



Exceptional Dispatch Report

Table 1: May 2021

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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 May 2021.

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 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 May 2021 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

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>

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 May 2021, 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 272 exceptional dispatches in May 2021, as compared to 233 exceptional dispatches in April 2021. Exceptional dispatches issued for the following reasons accounted for approximately 92 percent of the

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.

total exceptional dispatches during the reporting period: planned transmission outages, reliability assessment, and unit testing. Exceptional dispatches with the reason “Reliability Assessment” were due to Real Time Contingency Analysis, Voltage Stability Analysis, and operating procedure number 7110 (along with 7230, 7320, and 7690). Reliability Assessment is the reason as explained in the operator procedure 2330C⁴ that encompasses Control Point (CP), Interconnection Reliability Operating Limit (IROL), System Operating Limit (SOL) and congestion related EDs. This reason is used to mitigate reliability issues identified through the real – time assessment tools such as Real Time Contingency Analysis (RTCA), Voltage Stability Analysis (VSA), Dynamic Stability Analysis (DSA) and/or Operating Procedure (OP) or offline study.

1) ⁴ The operator procedure 2330C - <http://www.caiso.com/Documents/2330C.pdf>

Table 1: Exceptional Dispatches in May 2021

**California Independent System Operator Corporation
Exceptional Dispatch Report
July 15, 2021**

Chart 1: Table of Exceptional Dispatches for Period 01/May/2021 - 31/May/2021

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
1	RT	Incomplete or Inaccurate Transmission	PGAE	Fresno	5/28/2021	20	No	INC	3	21:15	0:00
2	RT	Load Forecast Uncertainty	PGAE	NA	5/30/2021	62	No	INC	8	14:30	22:00
3	RT	Load Forecast Uncertainty	PGAE	NA	5/31/2021	62 - 110	No	INC	8	14:00	22:00
4	RT	Load Forecast Uncertainty	SCE	LA Basin	5/30/2021	20	No	INC	10	14:00	0:00
5	RT	Load Forecast Uncertainty	SCE	LA Basin	5/31/2021	10 -20	No	INC	24	0:00	0:00
6	RT	Market Disruption	SCE	LA Basin	5/20/2021	285	No	INC	1	17:00	18:00
7	RT	Planned Transmission Outage	PGAE	Bay Area	5/1/2021	250	No	INC	1	8:30	9:30
8	RT	Planned Transmission Outage	PGAE	Bay Area	5/11/2021	23	No	INC	10	12:40	22:00
9	RT	Planned Transmission Outage	PGAE	Fresno	5/21/2021	40	No	INC	7	5:00	12:00
10	RT	Planned Transmission Outage	PGAE	Humboldt	5/1/2021	15	No	DEC	16	8:30	0:00
11	RT	Planned Transmission Outage	PGAE	Humboldt	5/1/2021	15 - 30	No	INC	24	0:00	0:00
12	RT	Planned Transmission Outage	PGAE	Humboldt	5/2/2021	15 - 30	No	INC	2	0:00	1:30
