

January 17, 2023

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re: California Independent System Operator Corporation  
Docket Nos. ER08-1178-000 and EL08-88-000  
November 2022 Exceptional Dispatch Reports (Charts 1 and 2)**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits both its November 2022 (Chart 1) and November 2022 (Chart 2) Exceptional Dispatch reports as required by the Commission in the September 2, 2009 and May 4, 2010 orders. Because the necessary information is available, the CAISO is issuing the Chart 1 and Chart 2 reports on the 15<sup>th</sup> of the month. Previously, the Chart 2 report was filed on the 30<sup>th</sup> of the month.

Each report provides information that the Commission directed be included, as set forth in the September 2, 2009 and May 4, 2010 orders. The Chart 1 report (Attachment A), includes exceptional dispatch information except for cost data and the degree of mitigation and price impact analyses. The Chart 2 report (Attachment B), includes all of the information in the Chart 1 report as well as cost data and the degree of mitigation and price impact analyses.

Respectfully submitted,

**By: /s/ Sidney Mannheim**

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**ATTACHMENT A**

**November 2022 Exceptional Dispatch Report  
Chart 1 data**



# Exceptional Dispatch Report

## Table 1: November 2022

## TABLE OF CONTENTS

Introduction .....	3
The Nature of Exceptional Dispatch.....	3
Appendix A: Explanation by Example .....	13
Example 1: Exceptional Dispatch Instructions Prior to DAM .....	13
Example 2: Incremental Exceptional Dispatch Instructions in RTM.....	14
Example 3: Decremental Exceptional Dispatch Instructions in RTM.....	16

## LIST OF TABLES AND FIGURES

Table 1: Exceptional Dispatches in November 2022.....	6
Table 2: Instructions Prior to Day-Ahead Market .....	13
Table 3: FERC Summary of Instructions Prior to DAM .....	14
Table 4: Incremental Exceptional Dispatch Instructions in RTM .....	14
Table 5: FERC Summary of ED Instructions in RTM .....	15
Table 6: Decremental Exceptional Dispatch Instructions in RTM .....	16
Table 7: FERC Summary of Decremental ED Instructions in RTM.....	16

## 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 15<sup>th</sup> of each month and one originally issued on the 30<sup>th</sup> of each month. Both Table 1 and Table 2 reports will be issued on the 15<sup>th</sup> 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 2022.

## 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.<sup>1</sup> 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.<sup>2</sup>

The following reason for exceptional dispatch instructions in November 2022 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

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<sup>1</sup> 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).

<sup>2</sup> 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 2022, which are self explanatory.

The data in Table 1 is based on a template specified in the September 2009 order.<sup>3</sup> 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 176 exceptional dispatches in November 2022, as compared to 209 exceptional dispatches in October 2022. There was one exceptional dispatch issued as a pre-day-ahead commitment, however this did not translate into real-time exception dispatch. Exceptional dispatches issued for

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<sup>3</sup> 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.

the following reasons accounted for approximately 87 percent of the total exceptional dispatches during the reporting period: market disruption, planned transmission outages, reliability assessment 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. Reliability Assessment is the reason as explained in the operator procedure 2330C<sup>4</sup> 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.

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

**Table 1: Exceptional Dispatches in November 2022**

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 1: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

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	Humboldt	11/7/2022	45 - 60	No	DEC	9	15:00	0:00
2	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/7/2022	45	No	INC	7	8:45	15:00
3	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/8/2022	45 - 60	No	DEC	7	14:00	21:00
4	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/8/2022	30 - 60	No	INC	24	0:00	0:00
5	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/9/2022	45	No	DEC	4	16:00	19:15
6	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/9/2022	30 - 60	No	INC	17	0:00	17:00
7	RT	Market Disruption	PGAE	Bay Area	11/28/2022	80 - 195	No	INC	5	16:35	21:00
8	RT	Market Disruption	PGAE	Fresno	11/28/2022	115	No	INC	3	18:40	21:00
9	RT	Market Disruption	PGAE	Sierra	11/28/2022	47	No	INC	3	16:50	19:00
10	RT	Market Disruption	PGAE	NA	11/28/2022	220	No	DEC	2	19:15	21:00
11	RT	Market Disruption	PGAE	NA	11/28/2022	60 - 150	No	INC	4	16:45	20:30
12	RT	Market Disruption	SCE	LA Basin	11/28/2022	65 - 100	No	DEC	2	17:55	19:00
13	RT	Market Disruption	SCE	LA Basin	11/28/2022	65 - 194	No	INC	5	17:05	21:30
14	RT	Market Disruption	SCE	NA	11/28/2022	200	No	INC	3	18:15	21:00
15	RT	Market Disruption	SDGE	San Diego-IV	11/28/2022	45 - 175	No	INC	5	16:45	21:00
16	RT	Other Reliability Requirement	PGAE	Fresno	11/9/2022	-320	No	DEC	1	13:45	13:50
17	RT	Other Reliability Requirement	SDGE	San Diego-IV	11/20/2022	305	No	INC	3	13:40	16:30
18	RT	Planned Transmission Outage	PGAE	Bay Area	11/7/2022	54	No	INC	12	6:00	18:00
19	RT	Planned Transmission Outage	PGAE	Bay Area	11/14/2022	54	No	INC	3	6:00	9:00
20	RT	Planned Transmission Outage	PGAE	Bay Area	11/17/2022	54	No	INC	6	12:00	18:00



