December 16, 2019

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: California Independent System Operator Corporation
Docket Nos. ER08-1178-000 and EL08-88-000
And October 2019 Exceptional Dispatch Reports (Charts 1 and 2)

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits both its October 2019 (Chart 1) and October 2019 (Chart 2) Exceptional Dispatch reports as required by the Commission in the September 2, 2009 and May 4, 2010 orders. Because the necessary information is available, the CAISO is issuing the Chart 1 and Chart 2 reports on the 15th of the month. Previously, the Chart 2 report was filed on the 30th of the month.

Each report provides information that the Commission directed be included, as set forth in the September 2, 2009 and May 4, 2010 orders. The Chart 1 report (Attachment A), includes exceptional dispatch information except for cost data and the degree of mitigation and price impact analyses. The Chart 2 report (Attachment B), includes all of the information in the Chart 1 report as well as cost data and the degree of mitigation and price impact analyses.

Respectfully submitted,

By: *<u>/s/ Sidney L. Mannheim</u>*

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ATTACHMENT A

October 2019 Exceptional Dispatch Report
Chart 1 data

Exceptional Dispatch Report

Table 1: October 2019

CAISO Market Quality and Renewable Integration **December 16, 2019**

CAISO
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Introduction

This report is filed pursuant to FERC's September 2, 2009, and May 4, 2010, orders in Docket No. ER08-1178. These orders require two monthly Exceptional Dispatch reports—one issued on the 15th of each month and one originally issued on the 30th of each month. Both Table 1 and Table 2 reports will be issued on the 15th of each month due to the availability of necessary data. This report provides data on the frequency and reasons for Exceptional Dispatches issued in October 2019.

The Nature of Exceptional Dispatch

The CAISO can issue exceptional dispatch instructions for a resource as a pre-day-ahead unit commitment, which may also include an indicative exceptional dispatch energy schedule, a post-day-ahead unit commitment, or a real-time exceptional dispatch.[1] A pre-day-ahead commitment is an exceptional dispatch instruction that commits a resource at or above its physical minimum operating level in the day-ahead market. A post-day-ahead market commitment is an exceptional dispatch instruction that commits a resource at or above its physical minimum operating level in the real-time market. A real-time exceptional dispatch instruction is a dispatch of a resource at or above its physical minimum operating point. A real-time exceptional dispatch above the resource day-ahead award is an incremental exceptional dispatch instruction and an exceptional dispatch below the day-ahead award is 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.

Many of the exceptional dispatches listed below in Table 1, were to satisfy either a local area or system reliability requirements, and are classified into local generation requirements, transmission management requirements, non-modeled transmission outages or other non-modeled constraints or requirements and intertie emergency assistance. All of the transmission procedures are available on the CAISO website.[2]

The following reason for exceptional dispatch instructions in October 2019 was not related to generation or transmission operating procedures: 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

[1] The CAISO can issue exceptional dispatch instructions subject to authority of the CAISO Tariff Section 34.11 and in accordance with CAISO Operating Procedure 2330 (formerly M-402).

[2] A list of all of the CAISO's publicly available Operating Procedures are available at the following link: http://www.caiso.com/thegrid/operations/opsdoc/index.html

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. Interconnection Reliability Operating Limits (IROL) are system operating limits established to prevent instability, uncontrolled separation or cascading as described in operating procedure 3100. System Operating Limits (SOL) are the facility ratings, system voltage limits, transient stability limits, and voltage stability limits used in the operating horizon – any of which can be the most restrictive limit at any point in time, pre – or post – contingency. Control Point (CP) are imposed to protect the area transmission network against N – 1 contingencies. There were a few other reasons used to explain exceptional dispatch instructions in October 2019, which are self explanatory.

The data in Table 1 is based on a template specified in the September 2009 order.[3] Each entry in Attachment A 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; and (6) End Time.

The MW column shows the range of exceptional dispatch instructions in MW for the classification. The Commitment column specifies if there was a unit commitment for the classification. The INC/DEC column specifies if there was an incremental dispatch or a decremental dispatch from the IFM schedule. The Begin Time column shows the start of exceptional dispatch for the classification and the End Time column shows the end of exceptional dispatch for the classification. The column Hours is the difference between end time and begin time rounded up to the next hour. The data shown is further explained by way of example in Attachment A.

Table 1 indicates there were 302 exceptional dispatches in October 2019, as compared to 300 exceptional dispatches in September 2019. Exceptional dispatches issued for the following reasons accounted for approximately 61 percent of the total exceptional dispatches during the reporting period: planned

[3] The data in Table 1 is principally SLIC information supplemented with data from the Market Quality System (MQS). It is the most accurate currently available and it is worth noting that this data has been through the T+38B initial statement process wherein many unresolved issues are fixed. The CAISO believes that this data will correlate well with the settlements data that will be available when the CAISO files the Table 2 report for the reporting period.

transmission outages, software limitations, load forecast uncertainty, and operating procedure number 7110 (along with 7430 and 7720). Many of the exceptional dispatches with the reason “Other Reliability Requirement” were due to Real Time Contingency Analysis.

Table 1: Exceptional Dispatches in October 2019

California Independent System Operator Corporation
Exceptional Dispatch Report
December 16, 2019

Chart 1: Table of Exceptional Dispatches for Period 01/October/2019 - 31/October/2019

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
1	RT	Bridging Schedules	SCE	LA Basin	10/24/2019	20	No	INC	4	20:00	0:00
2	RT	Conditions beyond the control of the CAISO	PGAE	NA	10/19/2019	197	No	DEC	1	17:00	17:10
3	RT	Conditions beyond the control of the CAISO	SCE	Big Creek-Ventura	10/19/2019	452	No	DEC	1	17:05	17:10
4	RT	Conditions beyond the control of the CAISO	SCE	NA	10/19/2019	471	No	DEC	1	17:05	17:10
5	RT	Conditions beyond the control of the CAISO	SDGE	San Diego-IV	10/19/2019	312	No	DEC	1	17:00	17:45
6	RT	Fast Start Unit Management	PGAE	Bay Area	10/31/2019	0	No	INC	2	7:00	8:05
7	RT	Fire Threats	PGAE	Bay Area	10/11/2019	175	No	INC	7	15:00	22:00
8	RT	Fire Threats	PGAE	Fresno	10/10/2019	83	No	INC	1	22:05	23:00
9	RT	Fire Threats	PGAE	NCNB	10/23/2019	60	No	DEC	1	23:30	0:00
10	RT	Fire Threats	PGAE	NCNB	10/24/2019	60 - 65	No	DEC	24	0:00	0:00
11	RT	Fire Threats	PGAE	NCNB	10/25/2019	65	No	DEC	1	0:00	1:00
12	RT	Fire Threats	PGAE	NCNB	10/25/2019	62 - 65	No	INC	1	0:00	1:00
13	RT	Fire Threats	SCE	LA Basin	10/11/2019	20	No	INC	8	16:30	0:00
14	RT	Fire Threats	SCE	LA Basin	10/24/2019	10 - 20	Yes	INC	5	19:00	0:00
15	RT	Fire Threats	SCE	LA Basin	10/25/2019	10 - 20	Yes	INC	24	0:00	0:00
16	RT	Fire Threats	SCE	LA Basin	10/30/2019	20	No	INC	12	12:00	0:00
17	RT	Fire Threats	SCE	LA Basin	10/31/2019	20	Yes	INC	24	0:00	0:00
18	RT	Incomplete or Inaccurate Transmission	PGAE	Fresno	10/22/2019	75	No	DEC	1	18:35	19:00
19	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	10/22/2019	0	No	DEC	1	19:00	20:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
20	RT	Incomplete or Inaccurate Transmission	PGAE	Stockton	10/30/2019	200 - 270	No	DEC	17	7:40	0:00
21	RT	Incomplete or Inaccurate Transmission	PGAE	Stockton	10/30/2019	240 - 270	No	INC	9	9:00	18:00
22	RT	Incomplete or Inaccurate Transmission	PGAE	Stockton	10/31/2019	200	No	DEC	2	0:00	2:00
23	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/13/2019	175	No	INC	6	16:00	22:00
24	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/17/2019	175	No	INC	16	6:00	22:00
25	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/19/2019	120	No	INC	4	17:45	21:00
26	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/29/2019	54	No	INC	11	12:00	23:00
27	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/30/2019	120	No	INC	1	21:00	21:35
28	RT	Load Forecast Uncertainty	PGAE	Fresno	10/25/2019	83	No	DEC	1	17:00	18:00
29	RT	Load Forecast Uncertainty	PGAE	Fresno	10/25/2019	83	No	INC	1	16:50	17:00
30	RT	Load Forecast Uncertainty	PGAE	Fresno	10/30/2019	14 - 35	No	INC	1	21:00	21:35
31	RT	Load Forecast Uncertainty	PGAE	NA	10/7/2019	48.95	No	DEC	3	15:00	18:00
32	RT	Load Forecast Uncertainty	PGAE	NA	10/7/2019	48.95	No	INC	4	11:15	15:00
33	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	10/30/2019	16	No	INC	1	21:00	21:35
34	RT	Load Forecast Uncertainty	SCE	LA Basin	10/12/2019	20	No	INC	5	17:00	22:00
35	RT	Load Forecast Uncertainty	SCE	LA Basin	10/28/2019	98	No	INC	1	23:00	0:00
36	RT	Load Forecast Uncertainty	SCE	LA Basin	10/29/2019	20 - 98	No	INC	24	0:00	0:00
37	RT	Load Forecast Uncertainty	SCE	LA Basin	10/30/2019	5 - 20	Yes	INC	22	0:00	21:35
38	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	10/29/2019	225	No	INC	11	12:00	23:00
39	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	10/30/2019	30	No	INC	1	21:00	21:35
40	RT	Market Disruption	SCE	LA Basin	10/22/2019	65 - 290	No	INC	4	9:30	13:00
41	RT	Market Disruption	SCE	NA	10/22/2019	241	No	INC	4	12:30	16:00
42	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/4/2019	45	No	INC	14	9:25	23:00
43	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/6/2019	32	No	DEC	4	17:00	21:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
44	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/6/2019	16 - 32	No	INC	17	7:05	0:00
45	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/7/2019	32 - 45	No	DEC	7	17:40	0:00
46	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/7/2019	32 - 45	No	INC	17	0:00	17:00
47	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/8/2019	14 - 32	No	DEC	22	0:00	21:40
48	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/8/2019	28 - 56	No	INC	23	1:00	0:00
49	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/9/2019	28 - 42	No	INC	2	0:00	1:45
50	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/11/2019	14 - 44	No	INC	18	2:00	19:45
51	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/13/2019	14 - 32	No	INC	19	3:15	21:30
52	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/15/2019	30	No	DEC	1	22:25	23:00
53	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/15/2019	16 - 30	No	INC	2	22:00	0:00
54	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/16/2019	30	No	DEC	3	17:00	20:00
55	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/16/2019	16 - 45	No	INC	24	0:00	0:00
56	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/17/2019	16	No	DEC	2	4:30	6:25
57	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/17/2019	30 - 42	No	INC	24	0:00	0:00
58	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/18/2019	28 - 30	No	INC	7	0:00	6:45
59	RT	Operating Procedure Number and Constraint (7430)	PGAE	Fresno	10/7/2019	75	No	INC	3	9:45	12:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
60	RT	Operating Procedure Number and Constraint (7430)	PGAE	Fresno	10/30/2019	80	No	INC	7	13:45	20:00
61	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/6/2019	415 - 440	No	DEC	7	17:30	0:00
62	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/6/2019	474	No	INC	2	16:10	17:30
63	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/7/2019	375 - 450	No	DEC	23	0:00	23:00
64	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/7/2019	435 - 470	No	INC	15	2:00	17:00
65	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/9/2019	430 - 450	No	DEC	5	17:15	22:00
66	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/9/2019	430 - 475	No	INC	16	7:50	23:00
67	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/12/2019	390 - 415	No	DEC	5	18:00	23:00
68	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/12/2019	415	No	INC	1	17:00	18:00
69	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/20/2019	375 - 411	No	DEC	23	1:00	0:00
70	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/20/2019	410 - 411	No	INC	17	0:55	17:00
71	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/21/2019	360 - 375	No	DEC	24	0:00	0:00
72	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/21/2019	360	No	INC	8	9:00	17:00
73	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/22/2019	360	No	DEC	1	0:00	1:00
74	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/22/2019	340 - 360	No	INC	10	14:10	0:00
75	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/23/2019	340	No	INC	1	0:00	1:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
76	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/24/2019	196 - 380	No	DEC	18	6:05	0:00
77	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/24/2019	195 - 300	No	INC	9	8:00	17:00
78	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/25/2019	300 - 320	No	DEC	24	0:00	0:00
79	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/25/2019	300 - 330	No	INC	8	8:00	16:00
80	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/26/2019	320 - 350	No	DEC	8	0:00	8:00
81	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/26/2019	300 - 350	No	INC	16	8:00	0:00
82	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/27/2019	300 - 350	No	INC	11	0:00	10:15
83	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/28/2019	415	No	DEC	1	22:00	23:00
84	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/28/2019	415	No	INC	8	16:45	0:00
85	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/29/2019	415	No	DEC	2	5:00	7:00
86	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/29/2019	415	No	INC	10	0:00	10:00
87	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/31/2019	410	No	DEC	7	17:00	0:00
88	RT	Other Reliability Requirement	PGAE	Bay Area	10/10/2019	20	No	INC	8	12:25	20:15
89	RT	Other Reliability Requirement	PGAE	Bay Area	10/12/2019	454	No	DEC	1	2:30	3:00
90	RT	Other Reliability Requirement	PGAE	Bay Area	10/12/2019	454	No	INC	1	3:00	3:45
91	RT	Other Reliability Requirement	PGAE	Bay Area	10/13/2019	450 - 485	No	DEC	2	22:45	0:00
92	RT	Other Reliability Requirement	PGAE	Bay Area	10/29/2019	20	No	INC	10	10:45	20:00
93	RT	Other Reliability Requirement	PGAE	Fresno	10/1/2019	4 - 12	No	INC	24	0:00	0:00
94	RT	Other Reliability Requirement	PGAE	Fresno	10/2/2019	4 - 12	No	INC	24	0:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
95	RT	Other Reliability Requirement	PGAE	Fresno	10/3/2019	4 - 12	No	INC	24	0:00	0:00
96	RT	Other Reliability Requirement	PGAE	Fresno	10/4/2019	4 - 12	No	INC	24	0:00	0:00
97	RT	Other Reliability Requirement	PGAE	Fresno	10/5/2019	4 - 12	No	INC	24	0:00	0:00
98	RT	Other Reliability Requirement	PGAE	Fresno	10/6/2019	4 - 12	No	INC	24	0:00	0:00
99	RT	Other Reliability Requirement	PGAE	Fresno	10/7/2019	4 - 12	No	INC	24	0:00	0:00
100	RT	Other Reliability Requirement	PGAE	Fresno	10/8/2019	4 - 12	No	INC	24	0:00	0:00
101	RT	Other Reliability Requirement	PGAE	Fresno	10/9/2019	4 - 12	No	INC	24	0:00	0:00
102	RT	Other Reliability Requirement	PGAE	Fresno	10/10/2019	4 - 12	No	INC	24	0:00	0:00
103	RT	Other Reliability Requirement	PGAE	Fresno	10/11/2019	4 - 12	No	INC	24	0:00	0:00
104	RT	Other Reliability Requirement	PGAE	Fresno	10/12/2019	4 - 12	No	INC	24	0:00	0:00
105	RT	Other Reliability Requirement	PGAE	Fresno	10/13/2019	4 - 12	No	INC	24	0:00	0:00
106	RT	Other Reliability Requirement	PGAE	Fresno	10/14/2019	4 - 12	No	INC	24	0:00	0:00
107	RT	Other Reliability Requirement	PGAE	Fresno	10/15/2019	4 - 12	No	INC	24	0:00	0:00
108	RT	Other Reliability Requirement	PGAE	Fresno	10/16/2019	4 - 12	No	INC	24	0:00	0:00
109	RT	Other Reliability Requirement	PGAE	Fresno	10/17/2019	4 - 12	No	INC	24	0:00	0:00
110	RT	Other Reliability Requirement	PGAE	Fresno	10/18/2019	4 - 12	No	INC	24	0:00	0:00
111	RT	Other Reliability Requirement	PGAE	Fresno	10/19/2019	4 - 12	No	INC	24	0:00	0:00
112	RT	Other Reliability Requirement	PGAE	Fresno	10/20/2019	4 - 12	No	INC	24	0:00	0:00
113	RT	Other Reliability Requirement	PGAE	Fresno	10/21/2019	4 - 12	No	INC	24	0:00	0:00
114	RT	Other Reliability Requirement	PGAE	Fresno	10/22/2019	4 - 12	No	INC	24	0:00	0:00
115	RT	Other Reliability Requirement	PGAE	Fresno	10/23/2019	4 - 12	No	INC	24	0:00	0:00
116	RT	Other Reliability Requirement	PGAE	Fresno	10/24/2019	4 - 12	No	INC	24	0:00	0:00
117	RT	Other Reliability Requirement	PGAE	Fresno	10/25/2019	4 - 12	No	INC	24	0:00	0:00
118	RT	Other Reliability Requirement	PGAE	Fresno	10/26/2019	4 - 12	No	INC	24	0:00	0:00
119	RT	Other Reliability Requirement	PGAE	Fresno	10/27/2019	4 - 12	No	INC	24	0:00	0:00
120	RT	Other Reliability Requirement	PGAE	Fresno	10/28/2019	4 - 12	No	INC	24	0:00	0:00
121	RT	Other Reliability Requirement	PGAE	Fresno	10/29/2019	4 - 12	No	INC	24	0:00	0:00
122	RT	Other Reliability Requirement	PGAE	Fresno	10/30/2019	4 - 12	No	INC	24	0:00	0:00
123	RT	Other Reliability Requirement	PGAE	Fresno	10/31/2019	4 - 12	No	INC	24	0:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
124	RT	Other Reliability Requirement	PGAE	Humboldt	10/7/2019	32	No	DEC	4	19:55	23:00
125	RT	Other Reliability Requirement	PGAE	NA	10/1/2019	38	No	INC	24	0:00	0:00
126	RT	Other Reliability Requirement	PGAE	NA	10/2/2019	38	No	INC	24	0:00	0:00
127	RT	Other Reliability Requirement	PGAE	NA	10/3/2019	38	No	INC	24	0:00	0:00
128	RT	Other Reliability Requirement	PGAE	NA	10/4/2019	38	No	INC	24	0:00	0:00
129	RT	Other Reliability Requirement	PGAE	NA	10/5/2019	38	No	INC	24	0:00	0:00
130	RT	Other Reliability Requirement	PGAE	NA	10/6/2019	38	No	INC	24	0:00	0:00
131	RT	Other Reliability Requirement	PGAE	NA	10/7/2019	38	No	INC	24	0:00	0:00
132	RT	Other Reliability Requirement	PGAE	NA	10/8/2019	38	No	INC	24	0:00	0:00
133	RT	Other Reliability Requirement	PGAE	NA	10/9/2019	38	No	INC	24	0:00	0:00
134	RT	Other Reliability Requirement	PGAE	NA	10/10/2019	38	No	INC	24	0:00	0:00
135	RT	Other Reliability Requirement	PGAE	NA	10/11/2019	38	No	INC	24	0:00	0:00
136	RT	Other Reliability Requirement	PGAE	NA	10/12/2019	38	No	INC	24	0:00	0:00
137	RT	Other Reliability Requirement	PGAE	NA	10/13/2019	38	No	INC	24	0:00	0:00
138	RT	Other Reliability Requirement	PGAE	NA	10/14/2019	38	No	INC	24	0:00	0:00
139	RT	Other Reliability Requirement	PGAE	NA	10/15/2019	38	No	INC	24	0:00	0:00
140	RT	Other Reliability Requirement	PGAE	NA	10/16/2019	38	No	INC	24	0:00	0:00
141	RT	Other Reliability Requirement	PGAE	NA	10/17/2019	38	No	INC	24	0:00	0:00
142	RT	Other Reliability Requirement	PGAE	NA	10/18/2019	38	No	INC	24	0:00	0:00
143	RT	Other Reliability Requirement	PGAE	NA	10/19/2019	38	No	INC	24	0:00	0:00
144	RT	Other Reliability Requirement	PGAE	NA	10/20/2019	38	No	INC	24	0:00	0:00
145	RT	Other Reliability Requirement	PGAE	NA	10/21/2019	38	No	INC	24	0:00	0:00
146	RT	Other Reliability Requirement	PGAE	NA	10/22/2019	20	No	DEC	3	11:45	14:15
147	RT	Other Reliability Requirement	PGAE	NA	10/22/2019	38	No	INC	24	0:00	0:00
148	RT	Other Reliability Requirement	PGAE	NA	10/23/2019	38	No	INC	24	0:00	0:00
149	RT	Other Reliability Requirement	PGAE	NA	10/24/2019	38	No	INC	24	0:00	0:00
150	RT	Other Reliability Requirement	PGAE	NA	10/25/2019	38	No	INC	24	0:00	0:00
151	RT	Other Reliability Requirement	PGAE	NA	10/26/2019	38	No	INC	24	0:00	0:00
152	RT	Other Reliability Requirement	PGAE	NA	10/27/2019	38	No	INC	24	0:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
153	RT	Other Reliability Requirement	PGAE	NA	10/28/2019	38	No	INC	24	0:00	0:00
154	RT	Other Reliability Requirement	PGAE	NA	10/29/2019	38	No	INC	24	0:00	0:00
155	RT	Other Reliability Requirement	PGAE	NA	10/30/2019	38	No	INC	24	0:00	0:00
156	RT	Other Reliability Requirement	PGAE	NA	10/31/2019	38	No	INC	24	0:00	0:00
157	RT	Other Reliability Requirement	PGAE	NCNB	10/1/2019	70 - 80	No	DEC	15	9:55	0:00
158	RT	Other Reliability Requirement	PGAE	Sierra	10/2/2019	15 - 44	No	DEC	7	0:35	7:00
159	RT	Other Reliability Requirement	PGAE	Sierra	10/2/2019	15 - 29	No	INC	1	3:00	4:00
160	RT	Other Reliability Requirement	PGAE	Stockton	10/26/2019	215	No	DEC	3	19:30	22:00
161	RT	Other Reliability Requirement	PGAE	Stockton	10/26/2019	215	No	INC	2	22:00	0:00
162	RT	Planned Transmission Outage	PGAE	Bay Area	10/9/2019	175	No	INC	5	9:00	14:00
163	RT	Planned Transmission Outage	PGAE	Bay Area	10/10/2019	175	No	INC	13	9:00	22:00
164	RT	Planned Transmission Outage	PGAE	Bay Area	10/14/2019	54	No	INC	18	6:00	0:00
165	RT	Planned Transmission Outage	PGAE	Bay Area	10/15/2019	54	No	DEC	6	13:00	19:00
166	RT	Planned Transmission Outage	PGAE	Bay Area	10/15/2019	54	No	INC	13	0:00	13:00
167	RT	Planned Transmission Outage	PGAE	Bay Area	10/26/2019	175	No	INC	11	13:00	0:00
168	RT	Planned Transmission Outage	PGAE	Bay Area	10/27/2019	175	No	INC	24	0:00	0:00
169	RT	Planned Transmission Outage	PGAE	Bay Area	10/28/2019	175 - 360	No	INC	24	0:00	0:00
170	RT	Planned Transmission Outage	PGAE	Humboldt	10/1/2019	14 - 32	No	INC	24	0:00	0:00
171	RT	Planned Transmission Outage	PGAE	Humboldt	10/2/2019	14 - 32	No	INC	24	0:00	0:00
172	RT	Planned Transmission Outage	PGAE	Humboldt	10/3/2019	14 - 28	No	INC	24	0:00	0:00
173	RT	Planned Transmission Outage	PGAE	Humboldt	10/4/2019	14 - 32	No	INC	24	0:00	0:00
174	RT	Planned Transmission Outage	PGAE	Humboldt	10/5/2019	14 - 32	No	INC	24	0:00	0:00
175	RT	Planned Transmission Outage	PGAE	Humboldt	10/11/2019	28 - 32	No	DEC	6	16:00	22:00
176	RT	Planned Transmission Outage	PGAE	Humboldt	10/11/2019	28 - 44	No	INC	18	6:50	0:00
177	RT	Planned Transmission Outage	PGAE	Humboldt	10/12/2019	14	No	DEC	2	21:45	23:00
178	RT	Planned Transmission Outage	PGAE	Humboldt	10/12/2019	14 - 28	No	INC	24	0:00	0:00
179	RT	Planned Transmission Outage	PGAE	Humboldt	10/13/2019	14 - 28	No	INC	24	0:00	0:00
180	RT	Planned Transmission Outage	PGAE	Humboldt	10/14/2019	14	No	DEC	1	7:00	7:25

