Exceptional Dispatch Report

Table 1: April 2021

CAISO Market Analysis and Forecasting **June 15, 2021**

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

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

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 April 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 April 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 April 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 233 exceptional dispatches in April 2021, as compared to 271 exceptional dispatches in March 2021. Exceptional dispatches issued for the following reasons accounted for approximately 71 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 assement, and voltage support. Exceptional dispatches with the reason “Reliability Assessment” were due to Real Time Contingency Analysis, Voltage Stability Analysis, and operating procedure number 7110 (along with 7720). Reliability Assessment is the reason as explained in the operator procedure 2330C[4] 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 April 2021

California Independent System Operator Corporation
Exceptional Dispatch Report
June 15, 2021

Chart 1: Table of Exceptional Dispatches for Period 01/April/2021 - 30/April/2021

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	PGAE	Fresno	4/18/2021	407	No	INC	1	18:25	19:00
2	RT	Fast Start Unit Management	PGAE	Bay Area	4/4/2021	0	No	INC	3	7:15	9:20
3	RT	Incomplete or Inaccurate Transmission	PGAE	Fresno	4/6/2021	10 - 40	No	DEC	2	16:00	18:00
4	RT	Incomplete or Inaccurate Transmission	PGAE	Fresno	4/6/2021	10 - 40	No	INC	4	15:25	19:00
5	RT	Load Forecast Uncertainty	SCE	LA Basin	4/27/2021	20	No	INC	9	15:00	0:00
6	RT	Load Forecast Uncertainty	SCE	LA Basin	4/28/2021	20	No	INC	23	0:00	22:30
7	RT	Load Forecast Uncertainty	SCE	LA Basin	4/29/2021	20 - 70	No	INC	24	0:00	0:00
8	RT	Load Forecast Uncertainty	SCE	LA Basin	4/30/2021	20 - 70	No	INC	21	0:00	21:00
9	RT	Market Disruption	PGAE	Fresno	4/2/2021	49.4	No	INC	1	18:45	19:05
10	RT	Market Disruption	PGAE	NA	4/2/2021	60 - 271.85	No	INC	1	18:45	19:05
11	RT	Market Disruption	SCE	Big Creek-Ventura	4/2/2021	0 - 120	No	INC	1	18:40	19:30
12	RT	Market Disruption	SCE	LA Basin	4/2/2021	46.9 - 96	No	DEC	1	18:45	19:30
13	RT	Market Disruption	SCE	LA Basin	4/2/2021	38.85 - 150	No	INC	1	18:40	19:30
14	RT	Other Reliability Requirement	PGAE	Bay Area	4/2/2021	120	No	INC	1	17:20	17:55
15	RT	Other Reliability Requirement	PGAE	Fresno	4/2/2021	0	No	INC	1	17:20	17:55
16	RT	Other Reliability Requirement	PGAE	Fresno	4/16/2021	142 - 407	No	INC	1	19:25	19:55
17	RT	Other Reliability Requirement	PGAE	Fresno	4/18/2021	83	No	DEC	1	19:25	20:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
18	RT	Other Reliability Requirement	PGAE	NA	4/2/2021	0	No	DEC	1	17:20	17:55
19	RT	Other Reliability Requirement	PGAE	NA	4/2/2021	0	No	INC	1	17:20	17:55
