0.00	-392.91	0.00	0.00	0.00	0.00	0.00	0.00
201	RT	Unit Testing	PG&E	N/A	11/3/2017	47-94	No	INC	1	19:41	20:24	22.99	0.00	0.00	-1032.28	22.99	-1032.28	0.00	0.00	0.00	0.00
202	RT	Unit Testing	PG&E	N/A	11/9/2017	46	No	INC	1	19:30	19:54	6.97	0.00	0.00	-331.88	6.69	-323.88	0.00	0.00	0.00	0.00
203	RT	Unit Testing	SCE	LA Basin	11/2/2017	90-180	No	INC	2	19:05	20:59	64.48	3781.25	0.00	-2406.94	17.00	-839.62	0.00	0.00	0.00	0.00
204	RT	Unit Testing	SCE	LA Basin	11/8/2017	22	No	INC	1	19:00	19:29	-1.85	0.00	0.00	72.85	0.00	0.00	0.00	0.00	0.00	0.00
205	RT	Unit Testing	SCE	LA Basin	11/9/2017	16	No	INC	1	18:20	18:49	0.00	0.00	0.00	2.56	0.09	-3.63	0.00	0.00	0.00	0.00
206	RT	Unit Testing	SCE	LA Basin	11/29/2017	72	Yes	INC	1	11:45	12:44	15.10	0.00	0.00	-1070.91	6.76	-440.07	0.00	0.00	0.00	0.00
207	RT	Unit Testing	SCE	N/A	11/14/2017	240	No	DEC	2	15:35	16:59	-16.87	-11868.95	0.00	-259.66	-29.78	0.00	0.00	0.00	0.00	0.00
208	RT	Unit Testing	SCE	N/A	11/14/2017	410	No	INC	7	8:20	14:59	115.69	0.00	0.00	-3647.48	110.58	-3567.79	0.00	0.00	0.00	0.00
209	RT	Unplanned Outage	SCE	LA Basin	11/6/2017	70	No	INC	8	16:45	23:59	-181.57	38917.71	0.00	7183.16	0.00	0.00	0.00	0.00	0.00	0.00
210	RT	Unplanned Outage	SCE	LA Basin	11/7/2017	25-50	Yes	INC	24	0:00	23:59	-552.35	93836.40	0.00	41917.19	0.00	0.00	0.00	0.00	0.00	0.00
211	RT	Voltage Support	PG&E	Fresno	11/20/2017	83	No	INC	3	5:00	7:59	5.40	12747.92	0.00	-441.64	0.00	0.00	0.00	0.00	0.00	0.00
212	RT	Voltage Support	PG&E	Fresno	11/21/2017	-315	No	DEC	2	4:10	5:59	-78.75	0.00	0.00	3792.69	0.00	0.00	0.00	0.00	0.00	0.00
213	RT	Voltage Support	PG&E	Fresno	11/23/2017	-315	No	DEC	8	0:02	7:59	-57.91	0.00	0.00	1407.53	0.00	0.00	0.00	0.00	0.00	0.00
214	RT	Voltage Support	PG&E	Fresno	11/25/2017	83	No	INC	2	22:30	23:59	88.45	2097.24	0.00	-2852.39	0.00	0.00	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/November/2017 - 30/November/2017

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
215	RT	Voltage Support	PG&E	Fresno	11/25/2017	-308	No	DEC	3	5:10	7:59	-64.90	0.00	0.00	1534.04	0.00	0.00	0.00	0.00	0.00	0.00
216	RT	Voltage Support	PG&E	Fresno	11/26/2017	83-166	Yes	INC	3	0:00	2:29	-20.42	11185.28	0.00	591.20	0.00	0.00	0.00	0.00	0.00	0.00
217	RT	Voltage Support	PG&E	Fresno	11/26/2017	-312--308	No	DEC	22	2:30	23:59	24.80	0.00	0.00	-769.59	0.00	0.00	0.00	0.00	0.00	0.00
218	RT	Voltage Support	PG&E	Fresno	11/27/2017	-312	No	DEC	6	0:00	5:44	2.30	0.00	0.00	-50.03	0.00	0.00	0.00	0.00	0.00	0.00
219	RT	Voltage Support	PG&E	Sierra	11/5/2017	40	No	INC	5	1:05	5:59	-5.29	10194.24	0.00	-153.76	0.00	0.00	0.00	0.00	0.00	0.00
220	RT	Voltage Support	PG&E	Sierra	11/6/2017	20	No	INC	5	1:09	5:59	-10.85	5415.69	0.00	356.52	0.00	0.00	0.00	0.00	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 November, this resource was issued exceptional dispatch instructions in 422 five-minute intervals. This resource was eligible to set the LMP in 386 intervals. Out of the 386 intervals, resource calculated LMP was larger than the market LMP in 44 intervals. In the 44 intervals, the average increase in five minute LMP was \$222.70/MWh. Out of the 386 intervals, resource calculated LMP was less than the market LMP in 342 intervals. In the 342 intervals, the average decrease in five minute LMP was \$28.58/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 \$0.06/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 November, this resource was issued exceptional dispatch instructions in 12 five-minute intervals. This resource was eligible to set the LMP in 12 intervals. Out of the 12 intervals, resource calculated LMP was larger than the market LMP in 12 intervals. In the 12 intervals, the average increase in five minute LMP was \$120.44/MWh. Out of the 12 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 \$120.44/MWh