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
181	RT	Planned Transmission Outage	PGAE	Humboldt	10/14/2019	14 - 28	No	INC	24	0:00	0:00
182	RT	Planned Transmission Outage	PGAE	Humboldt	10/15/2019	14 - 45	No	DEC	17	6:10	22:30
183	RT	Planned Transmission Outage	PGAE	Humboldt	10/15/2019	14 - 65	No	INC	22	0:00	22:00
184	RT	Planned Transmission Outage	PGAE	Humboldt	10/18/2019	14 - 32	No	INC	18	6:25	0:00
185	RT	Planned Transmission Outage	PGAE	Humboldt	10/19/2019	16 - 32	No	INC	24	0:00	0:00
186	RT	Planned Transmission Outage	PGAE	Humboldt	10/20/2019	28	No	DEC	5	17:00	22:00
187	RT	Planned Transmission Outage	PGAE	Humboldt	10/20/2019	15 - 28	No	INC	24	0:00	0:00
188	RT	Planned Transmission Outage	PGAE	Humboldt	10/21/2019	28 - 45	No	DEC	6	16:00	22:00
189	RT	Planned Transmission Outage	PGAE	Humboldt	10/21/2019	28 - 45	No	INC	24	0:00	0:00
190	RT	Planned Transmission Outage	PGAE	Humboldt	10/22/2019	30 - 60	No	DEC	7	16:00	23:00
191	RT	Planned Transmission Outage	PGAE	Humboldt	10/22/2019	15 - 60	No	INC	24	0:00	0:00
192	RT	Planned Transmission Outage	PGAE	Humboldt	10/23/2019	16 - 60	No	DEC	9	15:00	0:00
193	RT	Planned Transmission Outage	PGAE	Humboldt	10/23/2019	16 - 60	No	INC	24	0:00	0:00
194	RT	Planned Transmission Outage	PGAE	Humboldt	10/24/2019	16 - 30	No	DEC	22	0:00	22:00
195	RT	Planned Transmission Outage	PGAE	Humboldt	10/24/2019	30 - 45	No	INC	24	0:00	0:00
196	RT	Planned Transmission Outage	PGAE	Humboldt	10/25/2019	30 - 45	No	DEC	5	17:00	22:00
197	RT	Planned Transmission Outage	PGAE	Humboldt	10/25/2019	30 - 45	No	INC	24	0:00	0:00
198	RT	Planned Transmission Outage	PGAE	Humboldt	10/26/2019	15	No	DEC	20	0:45	20:00
199	RT	Planned Transmission Outage	PGAE	Humboldt	10/26/2019	15 - 30	No	INC	22	0:00	22:00
200	RT	Planned Transmission Outage	PGAE	Humboldt	10/28/2019	30 - 45	No	INC	6	18:45	0:00
201	RT	Planned Transmission Outage	PGAE	Humboldt	10/29/2019	15 - 45	No	INC	24	0:00	0:00
202	RT	Planned Transmission Outage	PGAE	Humboldt	10/30/2019	45 - 60	No	DEC	5	17:00	22:00
203	RT	Planned Transmission Outage	PGAE	Humboldt	10/30/2019	45 - 60	No	INC	24	0:00	0:00
204	RT	Planned Transmission Outage	PGAE	Humboldt	10/31/2019	30 - 60	No	DEC	6	17:00	23:00
205	RT	Planned Transmission Outage	PGAE	Humboldt	10/31/2019	30 - 60	No	INC	24	0:00	0:00
206	RT	Planned Transmission Outage	PGAE	NA	10/22/2019	20	No	DEC	4	13:50	17:00
207	RT	Planned Transmission Outage	PGAE	NA	10/22/2019	20	No	INC	2	17:00	19:00
208	RT	Planned Transmission Outage	PGAE	NCNB	10/9/2019	60	No	DEC	5	9:00	14:00
209	RT	Planned Transmission Outage	PGAE	NCNB	10/9/2019	60	No	INC	14	1:45	15:45

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
210	RT	Planned Transmission Outage	PGAE	Sierra	10/4/2019	32	Yes	INC	1	23:00	0:00
211	RT	Planned Transmission Outage	PGAE	Sierra	10/5/2019	32	No	INC	17	0:00	17:00
212	RT	Planned Transmission Outage	PGAE	Stockton	10/31/2019	220	No	DEC	5	19:10	0:00
213	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	10/21/2019	190 - 350	No	INC	1	7:50	8:45
214	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	10/23/2019	47.1 - 400	No	INC	4	9:20	12:45
215	RT	Planned Transmission Outage	SCE	LA Basin	10/21/2019	225 - 335	No	INC	5	7:50	12:00
216	RT	Planned Transmission Outage	SCE	LA Basin	10/22/2019	147	No	DEC	2	20:50	22:00
217	RT	Planned Transmission Outage	SCE	LA Basin	10/22/2019	65 - 240	No	INC	14	9:10	23:00
218	RT	Planned Transmission Outage	SCE	LA Basin	10/23/2019	10 - 241	Yes	INC	22	2:00	0:00
219	RT	Planned Transmission Outage	SCE	LA Basin	10/24/2019	10 - 20	No	DEC	7	13:00	20:00
220	RT	Planned Transmission Outage	SCE	LA Basin	10/24/2019	10 - 20	No	INC	17	0:00	17:00
221	RT	Planned Transmission Outage	SCE	LA Basin	10/25/2019	20	No	INC	4	20:00	0:00
222	RT	Planned Transmission Outage	SCE	LA Basin	10/26/2019	20	Yes	INC	24	0:00	0:00
223	RT	Planned Transmission Outage	SCE	LA Basin	10/27/2019	20 - 98	No	INC	24	0:00	0:00
224	RT	Planned Transmission Outage	SCE	NA	10/1/2019	200	No	INC	1	0:00	1:00
225	RT	Planned Transmission Outage	SCE	NA	10/2/2019	625	No	DEC	7	15:35	22:00
226	RT	Planned Transmission Outage	SCE	NA	10/3/2019	200	No	DEC	7	17:00	0:00
227	RT	Planned Transmission Outage	SCE	NA	10/4/2019	200	No	DEC	24	0:00	0:00
228	RT	Planned Transmission Outage	SCE	NA	10/5/2019	200	No	DEC	24	0:00	0:00
229	RT	Planned Transmission Outage	SCE	NA	10/6/2019	200 - 695	No	DEC	21	0:00	21:00
230	RT	Planned Transmission Outage	SCE	NA	10/7/2019	200	No	DEC	7	17:00	0:00
231	RT	Planned Transmission Outage	SCE	NA	10/8/2019	200	No	DEC	7	17:00	0:00
232	RT	Planned Transmission Outage	SCE	NA	10/9/2019	200	No	DEC	8	16:00	0:00
233	RT	Planned Transmission Outage	SCE	NA	10/10/2019	200	No	DEC	8	16:00	0:00
234	RT	Planned Transmission Outage	SCE	NA	10/11/2019	200	No	DEC	8	16:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
235	RT	Planned Transmission Outage	SCE	NA	10/12/2019	200	No	DEC	8	16:00	0:00
236	RT	Planned Transmission Outage	SCE	NA	10/13/2019	200	No	DEC	8	16:00	0:00
237	RT	Planned Transmission Outage	SCE	NA	10/14/2019	200	No	DEC	8	16:00	0:00
238	RT	Planned Transmission Outage	SCE	NA	10/15/2019	200	No	DEC	8	16:00	0:00
239	RT	Planned Transmission Outage	SCE	NA	10/16/2019	200	No	DEC	8	16:00	0:00
240	RT	Planned Transmission Outage	SCE	NA	10/17/2019	200	No	DEC	8	16:00	0:00
241	RT	Planned Transmission Outage	SCE	NA	10/18/2019	200	No	DEC	8	16:00	0:00
242	RT	Planned Transmission Outage	SCE	NA	10/19/2019	200	No	DEC	8	16:00	0:00
243	RT	Planned Transmission Outage	SCE	NA	10/20/2019	200	No	DEC	8	16:00	0:00
244	RT	Planned Transmission Outage	SCE	NA	10/21/2019	200	No	DEC	8	16:00	0:00
245	RT	Planned Transmission Outage	SCE	NA	10/22/2019	200 - 226	No	DEC	16	8:30	0:00
246	RT	Planned Transmission Outage	SCE	NA	10/23/2019	200	No	DEC	8	16:00	0:00
247	RT	Planned Transmission Outage	SCE	NA	10/24/2019	200	No	DEC	8	16:00	0:00
248	RT	Planned Transmission Outage	SCE	NA	10/25/2019	200	No	DEC	8	16:00	0:00
249	RT	Planned Transmission Outage	SCE	NA	10/26/2019	200	No	DEC	8	16:00	0:00
250	RT	Planned Transmission Outage	SCE	NA	10/27/2019	200	No	DEC	8	16:00	0:00
251	RT	Planned Transmission Outage	SCE	NA	10/28/2019	200	No	DEC	8	16:00	0:00
252	RT	Planned Transmission Outage	SCE	NA	10/29/2019	200	No	DEC	8	16:00	0:00
253	RT	Planned Transmission Outage	SCE	NA	10/30/2019	200	No	DEC	8	16:00	0:00
254	RT	Planned Transmission Outage	SDGE	San Diego-IV	10/24/2019	282	No	DEC	4	20:20	0:00
255	RT	Planned Transmission Outage	SDGE	San Diego-IV	10/25/2019	282	No	INC	1	0:00	1:00
256	RT	Ramping Capacity	PGAE	Bay Area	10/4/2019	120 - 200	No	INC	3	17:50	20:00
257	RT	Ramping Capacity	PGAE	Bay Area	10/13/2019	200	No	INC	4	17:05	21:00
258	RT	Ramping Capacity	SCE	LA Basin	10/4/2019	40 - 96	No	INC	2	18:00	19:45
259	RT	Software Limitation	PGAE	Bay Area	10/2/2019	288 - 580	No	DEC	4	0:40	4:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
260	RT	Software Limitation	PGAE	Bay Area	10/2/2019	330 - 580	No	INC	2	2:55	4:00
261	RT	Software Limitation	PGAE	Bay Area	10/4/2019	120	No	INC	2	18:45	20:00
262	RT	Software Limitation	PGAE	Bay Area	10/9/2019	357	No	INC	2	16:25	17:30
263	RT	Software Limitation	PGAE	Bay Area	10/30/2019	120	No	INC	1	20:40	21:00
264	RT	Software Limitation	PGAE	Fresno	10/8/2019	83	No	DEC	2	19:05	21:00
265	RT	Software Limitation	PGAE	Fresno	10/22/2019	83	No	DEC	1	16:45	17:30
266	RT	Software Limitation	PGAE	Fresno	10/30/2019	14 - 35	No	INC	1	20:40	21:00
267	RT	Software Limitation	PGAE	Kern	10/4/2019	43	No	INC	3	21:25	0:00
268	RT	Software Limitation	SCE	Big Creek-Ventura	10/2/2019	452	No	DEC	2	2:55	4:00
269	RT	Software Limitation	SCE	Big Creek-Ventura	10/13/2019	49.9	No	DEC	1	16:15	17:00
270	RT	Software Limitation	SCE	Big Creek-Ventura	10/30/2019	33	No	INC	1	20:40	21:00
271	RT	Software Limitation	SCE	LA Basin	10/11/2019	65	No	INC	3	18:00	21:00
272	RT	Software Limitation	SCE	LA Basin	10/12/2019	65	No	INC	3	18:00	21:00
273	RT	Software Limitation	SCE	LA Basin	10/16/2019	0	No	INC	1	21:25	22:20
274	RT	Software Limitation	SCE	LA Basin	10/21/2019	194	No	INC	7	15:45	22:00
275	RT	Software Limitation	SCE	LA Basin	10/22/2019	0	No	DEC	1	11:45	12:15
276	RT	Software Limitation	SCE	LA Basin	10/22/2019	20	No	INC	13	0:00	13:00
277	RT	Software Limitation	SCE	LA Basin	10/23/2019	190 - 250	No	INC	8	12:50	20:45
278	RT	Software Limitation	SCE	LA Basin	10/24/2019	65 - 194	No	DEC	4	16:50	20:00
279	RT	Software Limitation	SCE	LA Basin	10/24/2019	65 - 194	No	INC	7	13:45	20:00
280	RT	Software Limitation	SCE	LA Basin	10/25/2019	65 - 194	No	INC	6	14:00	20:00
281	RT	Software Limitation	SCE	LA Basin	10/27/2019	190 - 194	No	INC	3	17:15	20:00
282	RT	Software Limitation	SCE	LA Basin	10/29/2019	190 - 194	No	INC	5	17:50	22:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
283	RT	Software Limitation	SCE	LA Basin	10/30/2019	5 - 194	No	INC	10	12:30	22:00
284	RT	Software Limitation	SCE	LA Basin	10/31/2019	190 - 194	No	INC	4	16:00	20:00
285	RT	Software Limitation	SDGE	San Diego-IV	10/30/2019	30	No	INC	1	20:40	21:00
286	RT	SOL	PGAE	Stockton	10/8/2019	145	No	DEC	4	18:00	22:00
287	RT	Unit Testing	PGAE	Fresno	10/29/2019	200	No	INC	1	15:50	16:20
288	RT	Unit Testing	SCE	Big Creek-Ventura	10/29/2019	49	No	DEC	1	13:35	14:00
289	RT	Unit Testing	SCE	Big Creek-Ventura	10/29/2019	160	No	INC	1	14:00	15:00
290	RT	Unplanned Outage	PGAE	Fresno	10/24/2019	83	No	INC	1	7:05	8:00
291	RT	Unplanned Outage	SDGE	San Diego-IV	10/29/2019	24	No	DEC	2	17:10	19:00
292	RT	Unplanned Outage	SDGE	San Diego-IV	10/29/2019	24	No	INC	1	19:00	20:00
293	RT	Voltage Support	PGAE	Fresno	10/14/2019	-314	No	DEC	2	3:00	5:00
294	RT	Voltage Support	PGAE	Fresno	10/16/2019	-306	No	DEC	3	3:25	6:00
295	RT	Voltage Support	PGAE	Fresno	10/29/2019	-317	No	DEC	3	2:50	5:00
296	RT	Voltage Support	PGAE	Fresno	10/30/2019	-317	No	DEC	3	2:15	5:00
297	RT	Voltage Support	PGAE	Humboldt	10/9/2019	16	No	DEC	2	20:55	22:50
298	RT	Voltage Support	PGAE	Humboldt	10/9/2019	32	No	INC	2	22:40	0:00
299	RT	Voltage Support	PGAE	Humboldt	10/10/2019	14	No	DEC	5	17:00	22:00
300	RT	Voltage Support	PGAE	Humboldt	10/10/2019	14 - 60	No	INC	24	0:00	0:00
301	RT	Voltage Support	PGAE	Humboldt	10/11/2019	14 - 60	No	INC	3	0:00	2:15
302	RT	Voltage Support	PGAE	Humboldt	10/27/2019	28	No	INC	1	21:10	22:00

Appendix A: Explanation by Example

All examples listed below are based on fictitious data.

