



Exceptional Dispatch Report

Table 1: January 2017

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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 January 2017.

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 January 2017 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 34.9 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 January 2017, 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 232 exceptional dispatches in January 2017, as compared to 127 exceptional dispatches in December 2016. Exceptional dispatches issued for the following reasons accounted for approximately 54 percent of the total exceptional dispatches during the reporting period: planned transmission outages, software limitations, and operating procedure number 7110 (along with 6310). Exceptional dispatches with the reason “Conditions beyond the control of the CAISO” were due to gas uncertainty issues.

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 January 2017

**California Independent System Operator Corporation
Exceptional Dispatch Report
March 15, 2017**

Chart 1: Table of Exceptional Dispatches for Period 01/January/2017 - 31/January/2017

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	N/A	1/23/2017	285	No	INC	16	6:00	21:59
2	RT	Conditions beyond the control of the CAISO	PG&E	Stockton	1/23/2017	96	No	INC	16	6:00	21:59
3	RT	Contingency Dispatch	PG&E	Bay Area	1/18/2017	480	No	INC	2	20:35	21:59
4	RT	Contingency Dispatch	PG&E	Fresno	1/18/2017	330	No	INC	1	20:41	20:49
5	RT	Contingency Dispatch	PG&E	Fresno	1/23/2017	83	No	INC	1	18:05	18:59
6	RT	Contingency Dispatch	SCE	LA Basin	1/18/2017	48	No	INC	2	20:35	21:59
7	RT	Contingency Dispatch	SDG&E	San Diego-IV	1/18/2017	30	No	INC	2	20:35	21:59
8	RT	Fast Start Unit Management	PG&E	Bay Area	1/18/2017	0	No	INC	1	23:15	23:59
9	RT	Fast Start Unit Management	PG&E	Bay Area	1/19/2017	0	No	INC	1	0:00	0:19
10	RT	Fast Start Unit Management	SCE	LA Basin	1/28/2017	0	No	INC	4	20:30	23:59
11	RT	Fast Start Unit Management	SCE	LA Basin	1/29/2017	0	No	INC	1	0:00	0:59
12	RT	Market Disruption	Intertie	N/A	1/3/2017	217	No	INC	1	15:00	15:59
13	RT	Market Disruption	Intertie	N/A	1/5/2017	100	No	INC	1	0:00	0:59
14	RT	Market Disruption	Intertie	N/A	1/5/2017	300-400	No	INC	1	0:00	0:59
15	RT	Market Disruption	N/A	N/A	1/3/2017	180	No	INC	1	15:00	15:59
16	RT	Market Disruption	N/A	N/A	1/5/2017	70	No	INC	1	0:15	0:59
17	RT	Market Disruption	PG&E	Bay Area	1/26/2017	136-240	No	INC	2	11:18	12:29
18	RT	Operating Procedure Number and Constraint (6310)	N/A	N/A	1/17/2017	20- 91	No	INC	18	5:00	22:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
19	RT	Operating Procedure Number and Constraint (6310)	N/A	N/A	1/29/2017	27	No	INC	4	7:00	10:44
20	RT	Operating Procedure Number and Constraint (6310)	PG&E	Humboldt	1/21/2017	30- 128	No	INC	24	0:00	23:59
21	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/1/2017	30	No	INC	15	8:30	22:59
22	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/2/2017	16- 60	No	DEC	16	8:25	23:39
23	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/2/2017	16- 60	No	INC	16	8:25	23:39
24	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/5/2017	45	No	DEC	5	19:55	23:59
25	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/5/2017	30- 45	No	INC	5	19:50	23:59
26	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/6/2017	15	No	DEC	5	18:25	22:59
27	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/6/2017	32- 96	No	INC	18	6:15	23:59
28	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/6/2017	15- 45	No	INC	23	0:00	22:59
29	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/7/2017	24	No	DEC	3	18:30	20:59
30	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/7/2017	16- 22	No	DEC	4	18:35	22:14
31	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/7/2017	24- 80	No	INC	24	0:00	23:59
32	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/7/2017	12- 32	No	INC	5	18:40	23:29
33	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/8/2017	15- 28	No	INC	23	0:00	22:59
34	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/8/2017	15- 16	No	INC	11	10:45	21:29

