



Exceptional Dispatch Report

Table 1: November 2019

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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 November 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 November 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 that are established to prevent instability, uncontrolled separation or cascading as described in operating procedure 3100. System Operating Limit (SOL) are the facility ratings, system voltage limits, transient stability limits, and voltage stability limits that are 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 November 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 245 exceptional dispatches in November 2019, as compared to 302 exceptional dispatches in October 2019. Exceptional dispatches issued for the following reasons accounted for approximately 63 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 7720). Many of the exceptional dispatches with the reason “Other Reliability Requirement” were due to Real Time Contingency Analysis. Exceptional dispatches with the reason “Real-Time Reliability Requirement” were due to Real Time Contingency Analysis, Voltage Stability Analysis, and operatin procedure number 7110.

Table 1: Exceptional Dispatches in November 2019

**California Independent System Operator Corporation
Exceptional Dispatch Report
January 15, 2020**

Chart 1: Table of Exceptional Dispatches for Period 01/November/2019 - 30/November/2019

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
1	RT	Fast Start Unit Management	SCE	LA Basin	11/6/2019	0	No	INC	2	22:00	23:50
2	RT	Fast Start Unit Management	SCE	LA Basin	11/21/2019	0	No	INC	2	0:15	1:35
3	RT	Gas Limitations	PGAE	Bay Area	11/22/2019	120	No	INC	1	14:00	14:55
4	RT	Gas Limitations	PGAE	Fresno	11/22/2019	14 - 35	No	INC	1	14:00	14:55
5	RT	Gas Limitations	SCE	Big Creek-Ventura	11/22/2019	47.1	No	INC	1	14:00	14:55
6	RT	Gas Limitations	SCE	LA Basin	11/22/2019	5 - 48.36	No	INC	1	14:00	14:55
7	RT	Gas Limitations	SDGE	San Diego-IV	11/22/2019	30	No	INC	1	14:00	14:55
8	RT	Incomplete or Inaccurate Transmission	SCE	LA Basin	11/24/2019	98	No	INC	5	19:00	0:00
9	RT	Incomplete or Inaccurate Transmission	SCE	LA Basin	11/25/2019	98	No	INC	24	0:00	0:00
10	RT	Load Forecast Uncertainty	PGAE	Fresno	11/26/2019	84 - 407	No	INC	1	13:55	14:45
11	RT	Load Forecast Uncertainty	PGAE	NA	11/4/2019	49	No	INC	4	10:00	14:00
12	RT	Load Forecast Uncertainty	PGAE	NA	11/20/2019	48.95	No	INC	4	11:15	15:00
13	RT	Load Forecast Uncertainty	SCE	LA Basin	11/4/2019	10 -20	Yes	INC	12	12:00	0:00
14	RT	Load Forecast Uncertainty	SCE	LA Basin	11/5/2019	20	No	INC	24	0:00	0:00
15	RT	Load Forecast Uncertainty	SCE	LA Basin	11/6/2019	20	No	INC	12	0:00	12:00
16	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	11/4/2019	24	No	INC	3	13:30	16:00
17	RT	Market Disruption	PGAE	Bay Area	11/13/2019	500 - 525	No	INC	1	15:00	15:30
18	RT	Market Disruption	PGAE	Bay Area	11/29/2019	600	No	DEC	1	9:40	10:00
19	RT	Market Disruption	PGAE	Fresno	11/11/2019	83 - 200	No	INC	1	15:05	16:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
20	RT	Market Disruption	SCE	Big Creek-Ventura	11/11/2019	200	No	INC	1	15:15	15:30
21	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/1/2019	45 - 60	No	INC	7	17:55	0:00