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 physical minimum (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 as shown in Table 2. Generally, exceptional dispatches before the day-ahead market are commitments to minimum load. Here the dispatch levels are all at minimum load.

Table 2: Instructions Prior to Day-Ahead Market

Date	Market	Resource	Location	Local Reliability Area (LRA)	Begin Time	End Time	Dispatch Level (MW)	Reason
01-Jul-09	DA	A	SCE	LA BASIN	05:00	10:00	50	7630
01-Jul-09	DA	B	SCE	LA BASIN	08:00	20:00	30	7630
01-Jul-09	DA	C	SCE	LA BASIN	09:00	23:00	20	7630

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 that there might be hours between the begin time and the end time where there might not be exceptional dispatch instructions for the given reason, meaning that the range between the begin time and end time can include null hours with no dispatch.

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
1	DA	7630	SCE	LA Basin	1-Jul-09	20-100	Yes	N/A	19	05:00	23:00

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 ending 7 through 11 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 ending 8 through 9 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 that 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.

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
01-Jul-09	RT	A	PG&E	Humboldt	06:00	11:00	30	0	Yes	INC	30	7110
01-Jul-09	RT	B	PG&E	Humboldt	07:00	09:00	40	20	No	INC	20	7110
01-Jul-09	RT	C	PG&E	Humboldt	12:00	15:00	50	50	No	INC	0	7110
01-Jul-09	RT	C	PG&E	Humboldt	16:00	20:00	50	40	No	INC	10	7110

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 that there might be hours between the begin time and end time where there were no exceptional dispatch instructions for the given reason.

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
1	RT	7110	PG&E	Humboldt	1-Jul-09	0-50	Yes	INC	15	06:00	20:00

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.

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
01-Jul-09	RT	A	PG&E	Fresno	15:00	20:00	20	0	Yes	INC	20	7430
01-Jul-09	RT	B	PG&E	Fresno	07:00	09:00	40	60	No	DEC	20	7430
01-Jul-09	RT	C	PG&E	Fresno	10:00	14:00	40	50	No	DEC	10	7430

This data is summarized according to FERC convention as shown in Table 7. This summary classifies the data by reason, resource location, local reliability area, and trade date. Please note that inc and dec 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.

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
1	RT	7430	PG&E	Fresno	1-Jul-09	20	Yes	INC	6	15:00	20:00
1	RT	7430	PG&E	Fresno	1-Jul-09	10-20	Yes	DEC	8	07:00	14:00

ATTACHMENT B

October 2019 Exceptional Dispatch Report
Chart 2 data

Exceptional Dispatch Report

Table 2: October 2019

Market Quality and Renewable Integration December 16, 2019

CAISO
250 Outcropping Way
Folsom, California 95630
(916) 351-4400

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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 originally issued on the 30th of each month. Both Table 1 and Table 2 reports will be issued on the 15th of each month due to the availability of necessary data. This report provides data on the frequency, reasons and costs for Exceptional Dispatches issued in October 2019.

This report contains a price impact analysis as prescribed by FERC in its September 2 order. The price impact analysis for October 2019 is presented in Appendix B. This report also includes mitigation analysis for October 2019 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 October 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 publically on the CAISO website; however, all of the transmission procedures are available on the CAISO website.[1]

Additional reasons for exceptional dispatch instructions in 2019 include Software Limitation. Software Limitation is used when an exceptional dispatch instruction was issued 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 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. Interconnection Reliability Operating Limits (IROL) are system operating limits established to prevent instability, uncontrolled separation or cascading as described in operating procedure 3100. System Operating Limits (SOL) are the facility ratings, system voltage limits, transient stability limits, and voltage stability limits used in the operating horizon – any of which can be the most restrictive limit at any point in time, pre – or post – contingency. Control Point (CP) are imposed to protect the area transmission network against N – 1 contingencies. There were a few other reasons used to explain exceptional dispatch instructions in October, 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 October 2019. 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:

[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 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.
- 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.

[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.

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.

Table 1: Exceptional Dispatches in October 2019

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Chart 2: Table of Exceptional Dispatches for Period 01/October/2019 - 31/October/2019

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	10/24/2019	20	No	INC	4	20:00	0:00	170.22	1700.27	0.00	-8913.69	0.00	0.00	0.00	0.00	0.00	0.00
2	RT	Conditions beyond the control of the CAISO	PGAE	NA	10/19/2019	197	No	DEC	1	17:00	17:10	16.24	0.00	0.00	-852.54	-0.06	0.00	1.72	0.00	0.00	0.00
3	RT	Conditions beyond the control of the CAISO	SCE	Big Creek-Ventura	10/19/2019	452	No	DEC	1	17:05	17:10	-5.98	0.00	0.00	97.04	-6.42	0.00	119.35	0.00	0.00	0.00
4	RT	Conditions beyond the control of the CAISO	SCE	NA	10/19/2019	471	No	DEC	1	17:05	17:10	-3.47	-0.02	0.00	26.71	-3.87	0.00	47.52	0.00	0.00	0.00
5	RT	Conditions beyond the control of the CAISO	SDGE	San Diego-IV	10/19/2019	312	No	DEC	1	17:00	17:45	2.97	0.00	0.00	-249.48	-3.63	0.00	106.65	0.00	0.00	0.00
6	RT	Fast Start Unit Management	PGAE	Bay Area	10/31/2019	0	No	INC	2	7:00	8:05	-97.50	3898.55	0.00	229.72	-97.50	0.00	229.72	0.00	0.00	0.00
7	RT	Fire Threats	PGAE	Bay Area	10/11/2019	175	No	INC	7	15:00	22:00	53.89	96967.44	27613.72	-1828.51	0.00	0.00	0.00	0.00	0.00	0.00
8	RT	Fire Threats	PGAE	Fresno	10/10/2019	83	No	INC	1	22:05	23:00	17.73	0.00	0.00	-2061.35	0.00	0.00	0.00	0.00	0.00	0.00
9	RT	Fire Threats	PGAE	NCNB	10/23/2019	60	No	DEC	1	23:30	0:00	12.38	0.00	0.00	1869.14	17.81	2685.32	0.00	-2222.35	0.00	0.00
10	RT	Fire Threats	PGAE	NCNB	10/24/2019	60 - 65	No	DEC	24	0:00	0:00	-2.79	0.00	0.00	29.43	-7.50	436.16	-273.00	-328.45	0.00	0.00
11	RT	Fire Threats	PGAE	NCNB	10/25/2019	65	No	DEC	1	0:00	1:00	3.28	0.00	0.00	-97.13	0.00	0.00	0.00	0.00	0.00	0.00
12	RT	Fire Threats	PGAE	NCNB	10/25/2019	62 - 65	No	INC	1	0:00	1:00	2.94	0.00	0.00	-84.77	0.00	0.00	0.00	-630.56	0.00	0.00
13	RT	Fire Threats	SCE	LA Basin	10/11/2019	20	No	INC	8	16:30	0:00	-61.25	59566.39	0.00	2680.85	0.00	-0.02	0.00	0.00	0.00	0.00
14	RT	Fire Threats	SCE	LA Basin	10/24/2019	10 - 20	Yes	INC	5	19:00	0:00	97.05	41337.12	0.00	-6166.99	83.05	-5425.78	0.00	0.00	0.00	0.00
15	RT	Fire Threats	SCE	LA Basin	10/25/2019	10 - 20	Yes	INC	24	0:00	0:00	10.77	376201.16	0.00	-150.77	0.01	-0.59	0.00	0.00	0.00	0.00
16	RT	Fire Threats	SCE	LA Basin	10/30/2019	20	No	INC	12	12:00	0:00	551.19	27385.79	0.00	-71794.51	38.46	-2609.65	0.00	0.00	0.00	0.00
17	RT	Fire Threats	SCE	LA Basin	10/31/2019	20	Yes	INC	24	0:00	0:00	863.60	171744.96	0.00	-80727.42	208.17	-14293.24	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/October/2019 - 31/October/2019

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
18	RT	Incomplete or Inaccurate Transmission	PGAE	Fresno	10/22/2019	75	No	DEC	1	18:35	19:00	-7.33	0.00	0.00	472.61	-4.65	0.00	304.91	0.00	-300.77	0.00
19	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	10/22/2019	0	No	DEC	1	19:00	20:00	-5.00	-1441.00	0.00	108.93	-5.00	0.00	108.93	0.00	-417.20	0.00
20	RT	Incomplete or Inaccurate Transmission	PGAE	Stockton	10/30/2019	200 - 270	No	DEC	17	7:40	0:00	-18.88	-11465.88	0.00	8344.40	-54.16	0.00	9351.80	0.00	-11019.20	0.00
21	RT	Incomplete or Inaccurate Transmission	PGAE	Stockton	10/30/2019	240 - 270	No	INC	9	9:00	18:00	-4.46	0.00	0.00	199.04	0.00	0.00	0.00	0.00	0.00	0.00
22	RT	Incomplete or Inaccurate Transmission	PGAE	Stockton	10/31/2019	200	No	DEC	2	0:00	2:00	-9.25	-2994.80	0.00	357.92	-9.25	0.00	357.92	0.00	-666.01	0.00
23	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/13/2019	175	No	INC	6	16:00	22:00	22.89	77181.64	0.00	-830.04	0.00	0.00	0.00	0.00	0.00	0.00
24	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/17/2019	175	No	INC	16	6:00	22:00	-453.35	207589.76	21278.77	14565.98	0.00	0.00	0.00	0.00	0.00	0.00
25	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/19/2019	120	No	INC	4	17:45	21:00	51.61	35058.45	0.00	-1178.14	0.00	0.00	0.00	0.00	0.00	0.00
26	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/29/2019	54	No	INC	11	12:00	23:00	-27.31	41808.08	6872.73	1655.76	0.00	0.00	0.00	0.00	0.00	0.00
27	RT	Load Forecast Uncertainty	PGAE	Bay Area	10/30/2019	120	No	INC	1	21:00	21:35	196.45	4897.86	2653.92	-10041.06	0.00	0.00	0.00	0.00	0.00	0.00
28	RT	Load Forecast Uncertainty	PGAE	Fresno	10/25/2019	83	No	DEC	1	17:00	18:00	-12.40	0.00	0.00	1696.01	0.00	0.00	0.00	0.00	0.00	0.00
29	RT	Load Forecast Uncertainty	PGAE	Fresno	10/25/2019	83	No	INC	1	16:50	17:00	-6.02	0.00	0.00	189.77	0.00	0.00	0.00	0.00	0.00	0.00
30	RT	Load Forecast Uncertainty	PGAE	Fresno	10/30/2019	14 - 35	No	INC	1	21:00	21:35	24.50	1866.84	0.00	-1253.51	0.00	0.00	0.00	0.00	0.00	0.00
31	RT	Load Forecast Uncertainty	PGAE	NA	10/7/2019	48.95	No	DEC	3	15:00	18:00	-34.14	-10816.32	0.00	949.46	0.00	0.00	0.00	0.00	0.00	0.00
32	RT	Load Forecast Uncertainty	PGAE	NA	10/7/2019	48.95	No	INC	4	11:15	15:00	-25.42	10378.53	0.00	610.10	0.00	0.00	0.00	0.00	0.00	0.00
33	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	10/30/2019	16	No	INC	1	21:00	21:35	17.63	436.18	0.00	-913.21	0.00	0.00	0.00	0.00	0.00	0.00
34	RT	Load Forecast Uncertainty	SCE	LA Basin	10/12/2019	20	No	INC	5	17:00	22:00	-31.49	49590.52	0.00	1128.27	0.00	0.00	0.00	0.00	0.00	0.00
35	RT	Load Forecast Uncertainty	SCE	LA Basin	10/28/2019	98	No	INC	1	23:00	0:00	3.65	5767.93	0.00	-106.13	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/October/2019 - 31/October/2019

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
36	RT	Load Forecast Uncertainty	SCE	LA Basin	10/29/2019	20 - 98	No	INC	24	0:00	0:00	575.93	207737.11	53807.12	-58339.92	64.23	-4326.99	0.00	0.00	0.00	0.00
37	RT	Load Forecast Uncertainty	SCE	LA Basin	10/30/2019	5 - 20	Yes	INC	22	0:00	21:35	116.47	56769.29	0.00	-14446.13	0.00	0.00	0.00	0.00	0.00	0.00
38	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	10/29/2019	225	No	INC	11	12:00	23:00	10.17	67833.81	16090.81	-2519.24	0.00	0.00	0.00	0.00	0.00	0.00
39	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	10/30/2019	30	No	INC	1	21:00	21:35	15.00	1354.19	0.00	-767.46	0.00	0.00	0.00	0.00	0.00	0.00
40	RT	Market Disruption	SCE	LA Basin	10/22/2019	65 - 290	No	INC	4	9:30	13:00	299.91	20411.47	0.00	-8656.00	48.74	-587.66	0.00	-42164.93	0.00	0.00
41	RT	Market Disruption	SCE	NA	10/22/2019	241	No	INC	4	12:30	16:00	49.07	5300.14	0.00	10797.02	4.39	343.48	0.00	-383.09	0.00	0.00
42	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/4/2019	45	No	INC	14	9:25	23:00	-5.31	28287.13	0.00	135.72	0.00	0.00	0.00	0.00	0.00	0.00
43	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/6/2019	32	No	DEC	4	17:00	21:00	2.71	0.00	0.00	-94.65	0.00	0.00	0.00	0.00	0.00	0.00
44	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/6/2019	16 - 32	No	INC	17	7:05	0:00	4.69	15011.28	0.00	-183.21	0.00	0.00	0.00	0.00	0.00	0.00
45	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/7/2019	32 - 45	No	DEC	7	17:40	0:00	-12.02	-762.16	0.00	233.74	-10.13	0.00	35.42	0.00	0.00	0.00
46	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/7/2019	32 - 45	No	INC	17	0:00	17:00	18.18	28554.03	0.00	-1312.17	0.00	0.00	0.00	0.00	0.00	0.00
47	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/8/2019	14 - 32	No	DEC	22	0:00	21:40	4.03	-1259.11	0.00	-260.65	-3.31	0.00	4.69	0.00	0.00	0.00
48	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/8/2019	28 - 56	No	INC	23	1:00	0:00	11.00	24668.20	0.00	-458.30	-2.55	0.00	12.29	0.00	0.00	0.00
49	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/9/2019	28 - 42	No	INC	2	0:00	1:45	-10.36	2935.86	0.00	230.42	-0.99	0.00	0.00	0.00	0.00	0.00
50	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/11/2019	14 - 44	No	INC	18	2:00	19:45	-3.24	18853.07	0.00	28.33	-3.60	0.00	45.06	0.00	0.00	0.00
51	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/13/2019	14 - 32	No	INC	19	3:15	21:30	21.46	20308.73	0.00	-744.24	0.00	0.00	0.00	0.00	0.00	0.00
52	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/15/2019	30	No	DEC	1	22:25	23:00	2.47	0.00	0.00	-78.32	0.00	0.00	0.00	0.00	-6.42	0.00
53	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/15/2019	16 - 30	No	INC	2	22:00	0:00	7.83	4312.87	0.00	-263.18	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/October/2019 - 31/October/2019

