Exceptional Dispatch Report

Table 1: February 2018

CAISO Market Quality and Renewable Integration **April 16, 2018**

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TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

Introduction

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

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 February 2018 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 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

[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

following day, then the CAISO issues an exceptional dispatch to commit this resource in 2400 so it can be dispatched economically in the following day. Software limitation reason was also used for exceptional dispatches to manually issue shut down instructions to a resource because of a temporary Automatic Dispatch System ("ADS") failure, or similar issues. There were a few other reasons used to explain exceptional dispatch instructions in February 2018, 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 185 exceptional dispatches in February 2018, as compared to 156 exceptional dispatches in January 2018. Exceptional dispatches issued for the following reasons accounted for approximately 56 percent of the total exceptional dispatches during the reporting period: planned transmission outages, software limitations, and operating procedure number 7110 and 7720. Many of the exceptional dispatches with the reason "Other Reliability Requirement" were due to Real Time Contingency Analysis.

[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.

Table 1: Exceptional Dispatches in February 2018

California Independent System Operator Corporation
Exceptional Dispatch Report
April 16, 2018

Chart 1: Table of Exceptional Dispatches for Period 01/February/2018 - 28/February/2018

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
1	RT	Conditions beyond the control of the CAISO	PG&E	Bay Area	2/20/2018	480	No	INC	12	10:00	21:59
2	RT	Conditions beyond the control of the CAISO	PG&E	N/A	2/20/2018	270-821	Yes	INC	13	9:00	21:59
3	RT	Conditions beyond the control of the CAISO	SCE	LA Basin	2/20/2018	120-270	No	DEC	13	8:50	20:59
4	RT	Conditions beyond the control of the CAISO	SCE	LA Basin	2/20/2018	250	No	INC	5	16:05	20:59
5	RT	Conditions beyond the control of the CAISO	SCE	LA Basin	2/21/2018	150	No	DEC	4	17:45	20:59
6	RT	Contingency Dispatch	PG&E	Bay Area	2/17/2018	120-915	No	INC	4	16:48	19:59
7	RT	Contingency Dispatch	PG&E	N/A	2/17/2018	100-468	No	INC	2	17:40	18:59
8	RT	Contingency Dispatch	PG&E	Sierra	2/17/2018	46- 92	No	INC	3	17:40	19:59
9	RT	Contingency Dispatch	SCE	Big Creek-Ventura	2/17/2018	63- 80	No	INC	2	16:48	17:56
10	RT	Contingency Dispatch	SCE	LA Basin	2/17/2018	47- 749	No	DEC	3	16:48	19:29
11	RT	Contingency Dispatch	SCE	LA Basin	2/17/2018	412-1328	Yes	INC	4	16:48	19:59
12	RT	Contingency Dispatch	SDG&E	San Diego-IV	2/17/2018	102	No	DEC	1	17:00	17:59
13	RT	Contingency Dispatch	SDG&E	San Diego-IV	2/17/2018	30- 121	No	INC	3	16:48	18:59
14	RT	Fast Start Unit Management	PG&E	Bay Area	2/18/2018	0	No	INC	2	8:00	9:04
15	RT	Fast Start Unit Management	SCE	Big Creek-Ventura	2/22/2018	0	No	INC	1	3:30	4:29