20	RT	Other Reliability Requirement	SCE	Big Creek-Ventura	4/2/2021	38.77	No	INC	1	17:20	17:55
21	RT	Other Reliability Requirement	SCE	LA Basin	4/2/2021	0 - 147	No	INC	1	17:20	17:55
22	RT	Other Reliability Requirement	SDGE	San Diego-IV	4/2/2021	30	No	INC	1	17:20	17:55
23	RT	Planned Transmission Outage	PGAE	Humboldt	4/1/2021	30 - 45	No	DEC	17	6:00	23:00
24	RT	Planned Transmission Outage	PGAE	Humboldt	4/1/2021	30 - 45	No	INC	24	0:00	0:00
25	RT	Planned Transmission Outage	PGAE	Humboldt	4/2/2021	30 - 45	No	INC	19	0:00	18:45
26	RT	Planned Transmission Outage	PGAE	Humboldt	4/12/2021	30 - 45	No	DEC	7	17:00	0:00
27	RT	Planned Transmission Outage	PGAE	Humboldt	4/12/2021	30 - 60	No	INC	15	9:55	0:00
28	RT	Planned Transmission Outage	PGAE	Humboldt	4/13/2021	30 - 45	No	DEC	3	18:00	21:00
29	RT	Planned Transmission Outage	PGAE	Humboldt	4/13/2021	30 - 60	No	INC	24	0:00	0:00
30	RT	Planned Transmission Outage	PGAE	Humboldt	4/14/2021	30 - 60	No	INC	24	0:00	0:00
31	RT	Planned Transmission Outage	PGAE	Humboldt	4/15/2021	15 - 45	No	DEC	6	18:00	0:00
32	RT	Planned Transmission Outage	PGAE	Humboldt	4/15/2021	30 - 60	No	INC	18	0:00	18:00
33	RT	Planned Transmission Outage	PGAE	Humboldt	4/16/2021	15 - 30	No	DEC	6	0:00	5:50
34	RT	Planned Transmission Outage	PGAE	Humboldt	4/18/2021	15	No	DEC	6	18:40	0:00
35	RT	Planned Transmission Outage	PGAE	Humboldt	4/19/2021	45	No	DEC	6	17:00	23:00
36	RT	Planned Transmission Outage	PGAE	Humboldt	4/19/2021	15 - 45	No	INC	24	0:00	0:00
37	RT	Planned Transmission Outage	PGAE	Humboldt	4/20/2021	30 - 45	No	INC	24	0:00	0:00
38	RT	Planned Transmission Outage	PGAE	Humboldt	4/21/2021	45	No	INC	24	0:00	0:00
39	RT	Planned Transmission Outage	PGAE	Humboldt	4/22/2021	30 - 45	No	INC	24	0:00	0:00
40	RT	Planned Transmission Outage	PGAE	Humboldt	4/23/2021	30 - 45	No	INC	24	0:00	0:00
41	RT	Planned Transmission Outage	PGAE	Humboldt	4/24/2021	15	No	DEC	5	0:45	4:55
42	RT	Planned Transmission Outage	PGAE	Humboldt	4/24/2021	30	No	INC	24	0:00	0:00
43	RT	Planned Transmission Outage	PGAE	Humboldt	4/25/2021	30	No	DEC	1	9:00	10:00
44	RT	Planned Transmission Outage	PGAE	Humboldt	4/25/2021	30	No	INC	24	0:00	0:00
45	RT	Planned Transmission Outage	PGAE	Humboldt	4/26/2021	15 - 45	No	DEC	10	0:30	10:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
46	RT	Planned Transmission Outage	PGAE	Humboldt	4/26/2021	30 - 45	No	INC	24	0:00	0:00
47	RT	Planned Transmission Outage	PGAE	Humboldt	4/27/2021	14	No	DEC	17	7:35	0:00
48	RT	Planned Transmission Outage	PGAE	Humboldt	4/27/2021	14 - 42	No	INC	24	0:00	0:00
49	RT	Planned Transmission Outage	PGAE	Humboldt	4/28/2021	14 - 28	No	DEC	24	0:00	0:00
50	RT	Planned Transmission Outage	PGAE	Humboldt	4/28/2021	28	No	INC	24	0:00	0:00
51	RT	Planned Transmission Outage	PGAE	Humboldt	4/29/2021	14 - 30	No	DEC	24	0:00	0:00
52	RT	Planned Transmission Outage	PGAE	Humboldt	4/29/2021	15 - 30	No	INC	24	0:00	0:00