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
54	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/16/2019	30	No	DEC	3	17:00	20:00	0.36	3375.78	0.00	-11.27	0.00	0.00	0.00	0.00	0.00	0.00
55	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/16/2019	16 - 45	No	INC	24	0:00	0:00	12.50	40846.63	0.00	-458.11	0.00	0.00	0.00	0.00	0.00	0.00
56	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/17/2019	16	No	DEC	2	4:30	6:25	0.57	0.00	0.00	-13.62	0.00	0.00	0.00	0.00	0.00	0.00
57	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/17/2019	30 - 42	No	INC	24	0:00	0:00	21.45	26001.92	0.00	-748.26	0.00	0.00	0.00	0.00	0.00	0.00
58	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	10/18/2019	28 - 30	No	INC	7	0:00	6:45	0.68	4551.59	0.00	-21.17	0.00	0.00	0.00	0.00	0.00	0.00
59	RT	Operating Procedure Number and Constraint (7430)	PGAE	Fresno	10/7/2019	75	No	INC	3	9:45	12:00	-2.71	0.00	0.00	71.37	0.00	0.00	0.00	0.00	0.00	0.00
60	RT	Operating Procedure Number and Constraint (7430)	PGAE	Fresno	10/30/2019	80	No	INC	7	13:45	20:00	5.80	0.00	0.00	-474.84	0.00	0.00	0.00	0.00	0.00	0.00
61	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/6/2019	415 - 440	No	DEC	7	17:30	0:00	-41.71	-3472.06	0.00	1187.92	-15.82	0.00	465.19	0.00	0.00	0.00
62	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/6/2019	474	No	INC	2	16:10	17:30	49.84	1520.94	0.00	-1068.76	0.00	0.00	0.00	0.00	0.00	0.00
63	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/7/2019	375 - 450	No	DEC	23	0:00	23:00	-64.84	-24002.39	0.00	1297.11	-35.83	0.00	655.46	0.00	0.00	0.00
64	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/7/2019	435 - 470	No	INC	15	2:00	17:00	-19.01	7170.49	0.00	662.57	0.00	0.00	0.00	0.00	0.00	0.00
65	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/9/2019	430 - 450	No	DEC	5	17:15	22:00	-13.86	0.00	0.00	377.49	-17.50	0.00	453.07	0.00	0.00	0.00
66	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/9/2019	430 - 475	No	INC	16	7:50	23:00	18.88	0.00	0.00	-427.21	-9.90	0.00	190.56	0.00	0.00	0.00
67	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/12/2019	390 - 415	No	DEC	5	18:00	23:00	20.38	-3168.42	0.00	-846.15	-11.46	0.00	314.07	0.00	0.00	0.00
68	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/12/2019	415	No	INC	1	17:00	18:00	33.92	3645.91	0.00	-1533.48	-15.00	0.00	422.10	0.00	0.00	0.00
69	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/20/2019	375 - 411	No	DEC	23	1:00	0:00	168.04	-33533.28	0.00	-5583.56	-24.69	0.00	581.47	0.00	0.00	0.00
70	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/20/2019	410 - 411	No	INC	17	0:55	17:00	-2.24	1698.97	0.00	29.48	-1.33	0.00	1.80	0.00	0.00	0.00
71	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/21/2019	360 - 375	No	DEC	24	0:00	0:00	-126.78	2583.08	0.00	3175.62	-35.00	0.00	749.35	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
72	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/21/2019	360	No	INC	8	9:00	17:00	29.94	25605.67	0.00	299.28	0.00	0.00	0.00	0.00	0.00	0.00
73	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/22/2019	360	No	DEC	1	0:00	1:00	0.09	-4952.93	0.00	-2.33	0.00	0.00	0.00	0.00	0.00	0.00
74	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/22/2019	340 - 360	No	INC	10	14:10	0:00	-40.61	32562.61	0.00	1178.48	0.00	0.00	0.00	-14.22	0.00	0.00
75	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/23/2019	340	No	INC	1	0:00	1:00	29.07	497.32	0.00	-784.80	0.00	0.00	0.00	0.00	0.00	0.00
76	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/24/2019	196 - 380	No	DEC	18	6:05	0:00	29.10	-37188.93	0.00	-2922.60	-36.73	0.00	1085.62	0.00	0.00	0.00
77	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/24/2019	195 - 300	No	INC	9	8:00	17:00	66.11	4075.72	0.00	-23.90	0.00	0.00	0.00	0.00	0.00	0.00
78	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/25/2019	300 - 320	No	DEC	24	0:00	0:00	12.72	-60436.38	22970.79	-450.05	0.00	0.00	0.00	0.00	0.00	0.00
79	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/25/2019	300 - 330	No	INC	8	8:00	16:00	313.76	1802.64	0.00	-8537.10	0.00	0.00	0.00	0.00	0.00	0.00
80	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/26/2019	320 - 350	No	DEC	8	0:00	8:00	17.00	-34220.16	0.00	-472.70	0.00	0.00	0.00	0.00	0.00	0.00
81	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/26/2019	300 - 350	No	INC	16	8:00	0:00	26.79	3021.68	0.00	-433.40	0.00	0.00	0.00	0.00	0.00	0.00
82	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/27/2019	300 - 350	No	INC	11	0:00	10:15	108.85	17160.06	0.00	-425.97	0.00	0.00	0.00	0.00	0.00	0.00
83	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/28/2019	415	No	DEC	1	22:00	23:00	1.69	0.00	0.00	-65.50	0.00	0.00	0.00	0.00	0.00	0.00
84	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/28/2019	415	No	INC	8	16:45	0:00	-34.70	6711.53	0.00	-394.95	0.00	0.00	0.00	0.00	0.00	0.00
85	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/29/2019	415	No	DEC	2	5:00	7:00	-3.54	0.00	0.00	104.73	0.00	0.00	0.00	0.00	0.00	0.00
86	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/29/2019	415	No	INC	10	0:00	10:00	45.91	11161.16	0.00	-1570.81	0.00	0.00	0.00	0.00	0.00	0.00
87	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	10/31/2019	410	No	DEC	7	17:00	0:00	-65.75	-35315.66	26000.38	2298.56	0.00	0.00	0.00	0.00	0.00	0.00
88	RT	Other Reliability Requirement	PGAE	Bay Area	10/10/2019	20	No	INC	8	12:25	20:15	5.39	13168.35	0.00	-106.61	0.00	0.00	0.00	0.00	0.00	0.00
89	RT	Other Reliability Requirement	PGAE	Bay Area	10/12/2019	454	No	DEC	1	2:30	3:00	-17.10	0.00	0.00	517.49	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
90	RT	Other Reliability Requirement	PGAE	Bay Area	10/12/2019	454	No	INC	1	3:00	3:45	-78.54	0.00	0.00	2400.83	0.00	0.00	0.00	0.00	0.00	0.00
91	RT	Other Reliability Requirement	PGAE	Bay Area	10/13/2019	450 - 485	No	DEC	2	22:45	0:00	-33.17	0.00	0.00	998.63	-18.32	0.00	569.49	0.00	0.00	0.00
92	RT	Other Reliability Requirement	PGAE	Bay Area	10/29/2019	20	No	INC	10	10:45	20:00	-0.06	16140.32	0.00	3.56	0.00	0.00	0.00	0.00	0.00	0.00
93	RT	Other Reliability Requirement	PGAE	Fresno	10/1/2019	4 - 12	No	INC	24	0:00	0:00	-9.18	0.00	0.00	61.95	0.00	0.00	0.00	0.00	0.00	0.00
94	RT	Other Reliability Requirement	PGAE	Fresno	10/2/2019	4 - 12	No	INC	24	0:00	0:00	-3.55	0.00	0.00	90.49	0.00	0.00	0.00	0.00	0.00	0.00
95	RT	Other Reliability Requirement	PGAE	Fresno	10/3/2019	4 - 12	No	INC	24	0:00	0:00	-2.14	0.00	0.00	275.12	0.00	0.00	0.00	0.00	0.00	0.00
96	RT	Other Reliability Requirement	PGAE	Fresno	10/4/2019	4 - 12	No	INC	24	0:00	0:00	-3.25	0.00	0.00	427.49	0.00	0.00	0.00	0.00	0.00	0.00
97	RT	Other Reliability Requirement	PGAE	Fresno	10/5/2019	4 - 12	No	INC	24	0:00	0:00	-3.26	0.00	0.00	-88.08	1.77	-57.49	0.00	0.00	0.00	0.00
98	RT	Other Reliability Requirement	PGAE	Fresno	10/6/2019	4 - 12	No	INC	24	0:00	0:00	-26.50	0.00	0.00	188.07	0.00	0.00	0.00	0.00	0.00	0.00
99	RT	Other Reliability Requirement	PGAE	Fresno	10/7/2019	4 - 12	No	INC	24	0:00	0:00	-9.59	0.00	0.00	158.33	0.00	0.00	0.00	0.00	0.00	0.00
100	RT	Other Reliability Requirement	PGAE	Fresno	10/8/2019	4 - 12	No	INC	24	0:00	0:00	0.63	0.00	0.00	2.31	0.00	0.00	0.00	0.00	0.00	0.00
101	RT	Other Reliability Requirement	PGAE	Fresno	10/9/2019	4 - 12	No	INC	24	0:00	0:00	3.20	0.00	0.00	186.21	0.00	0.00	0.00	0.00	0.00	0.00
102	RT	Other Reliability Requirement	PGAE	Fresno	10/10/2019	4 - 12	No	INC	24	0:00	0:00	-2.12	0.00	0.00	77.65	0.00	0.00	0.00	0.00	0.00	0.00
103	RT	Other Reliability Requirement	PGAE	Fresno	10/11/2019	4 - 12	No	INC	24	0:00	0:00	-13.65	0.00	0.00	388.78	0.00	0.00	0.00	0.00	0.00	0.00
104	RT	Other Reliability Requirement	PGAE	Fresno	10/12/2019	4 - 12	No	INC	24	0:00	0:00	-1.52	0.00	0.00	58.01	0.00	0.00	0.00	0.00	0.00	0.00
105	RT	Other Reliability Requirement	PGAE	Fresno	10/13/2019	4 - 12	No	INC	24	0:00	0:00	-4.92	0.00	0.00	131.89	0.00	0.00	0.00	0.00	0.00	0.00
106	RT	Other Reliability Requirement	PGAE	Fresno	10/14/2019	4 - 12	No	INC	24	0:00	0:00	-2.05	0.00	0.00	107.04	0.00	0.00	0.00	0.00	0.00	0.00
107	RT	Other Reliability Requirement	PGAE	Fresno	10/15/2019	4 - 12	No	INC	24	0:00	0:00	-1.62	0.00	0.00	110.46	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
108	RT	Other Reliability Requirement	PGAE	Fresno	10/16/2019	4 - 12	No	INC	24	0:00	0:00	-24.90	0.00	0.00	923.44	0.00	0.00	0.00	0.00	0.00	0.00
109	RT	Other Reliability Requirement	PGAE	Fresno	10/17/2019	4 - 12	No	INC	24	0:00	0:00	1.87	0.00	0.00	29.31	0.00	0.00	0.00	0.00	0.00	0.00
110	RT	Other Reliability Requirement	PGAE	Fresno	10/18/2019	4 - 12	No	INC	24	0:00	0:00	-0.30	0.00	0.00	273.53	0.00	0.00	0.00	0.00	0.00	0.00
111	RT	Other Reliability Requirement	PGAE	Fresno	10/19/2019	4 - 12	No	INC	24	0:00	0:00	-0.10	0.00	0.00	-174.30	0.00	0.00	0.00	0.00	0.00	0.00
112	RT	Other Reliability Requirement	PGAE	Fresno	10/20/2019	4 - 12	No	INC	24	0:00	0:00	-0.98	0.00	0.00	-363.73	0.00	0.00	0.00	0.00	0.00	0.00
113	RT	Other Reliability Requirement	PGAE	Fresno	10/21/2019	4 - 12	No	INC	24	0:00	0:00	-2.98	0.00	0.00	5.88	0.00	0.00	0.00	0.00	0.00	0.00
114	RT	Other Reliability Requirement	PGAE	Fresno	10/22/2019	4 - 12	No	INC	24	0:00	0:00	-1.14	0.00	0.00	49.50	0.00	0.00	0.00	0.00	0.00	0.00
115	RT	Other Reliability Requirement	PGAE	Fresno	10/23/2019	4 - 12	No	INC	24	0:00	0:00	2.88	0.00	0.00	-73.17	0.00	0.00	0.00	0.00	0.00	0.00
116	RT	Other Reliability Requirement	PGAE	Fresno	10/24/2019	4 - 12	No	INC	24	0:00	0:00	4.46	0.00	0.00	-94.85	0.00	0.00	0.00	0.00	0.00	0.00
117	RT	Other Reliability Requirement	PGAE	Fresno	10/25/2019	4 - 12	No	INC	24	0:00	0:00	3.85	0.00	0.00	-111.33	0.00	0.00	0.00	0.00	0.00	0.00
118	RT	Other Reliability Requirement	PGAE	Fresno	10/26/2019	4 - 12	No	INC	24	0:00	0:00	-1.05	0.00	0.00	36.42	0.00	0.00	0.00	0.00	0.00	0.00
119	RT	Other Reliability Requirement	PGAE	Fresno	10/27/2019	4 - 12	No	INC	24	0:00	0:00	-3.17	0.00	0.00	100.89	0.00	0.00	0.00	0.00	0.00	0.00
120	RT	Other Reliability Requirement	PGAE	Fresno	10/28/2019	4 - 12	No	INC	24	0:00	0:00	-0.36	0.00	0.00	65.68	0.00	0.00	0.00	0.00	0.00	0.00
121	RT	Other Reliability Requirement	PGAE	Fresno	10/29/2019	4 - 12	No	INC	24	0:00	0:00	-0.32	0.00	0.00	281.92	0.00	0.00	0.00	0.00	0.00	0.00
122	RT	Other Reliability Requirement	PGAE	Fresno	10/30/2019	4 - 12	No	INC	24	0:00	0:00	12.66	0.00	0.00	172.87	0.00	0.00	0.00	0.00	0.00	0.00
123	RT	Other Reliability Requirement	PGAE	Fresno	10/31/2019	4 - 12	No	INC	24	0:00	0:00	-0.07	0.00	0.00	50.89	0.00	0.00	0.00	0.00	0.00	0.00
124	RT	Other Reliability Requirement	PGAE	Humboldt	10/7/2019	32	No	DEC	4	19:55	23:00	-5.94	-4207.98	0.00	30.91	-5.24	0.00	14.94	0.00	0.00	0.00
125	RT	Other Reliability Requirement	PGAE	NA	10/1/2019	38	No	INC	24	0:00	0:00	-10.24	0.00	0.00	16.41	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
126	RT	Other Reliability Requirement	PGAE	NA	10/2/2019	38	No	INC	24	0:00	0:00	-7.18	0.00	0.00	159.27	0.00	0.00	0.00	0.00	0.00	0.00
127	RT	Other Reliability Requirement	PGAE	NA	10/3/2019	38	No	INC	24	0:00	0:00	-10.74	0.00	0.00	359.28	0.00	0.00	0.00	0.00	0.00	0.00
128	RT	Other Reliability Requirement	PGAE	NA	10/4/2019	38	No	INC	24	0:00	0:00	-6.25	0.00	0.00	168.39	0.00	0.00	0.00	0.00	0.00	0.00
129	RT	Other Reliability Requirement	PGAE	NA	10/5/2019	38	No	INC	24	0:00	0:00	-7.29	0.00	0.00	267.10	0.00	0.00	0.00	0.00	0.00	0.00
130	RT	Other Reliability Requirement	PGAE	NA	10/6/2019	38	No	INC	24	0:00	0:00	3.30	0.00	0.00	-143.95	0.00	0.00	0.00	0.00	0.00	0.00
131	RT	Other Reliability Requirement	PGAE	NA	10/7/2019	38	No	INC	24	0:00	0:00	-21.82	0.00	0.00	-1308.68	0.00	0.00	0.00	0.00	0.00	0.00
132	RT	Other Reliability Requirement	PGAE	NA	10/8/2019	38	No	INC	24	0:00	0:00	-18.28	0.00	0.00	434.65	0.00	0.00	0.00	0.00	0.00	0.00
133	RT	Other Reliability Requirement	PGAE	NA	10/9/2019	38	No	INC	24	0:00	0:00	10.14	0.00	0.00	226.56	0.00	0.00	0.00	0.00	0.00	0.00
134	RT	Other Reliability Requirement	PGAE	NA	10/10/2019	38	No	INC	24	0:00	0:00	-8.84	0.00	0.00	263.18	0.00	0.00	0.00	0.00	0.00	0.00
135	RT	Other Reliability Requirement	PGAE	NA	10/11/2019	38	No	INC	24	0:00	0:00	-2.60	0.00	0.00	95.51	0.00	0.00	0.00	0.00	0.00	0.00
136	RT	Other Reliability Requirement	PGAE	NA	10/12/2019	38	No	INC	24	0:00	0:00	0.93	0.00	0.00	44.43	0.00	0.00	0.00	0.00	0.00	0.00
137	RT	Other Reliability Requirement	PGAE	NA	10/13/2019	38	No	INC	24	0:00	0:00	-0.92	0.00	0.00	61.16	0.00	0.00	0.00	0.00	0.00	0.00
138	RT	Other Reliability Requirement	PGAE	NA	10/14/2019	38	No	INC	24	0:00	0:00	-1.47	0.00	0.00	128.86	0.00	0.00	0.00	0.00	0.00	0.00
139	RT	Other Reliability Requirement	PGAE	NA	10/15/2019	38	No	INC	24	0:00	0:00	-0.15	0.00	0.00	76.00	0.00	0.00	0.00	0.00	0.00	0.00
140	RT	Other Reliability Requirement	PGAE	NA	10/16/2019	38	No	INC	24	0:00	0:00	-50.85	0.00	0.00	1359.91	0.00	0.00	0.00	0.00	0.00	0.00
141	RT	Other Reliability Requirement	PGAE	NA	10/17/2019	38	No	INC	24	0:00	0:00	3.23	0.00	0.00	-117.66	0.00	0.00	0.00	0.00	0.00	0.00
142	RT	Other Reliability Requirement	PGAE	NA	10/18/2019	38	No	INC	24	0:00	0:00	-3.29	0.00	0.00	289.26	0.00	0.00	0.00	0.00	0.00	0.00
143	RT	Other Reliability Requirement	PGAE	NA	10/19/2019	38	No	INC	24	0:00	0:00	-17.45	0.00	0.00	356.30	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
144	RT	Other Reliability Requirement	PGAE	NA	10/20/2019	38	No	INC	24	0:00	0:00	-20.58	0.00	0.00	547.13	0.00	0.00	0.00	0.00	0.00	0.00
145	RT	Other Reliability Requirement	PGAE	NA	10/21/2019	38	No	INC	24	0:00	0:00	-28.28	0.00	0.00	773.24	0.00	0.00	0.00	0.00	0.00	0.00
146	RT	Other Reliability Requirement	PGAE	NA	10/22/2019	20	No	DEC	3	11:45	14:15	-1.95	0.00	0.00	-16.29	-1.64	0.00	-22.94	0.00	0.00	0.00
147	RT	Other Reliability Requirement	PGAE	NA	10/22/2019	38	No	INC	24	0:00	0:00	-18.37	0.00	0.00	302.04	-2.74	0.00	-38.40	0.00	0.00	0.00
148	RT	Other Reliability Requirement	PGAE	NA	10/23/2019	38	No	INC	24	0:00	0:00	-26.03	0.00	0.00	98.77	0.00	0.00	0.00	0.00	0.00	0.00
149	RT	Other Reliability Requirement	PGAE	NA	10/24/2019	38	No	INC	24	0:00	0:00	-15.16	0.00	0.00	485.60	0.00	0.00	0.00	0.00	0.00	0.00
150	RT	Other Reliability Requirement	PGAE	NA	10/25/2019	38	No	INC	24	0:00	0:00	-12.06	0.00	0.00	165.56	0.00	0.00	0.00	0.00	0.00	0.00
151	RT	Other Reliability Requirement	PGAE	NA	10/26/2019	38	No	INC	24	0:00	0:00	-31.33	0.00	0.00	705.98	0.00	0.00	0.00	0.00	0.00	0.00
152	RT	Other Reliability Requirement	PGAE	NA	10/27/2019	38	No	INC	24	0:00	0:00	-31.11	0.00	0.00	705.69	0.00	0.00	0.00	0.00	0.00	0.00
153	RT	Other Reliability Requirement	PGAE	NA	10/28/2019	38	No	INC	24	0:00	0:00	-22.69	0.00	0.00	755.42	0.00	0.00	0.00	0.00	0.00	0.00
154	RT	Other Reliability Requirement	PGAE	NA	10/29/2019	38	No	INC	24	0:00	0:00	-16.05	0.00	0.00	1024.49	0.00	0.00	0.00	0.00	0.00	0.00
155	RT	Other Reliability Requirement	PGAE	NA	10/30/2019	38	No	INC	24	0:00	0:00	-27.84	0.00	0.00	140.29	0.00	0.00	0.00	0.00	0.00	0.00
156	RT	Other Reliability Requirement	PGAE	NA	10/31/2019	38	No	INC	24	0:00	0:00	7.25	0.00	0.00	-61.84	0.00	0.00	0.00	0.00	0.00	0.00
157	RT	Other Reliability Requirement	PGAE	NCNB	10/1/2019	70 - 80	No	DEC	15	9:55	0:00	-10.52	0.00	0.00	-1459.30	-7.45	0.00	-193.64	0.00	0.00	0.00
158	RT	Other Reliability Requirement	PGAE	Sierra	10/2/2019	15 - 44	No	DEC	7	0:35	7:00	43.07	0.00	0.00	-1520.44	-11.04	0.00	0.11	0.00	0.00	0.00
159	RT	Other Reliability Requirement	PGAE	Sierra	10/2/2019	15 - 29	No	INC	1	3:00	4:00	-3.88	0.00	0.00	-8.92	0.00	0.00	0.00	0.00	0.00	0.00
160	RT	Other Reliability Requirement	PGAE	Stockton	10/26/2019	215	No	DEC	3	19:30	22:00	11.60	-3399.31	0.00	-359.47	0.00	0.00	0.00	0.00	0.00	0.00
161	RT	Other Reliability Requirement	PGAE	Stockton	10/26/2019	215	No	INC	2	22:00	0:00	0.00	0.00	0.00	0.00	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
162	RT	Planned Transmission Outage	PGAE	Bay Area	10/9/2019	175	No	INC	5	9:00	14:00	-76.65	42828.35	0.00	1671.11	0.00	0.00	0.00	0.00	0.00	0.00
163	RT	Planned Transmission Outage	PGAE	Bay Area	10/10/2019	175	No	INC	13	9:00	22:00	77.01	120858.90	0.00	-1382.80	0.00	0.00	0.00	0.00	0.00	0.00
164	RT	Planned Transmission Outage	PGAE	Bay Area	10/14/2019	54	No	INC	18	6:00	0:00	-54.17	56535.56	0.00	1944.20	0.00	0.00	0.00	0.00	0.00	0.00
165	RT	Planned Transmission Outage	PGAE	Bay Area	10/15/2019	54	No	DEC	6	13:00	19:00	-51.35	-4362.77	0.00	1601.93	0.00	0.00	0.00	0.00	0.00	0.00
166	RT	Planned Transmission Outage	PGAE	Bay Area	10/15/2019	54	No	INC	13	0:00	13:00	2.96	35179.94	0.00	-125.01	0.00	0.00	0.00	0.00	0.00	0.00
167	RT	Planned Transmission Outage	PGAE	Bay Area	10/26/2019	175	No	INC	11	13:00	0:00	-393.53	109380.07	0.00	11420.47	0.00	0.00	0.00	0.00	0.00	0.00
168	RT	Planned Transmission Outage	PGAE	Bay Area	10/27/2019	175	No	INC	24	0:00	0:00	-149.17	210590.82	0.00	3753.08	0.00	0.00	0.00	0.00	0.00	0.00
169	RT	Planned Transmission Outage	PGAE	Bay Area	10/28/2019	175 - 360	No	INC	24	0:00	0:00	-1.24	334220.06	0.00	860.92	0.00	0.00	0.00	0.00	-34.52	0.00
170	RT	Planned Transmission Outage	PGAE	Humboldt	10/1/2019	14 - 32	No	INC	24	0:00	0:00	7.05	23558.75	0.00	-278.68	0.00	0.00	0.00	0.00	0.00	0.00
171	RT	Planned Transmission Outage	PGAE	Humboldt	10/2/2019	14 - 32	No	INC	24	0:00	0:00	12.39	24547.38	0.00	-705.30	0.00	0.00	0.00	0.00	0.00	0.00
172	RT	Planned Transmission Outage	PGAE	Humboldt	10/3/2019	14 - 28	No	INC	24	0:00	0:00	-1.16	27175.62	0.00	85.34	0.00	0.00	0.00	0.00	0.00	0.00
173	RT	Planned Transmission Outage	PGAE	Humboldt	10/4/2019	14 - 32	No	INC	24	0:00	0:00	1.52	3590.29	0.00	-84.55	-0.04	0.00	1.39	0.00	-1.39	0.00
174	RT	Planned Transmission Outage	PGAE	Humboldt	10/5/2019	14 - 32	No	INC	24	0:00	0:00	6.37	13053.22	0.00	-344.68	-0.67	0.00	17.01	0.00	-8.95	0.00
175	RT	Planned Transmission Outage	PGAE	Humboldt	10/11/2019	28 - 32	No	DEC	6	16:00	22:00	-3.95	-4575.32	0.00	70.03	-4.48	0.00	56.03	0.00	-17.74	0.00
176	RT	Planned Transmission Outage	PGAE	Humboldt	10/11/2019	28 - 44	No	INC	18	6:50	0:00	-0.05	40189.72	0.00	-50.57	-3.95	0.00	99.58	0.00	-35.32	0.00
177	RT	Planned Transmission Outage	PGAE	Humboldt	10/12/2019	14	No	DEC	2	21:45	23:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
178	RT	Planned Transmission Outage	PGAE	Humboldt	10/12/2019	14 - 28	No	INC	24	0:00	0:00	2.95	41616.25	0.00	-50.94	0.00	0.00	0.00	0.00	0.00	0.00
179	RT	Planned Transmission Outage	PGAE	Humboldt	10/13/2019	14 - 28	No	INC	24	0:00	0:00	-4.30	6214.69	0.00	148.62	0.00	0.00	0.00	0.00	0.00	0.00