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

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1	11/23/2017	18	1	24.38	Yes	0.01	-24.37
2	11/23/2017	18	2	23.15	Yes	0.01	-23.14
3	11/23/2017	18	3	22.68	Yes	0.01	-22.67
4	11/23/2017	18	4	24.32	Yes	0.01	-24.31
5	11/23/2017	18	5	24.51	Yes	0.01	-24.50
6	11/23/2017	18	6	25.00	Yes	0.01	-24.99
7	11/23/2017	18	7	28.11	Yes	0.01	-28.10
8	11/23/2017	18	8	25.90	Yes	0.01	-25.89
9	11/23/2017	18	9	25.04	Yes	0.01	-25.03
10	11/23/2017	18	10	23.92	Yes	0.01	-23.91
11	11/23/2017	18	11	21.92	Yes	0.01	-21.91
12	11/23/2017	18	12	20.92	Yes	0.01	-20.91
13	11/24/2017	17	1	22.91	Yes	0.01	-22.90
14	11/24/2017	17	2	22.56	Yes	0.01	-22.55
15	11/24/2017	17	3	22.92	Yes	0.01	-22.91
16	11/24/2017	17	4	24.10	Yes	0.01	-24.09
17	11/24/2017	17	5	27.81	Yes	0.01	-27.80
18	11/24/2017	17	6	28.10	Yes	0.01	-28.09
19	11/24/2017	17	7	27.89	Yes	0.01	-27.88
20	11/24/2017	17	8	27.98	Yes	0.01	-27.97
21	11/24/2017	17	9	28.37	Yes	0.01	-28.36
22	11/24/2017	17	10	28.25	Yes	0.01	-28.24
23	11/24/2017	17	11	28.27	Yes	0.01	-28.26
24	11/24/2017	17	12	29.08	Yes	0.01	-29.07
25	11/24/2017	18	1	29.37	Yes	0.01	-29.36
26	11/24/2017	18	2	29.98	Yes	0.01	-29.97
27	11/24/2017	18	3	27.62	Yes	0.01	-27.61
28	11/24/2017	18	4	29.49	Yes	0.01	-29.48
29	11/24/2017	18	5	29.79	Yes	0.01	-29.78
30	11/24/2017	18	6	29.92	Yes	0.01	-29.91
31	11/24/2017	18	7	30.12	Yes	0.01	-30.11
32	11/24/2017	18	8	30.12	Yes	0.01	-30.11
33	11/24/2017	18	9	30.08	Yes	0.01	-30.07
34	11/24/2017	18	10	29.95	Yes	0.01	-29.94
35	11/24/2017	18	11	26.44	Yes	0.01	-26.43
36	11/24/2017	18	12	25.47	Yes	0.01	-25.46
37	11/24/2017	21	1	28.74	Yes	0.01	-28.73
38	11/24/2017	21	2	27.19	Yes	0.01	-27.18
39	11/24/2017	21	3	27.08	Yes	0.01	-27.07
40	11/24/2017	21	4	26.92	Yes	0.01	-26.91
41	11/24/2017	21	5	26.83	Yes	0.01	-26.82
42	11/24/2017	21	6	26.32	Yes	0.01	-26.31
43	11/24/2017	21	7	26.65	Yes	0.01	-26.64
44	11/24/2017	21	8	26.65	Yes	0.01	-26.64
45	11/24/2017	21	9	26.65	Yes	0.01	-26.64