53	RT	Planned Transmission Outage	PGAE	Humboldt	4/30/2021	15	No	DEC	24	0:00	0:00
54	RT	Planned Transmission Outage	PGAE	Humboldt	4/30/2021	30	No	INC	24	0:00	0:00
55	RT	Planned Transmission Outage	PGAE	Kern	4/12/2021	32	Yes	INC	4	20:30	0:00
56	RT	Planned Transmission Outage	PGAE	Kern	4/13/2021	32	No	DEC	1	22:55	23:00
57	RT	Planned Transmission Outage	PGAE	Kern	4/13/2021	32	Yes	INC	24	0:00	0:00
58	RT	Planned Transmission Outage	PGAE	Kern	4/14/2021	32	Yes	INC	24	0:00	0:00
59	RT	Planned Transmission Outage	PGAE	Kern	4/15/2021	32 - 42	No	INC	24	0:00	0:00
60	RT	Planned Transmission Outage	PGAE	Kern	4/16/2021	42	No	INC	2	0:00	2:00
61	RT	Planned Transmission Outage	PGAE	Kern	4/21/2021	32	Yes	INC	7	17:30	0:00
62	RT	Planned Transmission Outage	PGAE	Kern	4/22/2021	32	No	INC	7	0:00	7:00
63	RT	Planned Transmission Outage	PGAE	NCNB	4/10/2021	50	No	DEC	9	7:40	15:45
64	RT	Planned Transmission Outage	PGAE	NCNB	4/14/2021	55	No	DEC	5	8:05	13:05
65	RT	Planned Transmission Outage	PGAE	NCNB	4/14/2021	55 - 60	No	INC	16	8:05	0:00
66	RT	Planned Transmission Outage	PGAE	NCNB	4/15/2021	0 - 65	No	DEC	17	7:00	0:00
67	RT	Planned Transmission Outage	PGAE	NCNB	4/15/2021	22 - 65	No	INC	24	0:00	0:00
68	RT	Planned Transmission Outage	PGAE	NCNB	4/16/2021	0 - 65	No	DEC	24	0:00	0:00
69	RT	Planned Transmission Outage	PGAE	NCNB	4/16/2021	25 - 65	No	INC	24	0:00	0:00
70	RT	Planned Transmission Outage	PGAE	NCNB	4/17/2021	33 - 65	No	DEC	24	0:00	0:00
71	RT	Planned Transmission Outage	PGAE	NCNB	4/17/2021	26 - 65	No	INC	17	7:00	0:00
72	RT	Planned Transmission Outage	PGAE	NCNB	4/18/2021	33 - 65	No	DEC	24	0:00	0:00
73	RT	Planned Transmission Outage	PGAE	NCNB	4/18/2021	26 - 65	No	INC	24	0:00	0:00
74	RT	Planned Transmission Outage	PGAE	NCNB	4/19/2021	26 - 48	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
75	RT	Planned Transmission Outage	PGAE	NCNB	4/19/2021	43 - 48	No	INC	14	8:00	22:00
76	RT	Planned Transmission Outage	PGAE	NCNB	4/20/2021	33 - 43	No	DEC	24	0:00	0:00
77	RT	Planned Transmission Outage	PGAE	NCNB	4/20/2021	33	No	INC	7	7:00	14:00
78	RT	Planned Transmission Outage	PGAE	NCNB	4/21/2021	33 - 43	No	DEC	24	0:00	0:00
79	RT	Planned Transmission Outage	PGAE	NCNB	4/22/2021	33 - 43	No	DEC	24	0:00	0:00
80	RT	Planned Transmission Outage	PGAE	NCNB	4/22/2021	33	No	INC	5	7:00	12:00
81	RT	Planned Transmission Outage	PGAE	NCNB	4/23/2021	33 - 43	No	DEC	24	0:00	0:00
82	RT	Planned Transmission Outage	PGAE	NCNB	4/24/2021	33 - 43	No	DEC	24	0:00	0:00
83	RT	Planned Transmission Outage	PGAE	NCNB	4/25/2021	33 - 43	No	DEC	24	0:00	0:00
84	RT	Planned Transmission Outage	PGAE	NCNB	4/26/2021	33 - 43	No	DEC	10	0:00	10:00
85	RT	Planned Transmission Outage	PGAE	Sierra	4/3/2021	10	No	INC	2	13:05	15:00
86	RT	Planned Transmission Outage	PGAE	Sierra	4/8/2021	20	No	DEC	8	8:50	16:45
87	RT	Planned Transmission Outage	PGAE	Sierra	4/12/2021	20	No	DEC	2	19:00	21:00