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
35	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/9/2017	30	No	DEC	3	6:10	8:14
36	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/9/2017	28- 35	No	INC	18	6:10	23:59
37	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/10/2017	35	No	DEC	7	10:30	16:59
38	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/10/2017	12- 35	No	INC	17	0:00	16:59
39	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/11/2017	14- 30	No	DEC	11	12:20	23:14
40	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/11/2017	16- 30	No	INC	12	12:20	23:59
41	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/12/2017	49	No	DEC	5	14:30	18:59
42	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/12/2017	16- 32	No	DEC	19	5:15	23:59
43	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/12/2017	16- 98	No	INC	24	0:00	23:59
44	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/13/2017	15- 33	No	DEC	12	12:10	23:59
45	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/13/2017	15- 33	No	INC	14	10:00	23:59
46	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/13/2017	12- 32	No	INC	16	0:00	15:59
47	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/14/2017	16	No	DEC	13	0:50	12:59
48	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/14/2017	16- 30	No	INC	24	0:50	23:59
49	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/15/2017	10- 32	No	DEC	15	7:20	21:59
50	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/15/2017	10- 32	No	INC	15	7:15	21:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
51	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/16/2017	16	No	DEC	2	5:35	6:59
52	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/16/2017	20- 42	No	INC	15	8:15	22:59
53	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/17/2017	14- 16	No	DEC	17	6:00	22:59
54	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/17/2017	14- 64	No	INC	14	10:22	23:59
55	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/18/2017	14	No	DEC	24	0:15	23:59
56	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/18/2017	14- 62	No	INC	24	0:00	23:59
57	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/19/2017	13	No	DEC	6	14:15	19:59
58	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/19/2017	12- 90	No	INC	24	0:00	23:59
59	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/20/2017	12- 32	No	DEC	15	4:50	18:59
60	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/20/2017	12- 84	No	INC	24	0:00	23:59
61	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/21/2017	30- 84	No	INC	24	0:00	23:59
62	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/22/2017	15- 25	No	DEC	23	1:30	23:59
63	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/22/2017	15- 194	No	INC	24	0:00	23:59
64	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/23/2017	15- 47	No	DEC	23	1:10	23:29
65	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/23/2017	15- 141	No	INC	24	0:00	23:59
66	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/24/2017	0	No	DEC	3	1:30	3:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
67	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/24/2017	12- 15	No	DEC	9	15:20	23:59
68	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/24/2017	15- 70	No	INC	2	0:00	1:29
69	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/24/2017	105	No	INC	24	0:00	23:59
70	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/25/2017	15- 22	No	DEC	20	4:40	23:59
71	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/25/2017	15- 23	No	INC	24	0:00	23:59
72	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/26/2017	15- 25	No	DEC	20	0:00	19:59
73	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/26/2017	16- 32	No	DEC	14	8:50	22:29
74	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/26/2017	15- 66	No	INC	24	0:00	23:59