22	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/2/2019	15 - 45	No	INC	24	0:00	0:00
23	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/3/2019	45	No	DEC	2	20:00	22:00
24	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/3/2019	15 - 45	No	INC	25	0:00	0:00
25	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/4/2019	32	No	DEC	4	16:00	20:00
26	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/4/2019	15 - 32	No	INC	24	0:00	0:00
27	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/5/2019	30	No	DEC	6	14:00	20:00
28	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/5/2019	30	No	INC	24	0:00	0:00
29	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/6/2019	30 - 46	No	DEC	7	13:00	20:00
30	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/6/2019	15 - 48	No	INC	24	0:00	0:00
31	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/7/2019	48 - 60	No	DEC	6	14:00	20:00
32	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/7/2019	48 - 60	No	INC	24	0:00	0:00
33	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/8/2019	32 - 64	No	DEC	8	14:00	22:00
34	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/8/2019	32 - 64	No	INC	24	0:00	0:00
35	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/9/2019	32 - 48	No	DEC	5	15:00	20:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
36	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/9/2019	16 - 48	No	INC	24	0:00	0:00
37	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/10/2019	16	No	DEC	3	17:00	20:00
38	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/10/2019	16	No	INC	22	0:00	22:00
39	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/11/2019	15	No	DEC	7	14:00	21:00
40	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/11/2019	15	No	INC	8	6:30	14:00
41	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/12/2019	14	No	DEC	1	23:00	0:00
42	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/13/2019	14	No	INC	2	21:00	22:45
43	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/14/2019	30	No	INC	2	22:00	23:15
44	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/15/2019	30	No	INC	3	21:30	0:00
45	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/16/2019	14 - 30	No	INC	24	0:00	0:00
46	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/17/2019	14	No	DEC	2	20:45	22:00
47	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/17/2019	14	No	INC	24	0:00	0:00
48	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/18/2019	14 - 45	No	DEC	8	14:00	22:00
49	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/18/2019	14 - 45	No	INC	24	0:00	0:00
50	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/19/2019	14 - 45	No	INC	24	0:00	0:00
51	RT	Operating Procedure Number and Constraint (7110)	PGAE	Humboldt	11/20/2019	14 - 32	No	INC	22	0:00	21:45

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
52	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/1/2019	405 - 430	No	DEC	24	0:00	0:00
53	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/1/2019	405 - 430	No	INC	8	9:00	17:00
54	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/2/2019	410 - 460	No	DEC	24	0:00	0:00
55	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/2/2019	450 - 460	No	INC	16	7:00	22:45