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
16	RT	Fast Start Unit Management	SCE	LA Basin	2/9/2018	0	No	INC	1	16:00	16:59
17	RT	Fast Start Unit Management	SCE	LA Basin	2/11/2018	0	No	INC	2	8:35	9:39
18	RT	Fast Start Unit Management	SCE	LA Basin	2/18/2018	0	No	INC	2	1:00	2:34
19	RT	Fast Start Unit Management	SCE	LA Basin	2/20/2018	0	No	INC	2	8:25	9:29
20	RT	Fast Start Unit Management	SCE	LA Basin	2/21/2018	0	No	INC	2	0:30	1:34
21	RT	Fast Start Unit Management	SCE	LA Basin	2/23/2018	0	No	INC	1	3:15	4:14
22	RT	Fast Start Unit Management	SDG&E	San Diego-IV	2/4/2018	0	No	INC	1	23:45	23:59
23	RT	Fast Start Unit Management	SDG&E	San Diego-IV	2/5/2018	0	No	INC	1	0:00	0:14
24	RT	Fast Start Unit Management	SDG&E	San Diego-IV	2/10/2018	0	No	INC	3	11:45	14:14
25	RT	Fast Start Unit Management	SDG&E	San Diego-IV	2/11/2018	0	No	INC	14	9:00	22:14
26	RT	Fast Start Unit Management	SDG&E	San Diego-IV	2/18/2018	0	No	INC	1	1:35	1:59
27	RT	Incomplete or Inaccurate Transmission	PG&E	Humboldt	2/7/2018	28	No	DEC	1	7:25	7:29
28	RT	Incomplete or Inaccurate Transmission	PG&E	Humboldt	2/16/2018	31- 93	No	INC	9	7:00	15:14
29	RT	Incomplete or Inaccurate Transmission	PG&E	Humboldt	2/7/2018	28	No	DEC	1	7:00	7:44
30	RT	Load Forecast Uncertainty	PG&E	Bay Area	2/17/2018	120	No	INC	1	17:06	17:24
31	RT	Load Forecast Uncertainty	PG&E	Bay Area	2/20/2018	24	No	DEC	14	7:40	20:59
32	RT	Load Forecast Uncertainty	PG&E	Bay Area	2/20/2018	24	No	INC	14	7:40	20:59
33	RT	Load Forecast Uncertainty	PG&E	Fresno	2/19/2018	-330	No	DEC	1	15:10	15:29
34	RT	Load Forecast Uncertainty	SCE	LA Basin	2/17/2018	430	No	DEC	1	18:30	19:29
35	RT	Load Forecast Uncertainty	SCE	LA Basin	2/17/2018	98- 430	No	INC	7	17:06	23:59
36	RT	Load Forecast Uncertainty	SCE	LA Basin	2/18/2018	98- 210	No	DEC	24	0:00	23:59
37	RT	Load Forecast Uncertainty	SCE	LA Basin	2/18/2018	108- 626	Yes	INC	24	0:00	23:59
38	RT	Load Forecast Uncertainty	SCE	LA Basin	2/21/2018	98	No	INC	16	5:00	20:59
39	RT	Load Forecast Uncertainty	SCE	LA Basin	2/22/2018	20	No	DEC	1	7:35	8:14
40	RT	Load Forecast Uncertainty	SCE	LA Basin	2/22/2018	150	No	INC	17	0:05	16:59
41	RT	Load Forecast Uncertainty	SCE	N/A	2/21/2018	200	No	INC	19	2:00	20:59
42	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	2/17/2018	155	No	INC	8	13:00	20:59
43	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	2/18/2018	155	No	INC	9	12:00	20:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
44	RT	Load Forecast Uncertainty	SDG&E	San Diego-IV	2/22/2018	20	No	INC	10	14:00	23:59
45	RT	Load Pull	SCE	LA Basin	2/8/2018	190	No	DEC	5	15:50	19:59
46	RT	Load Pull	SCE	LA Basin	2/18/2018	190-420	No	DEC	4	16:00	19:29
47	RT	Load Pull	SCE	LA Basin	2/18/2018	194-630	No	INC	4	16:00	19:29
48	RT	Load Pull	SCE	LA Basin	2/28/2018	65	No	INC	2	16:15	17:59
49	RT	Load Pull	SDG&E	San Diego-IV	2/6/2018	63	No	INC	4	15:50	18:59
50	RT	Market Disruption	PG&E	Bay Area	2/13/2018	330	No	DEC	1	9:36	9:54
51	RT	Market Disruption	PG&E	Fresno	2/13/2018	-616--308	No	DEC	3	9:22	11:59
52	RT	Market Disruption	PG&E	N/A	2/13/2018	142-542	No	DEC	2	9:37	11:29
53	RT	Market Disruption	SCE	Big Creek-Ventura	2/13/2018	475	No	DEC	1	9:31	9:54
54	RT	Market Disruption	SCE	LA Basin	2/13/2018	210	No	INC	3	11:55	13:59
55	RT	Market Disruption	SDG&E	San Diego-IV	2/13/2018	365-591	No	DEC	2	9:28	10:59
56	RT	Market Disruption	SDG&E	San Diego-IV	2/13/2018	435	No	INC	2	9:28	10:59
57	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/5/2018	15	No	DEC	2	7:40	8:59
58	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/5/2018	15- 16	No	INC	17	7:40	23:59
59	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/6/2018	15	No	DEC	4	19:00	22:59
60	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/6/2018	15- 28	No	INC	17	6:40	22:59
61	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/7/2018	28	No	DEC	12	7:00	18:59
62	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/7/2018	28- 120	No	INC	17	7:00	23:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
63	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/8/2018	15- 60	No	INC	17	0:00	16:59
64	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/9/2018	14	No	INC	14	8:00	21:59
65	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/10/2018	15- 32	No	INC	2	21:00	22:59
66	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/11/2018	14	No	DEC	10	8:50	18:44
67	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/11/2018	14- 15	No	INC	15	8:50	23:04
68	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/12/2018	15- 16	No	DEC	16	8:05	23:59
69	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/12/2018	16- 30	No	INC	15	8:05	22:59
70	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/13/2018	14- 28	No	DEC	18	0:00	17:14
71	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/13/2018	14	No	INC	9	8:19	17:14
72	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/14/2018	32- 48	No	INC	7	9:00	15:59
73	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/15/2018	30	No	DEC	1	21:48	22:14
74	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/15/2018	30	No	INC	3	21:48	23:59
75	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/16/2018	14	No	DEC	1	0:00	0:59
76	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/16/2018	32	No	INC	2	22:00	23:59
77	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/17/2018	16- 30	No	DEC	23	0:55	23:44
78	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/17/2018	15- 32	No	INC	24	0:00	23:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
79	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/18/2018	15- 30	No	INC	24	0:00	23:59
80	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/19/2018	16- 32	No	DEC	20	0:00	19:59
81	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/19/2018	16- 32	No	INC	20	0:00	19:59
82	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/20/2018	32	No	DEC	8	9:00	16:59
83	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/20/2018	16- 48	No	INC	15	9:00	23:59
84	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/21/2018	32	No	DEC	12	8:55	19:59
85	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/21/2018	15- 42	No	INC	24	0:00	23:59
86	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/22/2018	32	No	DEC	14	6:50	19:59
87	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/22/2018	16- 48	No	INC	18	6:50	23:59
88	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/23/2018	14- 47	No	DEC	20	0:30	19:59
89	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/23/2018	16- 56	No	INC	24	0:00	23:59
90	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/24/2018	14- 28	No	DEC	23	0:30	23:29
91	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/24/2018	16- 28	No	INC	24	0:00	23:29
92	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/25/2018	32	No	DEC	17	7:10	23:59
93	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/25/2018	32	No	INC	17	7:10	23:59
94	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/26/2018	32- 60	No	DEC	23	0:00	22:44