13	RT	Planned Transmission Outage	PGAE	Humboldt	5/5/2021	28	No	DEC	5	15:00	20:00
14	RT	Planned Transmission Outage	PGAE	Humboldt	5/5/2021	28	No	INC	1	14:40	15:00
15	RT	Planned Transmission Outage	PGAE	Humboldt	5/9/2021	48 - 64	No	DEC	7	17:30	0:00
16	RT	Planned Transmission Outage	PGAE	Humboldt	5/9/2021	64	No	INC	2	17:30	19:00
17	RT	Planned Transmission Outage	PGAE	Humboldt	5/10/2021	30 - 56	No	DEC	6	17:00	23:00
18	RT	Planned Transmission Outage	PGAE	Humboldt	5/10/2021	30 - 56	No	INC	19	5:00	0:00
19	RT	Planned Transmission Outage	PGAE	Humboldt	5/11/2021	30 - 45	No	INC	3	0:00	2:15
20	RT	Planned Transmission Outage	PGAE	Humboldt	5/13/2021	42	No	INC	7	12:20	19:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
21	RT	Planned Transmission Outage	PGAE	Humboldt	5/17/2021	30	No	INC	3	21:40	0:00
22	RT	Planned Transmission Outage	PGAE	Humboldt	5/18/2021	30	No	INC	22	0:00	21:30
23	RT	Planned Transmission Outage	PGAE	Humboldt	5/31/2021	30	No	DEC	5	19:05	0:00
24	RT	Planned Transmission Outage	PGAE	NCNB	5/1/2021	50	No	DEC	2	19:00	21:00
25	RT	Planned Transmission Outage	PGAE	NCNB	5/1/2021	50	No	INC	16	7:25	23:00
26	RT	Planned Transmission Outage	PGAE	NCNB	5/3/2021	30 - 45	No	DEC	14	8:00	22:00
27	RT	Planned Transmission Outage	PGAE	NCNB	5/3/2021	10 - 50	No	INC	17	7:00	0:00
28	RT	Planned Transmission Outage	PGAE	NCNB	5/4/2021	50	No	DEC	8	7:00	15:00
29	RT	Planned Transmission Outage	PGAE	NCNB	5/4/2021	45 - 50	No	INC	24	0:00	0:00
30	RT	Planned Transmission Outage	PGAE	NCNB	5/5/2021	45 - 50	No	DEC	24	0:00	0:00
31	RT	Planned Transmission Outage	PGAE	NCNB	5/6/2021	45 - 50	No	DEC	24	0:00	0:00
32	RT	Planned Transmission Outage	PGAE	NCNB	5/6/2021	45	No	INC	3	16:00	19:00
33	RT	Planned Transmission Outage	PGAE	NCNB	5/7/2021	50	No	DEC	24	0:00	0:00
34	RT	Planned Transmission Outage	PGAE	NCNB	5/7/2021	50	No	INC	1	19:00	20:00
35	RT	Planned Transmission Outage	PGAE	NCNB	5/8/2021	40 - 50	No	DEC	24	0:00	0:00
36	RT	Planned Transmission Outage	PGAE	NCNB	5/8/2021	40 - 45	No	INC	15	5:00	20:00
37	RT	Planned Transmission Outage	PGAE	NCNB	5/9/2021	45	No	DEC	22	0:00	22:00
38	RT	Planned Transmission Outage	PGAE	NCNB	5/9/2021	45	No	INC	23	1:00	0:00
39	RT	Planned Transmission Outage	PGAE	NCNB	5/10/2021	45 - 60	No	DEC	24	0:00	0:00
40	RT	Planned Transmission Outage	PGAE	NCNB	5/11/2021	50	No	DEC	15	7:00	22:00
41	RT	Planned Transmission Outage	PGAE	NCNB	5/11/2021	50	No	INC	24	0:00	0:00
42	RT	Planned Transmission Outage	PGAE	NCNB	5/12/2021	50 - 55	No	DEC	24	0:00	0:00
43	RT	Planned Transmission Outage	PGAE	NCNB	5/12/2021	50 - 55	No	INC	18	4:00	22:00
44	RT	Planned Transmission Outage	PGAE	NCNB	5/13/2021	50	No	DEC	16	7:00	23:00
45	RT	Planned Transmission Outage	PGAE	NCNB	5/13/2021	50	No	INC	24	0:00	0:00
46	RT	Planned Transmission Outage	PGAE	NCNB	5/14/2021	50	No	DEC	16	6:00	22:00
47	RT	Planned Transmission Outage	PGAE	NCNB	5/14/2021	50	No	INC	24	0:00	0:00
48	RT	Planned Transmission Outage	PGAE	NCNB	5/15/2021	50	No	DEC	24	0:00	0:00