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180	RT	Planned Transmission Outage	PGAE	Humboldt	10/14/2019	14	No	DEC	1	7:00	7:25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
181	RT	Planned Transmission Outage	PGAE	Humboldt	10/14/2019	14 - 28	No	INC	24	0:00	0:00	6.58	29297.84	0.00	-212.53	-1.09	0.00	41.60	0.00	-5.80	0.00
182	RT	Planned Transmission Outage	PGAE	Humboldt	10/15/2019	14 - 45	No	DEC	17	6:10	22:30	-3.20	2242.69	0.00	357.11	-2.12	0.00	131.39	0.00	-483.45	0.00
183	RT	Planned Transmission Outage	PGAE	Humboldt	10/15/2019	14 - 65	No	INC	22	0:00	22:00	24.66	36745.60	0.00	-917.34	-0.04	0.00	1.94	0.00	-1.47	0.00
184	RT	Planned Transmission Outage	PGAE	Humboldt	10/18/2019	14 - 32	No	INC	18	6:25	0:00	1.32	27646.55	0.00	-71.05	-1.35	0.00	35.85	0.00	-13.55	0.00
185	RT	Planned Transmission Outage	PGAE	Humboldt	10/19/2019	16 - 32	No	INC	24	0:00	0:00	28.32	38789.75	0.00	-913.70	-0.60	0.00	16.69	0.00	-9.25	0.00
186	RT	Planned Transmission Outage	PGAE	Humboldt	10/20/2019	28	No	DEC	5	17:00	22:00	1.18	0.00	0.00	-13.31	0.00	0.00	0.00	0.00	0.00	0.00
187	RT	Planned Transmission Outage	PGAE	Humboldt	10/20/2019	15 - 28	No	INC	24	0:00	0:00	8.14	32912.53	0.00	-150.01	-0.50	0.00	12.66	0.00	-3.66	0.00
188	RT	Planned Transmission Outage	PGAE	Humboldt	10/21/2019	28 - 45	No	DEC	6	16:00	22:00	4.69	0.00	0.00	-79.83	0.00	0.00	0.00	0.00	0.00	0.00
189	RT	Planned Transmission Outage	PGAE	Humboldt	10/21/2019	28 - 45	No	INC	24	0:00	0:00	8.10	35431.33	0.00	-162.51	0.00	0.00	0.00	0.00	0.00	0.00
190	RT	Planned Transmission Outage	PGAE	Humboldt	10/22/2019	30 - 60	No	DEC	7	16:00	23:00	-41.78	-2764.04	0.00	958.17	-31.32	0.00	734.11	0.00	-1501.90	0.00
191	RT	Planned Transmission Outage	PGAE	Humboldt	10/22/2019	15 - 60	No	INC	24	0:00	0:00	14.37	28910.10	0.00	-541.61	-4.66	-92.73	182.85	0.00	-87.13	0.00
192	RT	Planned Transmission Outage	PGAE	Humboldt	10/23/2019	16 - 60	No	DEC	9	15:00	0:00	-8.04	-10747.19	0.00	247.62	-6.68	0.00	198.64	0.00	-6447.73	0.00
193	RT	Planned Transmission Outage	PGAE	Humboldt	10/23/2019	16 - 60	No	INC	24	0:00	0:00	9.72	50084.36	0.00	-265.52	-2.97	0.00	101.55	0.00	-21.02	0.00
194	RT	Planned Transmission Outage	PGAE	Humboldt	10/24/2019	16 - 30	No	DEC	22	0:00	22:00	-0.71	-3033.62	0.00	28.55	0.00	0.00	0.00	0.00	-1771.47	0.00
195	RT	Planned Transmission Outage	PGAE	Humboldt	10/24/2019	30 - 45	No	INC	24	0:00	0:00	54.67	42610.58	0.00	-1877.23	-1.32	0.00	35.16	0.00	-8.53	0.00
196	RT	Planned Transmission Outage	PGAE	Humboldt	10/25/2019	30 - 45	No	DEC	5	17:00	22:00	3.54	0.00	0.00	-100.00	0.00	0.00	0.00	0.00	-666.49	0.00
197	RT	Planned Transmission Outage	PGAE	Humboldt	10/25/2019	30 - 45	No	INC	24	0:00	0:00	2.35	41817.72	0.00	-58.60	-0.64	0.00	27.22	0.00	-0.57	0.00

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198	RT	Planned Transmission Outage	PGAE	Humboldt	10/26/2019	15	No	DEC	20	0:45	20:00	11.15	-167.69	0.00	-325.06	0.00	0.00	0.00	0.00	-68.56	0.00
199	RT	Planned Transmission Outage	PGAE	Humboldt	10/26/2019	15 - 30	No	INC	22	0:00	22:00	6.93	25825.21	0.00	-191.55	-0.31	0.00	8.31	0.00	-0.21	0.00
200	RT	Planned Transmission Outage	PGAE	Humboldt	10/28/2019	30 - 45	No	INC	6	18:45	0:00	5.97	12744.89	0.00	-219.66	0.00	0.00	0.00	0.00	0.00	0.00
201	RT	Planned Transmission Outage	PGAE	Humboldt	10/29/2019	15 - 45	No	INC	24	0:00	0:00	161.28	69603.25	0.00	-8990.90	0.00	0.00	0.00	0.00	0.00	0.00
202	RT	Planned Transmission Outage	PGAE	Humboldt	10/30/2019	45 - 60	No	DEC	5	17:00	22:00	-7.48	0.00	0.00	384.45	-9.26	0.00	461.59	0.00	-1428.43	0.00
203	RT	Planned Transmission Outage	PGAE	Humboldt	10/30/2019	45 - 60	No	INC	24	0:00	0:00	4.47	79673.11	0.00	-143.37	-2.18	0.00	115.68	0.00	-87.52	0.00
204	RT	Planned Transmission Outage	PGAE	Humboldt	10/31/2019	30 - 60	No	DEC	6	17:00	23:00	7.18	-1876.96	0.00	-322.41	-5.09	0.00	238.88	0.00	-1701.21	0.00
205	RT	Planned Transmission Outage	PGAE	Humboldt	10/31/2019	30 - 60	No	INC	24	0:00	0:00	5.40	63152.01	0.00	-236.19	-1.25	0.00	47.67	0.00	-16.50	0.00
206	RT	Planned Transmission Outage	PGAE	NA	10/22/2019	20	No	DEC	4	13:50	17:00	-1.16	0.00	0.00	-3.90	0.00	0.00	0.00	0.00	-241.62	0.00
207	RT	Planned Transmission Outage	PGAE	NA	10/22/2019	20	No	INC	2	17:00	19:00	-0.40	0.00	0.00	63.08	0.00	0.00	0.00	0.00	0.00	0.00
208	RT	Planned Transmission Outage	PGAE	NCNB	10/9/2019	60	No	DEC	5	9:00	14:00	-0.26	0.00	0.00	5.26	0.00	0.00	0.00	0.00	-2381.49	0.00
209	RT	Planned Transmission Outage	PGAE	NCNB	10/9/2019	60	No	INC	14	1:45	15:45	-45.17	0.00	0.00	1215.67	-36.99	0.00	985.54	0.00	-414.07	0.00
210	RT	Planned Transmission Outage	PGAE	Sierra	10/4/2019	32	Yes	INC	1	23:00	0:00	42.04	0.00	0.00	-1271.77	32.00	-972.14	0.00	0.00	-653.69	0.00
211	RT	Planned Transmission Outage	PGAE	Sierra	10/5/2019	32	No	INC	17	0:00	17:00	736.36	0.00	0.00	-17663.12	543.87	-13026.97	0.00	0.00	-14692.41	0.00
212	RT	Planned Transmission Outage	PGAE	Stockton	10/31/2019	220	No	DEC	5	19:10	0:00	4.33	-6738.30	0.00	-137.48	-2.59	0.00	87.39	0.00	-652.61	0.00
213	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	10/21/2019	190 - 350	No	INC	1	7:50	8:45	77.93	0.00	0.00	-2847.30	129.61	-4417.83	0.00	0.00	-3561.82	0.00
214	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	10/23/2019	47.1 - 400	No	INC	4	9:20	12:45	282.60	3506.77	0.00	-11221.69	179.89	-4102.69	0.00	0.00	-3259.54	0.00
215	RT	Planned Transmission Outage	SCE	LA Basin	10/21/2019	225 - 335	No	INC	5	7:50	12:00	145.96	13105.20	0.00	-4360.89	187.77	-5214.03	0.00	0.00	-91271.30	0.00

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216	RT	Planned Transmission Outage	SCE	LA Basin	10/22/2019	147	No	DEC	2	20:50	22:00	-52.21	-4343.57	2271.23	1767.20	0.00	0.00	0.00	0.00	0.00	0.00
217	RT	Planned Transmission Outage	SCE	LA Basin	10/22/2019	65 - 240	No	INC	14	9:10	23:00	83.22	21269.38	1946.77	-1628.19	54.07	-660.59	0.00	-23166.35	-684.87	0.00
218	RT	Planned Transmission Outage	SCE	LA Basin	10/23/2019	10 - 241	Yes	INC	22	2:00	0:00	293.78	315014.79	53087.19	-21773.57	138.10	-9143.19	0.00	0.00	-13048.53	0.00
219	RT	Planned Transmission Outage	SCE	LA Basin	10/24/2019	10 - 20	No	DEC	7	13:00	20:00	-65.88	0.00	107.00	2144.27	0.00	0.00	0.00	0.00	0.00	0.00
220	RT	Planned Transmission Outage	SCE	LA Basin	10/24/2019	10 - 20	No	INC	17	0:00	17:00	-140.71	30808.83	184.28	8430.51	0.00	0.00	0.00	0.00	0.00	0.00
221	RT	Planned Transmission Outage	SCE	LA Basin	10/25/2019	20	No	INC	4	20:00	0:00	360.73	13166.40	0.00	-24949.49	0.00	0.00	0.00	0.00	0.00	0.00
222	RT	Planned Transmission Outage	SCE	LA Basin	10/26/2019	20	Yes	INC	24	0:00	0:00	958.55	266263.92	0.00	-117718.61	0.00	0.00	0.00	0.00	0.00	0.00
223	RT	Planned Transmission Outage	SCE	LA Basin	10/27/2019	20 - 98	No	INC	24	0:00	0:00	-65.84	169151.32	0.00	-24011.05	17.96	-1097.54	0.00	0.00	0.00	0.00
224	RT	Planned Transmission Outage	SCE	NA	10/1/2019	200	No	INC	1	0:00	1:00	-17.94	0.00	0.00	422.56	0.00	0.00	0.00	0.00	0.00	0.00
225	RT	Planned Transmission Outage	SCE	NA	10/2/2019	625	No	DEC	7	15:35	22:00	-5.21	1.66	0.00	-201.02	0.00	0.00	0.00	0.00	-13551.91	0.00
226	RT	Planned Transmission Outage	SCE	NA	10/3/2019	200	No	DEC	7	17:00	0:00	2.72	-9.08	0.00	-51.14	0.00	0.00	0.00	0.00	0.00	0.00
227	RT	Planned Transmission Outage	SCE	NA	10/4/2019	200	No	DEC	24	0:00	0:00	-31.45	1.97	0.00	492.30	0.00	0.00	0.00	0.00	0.00	0.00
228	RT	Planned Transmission Outage	SCE	NA	10/5/2019	200	No	DEC	24	0:00	0:00	-28.50	5.91	0.00	934.53	0.00	0.00	0.00	0.00	0.00	0.00
229	RT	Planned Transmission Outage	SCE	NA	10/6/2019	200 - 695	No	DEC	21	0:00	21:00	-11.57	-21809.45	7348.01	2216.59	-7.83	0.00	2025.14	0.00	-4057.57	0.00
230	RT	Planned Transmission Outage	SCE	NA	10/7/2019	200	No	DEC	7	17:00	0:00	13.25	-1745.36	0.00	-478.60	0.00	0.00	0.00	0.00	0.00	0.00
231	RT	Planned Transmission Outage	SCE	NA	10/8/2019	200	No	DEC	7	17:00	0:00	0.91	2.90	0.00	-19.06	0.00	0.00	0.00	0.00	0.00	0.00
232	RT	Planned Transmission Outage	SCE	NA	10/9/2019	200	No	DEC	8	16:00	0:00	-9.82	0.00	0.00	-4474.54	0.00	0.00	0.00	0.00	0.00	0.00
233	RT	Planned Transmission Outage	SCE	NA	10/10/2019	200	No	DEC	8	16:00	0:00	6.31	-7.77	0.00	142.78	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/October/2019 - 31/October/2019

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
234	RT	Planned Transmission Outage	SCE	NA	10/11/2019	200	No	DEC	8	16:00	0:00	-0.77	0.00	0.00	188.96	0.00	0.00	0.00	0.00	0.00	0.00
235	RT	Planned Transmission Outage	SCE	NA	10/12/2019	200	No	DEC	8	16:00	0:00	-34.42	-5545.25	0.00	1087.47	0.00	0.00	0.00	0.00	0.00	0.00
236	RT	Planned Transmission Outage	SCE	NA	10/13/2019	200	No	DEC	8	16:00	0:00	7.92	0.00	0.00	-169.14	0.00	0.00	0.00	0.00	0.00	0.00
237	RT	Planned Transmission Outage	SCE	NA	10/14/2019	200	No	DEC	8	16:00	0:00	18.08	5166.93	0.00	-393.35	0.00	0.00	0.00	0.00	0.00	0.00
238	RT	Planned Transmission Outage	SCE	NA	10/15/2019	200	No	DEC	8	16:00	0:00	-43.02	4.66	0.00	1491.01	0.00	0.00	0.00	0.00	0.00	0.00
239	RT	Planned Transmission Outage	SCE	NA	10/16/2019	200	No	DEC	8	16:00	0:00	-0.16	5.34	0.00	5.72	0.00	0.00	0.00	0.00	0.00	0.00
240	RT	Planned Transmission Outage	SCE	NA	10/17/2019	200	No	DEC	8	16:00	0:00	-0.84	3.07	0.00	-61.39	0.00	0.00	0.00	0.00	0.00	0.00
241	RT	Planned Transmission Outage	SCE	NA	10/18/2019	200	No	DEC	8	16:00	0:00	-35.71	-345.26	0.00	440.64	0.00	0.00	0.00	0.00	0.00	0.00
242	RT	Planned Transmission Outage	SCE	NA	10/19/2019	200	No	DEC	8	16:00	0:00	0.85	-1.69	0.00	-60.86	-3.87	0.00	47.52	0.00	0.00	0.00
243	RT	Planned Transmission Outage	SCE	NA	10/20/2019	200	No	DEC	8	16:00	0:00	15.47	-0.01	0.00	-211.93	0.00	0.00	0.00	0.00	0.00	0.00
244	RT	Planned Transmission Outage	SCE	NA	10/21/2019	200	No	DEC	8	16:00	0:00	43.94	0.00	0.00	-128.07	0.00	0.00	0.00	0.00	0.00	0.00
245	RT	Planned Transmission Outage	SCE	NA	10/22/2019	200 - 226	No	DEC	16	8:30	0:00	-69.08	-2358.46	0.00	-1643.53	0.00	0.00	0.00	0.00	0.00	0.00
246	RT	Planned Transmission Outage	SCE	NA	10/23/2019	200	No	DEC	8	16:00	0:00	-5.81	-11.13	0.00	-135.72	0.00	0.00	0.00	0.00	0.00	0.00
247	RT	Planned Transmission Outage	SCE	NA	10/24/2019	200	No	DEC	8	16:00	0:00	-58.61	-495.17	0.00	-585.75	0.00	0.00	0.00	0.00	0.00	0.00
248	RT	Planned Transmission Outage	SCE	NA	10/25/2019	200	No	DEC	8	16:00	0:00	80.98	2.74	0.00	-2855.36	0.00	0.00	0.00	0.00	0.00	0.00
249	RT	Planned Transmission Outage	SCE	NA	10/26/2019	200	No	DEC	8	16:00	0:00	-3.23	-415.68	0.00	403.10	0.00	0.00	0.00	0.00	0.00	0.00
250	RT	Planned Transmission Outage	SCE	NA	10/27/2019	200	No	DEC	8	16:00	0:00	32.19	0.00	0.00	-567.31	0.00	0.00	0.00	0.00	0.00	0.00
251	RT	Planned Transmission Outage	SCE	NA	10/28/2019	200	No	DEC	8	16:00	0:00	39.78	-1835.52	2168.50	3159.43	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/October/2019 - 31/October/2019