56	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/3/2019	425	No	DEC	22	1:00	22:00
57	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/3/2019	425	No	INC	25	0:00	0:00
58	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/4/2019	425	No	DEC	3	4:00	7:00
59	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/4/2019	425	No	INC	10	0:00	10:00
60	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/5/2019	411	No	DEC	7	16:15	23:00
61	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/5/2019	411	No	INC	1	23:00	0:00
62	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/6/2019	40 - 411	No	DEC	19	5:00	0:00
63	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/6/2019	411	No	INC	17	0:00	17:00
64	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/7/2019	310 - 410	No	DEC	24	0:00	0:00
65	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/7/2019	310 - 411	No	INC	13	2:40	15:00
66	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/8/2019	365 - 440	No	DEC	24	0:00	0:00
67	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/8/2019	400 - 440	No	INC	8	8:00	15:50

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
68	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/9/2019	365	No	DEC	24	0:00	0:00
69	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/9/2019	365	No	INC	7	8:00	15:00
70	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/10/2019	365 - 400	No	DEC	24	0:00	0:00
71	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/10/2019	400	No	INC	7	8:00	15:00
72	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/11/2019	390 - 410	No	DEC	24	0:00	0:00
73	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/11/2019	410	No	INC	6	8:00	14:00
74	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/12/2019	385 - 410	No	DEC	24	0:00	0:00
75	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/12/2019	410	No	INC	9	7:00	16:00
76	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/13/2019	370 - 410	No	DEC	24	0:00	0:00
77	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/13/2019	400	No	INC	1	15:40	16:00
78	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/14/2019	365 - 390	No	DEC	24	0:00	0:00
79	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/14/2019	365 - 390	No	INC	9	7:00	16:00
80	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/15/2019	365 - 415	No	DEC	24	0:00	0:00
81	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/15/2019	415	No	INC	10	0:55	10:00
82	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/16/2019	365	No	DEC	7	0:00	7:00
83	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/16/2019	365	No	INC	1	7:00	8:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
84	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/17/2019	370	No	DEC	9	15:40	0:00
85	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/18/2019	370 - 409	No	DEC	24	0:00	0:00
86	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/18/2019	375 - 409	No	INC	4	8:00	12:00
87	RT	Operating Procedure Number and Constraint (7720)	SCE	NA	11/19/2019	400	No	DEC	7	0:00	7:00
88	RT	Other Reliability Requirement	PGAE	Bay Area	11/22/2019	290	No	DEC	1	14:30	15:00
89	RT	Other Reliability Requirement	PGAE	Fresno	11/1/2019	4 - 12	No	INC	7	0:00	6:15
90	RT	Other Reliability Requirement	PGAE	Humboldt	11/20/2019	48	No	INC	5	8:50	13:00