88	RT	Planned Transmission Outage	PGAE	Sierra	4/12/2021	20 - 75	No	INC	14	10:55	0:00
89	RT	Planned Transmission Outage	PGAE	Sierra	4/13/2021	20 - 100	Yes	INC	2	0:00	2:00
90	RT	Planned Transmission Outage	PGAE	Sierra	4/19/2021	20	No	DEC	2	19:00	21:00
91	RT	Planned Transmission Outage	PGAE	Sierra	4/19/2021	20 - 45	No	INC	15	7:00	22:00
92	RT	Planned Transmission Outage	PGAE	Sierra	4/20/2021	20	No	INC	2	11:00	13:00
93	RT	Planned Transmission Outage	PGAE	Sierra	4/26/2021	24	No	DEC	1	7:50	8:00
94	RT	Planned Transmission Outage	PGAE	Sierra	4/26/2021	24	No	INC	1	8:00	9:00
95	RT	Planned Transmission Outage	PGAE	Stockton	4/27/2021	88.8 - 140	No	INC	17	7:00	23:45
96	RT	Planned Transmission Outage	PGAE	Stockton	4/28/2021	89	No	DEC	1	8:40	9:00
97	RT	Planned Transmission Outage	PGAE	Stockton	4/28/2021	89	No	INC	3	9:00	12:00
98	RT	Planned Transmission Outage	PGAE	Stockton	4/29/2021	88.8 - 192	No	INC	23	1:15	0:00
99	RT	Planned Transmission Outage	PGAE	Stockton	4/30/2021	89	No	DEC	1	17:00	17:30
100	RT	Planned Transmission Outage	PGAE	Stockton	4/30/2021	89 - 192	No	INC	24	0:00	0:00
101	RT	Planned Transmission Outage	PGAE	NA	4/21/2021	0	No	DEC	11	6:00	16:30

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
102	RT	Planned Transmission Outage	SCE	LA Basin	4/20/2021	46	No	DEC	3	19:00	22:00
103	RT	Planned Transmission Outage	SCE	LA Basin	4/20/2021	46	No	INC	18	6:00	0:00
104	RT	Planned Transmission Outage	SCE	LA Basin	4/21/2021	46	Yes	INC	13	0:00	12:15
105	RT	Planned Transmission Outage	SCE	NA	4/20/2021	411	No	DEC	3	18:00	21:00
106	RT	Planned Transmission Outage	SCE	NA	4/20/2021	411	No	INC	1	21:00	22:00
107	RT	Planned Transmission Outage	SDGE	San Diego-IV	4/23/2021	25	No	INC	2	12:55	14:30
108	RT	Planned Transmission Outage	SDGE	San Diego-IV	4/25/2021	24	No	INC	11	6:10	17:00
109	RT	Ramping Capacity	PGAE	Fresno	4/15/2021	83	No	INC	2	19:10	21:00
110	RT	Ramping Capacity	PGAE	NCNB	4/1/2021	47	No	DEC	1	6:30	7:30
111	RT	Reliability Assessment	PGAE	Humboldt	4/2/2021	15	No	DEC	6	18:30	0:00
112	RT	Reliability Assessment	PGAE	Humboldt	4/2/2021	15	No	INC	1	23:00	0:00
113	RT	Reliability Assessment	PGAE	Humboldt	4/3/2021	15 - 30	No	DEC	12	0:00	12:00
114	RT	Reliability Assessment	PGAE	Humboldt	4/3/2021	15 - 45	No	INC	24	0:00	0:00
115	RT	Reliability Assessment	PGAE	Humboldt	4/4/2021	30 - 45	No	INC	24	0:00	0:00
116	RT	Reliability Assessment	PGAE	Humboldt	4/5/2021	30 - 60	No	INC	24	0:00	0:00
117	RT	Reliability Assessment	PGAE	Humboldt	4/6/2021	30 - 60	No	INC	24	0:00	0:00
118	RT	Reliability Assessment	PGAE	Humboldt	4/7/2021	30 - 60	No	INC	24	0:00	0:00
119	RT	Reliability Assessment	PGAE	Humboldt	4/8/2021	30 - 45	No	INC	24	0:00	0:00
120	RT	Reliability Assessment	PGAE	Humboldt	4/9/2021	30 - 45	No	INC	24	0:00	0:00
121	RT	Reliability Assessment	PGAE	Humboldt	4/10/2021	16	No	DEC	1	23:45	0:00