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
252	RT	Planned Transmission Outage	SCE	NA	10/29/2019	200	No	DEC	8	16:00	0:00	42.84	-2.42	0.00	-906.27	0.00	0.00	0.00	0.00	0.00	0.00
253	RT	Planned Transmission Outage	SCE	NA	10/30/2019	200	No	DEC	8	16:00	0:00	-41.50	-125.15	0.00	1131.92	0.00	0.00	0.00	0.00	0.00	0.00
254	RT	Planned Transmission Outage	SDGE	San Diego-IV	10/24/2019	282	No	DEC	4	20:20	0:00	-2.72	0.00	0.00	-1.52	0.00	0.00	0.00	0.00	-1756.73	0.00
255	RT	Planned Transmission Outage	SDGE	San Diego-IV	10/25/2019	282	No	INC	1	0:00	1:00	-10.21	0.00	0.00	330.53	-4.94	0.00	164.40	0.00	-26.45	0.00
256	RT	Ramping Capacity	PGAE	Bay Area	10/4/2019	120 - 200	No	INC	3	17:50	20:00	71.41	20335.71	0.00	20441.65	0.00	0.00	0.00	0.00	0.00	0.00
257	RT	Ramping Capacity	PGAE	Bay Area	10/13/2019	200	No	INC	4	17:05	21:00	82.79	48577.76	0.00	-2964.07	0.81	-19.80	0.00	-2.66	0.00	0.00
258	RT	Ramping Capacity	SCE	LA Basin	10/4/2019	40 - 96	No	INC	2	18:00	19:45	7.97	10293.14	459.45	16552.26	23.87	-816.60	0.00	-61.40	0.00	0.00
259	RT	Software Limitation	PGAE	Bay Area	10/2/2019	288 - 580	No	DEC	4	0:40	4:00	-1207.03	0.00	0.00	35170.09	-582.88	0.00	13552.90	0.00	0.00	0.00
260	RT	Software Limitation	PGAE	Bay Area	10/2/2019	330 - 580	No	INC	2	2:55	4:00	-359.72	0.00	0.00	11381.77	0.00	0.00	0.00	0.00	0.00	0.00
261	RT	Software Limitation	PGAE	Bay Area	10/4/2019	120	No	INC	2	18:45	20:00	-5.14	16946.42	0.00	171.74	0.00	0.00	0.00	0.00	0.00	0.00
262	RT	Software Limitation	PGAE	Bay Area	10/9/2019	357	No	INC	2	16:25	17:30	45.08	6135.17	0.00	-1105.18	0.00	0.00	0.00	0.00	0.00	0.00
263	RT	Software Limitation	PGAE	Bay Area	10/30/2019	120	No	INC	1	20:40	21:00	70.76	0.00	0.00	-3210.08	0.00	0.00	0.00	0.00	0.00	0.00
264	RT	Software Limitation	PGAE	Fresno	10/8/2019	83	No	DEC	2	19:05	21:00	-26.09	0.00	0.00	1092.84	0.00	0.00	0.00	0.00	0.00	0.00
265	RT	Software Limitation	PGAE	Fresno	10/22/2019	83	No	DEC	1	16:45	17:30	52.17	0.00	0.00	-1021.92	0.00	0.00	0.00	0.00	0.00	0.00
266	RT	Software Limitation	PGAE	Fresno	10/30/2019	14 - 35	No	INC	1	20:40	21:00	11.45	0.00	0.00	-519.28	0.00	0.00	0.00	0.00	0.00	0.00
267	RT	Software Limitation	PGAE	Kern	10/4/2019	43	No	INC	3	21:25	0:00	-3.47	0.00	0.00	125.03	0.00	0.00	0.00	0.00	0.00	0.00
268	RT	Software Limitation	SCE	Big Creek-Ventura	10/2/2019	452	No	DEC	2	2:55	4:00	-341.79	0.00	0.00	10338.63	0.00	0.00	0.00	0.00	0.00	0.00
269	RT	Software Limitation	SCE	Big Creek-Ventura	10/13/2019	49.9	No	DEC	1	16:15	17:00	12.49	0.00	0.00	-235.18	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/October/2019 - 31/October/2019

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
270	RT	Software Limitation	SCE	Big Creek-Ventura	10/30/2019	33	No	INC	1	20:40	21:00	8.36	0.00	0.00	-379.30	3.39	-153.65	0.00	-5.31	0.00	0.00
271	RT	Software Limitation	SCE	LA Basin	10/11/2019	65	No	INC	3	18:00	21:00	-38.83	29469.99	0.00	1765.67	0.00	-0.02	0.00	0.00	0.00	0.00
272	RT	Software Limitation	SCE	LA Basin	10/12/2019	65	No	INC	3	18:00	21:00	-31.50	37306.68	0.00	1128.77	0.00	0.00	0.00	0.00	0.00	0.00
273	RT	Software Limitation	SCE	LA Basin	10/16/2019	0	No	INC	1	21:25	22:20	-27.36	803.07	41.94	0.00	-27.36	0.00	0.00	0.00	0.00	0.00
274	RT	Software Limitation	SCE	LA Basin	10/21/2019	194	No	INC	7	15:45	22:00	54.41	0.00	0.00	-3464.86	44.02	-2972.04	0.00	0.00	0.00	0.00
275	RT	Software Limitation	SCE	LA Basin	10/22/2019	0	No	DEC	1	11:45	12:15	23.34	0.00	0.00	-507.36	0.00	0.00	0.00	0.00	0.00	0.00
276	RT	Software Limitation	SCE	LA Basin	10/22/2019	20	No	INC	13	0:00	13:00	272.69	88016.71	0.00	-9039.06	54.07	-660.57	0.00	-40813.29	-684.76	0.00
277	RT	Software Limitation	SCE	LA Basin	10/23/2019	190 - 250	No	INC	8	12:50	20:45	100.50	127205.95	0.00	-5101.25	201.18	-12292.65	0.00	0.00	0.00	0.00
278	RT	Software Limitation	SCE	LA Basin	10/24/2019	65 - 194	No	DEC	4	16:50	20:00	-160.69	-65.79	0.00	9838.71	0.00	0.00	0.00	0.00	0.00	0.00
279	RT	Software Limitation	SCE	LA Basin	10/24/2019	65 - 194	No	INC	7	13:45	20:00	27.98	19227.87	0.00	-17980.86	127.34	-15441.68	0.00	0.00	0.00	0.00
280	RT	Software Limitation	SCE	LA Basin	10/25/2019	65 - 194	No	INC	6	14:00	20:00	-86.98	66746.97	0.00	5504.64	0.01	-0.59	0.00	0.00	0.00	0.00
281	RT	Software Limitation	SCE	LA Basin	10/27/2019	190 - 194	No	INC	3	17:15	20:00	-125.08	17461.73	0.00	3053.11	17.96	-1097.54	0.00	0.00	0.00	0.00
282	RT	Software Limitation	SCE	LA Basin	10/29/2019	190 - 194	No	INC	5	17:50	22:00	75.52	28537.17	16814.73	-11274.55	64.23	-4326.99	0.00	0.00	0.00	0.00
283	RT	Software Limitation	SCE	LA Basin	10/30/2019	5 - 194	No	INC	10	12:30	22:00	31.94	20318.49	0.00	-2706.41	54.49	-3697.16	0.00	0.00	0.00	0.00
284	RT	Software Limitation	SCE	LA Basin	10/31/2019	190 - 194	No	INC	4	16:00	20:00	208.01	28624.16	0.00	-14287.49	208.17	-14293.24	0.00	0.00	0.00	0.00
285	RT	Software Limitation	SDGE	San Diego-IV	10/30/2019	30	No	INC	1	20:40	21:00	7.01	0.00	0.00	-317.93	0.00	0.00	0.00	0.00	0.00	0.00
286	RT	SOL	PGAE	Stockton	10/8/2019	145	No	DEC	4	18:00	22:00	-7.30	-18023.03	0.00	-334.53	-22.11	0.00	181.07	0.00	0.00	0.00
287	RT	Unit Testing	PGAE	Fresno	10/29/2019	200	No	INC	1	15:50	16:20	18.92	2001.29	0.00	-1030.80	5.21	-732.14	0.00	0.00	0.00	0.00

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Chart 2: Table of Exceptional Dispatches for Period 01/October/2019 - 31/October/2019

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
288	RT	Unit Testing	SCE	Big Creek-Ventura	10/29/2019	49	No	DEC	1	13:35	14:00	16.81	0.00	0.00	-67.43	0.00	0.00	0.00	0.00	0.00	0.00
289	RT	Unit Testing	SCE	Big Creek-Ventura	10/29/2019	160	No	INC	1	14:00	15:00	-0.83	0.00	0.00	12.40	0.00	0.00	0.00	0.00	0.00	0.00
290	RT	Unplanned Outage	PGAE	Fresno	10/24/2019	83	No	INC	1	7:05	8:00	-34.81	2433.07	1833.66	1512.58	0.00	0.00	0.00	0.00	0.00	0.00
291	RT	Unplanned Outage	SDGE	San Diego-IV	10/29/2019	24	No	DEC	2	17:10	19:00	26.88	0.00	0.00	-13411.65	0.00	0.00	0.00	0.00	0.00	0.00
292	RT	Unplanned Outage	SDGE	San Diego-IV	10/29/2019	24	No	INC	1	19:00	20:00	-81.50	1719.79	0.00	3776.75	0.00	0.00	0.00	0.00	0.00	0.00
293	RT	Voltage Support	PGAE	Fresno	10/14/2019	-314	No	DEC	2	3:00	5:00	-78.50	0.00	0.00	2521.89	0.00	0.00	0.00	0.00	0.00	0.00
294	RT	Voltage Support	PGAE	Fresno	10/16/2019	-306	No	DEC	3	3:25	6:00	-61.27	0.00	0.00	2636.01	0.00	0.00	0.00	0.00	0.00	0.00
295	RT	Voltage Support	PGAE	Fresno	10/29/2019	-317	No	DEC	3	2:50	5:00	-170.29	0.00	0.00	5044.70	0.00	0.00	0.00	0.00	0.00	0.00
296	RT	Voltage Support	PGAE	Fresno	10/30/2019	-317	No	DEC	3	2:15	5:00	0.74	0.00	0.00	-37.50	0.00	0.00	0.00	0.00	0.00	0.00
297	RT	Voltage Support	PGAE	Humboldt	10/9/2019	16	No	DEC	2	20:55	22:50	20.97	-748.36	0.00	-557.76	0.00	0.00	0.00	0.00	-5.38	0.00
298	RT	Voltage Support	PGAE	Humboldt	10/9/2019	32	No	INC	2	22:40	0:00	10.75	1381.58	0.00	-274.49	0.00	0.00	0.00	0.00	0.00	0.00
299	RT	Voltage Support	PGAE	Humboldt	10/10/2019	14	No	DEC	5	17:00	22:00	1.67	-7071.18	0.00	-44.48	0.00	0.00	0.00	0.00	-3181.91	0.00
300	RT	Voltage Support	PGAE	Humboldt	10/10/2019	14 - 60	No	INC	24	0:00	0:00	7.84	53394.12	0.00	975.95	0.67	-19.96	153.85	0.00	-42.06	0.00
301	RT	Voltage Support	PGAE	Humboldt	10/11/2019	14 - 60	No	INC	3	0:00	2:15	-5.23	3894.80	0.00	153.08	-2.39	0.00	67.16	0.00	-26.54	0.00
302	RT	Voltage Support	PGAE	Humboldt	10/27/2019	28	No	INC	1	21:10	22:00	4.67	0.00	0.00	-122.43	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 before 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 costs[7]. 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

[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.

through 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 *($10/MWh-$100/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, 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. Both volume and cost information columns are the summation for all the respective columns for resources 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 these 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 (PGAE) 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 PGAE 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 PGAE area. This table shows all the five minute intervals in which the resource at PNode A was issued an exceptional dispatch instruction and was eligible to set the price. Out of the 8,928 five-minute intervals in October, this resource was issued exceptional dispatch instructions in 25 five-minute intervals. This resource was eligible to set the LMP in 25 intervals. Out of the 25 intervals, resource calculated LMP was larger than the market LMP in 0 intervals. Out of the 25 intervals, resource calculated LMP was less than the market LMP in 25 intervals. In the 25 intervals, the average decrease in five minute LMP was $11.04/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 decrease of $11.04/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 and was eligible to set the price. Out of the 8,928 five-minute intervals in October, this resource was issued exceptional dispatch instructions in 2409 five-minute intervals. This resource was eligible to set the LMP in 586 intervals. Out of the 586 intervals, resource calculated LMP was larger than the market LMP in 548 intervals. In the 548 intervals, the average increase in five minute LMP was $85.96/MWh. Out of the 586 intervals, resource calculated LMP was less than the market LMP in 38 intervals. In the 38 intervals, the average decrease in five minute LMP was $78.16/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 $75.31/MWh.

Table 8: Price Impact Analysis Information for Pricing Node A in PGAE LAP

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1	10/2/2019	1	9	30.49	Yes	21.33	-9.16
2	10/2/2019	1	10	30.49	Yes	21.33	-9.16
3	10/2/2019	1	11	30.49	Yes	21.33	-9.16
4	10/2/2019	1	12	30.49	Yes	21.33	-9.16
5	10/2/2019	2	1	30.49	Yes	21.33	-9.16
6	10/2/2019	2	2	30.49	Yes	21.33	-9.16
7	10/2/2019	2	3	30.49	Yes	21.33	-9.16
8	10/2/2019	2	4	30.49	Yes	21.33	-9.16
9	10/2/2019	2	5	30.49	Yes	21.33	-9.16
10	10/2/2019	2	6	30.49	Yes	21.33	-9.16
11	10/2/2019	2	7	30.49	Yes	21.33	-9.16
12	10/2/2019	2	8	30.49	Yes	21.33	-9.16
13	10/2/2019	2	9	30.49	Yes	21.33	-9.16
14	10/2/2019	2	10	30.49	Yes	21.33	-9.16
15	10/2/2019	2	11	30.49	Yes	21.33	-9.16
16	10/2/2019	2	12	30.49	Yes	21.33	-9.16
17	10/2/2019	3	1	30.49	Yes	21.33	-9.16
18	10/2/2019	3	2	30.49	Yes	21.33	-9.16
19	10/2/2019	3	3	30.49	Yes	21.33	-9.16
20	10/2/2019	3	4	39.30	Yes	21.33	-17.97
21	10/2/2019	3	5	39.91	Yes	21.33	-18.58
22	10/2/2019	3	6	37.83	Yes	21.33	-16.50
23	10/2/2019	3	7	37.63	Yes	21.33	-16.30
24	10/2/2019	3	8	37.56	Yes	21.33	-16.23
25	10/2/2019	3	9	37.56	Yes	21.33	-16.23

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	10/21/2019	8	11	31.14	Yes	152.00	120.86
2	10/21/2019	8	12	29.84	Yes	152.00	122.16
3	10/21/2019	9	1	40.33	Yes	152.00	111.67
4	10/21/2019	9	2	40.33	Yes	152.00	111.67
5	10/21/2019	9	3	39.95	Yes	152.00	112.05
6	10/21/2019	9	4	37.06	Yes	152.00	114.94
7	10/21/2019	9	5	35.98	Yes	152.00	116.02
8	10/21/2019	9	6	35.84	Yes	152.00	116.16
9	10/21/2019	9	7	32.66	Yes	152.00	119.34
10	10/21/2019	9	8	32.24	Yes	152.00	119.76
11	10/21/2019	9	9	27.62	Yes	152.00	124.38
12	10/21/2019	9	10	27.49	Yes	152.00	124.51
13	10/21/2019	9	11	26.47	Yes	152.00	125.53
14	10/21/2019	9	12	26.53	Yes	152.00	125.47
15	10/21/2019	10	1	29.79	Yes	152.00	122.21
16	10/21/2019	10	2	29.77	Yes	152.00	122.23
17	10/21/2019	10	3	28.01	Yes	152.00	123.99
18	10/21/2019	10	4	23.71	Yes	152.00	128.29
19	10/21/2019	10	5	25.57	Yes	152.00	126.43
20	10/21/2019	10	6	29.60	Yes	152.00	122.40
21	10/21/2019	10	7	30.40	Yes	152.00	121.60
22	10/21/2019	10	8	28.26	Yes	152.00	123.74
23	10/21/2019	10	9	25.52	Yes	152.00	126.48
24	10/21/2019	10	10	31.32	Yes	152.00	120.68
25	10/21/2019	10	11	21.78	Yes	152.00	130.22
26	10/21/2019	10	12	20.45	Yes	152.00	131.55
27	10/21/2019	11	1	22.38	Yes	152.00	129.62
28	10/21/2019	11	2	22.92	Yes	152.00	129.08
29	10/21/2019	11	3	22.92	Yes	67.52	44.60
30	10/21/2019	11	4	22.57	Yes	152.00	129.43
31	10/21/2019	11	5	23.55	Yes	152.00	128.45
32	10/21/2019	11	6	25.24	Yes	152.00	126.76
33	10/21/2019	11	7	23.30	Yes	152.00	128.70
34	10/21/2019	11	8	23.55	Yes	152.00	128.45