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
95	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/26/2018	30- 60	No	INC	24	0:00	23:59
96	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/27/2018	30- 32	No	DEC	24	0:00	23:59
97	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/27/2018	30- 62	No	INC	24	0:00	23:59
98	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/28/2018	16- 45	No	DEC	23	1:15	23:59
99	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/28/2018	14- 56	No	INC	24	0:00	23:59
100	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	3/1/2018	45	No	INC	1	0:00	0:59
101	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	2/24/2018	325	No	INC	11	2:50	13:14
102	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	2/26/2018	300-410	No	DEC	15	9:22	23:59
103	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	2/27/2018	380-430	No	DEC	18	6:30	23:59
104	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	2/27/2018	430-880	No	INC	13	6:00	18:14
105	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	2/28/2018	390-430	No	DEC	24	0:00	23:59
106	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	2/28/2018	420-430	No	INC	17	1:00	17:59
107	RT	Operating Procedure Number and Constraint (7720)	SCE	N/A	3/1/2018	411	No	INC	1	0:00	0:59
108	RT	Other Reliability Requirement	Intertie	N/A	2/17/2018	50	Yes	INC	1	17:00	17:59
109	RT	Other Reliability Requirement	PG&E	Bay Area	2/3/2018	300	No	DEC	1	1:00	1:59
110	RT	Other Reliability Requirement	PG&E	Bay Area	2/22/2018	24	No	INC	6	12:53	17:58
111	RT	Other Reliability Requirement	PG&E	Fresno	2/4/2018	300	Yes	INC	1	10:00	10:14
112	RT	Other Reliability Requirement	SCE	LA Basin	2/20/2018	0	No	INC	9	8:15	16:59
113	RT	Over Generation	SDG&E	San Diego-IV	2/22/2018	310	No	DEC	1	0:33	0:39