122	RT	Reliability Assessment	PGAE	Humboldt	4/10/2021	16 - 30	No	INC	24	0:00	0:00
123	RT	Reliability Assessment	PGAE	Humboldt	4/11/2021	16	No	DEC	24	0:00	0:00
124	RT	Reliability Assessment	PGAE	Humboldt	4/11/2021	16	No	INC	9	7:00	16:00
125	RT	Reliability Assessment	PGAE	Humboldt	4/12/2021	16	No	DEC	8	0:00	8:00
126	RT	Reliability Assessment	PGAE	Humboldt	4/12/2021	16 - 30	No	INC	15	0:00	14:45
127	RT	Reliability Assessment	PGAE	Humboldt	4/15/2021	15 - 30	No	DEC	6	18:30	0:00
128	RT	Reliability Assessment	PGAE	Humboldt	4/16/2021	15 - 30	No	DEC	24	0:00	0:00
129	RT	Reliability Assessment	PGAE	Humboldt	4/16/2021	15 - 30	No	INC	8	8:00	16:00
130	RT	Reliability Assessment	PGAE	Humboldt	4/17/2021	15	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
131	RT	Reliability Assessment	PGAE	Humboldt	4/17/2021	15	No	INC	8	8:00	16:00
132	RT	Reliability Assessment	PGAE	Humboldt	4/18/2021	15	No	DEC	22	0:00	22:00
133	RT	Reliability Assessment	PGAE	Humboldt	4/18/2021	15	No	INC	24	0:00	0:00
134	RT	Reliability Assessment	PGAE	Humboldt	4/19/2021	15	No	DEC	1	0:00	0:45
135	RT	Reliability Assessment	PGAE	Kern	4/5/2021	32	No	INC	4	20:15	0:00
136	RT	Reliability Assessment	PGAE	Kern	4/6/2021	32	No	INC	24	0:00	0:00
137	RT	Reliability Assessment	PGAE	Kern	4/7/2021	32	No	INC	24	0:00	0:00
138	RT	Reliability Assessment	PGAE	Kern	4/8/2021	32	No	INC	24	0:00	0:00
139	RT	Reliability Assessment	PGAE	Kern	4/9/2021	32	No	INC	24	0:00	0:00
140	RT	Reliability Assessment	PGAE	Kern	4/10/2021	32	Yes	INC	24	0:00	0:00
141	RT	Reliability Assessment	PGAE	Kern	4/11/2021	32	Yes	INC	14	0:00	13:15
142	RT	Reliability Assessment	PGAE	Kern	4/16/2021	10	No	DEC	1	17:00	18:00
143	RT	Reliability Assessment	PGAE	Kern	4/16/2021	4 - 10	No	INC	2	17:10	18:30
144	RT	Reliability Assessment	PGAE	Kern	4/17/2021	4 - 10	No	DEC	4	14:30	18:00
145	RT	Reliability Assessment	PGAE	Kern	4/17/2021	4 - 10	No	INC	1	18:00	18:30
146	RT	Reliability Assessment	PGAE	Kern	4/21/2021	32	No	INC	4	2:20	6:00
147	RT	Reliability Assessment	PGAE	NCNB	4/1/2021	23 - 74	No	DEC	23	1:00	0:00
148	RT	Reliability Assessment	PGAE	NCNB	4/1/2021	30 - 84	No	INC	8	7:10	15:00
149	RT	Reliability Assessment	PGAE	NCNB	4/2/2021	23 - 47	No	DEC	24	0:00	0:00
150	RT	Reliability Assessment	PGAE	NCNB	4/3/2021	23 - 47	No	DEC	24	0:00	0:00
151	RT	Reliability Assessment	PGAE	NCNB	4/4/2021	23 - 47	No	DEC	24	0:00	0:00
152	RT	Reliability Assessment	PGAE	NCNB	4/5/2021	23 - 47	No	DEC	24	0:00	0:00
153	RT	Reliability Assessment	PGAE	NCNB	4/6/2021	23 - 47	No	DEC	14	0:00	13:45
154	RT	Reliability Assessment	PGAE	NCNB	4/8/2021	40 - 63	No	DEC	3	14:50	17:30
155	RT	Reliability Assessment	PGAE	NCNB	4/8/2021	55	No	INC	2	16:00	17:30
156	RT	Reliability Assessment	PGAE	Sierra	4/29/2021	20	No	INC	5	19:30	0:00
157	RT	Reliability Assessment	PGAE	Sierra	4/30/2021	20	No	INC	5	0:00	4:30
158	RT	Reliability Assessment	PGAE	NA	4/17/2021	10	No	DEC	1	17:00	18:00