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
35	10/21/2019	11	9	23.59	Yes	152.00	128.41
36	10/21/2019	11	10	21.15	Yes	152.00	130.85
37	10/21/2019	11	11	21.31	Yes	152.00	130.69
38	10/21/2019	11	12	21.23	Yes	152.00	130.77
39	10/21/2019	12	1	19.69	Yes	152.00	132.31
40	10/21/2019	12	2	19.59	Yes	152.00	132.41
41	10/21/2019	12	3	20.29	Yes	152.00	131.71
42	10/21/2019	12	4	19.59	Yes	152.00	132.41
43	10/21/2019	12	5	19.59	Yes	152.00	132.41
44	10/21/2019	12	6	17.90	Yes	152.00	134.10
45	10/21/2019	12	7	17.87	Yes	152.00	134.13
46	10/21/2019	12	8	17.62	Yes	152.00	134.38
47	10/21/2019	12	9	17.87	Yes	152.00	134.13
48	10/21/2019	12	10	16.99	Yes	152.00	135.01
49	10/21/2019	12	11	17.52	Yes	152.00	134.48
50	10/21/2019	12	12	18.94	Yes	152.00	133.06
51	10/21/2019	16	10	51.71	Yes	67.52	15.81
52	10/21/2019	16	11	78.27	Yes	67.52	-10.75
53	10/21/2019	16	12	63.78	Yes	67.52	3.74
54	10/21/2019	17	1	30.92	Yes	140.76	109.84
55	10/21/2019	17	2	26.20	Yes	67.52	41.32
56	10/21/2019	17	3	37.60	Yes	67.52	29.92
57	10/21/2019	17	4	28.89	Yes	67.52	38.63
58	10/21/2019	17	5	37.32	Yes	67.52	30.20
59	10/21/2019	17	6	31.54	Yes	67.52	35.98
60	10/21/2019	17	7	33.41	Yes	67.52	34.11
61	10/21/2019	17	8	33.77	Yes	67.52	33.75
62	10/21/2019	17	9	34.02	Yes	67.52	33.50
63	10/21/2019	17	10	38.78	Yes	67.52	28.74
64	10/21/2019	17	11	47.39	Yes	67.52	20.13
65	10/21/2019	17	12	39.48	Yes	67.52	28.04
66	10/21/2019	18	1	30.00	Yes	140.76	110.76
67	10/21/2019	18	2	28.78	Yes	140.76	111.98
68	10/21/2019	18	3	31.06	Yes	140.76	109.70
69	10/21/2019	18	4	33.28	Yes	140.76	107.48
70	10/21/2019	18	5	35.40	Yes	140.76	105.36
71	10/21/2019	18	6	36.04	Yes	140.76	104.72
72	10/21/2019	18	7	42.02	Yes	140.76	98.74

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
73	10/21/2019	18	8	40.94	Yes	140.76	99.82
74	10/21/2019	18	9	52.45	Yes	140.76	88.31
75	10/21/2019	18	10	51.62	Yes	140.76	89.14
76	10/21/2019	18	11	50.37	Yes	140.76	90.39
77	10/21/2019	18	12	48.61	Yes	140.76	92.15
78	10/21/2019	19	1	40.08	Yes	140.70	100.62
79	10/21/2019	19	2	36.64	Yes	140.70	104.06
80	10/21/2019	19	3	36.64	Yes	140.70	104.06
81	10/21/2019	19	4	36.49	Yes	140.70	104.21
82	10/21/2019	19	5	39.53	Yes	140.70	101.17
83	10/21/2019	19	6	38.12	Yes	140.70	102.58
84	10/21/2019	19	7	39.09	Yes	140.70	101.61
85	10/21/2019	19	8	36.61	Yes	140.70	104.09
86	10/21/2019	19	9	35.71	Yes	140.70	104.99
87	10/21/2019	19	10	36.33	Yes	140.70	104.37
88	10/21/2019	19	11	34.79	Yes	140.70	105.91
89	10/21/2019	19	12	35.83	Yes	140.70	104.87
90	10/21/2019	20	1	34.77	Yes	140.76	105.99
91	10/21/2019	20	2	35.54	Yes	140.76	105.22
92	10/21/2019	20	3	35.88	Yes	140.76	104.88
93	10/21/2019	20	4	33.59	Yes	140.76	107.17
94	10/21/2019	20	5	33.21	Yes	140.76	107.55
95	10/21/2019	20	6	33.38	Yes	140.76	107.38
96	10/21/2019	20	7	33.24	Yes	140.76	107.52
97	10/21/2019	20	8	33.47	Yes	140.76	107.29
98	10/21/2019	20	9	33.65	Yes	140.76	107.11
99	10/21/2019	20	10	34.42	Yes	140.76	106.34
100	10/21/2019	20	11	33.89	Yes	140.76	106.87
101	10/21/2019	20	12	33.89	Yes	140.76	106.87
102	10/21/2019	21	1	34.83	Yes	140.76	105.93
103	10/21/2019	21	2	34.83	Yes	140.76	105.93
104	10/21/2019	21	3	35.91	Yes	140.76	104.85
105	10/21/2019	21	4	35.30	Yes	140.76	105.46
106	10/21/2019	21	5	35.89	Yes	140.76	104.87
107	10/21/2019	21	6	34.79	Yes	140.76	105.97
108	10/21/2019	21	7	33.92	Yes	140.76	106.84
109	10/21/2019	21	8	33.16	Yes	140.76	107.60
110	10/21/2019	21	9	33.16	Yes	140.76	107.60

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
111	10/21/2019	21	10	30.54	Yes	140.76	110.22
112	10/21/2019	21	11	30.22	Yes	140.76	110.54
113	10/21/2019	21	12	29.04	Yes	140.76	111.72
114	10/21/2019	22	1	36.98	Yes	140.76	103.78
115	10/21/2019	22	2	33.63	Yes	140.76	107.13
116	10/21/2019	22	3	35.79	Yes	140.76	104.97
117	10/21/2019	22	4	35.78	Yes	140.76	104.98
118	10/21/2019	22	5	35.64	Yes	140.76	105.12
119	10/21/2019	22	6	35.64	Yes	140.76	105.12
120	10/21/2019	22	7	34.59	Yes	140.76	106.17
121	10/21/2019	22	8	33.77	Yes	140.76	106.99
122	10/21/2019	22	9	33.00	Yes	140.76	107.76
123	10/21/2019	22	10	30.17	Yes	140.76	110.59
124	10/21/2019	22	11	29.48	Yes	140.76	111.28
125	10/21/2019	22	12	28.62	Yes	140.76	112.14
126	10/22/2019	11	11	17.98	Yes	70.27	52.29
127	10/22/2019	11	12	17.98	Yes	70.27	52.29
128	10/22/2019	12	1	17.98	Yes	142.07	124.09
129	10/22/2019	12	2	17.98	Yes	142.07	124.09
130	10/22/2019	12	3	17.98	Yes	142.07	124.09
131	10/22/2019	12	4	17.98	Yes	142.07	124.09
132	10/22/2019	12	5	17.98	Yes	142.07	124.09
133	10/22/2019	12	6	17.98	Yes	142.07	124.09
134	10/22/2019	12	7	20.37	Yes	141.79	121.42
135	10/22/2019	12	8	20.37	Yes	141.79	121.42
136	10/22/2019	12	9	20.37	Yes	141.79	121.42
137	10/22/2019	12	10	21.93	Yes	141.79	119.86
138	10/22/2019	12	11	21.17	Yes	141.79	120.62
139	10/22/2019	12	12	21.17	Yes	141.79	120.62
140	10/23/2019	13	11	30.23	Yes	66.23	36.00
141	10/23/2019	13	12	27.90	Yes	66.23	38.33
142	10/23/2019	14	1	46.82	Yes	66.23	19.41
143	10/23/2019	14	2	41.64	Yes	66.23	24.59
144	10/23/2019	14	3	42.49	Yes	66.23	23.74
145	10/23/2019	14	4	39.81	Yes	66.23	26.42
146	10/23/2019	14	5	41.12	Yes	66.23	25.11
147	10/23/2019	14	6	41.12	Yes	66.23	25.11
148	10/23/2019	14	7	38.97	Yes	66.23	27.26

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
149	10/23/2019	14	8	38.71	Yes	66.23	27.52
150	10/23/2019	14	9	41.75	Yes	66.23	24.48
151	10/23/2019	14	10	37.53	Yes	66.23	28.70
152	10/23/2019	14	11	37.53	Yes	66.23	28.70
153	10/23/2019	14	12	38.20	Yes	66.23	28.03
154	10/23/2019	15	1	35.30	Yes	66.23	30.93
155	10/23/2019	15	2	33.88	Yes	66.23	32.35
156	10/23/2019	15	3	33.74	Yes	66.23	32.49
157	10/23/2019	15	4	34.21	Yes	66.23	32.02
158	10/23/2019	15	5	34.37	Yes	66.23	31.86
159	10/23/2019	15	6	34.05	Yes	66.23	32.18
160	10/23/2019	15	7	37.02	Yes	66.23	29.21
161	10/23/2019	15	8	42.77	Yes	66.23	23.46
162	10/23/2019	15	9	42.31	Yes	66.23	23.92
163	10/23/2019	15	10	63.09	Yes	66.23	3.14
164	10/23/2019	15	11	71.64	Yes	66.23	-5.41
165	10/23/2019	15	12	59.04	Yes	66.23	7.19
166	10/23/2019	16	1	26.78	Yes	66.23	39.45
167	10/23/2019	16	2	62.52	Yes	66.23	3.71
168	10/23/2019	16	3	63.26	Yes	66.23	2.97
169	10/23/2019	16	4	31.34	Yes	66.23	34.89
170	10/23/2019	16	5	35.29	Yes	66.23	30.94
171	10/23/2019	16	6	37.75	Yes	66.23	28.48
172	10/23/2019	16	7	36.68	Yes	66.23	29.55
173	10/23/2019	16	8	38.81	Yes	66.23	27.42
174	10/23/2019	16	9	42.76	Yes	66.23	23.47
175	10/23/2019	16	10	38.07	Yes	66.23	28.16
176	10/23/2019	16	11	38.15	Yes	66.23	28.08
177	10/23/2019	16	12	37.51	Yes	66.23	28.72
178	10/23/2019	17	1	57.11	Yes	66.23	9.12
179	10/23/2019	17	2	47.32	Yes	66.23	18.91
180	10/23/2019	17	3	43.31	Yes	66.23	22.92
181	10/23/2019	17	4	66.23	Yes	66.23	0.00
182	10/23/2019	17	5	67.06	Yes	66.23	-0.83
183	10/23/2019	17	6	70.21	Yes	66.23	-3.98
184	10/23/2019	17	7	60.31	Yes	66.23	5.92
185	10/23/2019	17	8	73.68	Yes	66.23	-7.45
186	10/23/2019	17	9	67.06	Yes	66.23	-0.83

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
187	10/23/2019	17	10	66.23	Yes	66.23	0.00
188	10/23/2019	17	11	67.06	Yes	66.23	-0.83
189	10/23/2019	17	12	171.02	Yes	66.23	-104.79
190	10/23/2019	18	1	33.94	Yes	66.23	32.29
191	10/23/2019	18	2	35.91	Yes	66.23	30.32
192	10/23/2019	18	3	36.53	Yes	66.23	29.70
193	10/23/2019	18	4	37.29	Yes	66.23	28.94
194	10/23/2019	18	5	37.88	Yes	66.23	28.35
195	10/23/2019	18	6	41.40	Yes	66.23	24.83
196	10/23/2019	18	7	41.56	Yes	66.23	24.67
197	10/23/2019	18	8	45.10	Yes	66.23	21.13
198	10/23/2019	18	9	47.22	Yes	66.23	19.01
199	10/23/2019	18	10	42.23	Yes	66.23	24.00
200	10/23/2019	18	11	44.16	Yes	66.23	22.07
201	10/23/2019	18	12	43.48	Yes	66.23	22.75
202	10/23/2019	19	1	36.95	Yes	134.03	97.08
203	10/23/2019	19	2	36.85	Yes	134.03	97.18
204	10/23/2019	19	3	36.97	Yes	134.03	97.06
205	10/23/2019	19	4	37.51	Yes	66.23	28.72
206	10/23/2019	19	5	37.70	Yes	66.23	28.53
207	10/23/2019	19	6	37.74	Yes	66.23	28.49
208	10/23/2019	19	7	30.82	Yes	66.23	35.41
209	10/23/2019	19	8	31.01	Yes	66.23	35.22
210	10/23/2019	19	9	31.54	Yes	66.23	34.69
211	10/23/2019	19	10	31.37	Yes	66.23	34.86
212	10/23/2019	19	11	31.74	Yes	66.23	34.49
213	10/23/2019	19	12	35.21	Yes	66.23	31.02
214	10/23/2019	20	1	37.87	Yes	134.03	96.16
215	10/23/2019	20	2	39.17	Yes	134.03	94.86
216	10/23/2019	20	3	38.13	Yes	134.03	95.90
217	10/23/2019	20	4	37.82	Yes	134.03	96.21
218	10/23/2019	20	5	32.40	Yes	134.03	101.63
219	10/23/2019	20	6	32.45	Yes	134.03	101.58
220	10/23/2019	20	7	32.12	Yes	134.03	101.91
221	10/23/2019	20	8	32.07	Yes	134.03	101.96
222	10/23/2019	20	9	30.94	Yes	134.03	103.09
223	10/23/2019	20	10	30.91	Yes	134.03	103.12
224	10/23/2019	20	11	31.14	Yes	134.03	102.89

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
225	10/23/2019	20	12	31.14	Yes	134.03	102.89
226	10/23/2019	21	1	36.48	Yes	134.03	97.55
227	10/23/2019	21	2	40.73	Yes	134.03	93.30
228	10/23/2019	21	3	46.23	Yes	134.03	87.80
229	10/23/2019	21	4	47.01	Yes	134.03	87.02
230	10/23/2019	21	5	41.00	Yes	134.03	93.03
231	10/23/2019	21	6	38.97	Yes	134.03	95.06
232	10/24/2019	17	11	41.62	Yes	23.80	-17.82
233	10/24/2019	17	12	41.30	Yes	23.80	-17.50
234	10/24/2019	18	1	41.86	Yes	23.90	-17.96
235	10/24/2019	18	2	39.18	Yes	23.90	-15.28
236	10/24/2019	18	3	128.00	Yes	23.90	-104.10
237	10/24/2019	18	4	125.82	Yes	23.90	-101.92
238	10/24/2019	18	5	129.69	Yes	23.90	-105.79
239	10/24/2019	18	6	181.61	Yes	23.90	-157.71
240	10/24/2019	18	7	71.18	Yes	23.90	-47.28
241	10/24/2019	18	8	64.94	Yes	23.90	-41.04
242	10/24/2019	18	9	67.40	Yes	23.90	-43.50
243	10/24/2019	18	10	88.73	Yes	23.90	-64.83
244	10/24/2019	18	11	68.19	Yes	23.90	-44.29
245	10/24/2019	18	12	68.38	Yes	23.90	-44.48
246	10/24/2019	19	1	37.70	Yes	23.80	-13.90
247	10/24/2019	19	2	34.74	Yes	23.80	-10.94
248	10/24/2019	19	3	33.53	Yes	23.80	-9.73
249	10/24/2019	19	4	33.37	Yes	23.80	-9.57
250	10/24/2019	19	5	33.91	Yes	23.80	-10.11
251	10/24/2019	19	6	33.37	Yes	23.80	-9.57
252	10/24/2019	19	7	36.27	Yes	23.80	-12.47
253	10/24/2019	19	8	36.47	Yes	23.80	-12.67
254	10/24/2019	19	9	34.01	Yes	23.80	-10.21
255	10/24/2019	19	10	36.01	Yes	23.80	-12.21
256	10/24/2019	19	11	34.09	Yes	23.80	-10.29
257	10/24/2019	19	12	33.59	Yes	23.80	-9.79
258	10/24/2019	20	1	37.61	Yes	65.33	27.72
259	10/24/2019	20	2	37.03	Yes	65.33	28.30
260	10/24/2019	20	3	33.64	Yes	65.33	31.69
261	10/24/2019	20	4	32.14	Yes	65.33	33.19
262	10/24/2019	20	5	32.59	Yes	65.33	32.74

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
263	10/24/2019	20	6	31.62	Yes	65.33	33.71
264	10/24/2019	20	7	32.52	Yes	65.33	32.81
265	10/24/2019	20	8	33.59	Yes	65.33	31.74
266	10/24/2019	20	9	33.46	Yes	65.33	31.87
267	10/24/2019	20	10	33.31	Yes	65.33	32.02
268	10/24/2019	20	11	31.06	Yes	65.33	34.27
269	10/24/2019	20	12	34.16	Yes	65.33	31.17
270	10/25/2019	15	1	24.03	Yes	129.39	105.36
271	10/25/2019	15	2	24.03	Yes	129.39	105.36
272	10/25/2019	15	3	24.03	Yes	129.39	105.36
273	10/25/2019	15	4	42.68	Yes	129.39	86.71
274	10/25/2019	15	5	24.12	Yes	129.39	105.27
275	10/25/2019	15	6	62.17	Yes	129.39	67.22
276	10/25/2019	15	7	60.33	Yes	63.33	3.00
277	10/25/2019	15	8	59.79	Yes	63.33	3.54
278	10/25/2019	15	9	56.51	Yes	63.33	6.82
279	10/25/2019	15	10	61.48	Yes	63.33	1.85
280	10/25/2019	15	11	62.44	Yes	63.33	0.89
281	10/25/2019	15	12	63.33	Yes	63.33	0.00
282	10/25/2019	16	1	28.42	Yes	129.39	100.97
283	10/25/2019	16	2	28.23	Yes	129.39	101.16
284	10/25/2019	16	3	31.48	Yes	129.39	97.91
285	10/25/2019	16	4	30.58	Yes	129.39	98.81
286	10/25/2019	16	5	30.18	Yes	129.39	99.21
287	10/25/2019	16	6	30.98	Yes	129.39	98.41
288	10/25/2019	16	7	30.85	Yes	129.39	98.54
289	10/25/2019	16	8	31.49	Yes	129.39	97.90
290	10/25/2019	16	9	33.20	Yes	129.39	96.19
291	10/25/2019	16	10	32.41	Yes	129.39	96.98
292	10/25/2019	16	11	32.99	Yes	129.39	96.40
293	10/25/2019	16	12	33.00	Yes	129.39	96.39
294	10/25/2019	17	1	59.79	Yes	63.33	3.54
295	10/25/2019	17	2	59.79	Yes	63.33	3.54
296	10/25/2019	17	3	57.50	Yes	63.33	5.83
297	10/25/2019	17	4	53.37	Yes	129.39	76.02
298	10/25/2019	17	5	40.61	Yes	129.39	88.78
299	10/25/2019	17	6	47.58	Yes	129.39	81.81
300	10/25/2019	17	7	37.01	Yes	129.39	92.38

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
301	10/25/2019	17	8	36.83	Yes	129.39	92.56
302	10/25/2019	17	9	36.41	Yes	129.39	92.98
303	10/25/2019	17	10	33.24	Yes	129.39	96.15
304	10/25/2019	17	11	33.35	Yes	129.39	96.04
305	10/25/2019	17	12	33.07	Yes	129.39	96.32
306	10/25/2019	18	1	29.50	Yes	129.39	99.89
307	10/25/2019	18	2	26.12	Yes	129.39	103.27
308	10/25/2019	18	3	29.61	Yes	129.39	99.78
309	10/25/2019	18	4	53.91	Yes	129.39	75.48
310	10/25/2019	18	5	46.56	Yes	129.39	82.83
311	10/25/2019	18	6	41.17	Yes	129.39	88.22
312	10/25/2019	18	7	42.46	Yes	129.39	86.93
313	10/25/2019	18	8	49.31	Yes	129.39	80.08
314	10/25/2019	18	9	64.40	Yes	129.39	64.99
315	10/25/2019	18	10	73.50	Yes	129.39	55.89
316	10/25/2019	18	11	130.12	Yes	129.39	-0.73
317	10/25/2019	18	12	63.50	Yes	129.39	65.89
318	10/25/2019	19	1	63.33	Yes	63.33	0.00
319	10/25/2019	19	2	62.41	Yes	63.33	0.92
320	10/25/2019	19	3	62.79	Yes	63.33	0.54
321	10/25/2019	19	4	62.62	Yes	63.33	0.71
322	10/25/2019	19	5	62.55	Yes	63.33	0.78
323	10/25/2019	19	6	52.43	Yes	63.33	10.90
324	10/25/2019	19	7	60.33	Yes	63.33	3.00
325	10/25/2019	19	8	60.33	Yes	63.33	3.00
326	10/25/2019	19	9	60.33	Yes	63.33	3.00
327	10/25/2019	19	10	41.82	Yes	63.33	21.51
328	10/25/2019	19	11	42.12	Yes	63.33	21.21
329	10/25/2019	19	12	39.27	Yes	63.33	24.06
330	10/25/2019	20	1	34.89	Yes	129.39	94.50
331	10/25/2019	20	2	33.04	Yes	129.39	96.35
332	10/25/2019	20	3	32.19	Yes	129.39	97.20
333	10/25/2019	20	4	31.72	Yes	129.39	97.67
334	10/25/2019	20	5	31.41	Yes	129.39	97.98
335	10/25/2019	20	6	30.76	Yes	129.39	98.63
336	10/25/2019	20	7	31.38	Yes	129.39	98.01
337	10/25/2019	20	8	31.38	Yes	129.39	98.01
338	10/25/2019	20	9	30.60	Yes	129.39	98.79