49	RT	Planned Transmission Outage	PGAE	NCNB	5/15/2021	50	No	INC	21	2:00	23:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
50	RT	Planned Transmission Outage	PGAE	NCNB	5/16/2021	50	No	DEC	15	6:00	21:00
51	RT	Planned Transmission Outage	PGAE	NCNB	5/16/2021	50	No	INC	24	0:00	0:00
52	RT	Planned Transmission Outage	PGAE	NCNB	5/17/2021	50	No	DEC	23	1:00	0:00
53	RT	Planned Transmission Outage	PGAE	NCNB	5/17/2021	50	No	INC	7	0:00	7:00
54	RT	Planned Transmission Outage	PGAE	NCNB	5/18/2021	50	No	DEC	24	0:00	0:00
55	RT	Planned Transmission Outage	PGAE	NCNB	5/18/2021	50	No	INC	4	18:00	22:00
56	RT	Planned Transmission Outage	PGAE	NCNB	5/19/2021	45 - 50	No	DEC	24	0:00	0:00
57	RT	Planned Transmission Outage	PGAE	NCNB	5/20/2021	45 - 75	No	DEC	24	0:00	0:00
58	RT	Planned Transmission Outage	PGAE	NCNB	5/20/2021	45 - 75	No	INC	5	18:00	23:00
59	RT	Planned Transmission Outage	PGAE	NCNB	5/21/2021	75	No	DEC	1	0:00	1:00
60	RT	Planned Transmission Outage	PGAE	NCNB	5/21/2021	75	No	INC	1	1:00	2:00
61	RT	Planned Transmission Outage	PGAE	NCNB	5/23/2021	45 - 55	No	DEC	6	17:00	22:45
62	RT	Planned Transmission Outage	PGAE	NCNB	5/23/2021	45 - 55	No	INC	11	13:35	0:00
63	RT	Planned Transmission Outage	PGAE	NCNB	5/24/2021	50	No	DEC	14	6:00	20:00
64	RT	Planned Transmission Outage	PGAE	NCNB	5/24/2021	50 - 55	No	INC	24	0:00	0:00
65	RT	Planned Transmission Outage	PGAE	NCNB	5/25/2021	50 - 55	No	DEC	15	0:00	15:00
66	RT	Planned Transmission Outage	PGAE	NCNB	5/25/2021	50 - 55	No	INC	23	1:00	0:00
67	RT	Planned Transmission Outage	PGAE	NCNB	5/26/2021	50	No	DEC	9	6:00	15:00
68	RT	Planned Transmission Outage	PGAE	NCNB	5/26/2021	50	No	INC	18	0:00	18:00
69	RT	Planned Transmission Outage	PGAE	NCNB	5/29/2021	55	No	DEC	23	1:35	0:00
70	RT	Planned Transmission Outage	PGAE	NCNB	5/29/2021	55	No	INC	16	6:00	22:00
71	RT	Planned Transmission Outage	PGAE	NCNB	5/30/2021	55	No	DEC	15	8:00	23:00
72	RT	Planned Transmission Outage	PGAE	NCNB	5/30/2021	55	No	INC	24	0:00	0:00
73	RT	Planned Transmission Outage	PGAE	NCNB	5/31/2021	55	No	DEC	12	8:00	19:15
74	RT	Planned Transmission Outage	PGAE	NCNB	5/31/2021	55	No	INC	8	0:00	8:00
75	RT	Planned Transmission Outage	PGAE	Sierra	5/3/2021	20	No	INC	3	21:30	0:00
76	RT	Planned Transmission Outage	PGAE	Sierra	5/4/2021	47	No	DEC	2	19:00	21:00
77	RT	Planned Transmission Outage	PGAE	Sierra	5/4/2021	20 - 47	Yes	INC	6	18:10	0:00
78	RT	Planned Transmission Outage	PGAE	Sierra	5/5/2021	20 - 47	No	DEC	3	18:00	21:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
79	RT	Planned Transmission Outage	PGAE	Sierra	5/5/2021	20 - 47	Yes	INC	24	0:00	0:00
80	RT	Planned Transmission Outage	PGAE	Sierra	5/6/2021	25	Yes	INC	3	0:00	3:00
81	RT	Planned Transmission Outage	PGAE	Sierra	5/10/2021	20 - 49	No	INC	10	14:45	0:00
82	RT	Planned Transmission Outage	PGAE	Sierra	5/11/2021	40 - 47	No	DEC	5	17:00	22:00
83	RT	Planned Transmission Outage	PGAE	Sierra	5/11/2021	5 - 47	Yes	INC	24	0:00	0:00
84	RT	Planned Transmission Outage	PGAE	Sierra	5/12/2021	47 - 49	No	DEC	6	16:00	22:00