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46	11/24/2017	21	10	25.70	Yes	0.01	-25.69
47	11/24/2017	21	11	25.94	Yes	0.01	-25.93
48	11/24/2017	21	12	23.92	Yes	0.01	-23.91
49	11/24/2017	22	1	29.10	Yes	0.01	-29.09
50	11/24/2017	22	2	29.72	Yes	0.01	-29.71
51	11/24/2017	22	3	27.27	Yes	0.01	-27.26
52	11/24/2017	22	4	27.27	Yes	0.01	-27.26
53	11/24/2017	22	5	27.24	Yes	0.01	-27.23
54	11/24/2017	22	6	26.51	Yes	0.01	-26.50
55	11/24/2017	22	7	28.67	Yes	0.01	-28.66
56	11/24/2017	22	8	27.65	Yes	0.01	-27.64
57	11/24/2017	22	9	26.46	Yes	0.01	-26.45
58	11/24/2017	22	10	23.89	Yes	0.01	-23.88
59	11/24/2017	22	11	23.72	Yes	0.01	-23.71
60	11/24/2017	22	12	23.75	Yes	0.01	-23.74
61	11/25/2017	1	1	21.47	Yes	0.01	-21.46
62	11/25/2017	1	2	21.59	Yes	0.01	-21.58
63	11/25/2017	1	3	21.64	Yes	0.01	-21.63
64	11/25/2017	1	4	22.20	Yes	0.01	-22.19
65	11/25/2017	1	5	22.01	Yes	0.01	-22.00
66	11/25/2017	1	6	22.20	Yes	0.01	-22.19
67	11/25/2017	1	7	21.89	Yes	0.01	-21.88
68	11/25/2017	1	8	21.86	Yes	0.01	-21.85
69	11/25/2017	1	9	21.64	Yes	0.01	-21.63
70	11/25/2017	1	10	21.20	Yes	0.01	-21.19
71	11/25/2017	1	11	21.34	Yes	0.01	-21.33
72	11/25/2017	1	12	18.79	Yes	0.01	-18.78
73	11/25/2017	7	2	22.27	Yes	0.01	-22.26
74	11/25/2017	8	1	37.29	Yes	0.01	-37.28
75	11/25/2017	8	2	31.85	Yes	0.01	-31.84
76	11/25/2017	8	3	31.89	Yes	0.01	-31.88
77	11/25/2017	8	4	31.82	Yes	0.01	-31.81
78	11/25/2017	8	5	23.26	Yes	0.01	-23.25
79	11/25/2017	8	6	22.99	Yes	0.01	-22.98
80	11/25/2017	8	7	21.52	Yes	0.01	-21.51
81	11/25/2017	8	8	21.64	Yes	0.01	-21.63
82	11/25/2017	8	9	21.71	Yes	0.01	-21.70
83	11/25/2017	8	10	19.94	Yes	0.01	-19.93
84	11/25/2017	8	11	17.16	Yes	0.01	-17.15
85	11/25/2017	8	12	17.16	Yes	0.01	-17.15
86	11/25/2017	9	1	24.37	Yes	250	225.63
87	11/25/2017	9	2	26.05	Yes	250	223.95
88	11/25/2017	9	3	21.67	Yes	250	228.33
89	11/25/2017	9	4	20.91	Yes	250	229.09
90	11/25/2017	9	5	16.98	Yes	250	233.02
91	11/25/2017	9	6	16.26	Yes	250	233.74

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92	11/25/2017	9	7	16.28	Yes	250	233.72
93	11/25/2017	9	8	16.32	Yes	250	233.68
94	11/25/2017	9	9	15.36	Yes	250	234.64
95	11/25/2017	9	10	15.38	Yes	250	234.62
96	11/25/2017	9	11	15.38	Yes	250	234.62
97	11/25/2017	9	12	17.15	Yes	250	232.85
98	11/25/2017	13	1	22.07	Yes	250	227.93
99	11/25/2017	13	2	22.93	Yes	250	227.07
100	11/25/2017	13	3	23.36	Yes	250	226.64
101	25-Nov-17	13	4	\$23.89	Yes	\$250.00	\$226.11
102	11/25/2017	13	5	24.00	Yes	250	226.00
103	11/25/2017	13	6	24.91	Yes	250	225.09
104	11/25/2017	13	7	23.82	Yes	250	226.18
105	11/25/2017	13	8	23.87	Yes	250	226.13
106	11/25/2017	13	9	24.15	Yes	250	225.85
107	11/25/2017	13	10	24.85	Yes	250	225.15
108	11/25/2017	13	11	25.79	Yes	250	224.21
109	11/25/2017	13	12	25.79	Yes	250	224.21
110	11/25/2017	16	1	22.23	Yes	0.01	-22.22
111	11/25/2017	16	2	21.39	Yes	0.01	-21.38
112	11/25/2017	16	3	21.40	Yes	0.01	-21.39
113	11/25/2017	16	4	21.94	Yes	0.01	-21.93
114	11/25/2017	16	5	23.48	Yes	0.01	-23.47
115	11/25/2017	16	11	40.17	Yes	0.01	-40.16
116	11/25/2017	16	12	44.81	Yes	0.01	-44.80
117	11/25/2017	17	1	24.28	Yes	0.01	-24.27
118	11/25/2017	17	2	25.41	Yes	0.01	-25.40
119	11/25/2017	17	3	26.64	Yes	0.01	-26.63
120	11/25/2017	17	4	29.47	Yes	0.01	-29.46
121	11/25/2017	17	5	26.53	Yes	0.01	-26.52
122	11/25/2017	17	6	67.49	Yes	0.01	-67.48
123	11/25/2017	17	7	25.24	Yes	0.01	-25.23
124	11/25/2017	17	8	25.61	Yes	0.01	-25.60
125	11/25/2017	17	9	29.52	Yes	0.01	-29.51
126	11/25/2017	17	10	26.42	Yes	0.01	-26.41
127	11/25/2017	17	11	26.91	Yes	0.01	-26.90
128	11/25/2017	17	12	30.19	Yes	0.01	-30.18
129	11/25/2017	18	1	29.40	Yes	0.01	-29.39
130	11/25/2017	18	2	29.07	Yes	0.01	-29.06
131	11/25/2017	18	3	29.25	Yes	0.01	-29.24
132	11/25/2017	18	4	28.23	Yes	0.01	-28.22
133	11/25/2017	18	5	29.13	Yes	0.01	-29.12
134	11/25/2017	18	6	29.40	Yes	0.01	-29.39
135	11/25/2017	18	7	29.37	Yes	0.01	-29.36
136	11/25/2017	18	8	29.53	Yes	0.01	-29.52
137	11/25/2017	18	9	29.34	Yes	0.01	-29.33