159	RT	Reliability Assessment	PGAE	NA	4/17/2021	10	No	INC	4	14:35	18:30

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
160	RT	Reliability Assessment	SCE	Big Creek-Ventura	4/17/2021	0	No	INC	1	23:35	0:00
161	RT	Reliability Assessment	SCE	Big Creek-Ventura	4/18/2021	0	No	INC	3	0:00	2:35
162	RT	Reliability Assessment	SCE	NA	4/5/2021	405	No	DEC	6	18:00	0:00
163	RT	Reliability Assessment	SCE	NA	4/6/2021	405	No	DEC	7	0:00	7:00
164	RT	Reliability Assessment	SCE	NA	4/30/2021	410	No	DEC	1	20:10	21:00
165	RT	Reliability Assessment	SCE	NA	4/30/2021	460	No	INC	3	21:00	0:00
166	RT	Reliability Assessment	SDGE	San Diego-IV	4/1/2021	300	No	DEC	2	18:00	20:00
167	RT	Reliability Assessment	SDGE	San Diego-IV	4/1/2021	300	No	INC	5	13:00	18:00
168	RT	Reliability Assessment	SDGE	San Diego-IV	4/28/2021	24 - 72	No	INC	3	11:10	13:30
169	RT	Software Limitation	PGAE	Bay Area	4/2/2021	120	No	INC	1	17:00	17:20
170	RT	Software Limitation	PGAE	Bay Area	4/16/2021	0 - 120	No	INC	3	19:25	21:55
171	RT	Software Limitation	PGAE	Bay Area	4/21/2021	250	No	INC	4	4:30	8:00
172	RT	Software Limitation	PGAE	Fresno	4/2/2021	35 - 76	No	INC	3	17:00	19:35
173	RT	Software Limitation	PGAE	NA	4/2/2021	0 - 2.84	No	DEC	3	17:00	19:35
174	RT	Software Limitation	PGAE	NA	4/2/2021	0 - 60	No	INC	3	17:00	19:35
175	RT	Software Limitation	PGAE	NA	4/16/2021	0 - 3.01	No	DEC	1	19:25	20:15
176	RT	Software Limitation	PGAE	NA	4/16/2021	0 - 60	No	INC	1	19:25	20:15
177	RT	Software Limitation	SCE	Big Creek-Ventura	4/2/2021	0 - 38.77	No	INC	3	17:00	19:35
178	RT	Software Limitation	SCE	LA Basin	4/2/2021	20.05 - 48.46	No	DEC	1	19:05	19:35
179	RT	Software Limitation	SCE	LA Basin	4/2/2021	5 - 147	No	INC	3	17:00	19:35
180	RT	Software Limitation	SCE	LA Basin	4/16/2021	0 - 147	No	INC	5	19:25	0:00
181	RT	Software Limitation	SCE	LA Basin	4/17/2021	0	No	INC	1	0:10	0:40
182	RT	Software Limitation	SDGE	San Diego-IV	4/2/2021	0 - 30	No	INC	6	17:00	22:15
183	RT	Software Limitation	SDGE	San Diego-IV	4/16/2021	0 - 40	No	INC	3	19:25	22:15
184	RT	Unit Testing	PGAE	Bay Area	4/1/2021	44.8 - 100	No	INC	4	16:30	20:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
185	RT	Unit Testing	PGAE	Bay Area	4/2/2021	-100	No	DEC	5	10:00	15:00
186	RT	Unit Testing	PGAE	Bay Area	4/2/2021	100	No	INC	13	8:00	21:00
187	RT	Unit Testing	PGAE	Bay Area	4/15/2021	47.4	No	INC	1	19:50	20:20
188	RT	Unit Testing	PGAE	Bay Area	4/28/2021	50 - 100	No	INC	2	6:00	7:45
189	RT	Unit Testing	PGAE	Sierra	4/1/2021	36.69	No	INC	1	20:40	21:00
190	RT	Unit Testing	PGAE	NA	4/9/2021	72	No	INC	1	6:35	6:50
191	RT	Unit Testing	PGAE	NA	4/10/2021	35.3	No	INC	1	16:45	17:00
192	RT	Unit Testing	SCE	Big Creek-Ventura	4/1/2021	250	No	INC	7	15:35	22:00
193	RT	Unit Testing	SCE	Big Creek-Ventura	4/8/2021	400 - 750	No	INC	5	14:40	19:00
194	RT	Unit Testing	SCE	Big Creek-Ventura	4/30/2021	100	No	INC	1	16:00	16:30
195	RT	Unit Testing	SCE	LA Basin	4/9/2021	20.01	Yes	INC	2	22:00	0:00