85	RT	Planned Transmission Outage	PGAE	Sierra	5/12/2021	7 - 49	No	INC	14	10:00	0:00
86	RT	Planned Transmission Outage	PGAE	Sierra	5/13/2021	20 - 47	No	DEC	6	16:00	22:00
87	RT	Planned Transmission Outage	PGAE	Sierra	5/13/2021	3 - 49	No	INC	24	0:00	23:45
88	RT	Planned Transmission Outage	PGAE	Sierra	5/14/2021	40 - 45	No	DEC	5	17:00	22:00
89	RT	Planned Transmission Outage	PGAE	Sierra	5/14/2021	40 - 50	No	INC	3	15:45	18:15
90	RT	Planned Transmission Outage	PGAE	Sierra	5/15/2021	20	No	INC	2	18:45	20:45
91	RT	Planned Transmission Outage	PGAE	Sierra	5/16/2021	45	No	INC	7	17:05	0:00
92	RT	Planned Transmission Outage	PGAE	Sierra	5/17/2021	45 - 47	No	DEC	3	19:00	22:00
93	RT	Planned Transmission Outage	PGAE	Sierra	5/17/2021	20 - 47	Yes	INC	24	0:00	0:00
94	RT	Planned Transmission Outage	PGAE	Sierra	5/18/2021	20 - 40	No	DEC	4	18:00	22:00
95	RT	Planned Transmission Outage	PGAE	Sierra	5/18/2021	20 - 47	No	INC	24	0:00	0:00
96	RT	Planned Transmission Outage	PGAE	Sierra	5/19/2021	20	No	DEC	3	19:35	22:00
97	RT	Planned Transmission Outage	PGAE	Sierra	5/19/2021	20 - 40	Yes	INC	23	0:00	22:45
98	RT	Planned Transmission Outage	PGAE	Sierra	5/20/2021	20 - 42	Yes	INC	16	7:30	23:00
99	RT	Planned Transmission Outage	PGAE	Sierra	5/21/2021	20	No	DEC	2	20:00	22:00
100	RT	Planned Transmission Outage	PGAE	Sierra	5/21/2021	20	No	INC	5	19:40	0:00
101	RT	Planned Transmission Outage	PGAE	Sierra	5/23/2021	40	No	DEC	2	15:00	17:00
102	RT	Planned Transmission Outage	PGAE	Sierra	5/23/2021	42	Yes	INC	2	21:40	23:15
103	RT	Planned Transmission Outage	PGAE	Sierra	5/27/2021	20	No	INC	22	1:00	23:00
104	RT	Planned Transmission Outage	PGAE	Sierra	5/28/2021	20	No	DEC	3	19:00	22:00
105	RT	Planned Transmission Outage	PGAE	Sierra	5/28/2021	20 - 35	No	INC	15	9:00	0:00
106	RT	Planned Transmission Outage	PGAE	Sierra	5/29/2021	20	Yes	INC	1	0:00	0:30
107	RT	Planned Transmission Outage	PGAE	Sierra	5/30/2021	20 - 40	No	DEC	3	19:40	22:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
108	RT	Planned Transmission Outage	PGAE	Sierra	5/30/2021	20 - 40	No	INC	2	22:00	0:00
109	RT	Planned Transmission Outage	PGAE	Sierra	5/31/2021	20 - 40	No	INC	8	0:00	8:00
110	RT	Planned Transmission Outage	PGAE	Stockton	5/27/2021	140	No	DEC	10	6:50	16:00
111	RT	Planned Transmission Outage	PGAE	Stockton	5/30/2021	40	No	DEC	22	2:25	0:00
112	RT	Planned Transmission Outage	PGAE	Stockton	5/31/2021	40	No	DEC	22	0:00	22:00
113	RT	Planned Transmission Outage	SCE	LA Basin	5/14/2021	46 - 47	No	DEC	2	19:00	21:00
114	RT	Planned Transmission Outage	SCE	LA Basin	5/14/2021	46 - 47	No	INC	14	5:30	19:00
115	RT	Planned Transmission Outage	SCE	LA Basin	5/18/2021	47	No	INC	7	6:00	12:15
116	RT	Planned Transmission Outage	SCE	NA	5/1/2021	34	No	DEC	5	19:20	0:00
117	RT	Planned Transmission Outage	SCE	NA	5/13/2021	410	No	DEC	3	5:55	8:00
118	RT	Planned Transmission Outage	SCE	NA	5/13/2021	350 - 410	No	INC	6	8:00	13:15
119	RT	Planned Transmission Outage	SCE	NA	5/14/2021	450	No	DEC	1	21:45	21:50