91	RT	Other Reliability Requirement	PGAE	Humboldt	11/21/2019	60	No	DEC	1	14:55	15:00
92	RT	Other Reliability Requirement	PGAE	NA	11/1/2019	38	No	INC	7	0:00	6:15
93	RT	Other Reliability Requirement	PGAE	NA	11/30/2019	225	No	INC	1	12:15	12:30
94	RT	Other Reliability Requirement	SCE	Big Creek-Ventura	11/22/2019	180 - 317	No	INC	1	14:25	15:00
95	RT	Other Reliability Requirement	SCE	LA Basin	11/12/2019	194	No	INC	10	11:05	21:00
96	RT	Other Reliability Requirement	SCE	LA Basin	11/20/2019	48.3	No	INC	6	11:30	17:00
97	RT	Other Reliability Requirement	SDGE	San Diego-IV	11/18/2019	40	No	DEC	1	16:15	16:30
98	RT	Planned Transmission Outage	PGAE	Bay Area	11/1/2019	480	No	DEC	1	8:25	9:00
99	RT	Planned Transmission Outage	PGAE	Bay Area	11/1/2019	480	No	INC	1	9:00	10:00
100	RT	Planned Transmission Outage	PGAE	Humboldt	11/1/2019	30 - 60	No	INC	23	0:00	23:00
101	RT	Planned Transmission Outage	PGAE	Humboldt	11/12/2019	30	No	DEC	1	14:00	15:00
102	RT	Planned Transmission Outage	PGAE	Humboldt	11/12/2019	30 - 45	No	INC	7	7:00	14:00
103	RT	Planned Transmission Outage	PGAE	Humboldt	11/13/2019	30	No	DEC	6	14:00	20:00
104	RT	Planned Transmission Outage	PGAE	Humboldt	11/13/2019	30	No	INC	7	7:25	14:00
105	RT	Planned Transmission Outage	PGAE	Humboldt	11/27/2019	43 - 48	No	DEC	7	15:10	22:00
106	RT	Planned Transmission Outage	PGAE	NCNB	11/7/2019	65 - 70	No	DEC	12	12:00	0:00
107	RT	Planned Transmission Outage	PGAE	NCNB	11/8/2019	65 - 70	No	DEC	24	0:00	0:00
108	RT	Planned Transmission Outage	PGAE	NCNB	11/9/2019	65 - 70	No	DEC	24	0:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
109	RT	Planned Transmission Outage	PGAE	NCNB	11/10/2019	65	No	DEC	24	0:00	0:00
110	RT	Planned Transmission Outage	PGAE	NCNB	11/11/2019	45 - 70	No	DEC	21	0:00	21:00
111	RT	Planned Transmission Outage	PGAE	NCNB	11/11/2019	80	No	INC	1	21:00	22:00
112	RT	Planned Transmission Outage	PGAE	Sierra	11/16/2019	42	No	INC	9	11:30	20:00
113	RT	Planned Transmission Outage	PGAE	Stockton	11/1/2019	220	No	DEC	2	0:00	2:00
114	RT	Planned Transmission Outage	PGAE	Stockton	11/4/2019	89	No	INC	1	8:00	8:30
115	RT	Planned Transmission Outage	PGAE	Stockton	11/21/2019	89 - 115	No	INC	15	9:00	0:00
116	RT	Planned Transmission Outage	PGAE	Stockton	11/22/2019	89	No	DEC	24	0:00	0:00
117	RT	Planned Transmission Outage	PGAE	Stockton	11/23/2019	192	No	DEC	9	15:00	0:00
118	RT	Planned Transmission Outage	PGAE	Stockton	11/23/2019	192	No	INC	6	9:00	15:00
119	RT	Planned Transmission Outage	PGAE	Stockton	11/24/2019	90	No	INC	17	7:00	0:00
120	RT	Planned Transmission Outage	PGAE	Stockton	11/25/2019	90	No	INC	24	0:00	0:00
121	RT	Planned Transmission Outage	PGAE	Stockton	11/26/2019	90	No	INC	16	8:00	0:00
122	RT	Planned Transmission Outage	PGAE	Stockton	11/27/2019	90	No	INC	24	0:00	0:00
123	RT	Planned Transmission Outage	PGAE	Stockton	11/28/2019	90	No	DEC	24	0:00	0:00
124	RT	Planned Transmission Outage	PGAE	Stockton	11/29/2019	90	No	DEC	23	0:00	22:15
125	RT	Planned Transmission Outage	PGAE	Stockton	11/29/2019	90 - 207	No	INC	11	3:20	14:00
126	RT	Planned Transmission Outage	PGAE	Stockton	11/30/2019	90	No	DEC	24	0:00	0:00
127	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	11/12/2019	75 - 100	No	INC	8	16:10	23:30
128	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	11/13/2019	30	No	DEC	1	20:45	21:30