75	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/27/2017	12- 43	No	DEC	14	6:15	19:59
76	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/27/2017	16- 106	No	INC	10	6:45	15:59
77	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/28/2017	12- 26	No	DEC	22	0:00	21:14
78	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/28/2017	12- 26	No	INC	24	0:00	23:29
79	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/29/2017	10- 26	No	INC	13	11:40	23:59
80	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/30/2017	20- 25	No	DEC	2	22:50	23:59
81	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/30/2017	20- 41	No	INC	19	4:00	22:59
82	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/30/2017	10	No	INC	1	0:00	0:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
83	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/31/2017	28	No	DEC	8	16:30	23:59
84	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	1/31/2017	15- 129	No	INC	22	0:00	21:59
85	RT	Operating Procedure Number and Constraint (7110)	PG&E	Humboldt	2/1/2017	14	No	INC	2	0:00	1:59
86	RT	Other Reliability Requirement	PG&E	Fresno	1/10/2017	90	No	INC	1	6:00	6:29
87	RT	Other Reliability Requirement	SDG&E	San Diego-IV	1/10/2017	281	No	INC	1	0:25	0:59
88	RT	Over Generation	SCE	LA Basin	1/20/2017	440	No	DEC	1	14:16	14:49
89	RT	Planned Transmission Outage and Constraint	N/A	N/A	1/10/2017	30- 37	No	INC	2	22:30	23:59
90	RT	Planned Transmission Outage and Constraint	N/A	N/A	1/11/2017	30	No	INC	12	0:00	11:44
91	RT	Planned Transmission Outage and Constraint	N/A	N/A	1/30/2017	15	No	DEC	6	10:55	15:59
92	RT	Planned Transmission Outage and Constraint	N/A	N/A	1/30/2017	15- 267	No	INC	9	7:15	15:59
93	RT	Planned Transmission Outage and Constraint	PG&E	Bay Area	1/10/2017	636-1272	No	DEC	1	10:55	11:44
94	RT	Planned Transmission Outage and Constraint	PG&E	Bay Area	1/10/2017	363-1690	No	INC	13	10:55	23:29
95	RT	Planned Transmission Outage and Constraint	PG&E	Humboldt	1/10/2017	13- 30	No	INC	2	22:30	23:59
96	RT	Planned Transmission Outage and Constraint	PG&E	Humboldt	1/11/2017	15	No	INC	3	0:00	2:29
97	RT	Planned Transmission Outage and Constraint	PG&E	Humboldt	1/17/2017	39	No	INC	1	7:15	7:44
98	RT	Planned Transmission Outage and Constraint	PG&E	Humboldt	1/30/2017	15- 26	No	DEC	9	7:15	15:59
99	RT	Planned Transmission Outage and Constraint	PG&E	Humboldt	1/30/2017	15- 195	No	INC	9	7:15	15:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
100	RT	Planned Transmission Outage and Constraint	PG&E	N/A	1/17/2017	25	No	INC	2	18:30	20:24
101	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/6/2017	20	No	INC	2	10:52	12:44
102	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/21/2017	58	No	DEC	1	18:35	19:29
103	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/21/2017	42	No	INC	3	5:15	7:29
104	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/23/2017	20- 40	No	INC	22	2:55	23:59
105	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/24/2017	20	No	INC	24	0:00	23:59
106	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/25/2017	20	No	INC	7	0:00	6:44
107	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/30/2017	20	Yes	INC	19	5:00	23:59
108	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/31/2017	20	No	DEC	9	0:00	8:29
109	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	1/31/2017	20- 90	No	INC	24	0:00	23:59
110	RT	Planned Transmission Outage and Constraint	PG&E	Sierra	2/1/2017	20	No	INC	4	0:00	3:59
111	RT	Planned Transmission Outage and Constraint	SCE	Big Creek-Ventura	1/31/2017	301-387	No	DEC	2	8:15	9:29
112	RT	Planned Transmission Outage and Constraint	SCE	LA Basin	1/30/2017	138	No	DEC	11	7:45	18:29
113	RT	Planned Transmission Outage and Constraint	SCE	LA Basin	1/30/2017	138-276	No	INC	11	7:40	18:29
114	RT	Planned Transmission Outage and Constraint	SCE	N/A	1/30/2017	196-1063	No	INC	14	5:30	18:44