120	RT	Planned Transmission Outage	SCE	NA	5/16/2021	2 - 57	No	DEC	13	10:35	23:30
121	RT	Planned Transmission Outage	SDGE	San Diego-IV	5/15/2021	225	No	INC	11	7:00	17:15
122	RT	Ramping Capacity	PGAE	Humboldt	5/7/2021	15	No	DEC	7	0:00	6:15
123	RT	Ramping Capacity	PGAE	Humboldt	5/7/2021	30	No	INC	7	0:00	6:15
124	RT	Ramping Capacity	PGAE	Sierra	5/25/2021	40	No	DEC	1	21:45	22:00
125	RT	Ramping Capacity	PGAE	Sierra	5/25/2021	40	No	INC	2	22:00	0:00
126	RT	Ramping Capacity	PGAE	Sierra	5/26/2021	20	No	INC	1	17:05	18:00
127	RT	Reliability Assessment	PGAE	Bay Area	5/1/2021	22 - 24	No	INC	10	11:40	21:00
128	RT	Reliability Assessment	PGAE	Bay Area	5/3/2021	22	No	INC	12	12:05	0:00
129	RT	Reliability Assessment	PGAE	Bay Area	5/4/2021	0	No	DEC	5	17:00	22:00
130	RT	Reliability Assessment	PGAE	Bay Area	5/4/2021	22	No	INC	14	10:30	0:00
131	RT	Reliability Assessment	PGAE	Bay Area	5/5/2021	22	No	DEC	1	19:45	20:00
132	RT	Reliability Assessment	PGAE	Bay Area	5/5/2021	22	No	INC	4	20:00	0:00
133	RT	Reliability Assessment	PGAE	Bay Area	5/6/2021	22	No	INC	15	9:00	0:00
134	RT	Reliability Assessment	PGAE	Bay Area	5/10/2021	22 - 24	No	INC	11	11:40	22:00
135	RT	Reliability Assessment	PGAE	Bay Area	5/13/2021	22	No	DEC	4	17:00	21:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
136	RT	Reliability Assessment	PGAE	Bay Area	5/13/2021	22	No	INC	8	14:15	22:00
137	RT	Reliability Assessment	PGAE	Bay Area	5/14/2021	22	No	INC	7	17:30	0:00
138	RT	Reliability Assessment	PGAE	Bay Area	5/15/2021	22	No	INC	2	0:00	2:00
139	RT	Reliability Assessment	PGAE	Bay Area	5/31/2021	22	No	DEC	3	18:05	21:00
140	RT	Reliability Assessment	PGAE	Bay Area	5/31/2021	22	No	INC	3	21:00	23:30
141	RT	Reliability Assessment	PGAE	Humboldt	5/2/2021	15 - 30	No	INC	23	1:15	0:00
142	RT	Reliability Assessment	PGAE	Humboldt	5/3/2021	15	No	DEC	5	18:00	23:00
143	RT	Reliability Assessment	PGAE	Humboldt	5/3/2021	15 - 30	No	INC	24	0:00	0:00
144	RT	Reliability Assessment	PGAE	Humboldt	5/4/2021	15 - 30	No	DEC	23	0:00	23:00
145	RT	Reliability Assessment	PGAE	Humboldt	5/4/2021	15 - 30	No	INC	24	0:00	0:00
146	RT	Reliability Assessment	PGAE	Humboldt	5/5/2021	15 - 30	No	DEC	9	14:00	23:00
147	RT	Reliability Assessment	PGAE	Humboldt	5/5/2021	15 - 30	No	INC	24	0:00	0:00
148	RT	Reliability Assessment	PGAE	Humboldt	5/6/2021	15 - 30	No	DEC	22	0:30	22:00
149	RT	Reliability Assessment	PGAE	Humboldt	5/6/2021	15 - 30	No	INC	24	0:00	0:00
150	RT	Reliability Assessment	PGAE	Humboldt	5/7/2021	15	No	DEC	18	6:15	0:00
151	RT	Reliability Assessment	PGAE	Humboldt	5/7/2021	30	No	INC	18	6:15	0:00
152	RT	Reliability Assessment	PGAE	Humboldt	5/8/2021	15 - 32	No	DEC	23	0:00	23:00
153	RT	Reliability Assessment	PGAE	Humboldt	5/8/2021	15 - 30	No	INC	24	0:00	0:00
154	RT	Reliability Assessment	PGAE	Humboldt	5/9/2021	15 - 30	No	DEC	24	0:00	0:00
155	RT	Reliability Assessment	PGAE	Humboldt	5/9/2021	15 - 30	No	INC	18	0:00	18:00
156	RT	Reliability Assessment	PGAE	Humboldt	5/10/2021	15 - 30	No	INC	6	0:00	5:30