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
114	RT	Planned Transmission Outage	PG&E	Bay Area	2/14/2018	54- 132	No	INC	10	10:05	19:59
115	RT	Planned Transmission Outage	PG&E	Bay Area	2/15/2018	54- 75	No	INC	12	8:30	19:59
116	RT	Planned Transmission Outage	PG&E	Humboldt	2/7/2018	14	No	DEC	13	7:45	19:59
117	RT	Planned Transmission Outage	PG&E	Humboldt	2/7/2018	14- 29	No	INC	13	7:45	19:59
118	RT	Planned Transmission Outage	PG&E	Humboldt	2/8/2018	32- 126	No	INC	11	6:30	16:59
119	RT	Planned Transmission Outage	PG&E	Humboldt	2/14/2018	32	No	DEC	3	21:35	23:59
120	RT	Planned Transmission Outage	PG&E	Humboldt	2/14/2018	32	No	INC	3	21:35	23:59
121	RT	Planned Transmission Outage	PG&E	Humboldt	2/15/2018	16	No	DEC	3	4:50	7:29
122	RT	Planned Transmission Outage	PG&E	Humboldt	2/15/2018	32- 48	No	INC	12	0:00	11:59
123	RT	Planned Transmission Outage	PG&E	N/A	2/5/2018	18	No	DEC	1	7:10	7:59
124	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	2/20/2018	20- 23	No	INC	3	6:20	8:59
125	RT	Planned Transmission Outage	SCE	LA Basin	2/1/2018	0	No	INC	9	9:00	17:29
126	RT	Planned Transmission Outage	SCE	LA Basin	2/7/2018	190	No	DEC	7	12:45	18:59
127	RT	Planned Transmission Outage	SCE	LA Basin	2/7/2018	40	No	INC	9	11:50	19:59
128	RT	Planned Transmission Outage	SCE	LA Basin	2/9/2018	96	No	INC	3	7:50	10:14
129	RT	Planned Transmission Outage	SCE	LA Basin	2/13/2018	420-620	No	INC	3	9:09	11:59
130	RT	Planned Transmission Outage	SCE	LA Basin	2/20/2018	472	No	DEC	2	18:20	19:44
131	RT	Planned Transmission Outage	SCE	LA Basin	2/20/2018	494	No	INC	3	18:35	20:59
132	RT	Planned Transmission Outage	SCE	LA Basin	2/23/2018	100-350	No	DEC	4	18:15	21:59
133	RT	Planned Transmission Outage	SCE	LA Basin	2/23/2018	264-484	No	INC	5	18:45	22:59
134	RT	Planned Transmission Outage	SCE	N/A	2/14/2018	125	No	INC	15	9:00	23:59
135	RT	Planned Transmission Outage	SCE	N/A	2/16/2018	125	No	INC	15	9:00	23:59
136	RT	Planned Transmission Outage	SCE	N/A	2/17/2018	125	No	INC	8	8:00	15:59
137	RT	Planned Transmission Outage	SCE	N/A	2/18/2018	125	No	INC	17	7:00	23:59
138	RT	Planned Transmission Outage	SCE	N/A	2/19/2018	125	No	INC	7	9:00	15:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
139	RT	Planned Transmission Outage	SCE	N/A	2/20/2018	240	No	DEC	5	19:50	23:59
140	RT	Planned Transmission Outage	SCE	N/A	2/21/2018	240	No	DEC	2	0:00	1:59
141	RT	Planned Transmission Outage	SCE	N/A	2/21/2018	125-480	No	INC	24	0:00	23:59
142	RT	Planned Transmission Outage	SCE	N/A	2/22/2018	125	No	INC	24	0:05	23:59
143	RT	Planned Transmission Outage	SCE	N/A	2/23/2018	200	No	DEC	1	21:30	22:29
144	RT	Planned Transmission Outage	SCE	N/A	2/23/2018	125	No	INC	16	0:00	15:59
145	RT	Planned Transmission Outage	SCE	N/A	2/24/2018	125	No	INC	8	8:00	15:59
146	RT	Planned Transmission Outage	SCE	N/A	2/25/2018	125	No	INC	8	8:00	15:59
147	RT	Planned Transmission Outage	SDG&E	San Diego-IV	2/2/2018	20- 136	No	INC	13	5:00	17:59