115	RT	Planned Transmission Outage and Constraint	SDG&E	San Diego-IV	1/5/2017	30	Yes	INC	1	14:00	14:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
116	RT	Planned Transmission Outage and Constraint	N/A	N/A	1/11/2017	30	No	INC	2	11:20	12:44
117	RT	Pump Management	PG&E	Fresno	1/15/2017	0	No	INC	2	22:30	23:59
118	RT	Pump Management	PG&E	Fresno	1/17/2017	83	No	DEC	1	5:00	5:59
119	RT	Pump Management	PG&E	Fresno	1/17/2017	0	No	INC	1	0:45	1:44
120	RT	Pump Management	PG&E	Fresno	1/29/2017	0	No	INC	1	15:45	16:44
121	RT	Software Limitation	N/A	N/A	1/8/2017	16	No	INC	1	2:45	3:44
122	RT	Software Limitation	PG&E	Fresno	1/21/2017	-303	No	DEC	5	10:30	14:59
123	RT	Software Limitation	PG&E	Fresno	1/29/2017	0	No	INC	1	16:00	16:59
124	RT	Software Limitation	PG&E	Humboldt	1/12/2017	0	No	DEC	1	10:45	11:39
125	RT	Software Limitation	PG&E	Humboldt	1/13/2017	32	No	INC	1	10:30	10:59
126	RT	Software Limitation	PG&E	N/A	1/16/2017	665	No	INC	1	1:20	2:14
127	RT	Software Limitation	PG&E	N/A	1/28/2017	0	No	INC	3	12:00	14:59
128	RT	Software Limitation	PG&E	Stockton	1/28/2017	0	No	INC	3	5:25	7:59
129	RT	Software Limitation	SCE	LA Basin	1/3/2017	0	No	DEC	6	18:48	23:59
130	RT	Software Limitation	SCE	LA Basin	1/3/2017	0	No	INC	6	18:48	23:59
131	RT	Software Limitation	SCE	LA Basin	1/28/2017	0	No	INC	23	1:45	23:59
132	RT	Software Limitation	SCE	LA Basin	1/29/2017	0	No	INC	23	0:00	22:59
133	RT	Software Limitation	SCE	N/A	1/23/2017	0	No	INC	2	22:30	23:59
134	RT	Software Limitation	SCE	N/A	1/28/2017	195-196	No	INC	24	0:05	23:59
135	RT	Software Limitation	SCE	N/A	1/31/2017	0	No	INC	1	4:55	5:29
136	RT	Software Limitation	SDG&E	San Diego-IV	1/19/2017	0	No	DEC	3	20:00	22:59
137	RT	Software Limitation	SDG&E	San Diego-IV	1/20/2017	0	No	INC	1	13:30	14:24
138	RT	Unit Testing	PG&E	Bay Area	1/4/2017	64	No	INC	1	16:30	17:29
139	RT	Unit Testing	PG&E	Bay Area	1/12/2017	145	No	INC	1	13:55	14:44
140	RT	Unit Testing	PG&E	Bay Area	1/18/2017	78	No	INC	1	18:50	19:19
141	RT	Unit Testing	PG&E	Fresno	1/10/2017	400	No	INC	1	20:35	20:59
142	RT	Unit Testing	PG&E	N/A	1/11/2017	101	No	DEC	1	19:30	19:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
143	RT	Unit Testing	PG&E	N/A	1/17/2017	200	No	DEC	1	17:35	17:59
144	RT	Unit Testing	SCE	LA Basin	1/11/2017	42	No	INC	1	20:45	20:59
145	RT	Unit Testing	SDG&E	San Diego-IV	1/11/2017	300	No	INC	1	18:30	18:59
146	RT	Unplanned Outage	PG&E	Humboldt	1/2/2017	45	No	DEC	4	20:00	23:59
147	RT	Unplanned Outage	PG&E	Humboldt	1/2/2017	34- 45	No	INC	4	20:00	23:59
148	RT	Unplanned Outage	PG&E	Humboldt	1/2/2017	60	No	INC	1	23:40	23:59
149	RT	Unplanned Outage	PG&E	Humboldt	1/3/2017	45	No	DEC	24	0:00	23:59
150	RT	Unplanned Outage	PG&E	Humboldt	1/3/2017	45- 48	No	INC	24	0:00	23:59
151	RT	Unplanned Outage	PG&E	Humboldt	1/3/2017	56- 64	No	INC	24	0:00	23:59
152	RT	Unplanned Outage	PG&E	Humboldt	1/4/2017	15	No	DEC	1	6:40	7:29
153	RT	Unplanned Outage	PG&E	Humboldt	1/4/2017	30- 45	No	INC	24	0:00	23:59
154	RT	Unplanned Outage	PG&E	Humboldt	1/4/2017	60- 120	No	INC	24	0:00	23:59
155	RT	Unplanned Outage	PG&E	Humboldt	1/5/2017	44- 45	No	DEC	17	0:00	16:59
156	RT	Unplanned Outage	PG&E	Humboldt	1/5/2017	48	No	DEC	13	3:35	15:59
157	RT	Unplanned Outage	PG&E	Humboldt	1/5/2017	35- 45	No	INC	16	0:00	15:59
158	RT	Unplanned Outage	PG&E	Humboldt	1/5/2017	48- 180	No	INC	16	0:00	15:59
159	RT	Unplanned Outage	PG&E	Stockton	1/22/2017	22	No	INC	5	7:40	11:40
160	RT	Voltage Support	PG&E	Fresno	1/1/2017	-618-- 308	No	DEC	19	5:15	23:59
161	RT	Voltage Support	PG&E	Fresno	1/1/2017	0	Yes	INC	19	5:15	23:59
162	RT	Voltage Support	PG&E	Fresno	1/2/2017	-313- 0	No	DEC	24	0:00	23:59
163	RT	Voltage Support	PG&E	Fresno	1/2/2017	0	No	INC	24	0:00	23:59
164	RT	Voltage Support	PG&E	Fresno	1/3/2017	-308- 0	No	DEC	7	0:00	6:59
165	RT	Voltage Support	PG&E	Fresno	1/3/2017	0	No	INC	16	0:00	15:59
166	RT	Voltage Support	PG&E	Fresno	1/4/2017	-308- 0	No	DEC	24	0:30	23:59