129	RT	Planned Transmission Outage	SCE	Big Creek-Ventura	11/13/2019	35 - 100	No	INC	8	15:55	23:45
130	RT	Planned Transmission Outage	SCE	LA Basin	11/7/2019	45.24 - 45.56	No	DEC	3	15:00	18:00
131	RT	Planned Transmission Outage	SCE	LA Basin	11/7/2019	45.24 - 45.56	No	INC	10	6:00	16:00
132	RT	Planned Transmission Outage	SCE	LA Basin	11/18/2019	385	No	INC	2	10:45	12:45
133	RT	Planned Transmission Outage	SCE	LA Basin	11/23/2019	0 - 211	No	INC	5	11:10	15:30

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
134	RT	Planned Transmission Outage	SCE	LA Basin	11/24/2019	211	No	INC	13	7:00	20:00
135	RT	Planned Transmission Outage	SCE	LA Basin	11/25/2019	98	No	INC	9	11:00	20:00
136	RT	Planned Transmission Outage	SCE	LA Basin	11/30/2019	36 - 45	No	INC	5	9:05	14:00
137	RT	Planned Transmission Outage	SCE	NA	11/1/2019	550 - 600	No	DEC	15	7:50	22:00
138	RT	Planned Transmission Outage	SCE	NA	11/1/2019	600	No	INC	1	8:00	9:00
139	RT	Planned Transmission Outage	SCE	NA	11/4/2019	420 - 440	No	DEC	5	16:45	21:00
140	RT	Planned Transmission Outage	SCE	NA	11/4/2019	420	No	INC	3	21:00	0:00
141	RT	Planned Transmission Outage	SCE	NA	11/5/2019	420	No	DEC	2	5:00	7:00
142	RT	Planned Transmission Outage	SCE	NA	11/5/2019	420	No	INC	8	0:00	8:00
143	RT	Planned Transmission Outage	SCE	NA	11/6/2019	35 - 40	No	DEC	2	13:40	15:00
144	RT	Planned Transmission Outage	SCE	NA	11/15/2019	200	No	INC	8	8:00	16:00
145	RT	Planned Transmission Outage	SCE	NA	11/18/2019	270 - 290	No	DEC	2	14:00	15:45
146	RT	Planned Transmission Outage	SCE	NA	11/18/2019	270	No	INC	3	11:40	14:00
147	RT	Planned Transmission Outage	SCE	NA	11/26/2019	0 - 100	No	DEC	13	6:00	19:00
148	RT	Planned Transmission Outage	SCE	NA	11/26/2019	0 - 100	No	INC	7	9:15	16:00
149	RT	Planned Transmission Outage	SDGE	NA	11/11/2019	0	No	INC	2	11:40	13:15
150	RT	Planned Transmission Outage	SDGE	NA	11/26/2019	70	No	INC	1	7:50	7:55
151	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/6/2019	290	No	INC	9	7:00	16:00
152	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/18/2019	40	No	INC	2	19:10	21:00
153	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/19/2019	40	No	INC	12	10:15	22:00
154	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/20/2019	40	No	INC	12	10:10	22:00
155	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/27/2019	100 - 300	No	INC	5	12:00	16:45
156	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/30/2019	40	No	INC	4	18:40	22:00
157	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/20/2019	15	No	INC	8	1:45	8:50
158	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/21/2019	60	No	DEC	6	14:00	20:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
159	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/21/2019	60	No	INC	7	7:50	14:00
160	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/22/2019	14 - 60	No	INC	18	6:25	0:00
161	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/23/2019	14	No	DEC	4	0:00	3:15
162	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/23/2019	32 - 45	No	INC	16	8:40	0:00
163	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/24/2019	15 - 30	No	INC	16	8:05	0:00
164	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/25/2019	15	No	DEC	5	16:00	21:00