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138	11/25/2017	18	10	29.42	Yes	0.01	-29.41
139	11/25/2017	18	11	29.27	Yes	0.01	-29.26
140	11/25/2017	18	12	29.24	Yes	0.01	-29.23
141	11/25/2017	19	1	29.02	Yes	0.01	-29.01
142	11/25/2017	19	2	29.01	Yes	0.01	-29.00
143	11/25/2017	19	3	29.00	Yes	0.01	-28.99
144	11/25/2017	19	4	29.62	Yes	0.01	-29.61
145	11/25/2017	19	5	29.51	Yes	0.01	-29.50
146	11/25/2017	19	6	29.46	Yes	0.01	-29.45
147	11/25/2017	19	7	29.47	Yes	0.01	-29.46
148	11/25/2017	19	8	29.50	Yes	0.01	-29.49
149	11/25/2017	19	9	29.29	Yes	0.01	-29.28
150	11/25/2017	19	10	29.28	Yes	0.01	-29.27
151	11/25/2017	19	11	29.25	Yes	0.01	-29.24
152	11/25/2017	19	12	29.02	Yes	0.01	-29.01
153	11/25/2017	24	1	32.49	Yes	0.01	-32.48
154	11/25/2017	24	2	30.00	Yes	0.01	-29.99
155	11/25/2017	24	3	26.38	Yes	0.01	-26.37
156	11/25/2017	24	4	25.34	Yes	0.01	-25.33
157	11/25/2017	24	5	24.78	Yes	0.01	-24.77
158	11/25/2017	24	6	24.78	Yes	0.01	-24.77
159	11/25/2017	24	7	25.08	Yes	0.01	-25.07
160	11/25/2017	24	8	25.08	Yes	0.01	-25.07
161	11/25/2017	24	9	24.76	Yes	0.01	-24.75
162	11/25/2017	24	10	24.18	Yes	0.01	-24.17
163	11/25/2017	24	11	24.07	Yes	0.01	-24.06
164	11/25/2017	24	12	23.58	Yes	0.01	-23.57
165	11/26/2017	1	1	21.73	Yes	0.01	-21.72
166	11/26/2017	1	2	21.93	Yes	0.01	-21.92
167	11/26/2017	1	3	23.72	Yes	0.01	-23.71
168	11/26/2017	1	4	23.48	Yes	0.01	-23.47
169	11/26/2017	1	5	23.63	Yes	0.01	-23.62
170	11/26/2017	1	6	24.70	Yes	0.01	-24.69
171	11/26/2017	1	7	23.49	Yes	0.01	-23.48
172	11/26/2017	1	8	23.63	Yes	0.01	-23.62
173	11/26/2017	1	9	21.95	Yes	0.01	-21.94
174	11/26/2017	1	10	22.30	Yes	0.01	-22.29
175	11/26/2017	1	11	21.80	Yes	0.01	-21.79
176	11/26/2017	1	12	18.94	Yes	0.01	-18.93
177	11/26/2017	2	1	24.28	Yes	0.01	-24.27
178	11/26/2017	2	2	24.28	Yes	0.01	-24.27
179	11/26/2017	2	3	29.75	Yes	0.01	-29.74
180	11/26/2017	2	4	26.74	Yes	0.01	-26.73
181	11/26/2017	2	5	25.53	Yes	0.01	-25.52
182	11/26/2017	2	6	24.95	Yes	0.01	-24.94
183	11/26/2017	2	7	26.35	Yes	0.01	-26.34