167	RT	Voltage Support	PG&E	Fresno	1/4/2017	0	No	INC	13	10:45	23:44
168	RT	Voltage Support	PG&E	Fresno	1/5/2017	-303- 0	No	DEC	24	0:00	23:59
169	RT	Voltage Support	PG&E	Fresno	1/5/2017	0- 83	Yes	INC	11	13:15	23:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
170	RT	Voltage Support	PG&E	Fresno	1/6/2017	-620--303	No	DEC	15	0:30	15:29
171	RT	Voltage Support	PG&E	Fresno	1/6/2017	0	No	INC	2	0:00	1:29
172	RT	Voltage Support	PG&E	Fresno	1/7/2017	-303	No	DEC	24	0:00	23:59
173	RT	Voltage Support	PG&E	Fresno	1/8/2017	-303	No	DEC	16	0:00	15:29
174	RT	Voltage Support	PG&E	Fresno	1/8/2017	0	No	INC	1	23:40	23:59
175	RT	Voltage Support	PG&E	Fresno	1/9/2017	-606- 83	No	DEC	14	1:30	14:59
176	RT	Voltage Support	PG&E	Fresno	1/9/2017	0- 166	Yes	INC	20	0:00	19:59
177	RT	Voltage Support	PG&E	Fresno	1/10/2017	-606- 83	No	DEC	15	0:02	14:59
178	RT	Voltage Support	PG&E	Fresno	1/10/2017	167	No	INC	18	0:02	17:29
179	RT	Voltage Support	PG&E	Fresno	1/11/2017	-313- 83	No	DEC	15	0:30	14:59
180	RT	Voltage Support	PG&E	Fresno	1/11/2017	1- 166	Yes	INC	15	9:47	23:59
181	RT	Voltage Support	PG&E	Fresno	1/12/2017	-303	No	DEC	6	0:30	5:44
182	RT	Voltage Support	PG&E	Fresno	1/12/2017	1- 84	No	INC	7	0:00	6:59
183	RT	Voltage Support	PG&E	Fresno	1/13/2017	-303	No	DEC	5	0:30	4:59
184	RT	Voltage Support	PG&E	Fresno	1/13/2017	83	Yes	INC	11	5:15	15:59
185	RT	Voltage Support	PG&E	Fresno	1/14/2017	-303	No	DEC	5	1:30	5:44
186	RT	Voltage Support	PG&E	Fresno	1/14/2017	0- 1	No	INC	16	8:00	23:59
187	RT	Voltage Support	PG&E	Fresno	1/15/2017	-303- 1	No	DEC	24	0:15	23:59
188	RT	Voltage Support	PG&E	Fresno	1/15/2017	0- 84	Yes	INC	24	0:00	23:59
189	RT	Voltage Support	PG&E	Fresno	1/16/2017	-303	No	DEC	16	0:00	15:44
190	RT	Voltage Support	PG&E	Fresno	1/16/2017	84	No	INC	4	10:00	13:44
191	RT	Voltage Support	PG&E	Fresno	1/17/2017	-303	No	DEC	4	1:15	4:44
192	RT	Voltage Support	PG&E	Fresno	1/17/2017	5- 166	Yes	INC	6	0:00	5:59
193	RT	Voltage Support	PG&E	Fresno	1/18/2017	-316	No	DEC	1	4:10	4:59
194	RT	Voltage Support	PG&E	Fresno	1/18/2017	83	Yes	INC	1	5:15	5:59
195	RT	Voltage Support	PG&E	Fresno	1/19/2017	380	No	INC	1	9:08	9:19
196	RT	Voltage Support	PG&E	Fresno	1/19/2017	83	Yes	INC	1	5:15	5:59
197	RT	Voltage Support	PG&E	Fresno	1/20/2017	-320	No	DEC	2	22:00	23:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
198	RT	Voltage Support	PG&E	Fresno	1/20/2017	83	Yes	INC	11	5:15	15:59
199	RT	Voltage Support	PG&E	Fresno	1/21/2017	-320-- 303	No	DEC	24	0:00	23:59
200	RT	Voltage Support	PG&E	Fresno	1/21/2017	-303- 83	No	INC	8	7:50	15:44
201	RT	Voltage Support	PG&E	Fresno	1/22/2017	-640-- 319	No	DEC	24	0:00	23:59
202	RT	Voltage Support	PG&E	Fresno	1/23/2017	-319- 83	No	DEC	24	0:00	23:59
203	RT	Voltage Support	PG&E	Fresno	1/23/2017	83	No	INC	2	5:15	7:14
204	RT	Voltage Support	PG&E	Fresno	1/24/2017	-319-- 308	No	DEC	24	0:00	23:59
205	RT	Voltage Support	PG&E	Fresno	1/25/2017	-319-- 308	No	DEC	24	0:00	23:59
206	RT	Voltage Support	PG&E	Fresno	1/26/2017	-312	No	DEC	1	14:35	14:59
207	RT	Voltage Support	PG&E	Fresno	1/26/2017	-323-- 316	No	DEC	24	0:00	23:59
208	RT	Voltage Support	PG&E	Fresno	1/27/2017	-316	No	DEC	6	0:00	5:44
209	RT	Voltage Support	PG&E	Fresno	1/28/2017	-315	No	DEC	24	0:35	23:59
210	RT	Voltage Support	PG&E	Fresno	1/29/2017	-628-- 313	No	DEC	24	0:00	23:59
211	RT	Voltage Support	PG&E	Fresno	1/29/2017	83- 84	No	INC	2	16:00	17:44
212	RT	Voltage Support	PG&E	Fresno	1/30/2017	-315-- 310	No	DEC	24	0:00	23:59
213	RT	Voltage Support	PG&E	Fresno	1/31/2017	-316-- 310	No	DEC	24	0:00	23:59
214	RT	Voltage Support	PG&E	Fresno	2/1/2017	-315	No	DEC	6	0:00	5:29
215	RT	Voltage Support	PG&E	N/A	1/10/2017	350	No	DEC	2	22:55	23:59
216	RT	Voltage Support	PG&E	N/A	1/10/2017	350	No	INC	2	22:55	23:59
217	RT	Voltage Support	PG&E	N/A	1/11/2017	350	No	DEC	24	0:00	23:59
218	RT	Voltage Support	PG&E	N/A	1/11/2017	350	No	INC	24	0:00	23:59
219	RT	Voltage Support	PG&E	N/A	1/12/2017	350	No	INC	7	0:00	6:59