196	RT	Unit Testing	SCE	LA Basin	4/10/2021	20.01 - 96	No	INC	22	0:00	21:30
197	RT	Unit Testing	SCE	LA Basin	4/18/2021	10	No	INC	21	3:00	0:00
198	RT	Unit Testing	SCE	LA Basin	4/19/2021	10 - 175	No	INC	12	0:00	12:00
199	RT	Unit Testing	SCE	LA Basin	4/20/2021	225.8	No	INC	1	22:00	23:00
200	RT	Unit Testing	SCE	LA Basin	4/22/2021	334	No	INC	5	15:10	19:45
201	RT	Unit Testing	SCE	LA Basin	4/28/2021	70 - 321.4	No	INC	9	15:00	0:00
202	RT	Unit Testing	SCE	LA Basin	4/29/2021	70 - 480	No	INC	21	0:00	20:30
203	RT	Unit Testing	SCE	LA Basin	4/30/2021	220 - 251	No	INC	5	16:00	20:45
204	RT	Unit Testing	SCE	NA	4/13/2021	475 - 493	No	INC	4	1:15	5:00
205	RT	Unit Testing	SCE	NA	4/21/2021	310 - 830	No	INC	7	17:25	0:00
206	RT	Unit Testing	SCE	NA	4/29/2021	15 - 45	No	INC	12	7:00	19:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
207	RT	Unit Testing	SCE	NA	4/30/2021	14 - 45	No	INC	13	6:00	19:00
208	RT	Unit Testing	SDGE	San Diego-IV	4/30/2021	89.93 - 108	No	INC	2	19:05	20:45
209	RT	Unplanned Outage	PGAE	Fresno	4/2/2021	142	No	INC	1	17:05	17:10
210	RT	Unplanned Outage	PGAE	Sierra	4/2/2021	200	No	INC	1	17:05	17:10
211	RT	Unplanned Outage	SCE	Big Creek-Ventura	4/2/2021	190	No	INC	1	17:05	17:10
212	RT	Voltage Support	PGAE	Fresno	4/1/2021	83	No	DEC	1	22:40	23:00
213	RT	Voltage Support	PGAE	Fresno	4/1/2021	83	No	INC	2	22:05	0:00
214	RT	Voltage Support	PGAE	Fresno	4/2/2021	83	No	DEC	1	0:00	1:00
215	RT	Voltage Support	PGAE	Fresno	4/2/2021	83	No	INC	6	0:00	6:00
216	RT	Voltage Support	PGAE	Fresno	4/3/2021	-316	No	DEC	23	1:30	0:00
217	RT	Voltage Support	PGAE	Fresno	4/4/2021	-316 - -315	No	DEC	24	0:00	0:00
218	RT	Voltage Support	PGAE	Fresno	4/5/2021	-315	No	DEC	5	0:00	5:00
219	RT	Voltage Support	PGAE	Fresno	4/13/2021	-310	No	DEC	1	18:00	18:15
220	RT	Voltage Support	PGAE	Fresno	4/13/2021	-310 - 83	No	INC	2	17:55	19:00
221	RT	Voltage Support	PGAE	Fresno	4/16/2021	-310	No	DEC	2	2:50	4:30
222	RT	Voltage Support	PGAE	Fresno	4/27/2021	-309	No	DEC	3	2:30	5:00
223	RT	Voltage Support	PGAE	Fresno	4/30/2021	-314 - -311	No	DEC	4	12:30	16:30
224	RT	Voltage Support	PGAE	Sierra	4/4/2021	20	No	INC	6	10:45	16:00
225	RT	Voltage Support	PGAE	Sierra	4/7/2021	20	No	INC	11	13:30	0:00
226	RT	Voltage Support	PGAE	Sierra	4/8/2021	20	No	DEC	3	6:00	8:50
227	RT	Voltage Support	PGAE	Sierra	4/8/2021	20	No	INC	6	0:00	6:00
228	RT	Voltage Support	PGAE	Sierra	4/25/2021	20	No	INC	9	7:55	16:00
229	RT	Voltage Support	PGAE	Sierra	4/26/2021	20	No	INC	3	21:05	0:00
230	RT	Voltage Support	PGAE	Sierra	4/27/2021	20	Yes	INC	24	0:00	0:00
231	RT	Voltage Support	PGAE	Sierra	4/28/2021	20	No	INC	8	0:00	8:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
232	RT	Voltage Support	PGAE	Sierra	4/29/2021	20	No	INC	5	19:10	0:00
233	RT	Voltage Support	PGAE	Sierra	4/30/2021	20	No	INC	5	0:00	5:00

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