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184	11/26/2017	2	8	28.98	Yes	0.01	-28.97
185	11/26/2017	2	9	25.81	Yes	0.01	-25.80
186	11/26/2017	2	10	24.80	Yes	0.01	-24.79
187	11/26/2017	2	11	23.76	Yes	0.01	-23.75
188	11/26/2017	2	12	24.80	Yes	0.01	-24.79
189	11/26/2017	4	1	30.99	Yes	0.01	-30.98
190	11/26/2017	4	2	29.19	Yes	0.01	-29.18
191	11/26/2017	4	3	27.41	Yes	0.01	-27.40
192	11/26/2017	4	4	27.35	Yes	0.01	-27.34
193	11/26/2017	4	5	27.35	Yes	0.01	-27.34
194	11/26/2017	4	6	27.35	Yes	0.01	-27.34
195	11/26/2017	4	7	27.34	Yes	0.01	-27.33
196	11/26/2017	4	8	27.35	Yes	0.01	-27.34
197	11/26/2017	4	9	27.27	Yes	0.01	-27.26
198	11/26/2017	4	10	29.46	Yes	0.01	-29.45
199	11/26/2017	4	11	29.51	Yes	0.01	-29.50
200	11/26/2017	4	12	29.72	Yes	0.01	-29.71
201	11/26/2017	8	1	37.36	Yes	0.01	-37.35
202	26-Nov-17	8	2	\$29.77	Yes	\$0.01	(\$29.76)
203	11/26/2017	8	3	29.77	Yes	0.01	-29.76
204	11/26/2017	8	4	29.77	Yes	0.01	-29.76
205	11/26/2017	8	5	27.07	Yes	0.01	-27.06
206	11/26/2017	8	6	25.87	Yes	0.01	-25.86
207	11/26/2017	8	7	20.44	Yes	0.01	-20.43
208	11/26/2017	8	8	20.19	Yes	0.01	-20.18
209	11/26/2017	8	9	20.03	Yes	0.01	-20.02
210	11/26/2017	8	10	18.54	Yes	0.01	-18.53
211	11/26/2017	8	11	16.37	Yes	0.01	-16.36
212	11/26/2017	8	12	16.37	Yes	0.01	-16.36
213	11/26/2017	12	1	15.74	Yes	0.01	-15.73
214	11/26/2017	12	2	17.50	Yes	0.01	-17.49
215	11/26/2017	12	3	19.59	Yes	0.01	-19.58
216	11/26/2017	12	4	20.09	Yes	0.01	-20.08
217	11/26/2017	12	5	19.63	Yes	0.01	-19.62
218	11/26/2017	12	6	19.85	Yes	0.01	-19.84
219	11/26/2017	12	7	21.14	Yes	0.01	-21.13
220	11/26/2017	12	8	20.57	Yes	0.01	-20.56
221	11/26/2017	12	9	20.68	Yes	0.01	-20.67
222	11/26/2017	12	10	21.12	Yes	0.01	-21.11
223	11/26/2017	12	11	20.80	Yes	0.01	-20.79
224	11/26/2017	12	12	20.80	Yes	0.01	-20.79
225	11/26/2017	13	1	19.02	Yes	0.01	-19.01
226	11/26/2017	13	2	19.66	Yes	0.01	-19.65
227	11/26/2017	13	3	19.66	Yes	0.01	-19.65
228	11/26/2017	13	4	20.07	Yes	0.01	-20.06
229	11/26/2017	13	5	20.23	Yes	0.01	-20.22