157	RT	Reliability Assessment	PGAE	Humboldt	5/11/2021	15 - 60	No	DEC	21	1:55	22:00
158	RT	Reliability Assessment	PGAE	Humboldt	5/11/2021	30 - 60	No	INC	23	1:55	0:00
159	RT	Reliability Assessment	PGAE	Humboldt	5/12/2021	15 - 30	No	DEC	20	2:45	22:00
160	RT	Reliability Assessment	PGAE	Humboldt	5/12/2021	15 - 45	No	INC	24	0:00	0:00
161	RT	Reliability Assessment	PGAE	Humboldt	5/13/2021	15	No	DEC	19	4:00	23:00
162	RT	Reliability Assessment	PGAE	Humboldt	5/13/2021	15 - 30	No	INC	24	0:00	0:00
163	RT	Reliability Assessment	PGAE	Humboldt	5/14/2021	15	No	DEC	23	0:00	23:00
164	RT	Reliability Assessment	PGAE	Humboldt	5/14/2021	15 - 30	No	INC	24	0:00	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
165	RT	Reliability Assessment	PGAE	Humboldt	5/15/2021	15	No	DEC	22	0:00	22:00
166	RT	Reliability Assessment	PGAE	Humboldt	5/15/2021	15 - 30	No	INC	24	0:00	0:00
167	RT	Reliability Assessment	PGAE	Humboldt	5/16/2021	15	No	DEC	1	1:00	2:00
168	RT	Reliability Assessment	PGAE	Humboldt	5/16/2021	15 - 30	No	INC	24	0:00	0:00
169	RT	Reliability Assessment	PGAE	Humboldt	5/17/2021	30	No	INC	19	5:20	0:00
170	RT	Reliability Assessment	PGAE	Humboldt	5/18/2021	30	No	INC	24	0:00	0:00
171	RT	Reliability Assessment	PGAE	Humboldt	5/19/2021	15	No	DEC	21	0:45	21:00
172	RT	Reliability Assessment	PGAE	Humboldt	5/19/2021	15 - 30	No	INC	24	0:00	0:00
173	RT	Reliability Assessment	PGAE	Humboldt	5/20/2021	30 - 45	No	INC	24	0:00	0:00
174	RT	Reliability Assessment	PGAE	Humboldt	5/21/2021	15 - 45	No	INC	24	0:00	0:00
175	RT	Reliability Assessment	PGAE	Humboldt	5/22/2021	15 - 30	No	DEC	22	2:30	0:00
176	RT	Reliability Assessment	PGAE	Humboldt	5/22/2021	30	No	INC	24	0:00	0:00
177	RT	Reliability Assessment	PGAE	Humboldt	5/23/2021	15	No	DEC	8	0:00	8:00
178	RT	Reliability Assessment	PGAE	Humboldt	5/23/2021	15 - 30	No	INC	24	0:00	0:00
179	RT	Reliability Assessment	PGAE	Humboldt	5/24/2021	15	No	DEC	24	0:45	0:00
180	RT	Reliability Assessment	PGAE	Humboldt	5/24/2021	15 - 30	No	INC	24	0:00	0:00
181	RT	Reliability Assessment	PGAE	Humboldt	5/25/2021	15	No	DEC	24	0:00	0:00
182	RT	Reliability Assessment	PGAE	Humboldt	5/25/2021	15 - 30	No	INC	24	0:00	0:00
183	RT	Reliability Assessment	PGAE	Humboldt	5/26/2021	15 - 30	No	DEC	20	4:30	0:00
184	RT	Reliability Assessment	PGAE	Humboldt	5/26/2021	15 - 30	No	INC	24	0:00	0:00
185	RT	Reliability Assessment	PGAE	Humboldt	5/27/2021	15	No	DEC	24	0:00	0:00
186	RT	Reliability Assessment	PGAE	Humboldt	5/27/2021	30	No	INC	24	0:00	0:00
187	RT	Reliability Assessment	PGAE	Humboldt	5/28/2021	15 - 30	No	DEC	24	0:00	0:00
188	RT	Reliability Assessment	PGAE	Humboldt	5/28/2021	15 - 30	No	INC	24	0:00	0:00
189	RT	Reliability Assessment	PGAE	Humboldt	5/29/2021	15	No	DEC	24	0:00	0:00
190	RT	Reliability Assessment	PGAE	Humboldt	5/29/2021	15	No	INC	24	0:00	0:00
191	RT	Reliability Assessment	PGAE	Humboldt	5/30/2021	15	No	DEC	22	0:00	22:00
192	RT	Reliability Assessment	PGAE	Humboldt	5/30/2021	15 - 45	No	INC	24	0:00	0:00