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
220	RT	Voltage Support	PG&E	Sierra	1/1/2017	20	Yes	INC	17	0:00	16:59
221	RT	Voltage Support	PG&E	Sierra	1/11/2017	20	No	INC	1	23:35	23:59
222	RT	Voltage Support	PG&E	Sierra	1/12/2017	20	No	INC	7	0:00	6:59
223	RT	Voltage Support	PG&E	Sierra	1/13/2017	20	No	INC	9	12:35	21:14
224	RT	Voltage Support	SCE	N/A	1/25/2017	172	No	INC	5	19:00	23:59
225	RT	Voltage Support	SCE	N/A	1/26/2017	172	No	INC	24	0:00	23:59
226	RT	Voltage Support	SCE	N/A	1/27/2017	172	No	INC	24	0:00	23:59
227	RT	Voltage Support	SCE	N/A	1/28/2017	172	No	INC	24	0:00	23:59
228	RT	Voltage Support	SCE	N/A	1/29/2017	172	No	INC	24	0:00	23:59
229	RT	Voltage Support	SCE	N/A	1/30/2017	172	No	INC	24	0:00	23:59
230	RT	Voltage Support	SCE	N/A	1/31/2017	172	No	INC	24	0:00	23:59
231	RT	Voltage Support	SCE	N/A	2/1/2017	172	No	INC	24	0:00	23:59
232	RT	Voltage Support	SCE	N/A	1/30/2017	172	No	INC	6	18:30	23:59

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