165	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/25/2019	15 - 30	No	INC	24	0:00	0:00
166	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/26/2019	28 - 48	No	DEC	8	14:00	22:00
167	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/26/2019	15 - 28	No	INC	14	0:00	14:00
168	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/27/2019	15	No	DEC	15	9:35	0:00
169	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/27/2019	15	No	INC	5	9:35	14:00
170	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/28/2019	15	No	DEC	20	0:00	20:00
171	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/28/2019	15	No	INC	1	22:00	23:00
172	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/29/2019	30	No	INC	7	17:45	0:00
173	RT	Real-Time Reliability Requirement	PGAE	Humboldt	11/30/2019	28 - 30	No	INC	21	0:00	21:00
174	RT	Real-Time Reliability Requirement	PGAE	Stockton	11/21/2019	145 - 194	No	INC	4	20:00	0:00
175	RT	Real-Time Reliability Requirement	PGAE	Stockton	11/22/2019	194	No	DEC	24	0:00	0:00
176	RT	Real-Time Reliability Requirement	PGAE	Stockton	11/23/2019	194 - 237	No	DEC	20	0:00	20:00
177	RT	Real-Time Reliability Requirement	PGAE	Stockton	11/23/2019	237	No	INC	9	15:35	0:00
178	RT	Real-Time Reliability Requirement	PGAE	Stockton	11/25/2019	191.1	No	DEC	3	16:50	19:45
179	RT	Real-Time Reliability Requirement	SCE	LA Basin	11/23/2019	48 - 211	No	INC	10	11:20	20:30
180	RT	Real-Time Reliability Requirement	SCE	NA	11/23/2019	0 - 70	No	DEC	6	8:45	14:45
181	RT	Real-Time Reliability Requirement	SCE	NA	11/23/2019	150	No	INC	1	14:05	14:10
182	RT	Real-Time Reliability Requirement	SCE	NA	11/25/2019	0 - 100	No	DEC	7	10:05	16:45
183	RT	Real-Time Reliability Requirement	SCE	NA	11/25/2019	0 - 125	No	INC	7	9:40	16:00
184	RT	Real-Time Reliability Requirement	SDGE	NA	11/23/2019	0 - 80	No	INC	5	10:00	14:30
185	RT	Real-Time Reliability Requirement	SDGE	San Diego-IV	11/30/2019	24	No	INC	4	12:15	16:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
186	RT	Software Limitation	PGAE	Bay Area	11/18/2019	0	No	DEC	1	16:00	17:00
187	RT	Software Limitation	PGAE	Fresno	11/19/2019	83	No	INC	2	5:30	7:00
188	RT	Software Limitation	PGAE	Fresno	11/26/2019	83 - 94	No	INC	3	13:45	16:00
189	RT	Software Limitation	PGAE	Humboldt	11/19/2019	16 - 32	No	INC	6	9:00	15:00
190	RT	Software Limitation	PGAE	NA	11/7/2019	98	No	DEC	2	16:50	18:00
191	RT	Software Limitation	PGAE	NA	11/28/2019	0	No	INC	2	11:00	12:35
192	RT	Software Limitation	SCE	LA Basin	11/4/2019	10 - 190	No	INC	18	6:00	0:00
193	RT	Software Limitation	SCE	LA Basin	11/5/2019	10 - 194	No	INC	21	0:00	21:00
194	RT	Software Limitation	SCE	LA Basin	11/14/2019	194	No	INC	8	14:30	22:00
195	RT	Software Limitation	SCE	LA Basin	11/18/2019	10	Yes	INC	24	0:00	0:00
196	RT	Software Limitation	SCE	LA Basin	11/19/2019	210	No	DEC	3	6:00	9:00
197	RT	Software Limitation	SCE	LA Basin	11/19/2019	10	No	INC	8	0:00	8:00
198	RT	Software Limitation	SCE	LA Basin	11/20/2019	48	No	INC	6	11:00	17:00
199	RT	Software Limitation	SCE	LA Basin	11/22/2019	0	No	INC	2	0:15	1:35
200	RT	Software Limitation	SCE	LA Basin	11/25/2019	0 - 386	No	INC	16	8:20	0:00
201	RT	Software Limitation	SCE	LA Basin	11/26/2019	230 - 386	No	DEC	14	6:00	20:00
202	RT	Software Limitation	SCE	LA Basin	11/26/2019	230 - 386	No	INC	7	0:00	7:00