193	RT	Reliability Assessment	PGAE	Humboldt	5/31/2021	15 - 30	No	DEC	20	2:45	22:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
194	RT	Reliability Assessment	PGAE	Humboldt	5/31/2021	30 - 45	No	INC	16	0:00	16:00
195	RT	Reliability Assessment	PGAE	NCNB	5/16/2021	60	No	DEC	1	23:35	0:00
196	RT	Reliability Assessment	PGAE	NCNB	5/17/2021	60	No	DEC	23	1:00	0:00
197	RT	Reliability Assessment	PGAE	NCNB	5/17/2021	60	No	INC	7	0:00	7:00
198	RT	Reliability Assessment	PGAE	NCNB	5/18/2021	60	No	DEC	24	0:00	0:00
199	RT	Reliability Assessment	PGAE	NCNB	5/18/2021	60	No	INC	1	18:00	19:00
200	RT	Reliability Assessment	PGAE	NCNB	5/19/2021	60	No	DEC	24	0:00	0:00
201	RT	Reliability Assessment	PGAE	NCNB	5/19/2021	60	No	INC	1	20:00	21:00
202	RT	Reliability Assessment	PGAE	NCNB	5/20/2021	60 - 70	No	DEC	18	0:00	18:00
203	RT	Reliability Assessment	PGAE	NCNB	5/20/2021	70	No	INC	4	18:00	21:15
204	RT	Reliability Assessment	PGAE	Sierra	5/5/2021	20	No	INC	5	12:25	16:30
205	RT	Reliability Assessment	PGAE	Sierra	5/8/2021	8.8 - 10.2	No	INC	3	10:00	13:00
206	RT	Reliability Assessment	PGAE	Sierra	5/17/2021	17 - 45	No	DEC	3	21:35	0:00
207	RT	Reliability Assessment	PGAE	Sierra	5/18/2021	17	No	DEC	2	0:00	1:30
208	RT	Reliability Assessment	PGAE	Sierra	5/18/2021	24 - 45	No	INC	2	0:00	1:30
209	RT	Reliability Assessment	PGAE	Sierra	5/24/2021	42	No	DEC	1	21:45	22:00
210	RT	Reliability Assessment	PGAE	Sierra	5/24/2021	42	No	INC	2	22:00	23:15
211	RT	Reliability Assessment	PGAE	Sierra	5/26/2021	0	No	DEC	3	19:00	22:00
212	RT	Reliability Assessment	PGAE	Sierra	5/31/2021	20 - 40	No	DEC	5	18:00	23:00
213	RT	Reliability Assessment	PGAE	Sierra	5/31/2021	11 - 40	No	INC	9	15:55	0:00
214	RT	Reliability Assessment	SCE	NA	5/1/2021	460	No	INC	5	0:00	4:15
215	RT	Reliability Assessment	SCE	NA	5/2/2021	37 - 42	No	DEC	5	18:30	23:00
216	RT	Reliability Assessment	SCE	NA	5/2/2021	42 - 52	No	INC	1	23:00	0:00
217	RT	Reliability Assessment	SCE	NA	5/3/2021	52	No	INC	1	0:00	1:00
218	RT	Reliability Assessment	SCE	NA	5/18/2021	78	No	INC	1	15:30	16:15
219	RT	Software Limitation	PGAE	Bay Area	5/30/2021	24 - 100	No	INC	3	19:30	22:00
220	RT	Software Limitation	PGAE	NA	5/5/2021	48.95	No	DEC	1	17:00	18:00
221	RT	Software Limitation	PGAE	NA	5/5/2021	48.95	No	INC	3	14:35	17:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
222	RT	Software Limitation	PGAE	NA	5/14/2021	48.95	No	INC	6	13:15	19:00
223	RT	Software Limitation	SCE	Big Creek-Ventura	5/1/2021	0	No	INC	1	23:25	23:30
224	RT	Unit Testing	PGAE	Bay Area	5/3/2021	250 - 290	No	INC	2	8:35	10:00
225	RT	Unit Testing	PGAE	Fresno	5/27/2021	3	No	DEC	2	11:30	13:00
226	RT	Unit Testing	PGAE	Sierra	5/29/2021	287	No	INC	1	15:30	15:50
227	RT	Unit Testing	PGAE	NA	5/5/2021	5	No	INC	4	9:00	13:00
228	RT	Unit Testing	PGAE	NA	5/6/2021	100	No	INC	2	12:55	14:00
229	RT	Unit Testing	PGAE	NA	5/21/2021	245	No	INC	2	4:35	6:00
230	RT	Unit Testing	SCE	Big Creek-Ventura	5/3/2021	100 - 741	No	INC	9	15:00	0:00
231	RT	Unit Testing	SCE	Big Creek-Ventura	5/4/2021	100	No	INC	16	0:00	16:00