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230	11/26/2017	13	6	20.79	Yes	0.01	-20.78
231	11/26/2017	13	7	29.64	Yes	0.01	-29.63
232	11/26/2017	13	8	29.64	Yes	0.01	-29.63
233	11/26/2017	13	9	25.59	Yes	0.01	-25.58
234	11/26/2017	13	10	21.14	Yes	0.01	-21.13
235	11/26/2017	13	11	23.53	Yes	0.01	-23.52
236	11/26/2017	13	12	25.16	Yes	0.01	-25.15
237	11/26/2017	17	1	18.77	Yes	0.01	-18.76
238	11/26/2017	17	2	18.97	Yes	0.01	-18.96
239	11/26/2017	17	3	19.61	Yes	0.01	-19.60
240	11/26/2017	17	4	20.65	Yes	0.01	-20.64
241	11/26/2017	17	5	20.89	Yes	0.01	-20.88
242	11/26/2017	17	6	21.53	Yes	0.01	-21.52
243	11/26/2017	17	7	23.73	Yes	0.01	-23.72
244	11/26/2017	17	8	22.17	Yes	0.01	-22.16
245	11/26/2017	17	9	26.72	Yes	0.01	-26.71
246	11/26/2017	17	10	26.98	Yes	0.01	-26.97
247	11/26/2017	17	11	28.68	Yes	0.01	-28.67
248	11/26/2017	17	12	37.55	Yes	0.01	-37.54
249	11/26/2017	21	1	38.62	Yes	0.01	-38.61
250	11/26/2017	21	2	31.18	Yes	0.01	-31.17
251	11/26/2017	21	3	27.69	Yes	0.01	-27.68
252	11/26/2017	21	4	27.98	Yes	0.01	-27.97
253	11/26/2017	21	5	27.98	Yes	0.01	-27.97
254	11/26/2017	21	6	26.14	Yes	0.01	-26.13
255	11/26/2017	21	7	25.49	Yes	0.01	-25.48
256	11/26/2017	21	8	25.51	Yes	0.01	-25.50
257	11/26/2017	21	9	25.51	Yes	0.01	-25.50
258	11/26/2017	21	10	25.46	Yes	0.01	-25.45
259	11/26/2017	21	11	25.30	Yes	0.01	-25.29
260	11/26/2017	21	12	24.80	Yes	0.01	-24.79
261	11/26/2017	22	1	22.45	Yes	0.01	-22.44
262	11/26/2017	22	2	22.91	Yes	0.01	-22.90
263	11/26/2017	22	3	22.92	Yes	0.01	-22.91
264	11/26/2017	22	4	23.96	Yes	0.01	-23.95
265	11/26/2017	22	5	23.26	Yes	0.01	-23.25
266	11/26/2017	22	6	23.27	Yes	0.01	-23.26
267	11/26/2017	22	7	20.77	Yes	0.01	-20.76
268	11/26/2017	22	8	21.38	Yes	0.01	-21.37
269	11/26/2017	22	9	20.46	Yes	0.01	-20.45
270	11/26/2017	22	10	19.39	Yes	0.01	-19.38
271	11/26/2017	22	11	19.87	Yes	0.01	-19.86
272	11/26/2017	22	12	17.84	Yes	0.01	-17.83
273	11/26/2017	23	1	25.36	Yes	0.01	-25.35
274	11/26/2017	23	2	25.22	Yes	0.01	-25.21
275	11/26/2017	23	3	26.46	Yes	0.01	-26.45

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276	11/26/2017	23	4	37.01	Yes	0.01	-37.00
277	11/26/2017	23	5	37.01	Yes	0.01	-37.00
278	11/26/2017	23	6	31.30	Yes	0.01	-31.29
279	11/26/2017	23	7	30.28	Yes	0.01	-30.27
280	11/26/2017	23	8	37.13	Yes	0.01	-37.12
281	11/26/2017	23	9	37.13	Yes	0.01	-37.12
282	11/26/2017	23	10	27.30	Yes	0.01	-27.29
283	11/26/2017	23	11	26.22	Yes	0.01	-26.21
284	11/26/2017	23	12	26.22	Yes	0.01	-26.21
285	11/26/2017	24	1	23.72	Yes	0.01	-23.71
286	11/26/2017	24	2	23.37	Yes	0.01	-23.36
287	11/26/2017	24	3	22.74	Yes	0.01	-22.73
288	11/26/2017	24	4	22.25	Yes	0.01	-22.24
289	11/26/2017	24	5	21.87	Yes	0.01	-21.86
290	11/26/2017	24	6	20.11	Yes	0.01	-20.10
291	11/26/2017	24	7	15.82	Yes	0.01	-15.81
292	11/26/2017	24	8	15.82	Yes	0.01	-15.81
293	11/26/2017	24	9	14.82	Yes	0.01	-14.81
294	11/26/2017	24	10	13.92	Yes	0.01	-13.91
295	11/26/2017	24	11	15.34	Yes	0.01	-15.33
296	11/26/2017	24	12	15.34	Yes	0.01	-15.33
297	11/27/2017	1	1	18.41	Yes	0.01	-18.40
298	11/27/2017	1	2	20.52	Yes	0.01	-20.51
299	11/27/2017	1	3	18.38	Yes	0.01	-18.37
300	11/27/2017	1	4	20.02	Yes	0.01	-20.01
301	11/27/2017	1	5	22.19	Yes	0.01	-22.18
302	11/27/2017	1	6	22.19	Yes	0.01	-22.18
303	27-Nov-17	1	7	\$22.06	Yes	\$0.01	(\$22.05)
304	11/27/2017	1	8	21.63	Yes	0.01	-21.62
305	11/27/2017	1	9	19.98	Yes	0.01	-19.97
306	11/27/2017	1	10	18.44	Yes	0.01	-18.43
307	11/27/2017	1	11	13.19	Yes	0.01	-13.18
308	11/27/2017	1	12	13.49	Yes	0.01	-13.48
309	11/27/2017	3	1	22.75	Yes	0.01	-22.74
310	11/27/2017	3	2	23.18	Yes	0.01	-23.17
311	11/27/2017	3	3	23.55	Yes	0.01	-23.54
312	11/27/2017	3	4	21.33	Yes	0.01	-21.32
313	11/27/2017	3	5	23.17	Yes	0.01	-23.16
314	11/27/2017	3	6	24.29	Yes	0.01	-24.28
315	11/27/2017	3	7	24.43	Yes	0.01	-24.42
316	11/27/2017	3	8	23.84	Yes	0.01	-23.83
317	11/27/2017	3	9	24.22	Yes	0.01	-24.21
318	11/27/2017	3	10	23.98	Yes	0.01	-23.97
319	11/27/2017	3	11	15.91	Yes	0.01	-15.90
320	11/27/2017	3	12	13.89	Yes	0.01	-13.88
321	11/27/2017	4	1	-15.21	Yes	0.01	15.22