148	RT	Planned Transmission Outage	SDG&E	San Diego-IV	2/6/2018	20	No	INC	3	17:00	19:59
149	RT	Planned Transmission Outage	SDG&E	San Diego-IV	2/7/2018	20	No	INC	16	6:00	21:59
150	RT	Planned Transmission Outage	SDG&E	San Diego-IV	2/8/2018	37	No	DEC	4	14:48	18:14
151	RT	Planned Transmission Outage	SDG&E	San Diego-IV	2/8/2018	37	No	INC	4	14:48	18:14
152	RT	Planned Transmission Outage	SDG&E	San Diego-IV	2/28/2018	20	Yes	INC	13	4:00	16:59
153	RT	Pump Management	PG&E	Fresno	2/21/2018	-328	No	DEC	1	16:00	16:29
154	RT	Software Limitation	PG&E	Fresno	2/22/2018	-331	No	DEC	2	10:40	11:59
155	RT	Software Limitation	PG&E	Fresno	2/27/2018	83	No	DEC	1	17:15	18:14
156	RT	Software Limitation	PG&E	Fresno	2/27/2018	83	No	INC	1	17:30	18:29
157	RT	Software Limitation	PG&E	Humboldt	2/10/2018	0	No	INC	1	23:00	23:59
158	RT	Software Limitation	PG&E	N/A	2/6/2018	3	No	DEC	2	14:20	16:14
159	RT	Software Limitation	PG&E	N/A	2/11/2018	102	No	INC	1	6:00	6:29
160	RT	Software Limitation	PG&E	N/A	2/15/2018	0	No	DEC	1	16:15	17:14
161	RT	Software Limitation	PG&E	N/A	2/26/2018	47	No	DEC	1	14:15	14:59
162	RT	Software Limitation	SCE	LA Basin	2/9/2018	190	No	DEC	13	7:50	19:59
163	RT	Software Limitation	SCE	LA Basin	2/27/2018	98	No	DEC	4	1:30	4:59
164	RT	Software Limitation	SCE	LA Basin	2/27/2018	98- 474	No	INC	8	1:30	8:59
165	RT	Software Limitation	SCE	N/A	2/7/2018	0	No	INC	1	5:05	5:59
166	RT	Software Limitation	SDG&E	San Diego-IV	2/11/2018	0	No	INC	1	3:30	3:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
167	RT	Unit Testing	PG&E	Bay Area	2/1/2018	507-706	No	DEC	13	4:15	16:59
168	RT	Unit Testing	PG&E	N/A	2/20/2018	551	No	INC	7	9:10	15:59
169	RT	Unplanned Outage	PG&E	Fresno	2/17/2018	166	No	DEC	1	16:51	17:44
170	RT	Unplanned Outage	PG&E	Fresno	2/17/2018	166	No	INC	1	16:51	17:44
171	RT	Voltage Support	PG&E	Fresno	2/2/2018	-323	No	DEC	4	5:15	8:59
172	RT	Voltage Support	PG&E	Fresno	2/4/2018	-312	No	DEC	7	1:43	8:29
173	RT	Voltage Support	PG&E	Fresno	2/5/2018	-312	No	DEC	5	0:00	4:44
174	RT	Voltage Support	PG&E	Fresno	2/11/2018	-318	No	DEC	6	4:15	9:59
175	RT	Voltage Support	PG&E	Fresno	2/13/2018	-318	No	DEC	3	2:00	4:44
176	RT	Voltage Support	PG&E	Fresno	2/14/2018	-327	No	DEC	4	2:10	5:44
177	RT	Voltage Support	PG&E	Fresno	2/15/2018	-327	No	DEC	2	4:10	5:44
178	RT	Voltage Support	SCE	N/A	2/5/2018	125	No	INC	5	9:10	13:59
179	RT	Voltage Support	SCE	N/A	2/7/2018	125	No	INC	6	8:00	13:59
180	RT	Voltage Support	SCE	N/A	2/8/2018	125-240	No	INC	6	8:05	13:59
181	RT	Voltage Support	SCE	N/A	2/9/2018	125	No	INC	15	9:00	23:59
182	RT	Voltage Support	SCE	N/A	2/10/2018	125	No	INC	24	0:00	23:59
183	RT	Voltage Support	SCE	N/A	2/11/2018	125	No	DEC	9	8:00	16:59
184	RT	Voltage Support	SCE	N/A	2/11/2018	125	No	INC	9	8:00	16:59
185	RT	Voltage Support	SCE	N/A	2/12/2018	125	No	INC	8	8:00	15:59

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 prior to 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