203	RT	Software Limitation	SDGE	San Diego-IV	11/18/2019	50	No	DEC	1	17:00	18:00
204	RT	Software Limitation	SDGE	San Diego-IV	11/20/2019	0	No	DEC	2	22:00	0:00
205	RT	Software Limitation	SDGE	San Diego-IV	11/25/2019	605	No	DEC	3	16:00	19:00
206	RT	Software Limitation	SDGE	San Diego-IV	11/25/2019	605	No	INC	6	14:40	20:00
207	RT	Unit Testing	Intertie	NA	11/14/2019	60	No	DEC	1	9:00	10:00
208	RT	Unit Testing	Intertie	NA	11/14/2019	60 - 65	No	INC	2	10:00	12:00
209	RT	Unit Testing	PGAE	Bay Area	11/16/2019	175	No	INC	2	10:35	12:15
210	RT	Unit Testing	PGAE	Bay Area	11/18/2019	125 - 195	No	INC	16	5:00	20:30

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
211	RT	Unit Testing	PGAE	Bay Area	11/19/2019	125 - 195	No	INC	17	5:00	22:00
212	RT	Unit Testing	PGAE	Bay Area	11/20/2019	125 - 195	No	INC	19	5:00	0:00
213	RT	Unit Testing	PGAE	Bay Area	11/21/2019	125 - 195	No	INC	24	0:00	0:00
214	RT	Unit Testing	PGAE	Bay Area	11/22/2019	125 - 195	No	INC	16	0:00	15:45
215	RT	Unit Testing	PGAE	Fresno	11/5/2019	21	No	DEC	1	18:45	19:00
216	RT	Unit Testing	PGAE	Fresno	11/5/2019	21	No	INC	1	19:00	19:45
217	RT	Unit Testing	PGAE	Fresno	11/6/2019	12.58	No	INC	1	18:30	19:30
218	RT	Unit Testing	PGAE	Sierra	11/7/2019	204	No	INC	1	10:05	10:40
219	RT	Unit Testing	SCE	LA Basin	11/5/2019	22	No	INC	1	19:15	19:45
220	RT	Unit Testing	SCE	LA Basin	11/12/2019	22.07	No	INC	1	16:45	17:00
221	RT	Unit Testing	SCE	LA Basin	11/27/2019	0	No	INC	1	8:40	9:40
222	RT	Unit Testing	SCE	NA	11/8/2019	143 - 211	No	INC	10	8:00	17:45
223	RT	Unit Testing	SCE	NA	11/9/2019	143 - 211	No	INC	13	7:15	20:00
224	RT	Unit Testing	SCE	NA	11/10/2019	143 - 220	No	INC	15	7:35	22:00
225	RT	Unit Testing	SCE	NA	11/15/2019	150	No	INC	1	17:40	17:45
226	RT	Unit Testing	SCE	NA	11/22/2019	150 - 575	No	INC	10	6:50	16:30
227	RT	Unit Testing	SDGE	San Diego-IV	11/12/2019	40	No	INC	3	19:05	21:10
228	RT	Unplanned Outage	PGAE	NA	11/23/2019	51	No	INC	1	4:05	4:10
229	RT	Unplanned Outage	PGAE	Stockton	11/23/2019	238	No	INC	1	4:00	4:10
230	RT	Unplanned Outage	SCE	Big Creek-Ventura	11/23/2019	390	No	INC	1	4:00	4:05
231	RT	Voltage Support	PGAE	Fresno	11/3/2019	-317 - - 315	No	DEC	23	1:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
232	RT	Voltage Support	PGAE	Fresno	11/4/2019	-315	No	DEC	7	0:00	7:00
233	RT	Voltage Support	PGAE	Fresno	11/10/2019	-320	No	DEC	1	23:10	0:00
234	RT	Voltage Support	PGAE	Fresno	11/11/2019	-320	No	DEC	5	0:00	5:00
235	RT	Voltage Support	PGAE	Fresno	11/11/2019	83	No	INC	2	5:35	7:00
236	RT	Voltage Support	PGAE	Fresno	11/14/2019	-310	No	DEC	4	1:45	5:00
237	RT	Voltage Support	PGAE	Fresno	11/17/2019	-320	No	DEC	7	1:00	8:00
238	RT	Voltage Support	PGAE	Fresno	11/18/2019	-306	No	DEC	5	1:00	6:00
239	RT	Voltage Support	PGAE	Fresno	11/22/2019	-301	No	DEC	3	2:25	4:30
240	RT	Voltage Support	PGAE	Fresno	11/24/2019	-304	No	DEC	2	5:15	7:00
241	RT	Voltage Support	PGAE	Fresno	11/24/2019	83	No	INC	1	16:15	17:00
242	RT	Voltage Support	PGAE	Fresno	11/25/2019	-304	No	DEC	1	4:30	5:30
243	RT	Voltage Support	PGAE	Fresno	11/28/2019	-304	No	DEC	23	1:30	0:00
244	RT	Voltage Support	PGAE	Fresno	11/29/2019	-304	No	DEC	7	0:00	7:00
245	RT	Voltage Support	PGAE	Fresno	11/30/2019	-304	No	DEC	7	0:45	7:00

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 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