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322	11/27/2017	4	2	16.21	Yes	0.01	-16.20
323	11/27/2017	4	3	15.99	Yes	0.01	-15.98
324	11/27/2017	4	4	29.93	Yes	0.01	-29.92
325	11/27/2017	4	5	36.68	Yes	0.01	-36.67
326	11/27/2017	4	6	23.65	Yes	0.01	-23.64
327	11/27/2017	4	7	24.30	Yes	0.01	-24.29
328	11/27/2017	4	8	23.52	Yes	0.01	-23.51
329	11/27/2017	4	9	22.10	Yes	0.01	-22.09
330	11/27/2017	4	10	22.09	Yes	0.01	-22.08
331	11/27/2017	4	11	21.45	Yes	0.01	-21.44
332	11/27/2017	4	12	21.59	Yes	0.01	-21.58
333	11/27/2017	6	2	14.48	Yes	0.01	-14.47
334	11/27/2017	6	3	13.46	Yes	0.01	-13.45
335	11/27/2017	6	4	15.75	Yes	0.01	-15.74
336	11/27/2017	6	5	16.24	Yes	0.01	-16.23
337	11/27/2017	6	6	18.46	Yes	0.01	-18.45
338	11/27/2017	6	7	20.53	Yes	0.01	-20.52
339	11/27/2017	6	8	21.09	Yes	0.01	-21.08
340	11/27/2017	6	9	21.95	Yes	0.01	-21.94
341	11/27/2017	6	10	17.13	Yes	0.01	-17.12
342	11/27/2017	6	11	15.40	Yes	0.01	-15.39
343	11/27/2017	6	12	19.97	Yes	0.01	-19.96
344	11/29/2017	17	1	31.40	No	250	218.60
345	11/29/2017	17	2	28.80	No	250	221.20
346	11/29/2017	17	3	31.29	No	250	218.71
347	11/29/2017	17	4	32.51	No	250	217.49
348	11/29/2017	17	5	34.22	No	250	215.78
349	11/29/2017	17	6	32.53	No	250	217.47
350	11/29/2017	17	7	41.21	No	250	208.79
351	11/29/2017	17	8	38.11	No	250	211.89
352	11/29/2017	17	9	40.78	No	250	209.22
353	11/29/2017	17	10	49.58	No	250	200.42
354	11/29/2017	17	11	55.22	No	250	194.78
355	11/29/2017	17	12	57.06	No	250	192.94
356	11/29/2017	21	1	43.65	No	0.01	-43.64
357	11/29/2017	21	2	39.62	No	0.01	-39.61
358	11/29/2017	21	3	39.09	No	0.01	-39.08
359	11/29/2017	21	4	39.71	No	0.01	-39.70
360	11/29/2017	21	5	39.60	No	0.01	-39.59
361	11/29/2017	21	6	38.60	No	0.01	-38.59
362	11/29/2017	21	7	39.25	No	0.01	-39.24
363	11/29/2017	21	8	37.92	No	0.01	-37.91
364	11/29/2017	21	9	32.47	No	0.01	-32.46
365	11/29/2017	21	10	31.90	No	0.01	-31.89
366	11/29/2017	21	11	32.08	No	0.01	-32.07
367	11/29/2017	21	12	32.14	No	0.01	-32.13