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
339	10/25/2019	20	10	30.78	Yes	129.39	98.61
340	10/25/2019	20	11	30.38	Yes	129.39	99.01
341	10/25/2019	20	12	30.82	Yes	129.39	98.57
342	10/27/2019	18	4	27.52	Yes	122.75	95.23
343	10/27/2019	18	5	27.29	Yes	122.75	95.46
344	10/27/2019	18	6	28.20	Yes	122.75	94.55
345	10/27/2019	18	7	30.61	Yes	122.75	92.14
346	10/27/2019	18	8	49.49	Yes	122.75	73.26
347	10/27/2019	18	9	52.25	Yes	122.75	70.50
348	10/27/2019	18	10	35.32	Yes	122.75	87.43
349	10/27/2019	18	11	31.39	Yes	122.75	91.36
350	10/27/2019	18	12	32.06	Yes	122.75	90.69
351	10/27/2019	19	1	30.19	Yes	122.75	92.56
352	10/27/2019	19	2	27.22	Yes	122.75	95.53
353	10/27/2019	19	3	27.20	Yes	122.75	95.55
354	10/27/2019	19	4	28.03	Yes	122.75	94.72
355	10/27/2019	19	5	29.21	Yes	122.75	93.54
356	10/27/2019	19	6	28.55	Yes	122.75	94.20
357	10/27/2019	19	7	28.61	Yes	122.75	94.14
358	10/27/2019	19	8	28.61	Yes	122.75	94.14
359	10/27/2019	19	9	28.76	Yes	122.75	93.99
360	10/27/2019	19	10	29.86	Yes	122.75	92.89
361	10/27/2019	19	11	29.00	Yes	122.75	93.75
362	10/27/2019	19	12	29.86	Yes	122.75	92.89
363	10/27/2019	20	1	29.93	Yes	122.75	92.82
364	10/27/2019	20	2	29.99	Yes	122.75	92.76
365	10/27/2019	20	3	28.94	Yes	122.75	93.81
366	10/27/2019	20	4	28.76	Yes	122.75	93.99
367	10/27/2019	20	5	26.73	Yes	122.75	96.02
368	10/27/2019	20	6	27.27	Yes	122.75	95.48
369	10/27/2019	20	7	28.25	Yes	122.75	94.50
370	10/27/2019	20	8	28.39	Yes	122.75	94.36
371	10/27/2019	20	9	28.28	Yes	122.75	94.47
372	10/27/2019	20	10	29.55	Yes	122.75	93.20
373	10/27/2019	20	11	29.55	Yes	122.75	93.20
374	10/27/2019	20	12	29.55	Yes	122.75	93.20
375	10/29/2019	18	11	1036.50	Yes	65.84	-970.66
376	10/29/2019	18	12	969.42	Yes	65.84	-903.58

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
377	10/29/2019	19	1	66.90	Yes	133.83	66.93
378	10/29/2019	19	2	66.90	Yes	133.83	66.93
379	10/29/2019	19	3	66.68	Yes	133.83	67.15
380	10/29/2019	19	4	52.59	Yes	133.83	81.24
381	10/29/2019	19	5	49.24	Yes	133.83	84.59
382	10/29/2019	19	6	70.04	Yes	133.83	63.79
383	10/29/2019	19	7	58.50	Yes	81.60	23.10
384	10/29/2019	19	8	86.91	Yes	81.60	-5.31
385	10/29/2019	19	9	70.53	Yes	81.60	11.07
386	10/29/2019	19	10	73.82	Yes	81.60	7.78
387	10/29/2019	19	11	69.81	Yes	81.60	11.79
388	10/29/2019	19	12	65.80	Yes	81.60	15.80
389	10/29/2019	20	1	60.58	Yes	133.83	73.25
390	10/29/2019	20	2	56.61	Yes	133.83	77.22
391	10/29/2019	20	3	56.34	Yes	133.83	77.49
392	10/29/2019	20	4	56.51	Yes	133.83	77.32
393	10/29/2019	20	5	52.69	Yes	133.83	81.14
394	10/29/2019	20	6	46.78	Yes	133.83	87.05
395	10/29/2019	20	7	46.32	Yes	133.83	87.51
396	10/29/2019	20	8	44.94	Yes	133.83	88.89
397	10/29/2019	20	9	45.59	Yes	133.83	88.24
398	10/29/2019	20	10	44.29	Yes	133.83	89.54
399	10/29/2019	20	11	46.25	Yes	133.83	87.58
400	10/29/2019	20	12	46.41	Yes	133.83	87.42
401	10/29/2019	21	1	51.16	Yes	133.83	82.67
402	10/29/2019	21	2	50.97	Yes	133.83	82.86
403	10/29/2019	21	3	49.91	Yes	133.83	83.92
404	10/29/2019	21	4	48.92	Yes	133.83	84.91
405	10/29/2019	21	5	47.05	Yes	133.83	86.78
406	10/29/2019	21	6	47.11	Yes	133.83	86.72
407	10/29/2019	21	7	48.99	Yes	133.83	84.84
408	10/29/2019	21	8	47.60	Yes	133.83	86.23
409	10/29/2019	21	9	43.29	Yes	133.83	90.54
410	10/29/2019	21	10	43.34	Yes	133.83	90.49
411	10/29/2019	21	11	43.34	Yes	133.83	90.49
412	10/29/2019	21	12	42.43	Yes	133.83	91.40
413	10/29/2019	22	1	45.00	Yes	133.83	88.83
414	10/29/2019	22	2	44.51	Yes	133.83	89.32

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
415	10/29/2019	22	3	44.51	Yes	133.83	89.32
416	10/29/2019	22	4	40.92	Yes	133.83	92.91
417	10/29/2019	22	5	39.31	Yes	133.83	94.52
418	10/29/2019	22	6	39.55	Yes	133.83	94.28
419	10/29/2019	22	7	41.00	Yes	133.83	92.83
420	10/29/2019	22	8	40.59	Yes	133.83	93.24
421	10/29/2019	22	9	40.59	Yes	133.83	93.24
422	10/29/2019	22	10	39.55	Yes	133.83	94.28
423	10/29/2019	22	11	39.52	Yes	133.83	94.31
424	10/29/2019	22	12	45.69	Yes	133.83	88.14
425	10/30/2019	13	7	-2.17	Yes	136.04	138.21
426	10/30/2019	13	8	-2.17	Yes	136.04	138.21
427	10/30/2019	13	9	-3.12	Yes	136.04	139.16
428	10/30/2019	13	10	-2.20	Yes	136.04	138.24
429	10/30/2019	13	11	-1.77	Yes	136.04	137.81
430	10/30/2019	13	12	-1.66	Yes	136.04	137.70
431	10/30/2019	14	1	-1.72	Yes	136.04	137.76
432	10/30/2019	14	2	-1.06	Yes	136.04	137.10
433	10/30/2019	14	3	-9.54	Yes	136.04	145.58
434	10/30/2019	14	4	-9.96	Yes	136.04	146.00
435	10/30/2019	14	5	-9.96	Yes	136.04	146.00
436	10/30/2019	14	6	-10.24	Yes	136.04	146.28
437	10/30/2019	14	7	-5.45	Yes	136.04	141.49
438	10/30/2019	14	8	-1.76	Yes	136.04	137.80
439	10/30/2019	14	9	-9.79	Yes	136.04	145.83
440	10/30/2019	14	10	-9.77	Yes	136.04	145.81
441	10/30/2019	14	11	-10.13	Yes	136.04	146.17
442	10/30/2019	14	12	-11.24	Yes	136.04	147.28
443	10/30/2019	15	1	-0.01	Yes	136.04	136.05
444	10/30/2019	15	2	-0.01	Yes	136.04	136.05
445	10/30/2019	15	3	0.11	Yes	136.04	135.93
446	10/30/2019	15	4	-0.02	Yes	136.04	136.06
447	10/30/2019	15	5	-0.02	Yes	136.04	136.06
448	10/30/2019	15	6	-0.02	Yes	136.04	136.06
449	10/30/2019	15	7	-0.03	Yes	136.04	136.07
450	10/30/2019	15	8	0.15	Yes	136.04	135.89
451	10/30/2019	15	9	0.16	Yes	136.04	135.88
452	10/30/2019	15	10	1.06	Yes	136.04	134.98

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
453	10/30/2019	15	11	1.79	Yes	136.04	134.25
454	10/30/2019	15	12	11.31	Yes	136.04	124.73
455	10/30/2019	16	1	20.64	Yes	136.04	115.40
456	10/30/2019	16	2	18.05	Yes	136.04	117.99
457	10/30/2019	16	3	19.03	Yes	136.04	117.01
458	10/30/2019	16	4	8.01	Yes	136.04	128.03
459	10/30/2019	16	5	18.93	Yes	136.04	117.11
460	10/30/2019	16	6	18.89	Yes	136.04	117.15
461	10/30/2019	16	7	2.78	Yes	136.04	133.26
462	10/30/2019	16	8	20.16	Yes	136.04	115.88
463	10/30/2019	16	9	20.50	Yes	136.04	115.54
464	10/30/2019	16	10	19.77	Yes	136.04	116.27
465	10/30/2019	16	11	20.13	Yes	136.04	115.91
466	10/30/2019	16	12	20.81	Yes	136.04	115.23
467	10/30/2019	17	1	17.57	Yes	136.04	118.47
468	10/30/2019	17	2	20.19	Yes	136.04	115.85
469	10/30/2019	17	3	22.46	Yes	136.04	113.58
470	10/30/2019	17	4	23.96	Yes	136.04	112.08
471	10/30/2019	17	5	29.66	Yes	136.04	106.38
472	10/30/2019	17	6	31.88	Yes	136.04	104.16
473	10/30/2019	17	7	30.66	Yes	136.04	105.38
474	10/30/2019	17	8	37.72	Yes	136.04	98.32
475	10/30/2019	17	9	38.80	Yes	136.04	97.24
476	10/30/2019	17	10	40.46	Yes	136.04	95.58
477	10/30/2019	17	11	45.50	Yes	136.04	90.54
478	10/30/2019	17	12	57.39	Yes	136.04	78.65
479	10/30/2019	18	1	32.40	Yes	136.04	103.64
480	10/30/2019	18	2	32.72	Yes	136.04	103.32
481	10/30/2019	18	3	35.32	Yes	136.04	100.72
482	10/30/2019	18	4	38.31	Yes	136.04	97.73
483	10/30/2019	18	5	40.44	Yes	136.04	95.60
484	10/30/2019	18	6	46.71	Yes	136.04	89.33
485	10/30/2019	18	7	40.41	Yes	136.04	95.63
486	10/30/2019	18	8	41.01	Yes	136.04	95.03
487	10/30/2019	18	9	53.97	Yes	136.04	82.07
488	10/30/2019	18	10	54.57	Yes	136.04	81.47
489	10/30/2019	18	11	58.58	Yes	136.04	77.46
490	10/30/2019	18	12	58.59	Yes	136.04	77.45

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
491	10/30/2019	19	1	46.13	Yes	136.04	89.91
492	10/30/2019	19	2	46.13	Yes	136.04	89.91
493	10/30/2019	19	3	48.64	Yes	136.04	87.40
494	10/30/2019	19	4	50.62	Yes	136.04	85.42
495	10/30/2019	19	5	48.64	Yes	136.04	87.40
496	10/30/2019	19	6	50.24	Yes	136.04	85.80
497	10/30/2019	19	7	50.62	Yes	136.04	85.42
498	10/30/2019	19	8	50.62	Yes	136.04	85.42
499	10/30/2019	19	9	50.63	Yes	136.04	85.41
500	10/30/2019	19	10	50.63	Yes	136.04	85.41
501	10/30/2019	19	11	50.62	Yes	136.04	85.42
502	10/30/2019	19	12	50.62	Yes	136.04	85.42
503	10/30/2019	20	1	50.63	Yes	136.04	85.41
504	10/30/2019	20	2	50.62	Yes	136.04	85.42
505	10/30/2019	20	3	50.62	Yes	136.04	85.42
506	10/30/2019	20	4	48.92	Yes	136.04	87.12
507	10/30/2019	20	5	49.00	Yes	136.04	87.04
508	10/30/2019	20	6	49.79	Yes	136.04	86.25
509	10/30/2019	20	7	48.64	Yes	136.04	87.40
510	10/30/2019	20	8	47.81	Yes	136.04	88.23
511	10/30/2019	20	9	46.65	Yes	136.04	89.39
512	10/30/2019	20	10	46.77	Yes	136.04	89.27
513	10/30/2019	20	11	48.64	Yes	136.04	87.40
514	10/30/2019	20	12	45.81	Yes	136.04	90.23
515	10/30/2019	21	1	48.64	Yes	136.04	87.40
516	10/30/2019	21	2	48.64	Yes	136.04	87.40
517	10/30/2019	21	3	48.64	Yes	136.04	87.40
518	10/30/2019	21	4	47.54	Yes	136.04	88.50
519	10/30/2019	21	5	48.64	Yes	136.04	87.40
520	10/30/2019	21	6	45.36	Yes	136.04	90.68
521	10/30/2019	21	7	44.49	Yes	136.04	91.55
522	10/30/2019	21	8	45.36	Yes	136.04	90.68
523	10/30/2019	21	9	45.36	Yes	136.04	90.68
524	10/30/2019	21	10	45.36	Yes	136.04	90.68
525	10/30/2019	21	11	45.36	Yes	136.04	90.68
526	10/30/2019	21	12	45.36	Yes	136.04	90.68
527	10/30/2019	22	1	49.00	Yes	136.04	87.04
528	10/30/2019	22	2	47.85	Yes	136.04	88.19

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
529	10/30/2019	22	3	50.39	Yes	136.04	85.65
530	10/30/2019	22	4	52.73	Yes	136.04	83.31
531	10/30/2019	22	5	54.27	Yes	136.04	81.77
532	10/30/2019	22	6	52.74	Yes	136.04	83.30
533	10/30/2019	22	7	54.43	Yes	136.04	81.61
534	10/30/2019	22	8	52.88	Yes	136.04	83.16
535	10/30/2019	22	9	50.14	Yes	136.04	85.90
536	10/30/2019	22	10	46.21	Yes	136.04	89.83
537	10/30/2019	22	11	46.18	Yes	136.04	89.86
538	10/30/2019	22	12	46.16	Yes	136.04	89.88
539	10/31/2019	17	1	23.77	Yes	139.31	115.54
540	10/31/2019	17	2	22.91	Yes	139.31	116.40
541	10/31/2019	17	3	23.38	Yes	139.31	115.93
542	10/31/2019	17	4	24.05	Yes	139.31	115.26
543	10/31/2019	17	5	26.53	Yes	139.31	112.78
544	10/31/2019	17	6	29.74	Yes	139.31	109.57
545	10/31/2019	17	7	34.05	Yes	139.31	105.26
546	10/31/2019	17	8	38.62	Yes	139.31	100.69
547	10/31/2019	17	9	39.56	Yes	139.31	99.75
548	10/31/2019	17	10	45.51	Yes	139.31	93.80
549	10/31/2019	17	11	53.56	Yes	139.31	85.75
550	10/31/2019	17	12	55.76	Yes	139.31	83.55
551	10/31/2019	18	1	33.83	Yes	139.31	105.48
552	10/31/2019	18	2	33.83	Yes	139.31	105.48
553	10/31/2019	18	3	36.56	Yes	139.31	102.75
554	10/31/2019	18	4	39.75	Yes	139.31	99.56
555	10/31/2019	18	5	40.90	Yes	139.31	98.41
556	10/31/2019	18	6	41.62	Yes	139.31	97.69
557	10/31/2019	18	7	42.53	Yes	139.31	96.78
558	10/31/2019	18	8	44.32	Yes	139.31	94.99
559	10/31/2019	18	9	50.28	Yes	139.31	89.03
560	10/31/2019	18	10	46.15	Yes	139.31	93.16
561	10/31/2019	18	11	46.92	Yes	139.31	92.39
562	10/31/2019	18	12	45.99	Yes	139.31	93.32
563	10/31/2019	19	1	39.82	Yes	139.31	99.49
564	10/31/2019	19	2	39.22	Yes	139.31	100.09
565	10/31/2019	19	3	39.74	Yes	139.31	99.57
566	10/31/2019	19	4	39.79	Yes	139.31	99.52

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
567	10/31/2019	19	5	41.06	Yes	139.31	98.25
568	10/31/2019	19	6	41.06	Yes	139.31	98.25
569	10/31/2019	19	7	40.79	Yes	139.31	98.52
570	10/31/2019	19	8	40.24	Yes	139.31	99.07
571	10/31/2019	19	9	39.78	Yes	139.31	99.53
572	10/31/2019	19	10	40.02	Yes	139.31	99.29
573	10/31/2019	19	11	38.45	Yes	139.31	100.86
574	10/31/2019	19	12	36.31	Yes	139.31	103.00
575	10/31/2019	20	1	36.31	Yes	139.31	103.00
576	10/31/2019	20	2	36.21	Yes	139.31	103.10
577	10/31/2019	20	3	34.98	Yes	139.31	104.33
578	10/31/2019	20	4	34.92	Yes	139.31	104.39
579	10/31/2019	20	5	34.90	Yes	139.31	104.41
580	10/31/2019	20	6	33.62	Yes	139.31	105.69
581	10/31/2019	20	7	33.14	Yes	139.31	106.17
582	10/31/2019	20	8	33.14	Yes	139.31	106.17
583	10/31/2019	20	9	33.14	Yes	139.31	106.17
584	10/31/2019	20	10	33.69	Yes	139.31	105.62
585	10/31/2019	20	11	33.77	Yes	139.31	105.54
586	10/31/2019	20	12	34.52	Yes	139.31	104.79

Appendix C: Exceptional Dispatch Bid Mitigation Analysis

In October 2019, the ISO applied the exceptional dispatch bid mitigation to the exceptional dispatches. Table 10 shows the costs by instruction type in October. With exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches were $ 1,709. Without the exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches would be $ 28,051. The cost saving from the exceptional dispatch bid mitigation was $ 26,342.

Table 10: Bid Mitigation Analysis for October 2019

Type	Number of Resources	Costs without Bid Mitigation	Costs with Bid Mitigation	Cost Saving
NONTMOD	1	$ 28,051	$ 1,709	$ 26,341
Total	1	$ 28,051	$ 1,709	$ 26,341

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California, this 16th day of December, 2019.

/s/ Anna Pascuzzo

Anna Pascuzzo