232	RT	Unit Testing	SCE	Big Creek-Ventura	5/12/2021	0	No	INC	1	2:30	3:00
233	RT	Unit Testing	SCE	LA Basin	5/25/2021	93	No	INC	1	12:00	12:10
234	RT	Unit Testing	SCE	LA Basin	5/26/2021	250	No	INC	4	2:35	6:00
235	RT	Unit Testing	SCE	NA	5/1/2021	14 - 45	No	INC	13	6:00	19:00
236	RT	Unit Testing	SCE	NA	5/2/2021	14 - 45	No	INC	13	6:00	19:00
237	RT	Unit Testing	SCE	NA	5/3/2021	25 - 76	No	INC	13	6:00	19:00
238	RT	Unit Testing	SCE	NA	5/4/2021	34.35 - 104.72	No	INC	13	6:00	19:00
239	RT	Unit Testing	SCE	NA	5/5/2021	34.35 - 104.72	No	INC	13	6:00	19:00
240	RT	Unit Testing	SCE	NA	5/6/2021	34.35 - 104.72	No	INC	13	6:00	19:00
241	RT	Unit Testing	SCE	NA	5/7/2021	35 - 105	No	INC	13	6:00	19:00
242	RT	Unit Testing	SCE	NA	5/8/2021	35 - 105	No	INC	13	6:00	19:00
243	RT	Unit Testing	SCE	NA	5/9/2021	26 - 77	No	INC	13	6:00	19:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
244	RT	Unit Testing	SCE	NA	5/10/2021	26 - 77	No	INC	13	6:00	19:00
245	RT	Unit Testing	SCE	NA	5/11/2021	26 - 77	No	INC	13	6:00	19:00
246	RT	Unit Testing	SCE	NA	5/12/2021	26 - 77	No	INC	13	6:00	19:00
247	RT	Unit Testing	SCE	NA	5/13/2021	26 - 77	No	INC	13	6:00	19:00
248	RT	Unit Testing	SCE	NA	5/14/2021	26 - 475	No	INC	13	6:00	19:00
249	RT	Unit Testing	SCE	NA	5/15/2021	26 - 77	No	INC	13	6:00	19:00
250	RT	Unit Testing	SCE	NA	5/16/2021	25 - 73	No	INC	13	6:00	19:00
251	RT	Unit Testing	SCE	NA	5/17/2021	25 - 73	No	INC	13	6:00	19:00
252	RT	Unit Testing	SCE	NA	5/18/2021	24.14 - 73.58	No	INC	13	5:00	18:00
253	RT	Unit Testing	SCE	NA	5/19/2021	31.57 - 96.23	No	INC	13	5:00	18:00
254	RT	Unit Testing	SCE	NA	5/20/2021	46.42 - 141.51	No	INC	13	5:00	18:00
255	RT	Unit Testing	SCE	NA	5/21/2021	46.42 - 141.51	No	INC	13	6:00	19:00
256	RT	Unit Testing	SCE	NA	5/22/2021	46.42 - 141.51	No	INC	13	5:00	18:00
257	RT	Unit Testing	SCE	NA	5/23/2021	36.21 - 110.38	No	INC	13	5:00	18:00
258	RT	Unit Testing	SCE	NA	5/24/2021	39.92 - 121.7	No	INC	13	5:00	18:00
259	RT	Unit Testing	SCE	NA	5/25/2021	39.92 - 121.7	No	INC	13	5:00	18:00
260	RT	Unit Testing	SCE	NA	5/26/2021	43.26 - 140	No	INC	13	5:00	18:00
261	RT	Unit Testing	SCE	NA	5/27/2021	49 - 140	No	INC	13	5:00	18:00
262	RT	Unit Testing	SCE	NA	5/28/2021	49 - 140	No	INC	13	6:00	19:00
263	RT	Unit Testing	SCE	NA	5/29/2021	49.21 - 140	No	INC	13	5:00	18:00
264	RT	Unit Testing	SCE	NA	5/30/2021	42 - 130	No	INC	13	6:00	19:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
265	RT	Unit Testing	SCE	NA	5/31/2021	43 - 130	No	INC	13	6:00	19:00
266	RT	Unit Testing	SDGE	San Diego-IV	5/7/2021	490	No	INC	2	11:50	13:00
267	RT	Unit Testing	SDGE	San Diego-IV	5/8/2021	575	No	INC	1	22:20	22:30
268	RT	Unit Testing	SDGE	San Diego-IV	5/11/2021	44.27	No	INC	1	19:55	20:00
269	RT	Voltage Support	PGAE	Fresno	5/1/2021	-312	No	DEC	4	17:00	20:30
270	RT	Voltage Support	PGAE	Sierra	5/22/2021	20	No	DEC	3	19:00	22:00
271	RT	Voltage Support	PGAE	Sierra	5/22/2021	20	No	INC	5	18:40	23:00
272	RT	Voltage Support	SCE	NA	5/18/2021	78	No	INC	5	15:05	20:00

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