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368	11/29/2017	22	1	36.24	No	250	213.76
369	11/29/2017	22	2	36.24	No	250	213.76
370	11/29/2017	22	3	36.25	No	250	213.75
371	11/29/2017	22	4	35.94	No	250	214.06
372	11/29/2017	22	5	33.36	No	250	216.64
373	11/29/2017	22	6	48.34	No	250	201.66
374	11/29/2017	22	7	41.17	No	250	208.83
375	11/29/2017	22	8	39.14	No	250	210.86
376	11/29/2017	22	9	70.22	No	250	179.78
377	11/29/2017	22	10	41.21	No	250	208.79
378	11/29/2017	22	11	41.03	No	250	208.97
379	11/29/2017	22	12	39.84	No	250	210.16
380	11/30/2017	1	1	28.22	Yes	250	221.78
381	11/30/2017	1	2	29.50	Yes	250	220.50
382	11/30/2017	1	3	29.11	Yes	250	220.89
383	11/30/2017	1	4	26.82	Yes	250	223.18
384	11/30/2017	1	5	26.56	Yes	250	223.44
385	11/30/2017	1	6	25.29	Yes	250	224.71
386	11/30/2017	1	7	23.17	Yes	250	226.83
387	11/30/2017	1	8	23.10	Yes	250	226.90
388	11/30/2017	1	9	22.91	Yes	250	227.09
389	11/30/2017	1	10	22.42	Yes	250	227.58
390	11/30/2017	1	11	22.42	Yes	250	227.58
391	11/30/2017	1	12	21.21	Yes	250	228.79
392	11/30/2017	2	6	22.73	Yes	250	227.27
393	11/30/2017	2	7	22.87	Yes	250	227.13
394	11/30/2017	2	8	22.67	Yes	250	227.33
395	11/30/2017	2	9	22.65	Yes	250	227.35
396	11/30/2017	2	10	22.21	Yes	250	227.79
397	11/30/2017	2	11	21.69	Yes	250	228.31
398	11/30/2017	2	12	19.26	Yes	250	230.74
399	11/30/2017	17	1	26.37	Yes	0.01	-26.36
400	11/30/2017	17	2	29.40	Yes	0.01	-29.39
401	11/30/2017	17	3	28.13	Yes	0.01	-28.12
402	11/30/2017	17	4	30.80	Yes	0.01	-30.79
403	11/30/2017	17	5	30.85	Yes	0.01	-30.84
404	30-Nov-17	17	6	\$38.97	Yes	\$0.01	(\$38.96)
405	11/30/2017	17	7	38.16	Yes	0.01	-38.15
406	11/30/2017	17	8	34.94	Yes	0.01	-34.93
407	11/30/2017	17	9	42.05	Yes	0.01	-42.04
408	11/30/2017	17	10	44.14	Yes	0.01	-44.13
409	11/30/2017	17	11	47.70	Yes	0.01	-47.69
410	11/30/2017	17	12	930.14	Yes	0.01	-930.13
411	11/30/2017	18	1	44.76	Yes	0.01	-44.75
412	11/30/2017	18	2	47.98	Yes	0.01	-47.97
413	11/30/2017	18	3	52.26	Yes	0.01	-52.25

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414	11/30/2017	18	4	52.15	Yes	0.01	-52.14
415	11/30/2017	18	5	55.12	Yes	0.01	-55.11
416	11/30/2017	18	6	48.69	Yes	0.01	-48.68
417	11/30/2017	18	7	39.46	Yes	0.01	-39.45
418	11/30/2017	18	8	39.12	Yes	0.01	-39.11
419	11/30/2017	18	9	38.26	Yes	0.01	-38.25
420	11/30/2017	18	10	50.24	Yes	0.01	-50.23
421	11/30/2017	18	11	51.39	Yes	0.01	-51.38
422	11/30/2017	18	12	50.76	Yes	0.01	-50.75

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	11/11/2017	10	1	-3.06	Yes	115.64	118.70
2	11/11/2017	10	2	-3.34	Yes	115.64	118.98
3	11/11/2017	10	3	-3.24	Yes	115.64	118.88
4	11/11/2017	10	4	2.65	Yes	115.64	112.99
5	11/11/2017	10	5	2.41	Yes	115.64	113.23
6	11/11/2017	10	6	2.17	Yes	115.64	113.47
7	11/11/2017	10	7	-7.84	Yes	115.64	123.48
8	11/11/2017	10	8	-6.65	Yes	115.64	122.29
9	11/11/2017	10	9	-7.87	Yes	115.64	123.51
10	11/11/2017	10	10	-11.04	Yes	115.64	126.68
11	11/11/2017	10	11	-11.28	Yes	115.64	126.92
12	11/11/2017	10	12	-10.54	Yes	115.64	126.18

Appendix C: Exceptional Dispatch Bid Mitigation Analysis

In November 2017, the ISO applied the exceptional dispatch bid mitigation to the exceptional dispatches. **Error! Reference source not found.** shows the costs by instruction type in November. With exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches were \$ 464. Without the exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches would be \$ 464. The cost saving from the exceptional dispatch bid mitigation was \$ 0.

Table 10: Bid Mitigation Analysis for November 2017

Type	Number of Resources	Costs without Bid Mitigation	Costs with Bid Mitigation	Cost Saving
NONTMOD	1	\$464	\$464	\$ 0
Total	1	\$464	\$464	\$ 0