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	Fresno	11/27/2022	-330	No	DEC	12	2:45	14:30
22	RT	Planned Transmission Outage	PGAE	Humboldt	11/1/2022	14	No	DEC	11	1:00	11:15
23	RT	Planned Transmission Outage	PGAE	Humboldt	11/1/2022	14 - 45	No	INC	19	0:00	19:00
24	RT	Planned Transmission Outage	PGAE	Humboldt	11/2/2022	30	No	INC	3	21:45	0:00
25	RT	Planned Transmission Outage	PGAE	Humboldt	11/3/2022	15 - 30	No	DEC	20	3:30	23:00
26	RT	Planned Transmission Outage	PGAE	Humboldt	11/3/2022	30 - 45	No	INC	24	0:00	0:00
27	RT	Planned Transmission Outage	PGAE	Humboldt	11/4/2022	30	No	DEC	4	5:00	9:00
28	RT	Planned Transmission Outage	PGAE	Humboldt	11/4/2022	30	No	INC	24	0:00	0:00
29	RT	Planned Transmission Outage	PGAE	Humboldt	11/5/2022	15	No	DEC	11	0:00	10:05
30	RT	Planned Transmission Outage	PGAE	Humboldt	11/5/2022	30	No	INC	24	0:00	0:00
31	RT	Planned Transmission Outage	PGAE	Humboldt	11/6/2022	30 - 45	No	INC	25	0:00	0:00
32	RT	Planned Transmission Outage	PGAE	Humboldt	11/7/2022	45	No	DEC	2	17:00	18:45
33	RT	Planned Transmission Outage	PGAE	Humboldt	11/7/2022	30 - 45	No	INC	17	0:00	17:00
34	RT	Planned Transmission Outage	PGAE	Humboldt	11/9/2022	45	No	DEC	4	19:00	23:00
35	RT	Planned Transmission Outage	PGAE	Humboldt	11/9/2022	45	No	INC	1	23:00	0:00
36	RT	Planned Transmission Outage	PGAE	Humboldt	11/10/2022	30 - 45	No	DEC	21	3:00	0:00
37	RT	Planned Transmission Outage	PGAE	Humboldt	11/10/2022	45	No	INC	16	0:00	16:00
38	RT	Planned Transmission Outage	PGAE	Humboldt	11/11/2022	30	No	DEC	24	0:00	0:00
39	RT	Planned Transmission Outage	PGAE	Humboldt	11/11/2022	30	No	INC	8	7:00	15:00
40	RT	Planned Transmission Outage	PGAE	Humboldt	11/12/2022	15 - 30	No	DEC	24	0:00	0:00
41	RT	Planned Transmission Outage	PGAE	Humboldt	11/12/2022	30	No	INC	17	7:00	0:00
42	RT	Planned Transmission Outage	PGAE	Humboldt	11/13/2022	15	No	DEC	24	0:00	0:00
43	RT	Planned Transmission Outage	PGAE	Humboldt	11/13/2022	30	No	INC	24	0:00	0:00
44	RT	Planned Transmission Outage	PGAE	Humboldt	11/14/2022	15 - 30	No	DEC	24	0:00	0:00
45	RT	Planned Transmission Outage	PGAE	Humboldt	11/14/2022	30	No	INC	15	0:00	15:00
46	RT	Planned Transmission Outage	PGAE	Humboldt	11/15/2022	30 - 45	No	DEC	24	0:00	0:00
47	RT	Planned Transmission Outage	PGAE	Humboldt	11/15/2022	30 - 45	No	INC	6	9:00	15:00
48	RT	Planned Transmission Outage	PGAE	Humboldt	11/16/2022	30 - 45	No	DEC	24	0:00	0:00
49	RT	Planned Transmission Outage	PGAE	Humboldt	11/16/2022	30 - 45	No	INC	15	9:00	0:00

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	Humboldt	11/17/2022	30 - 45	No	DEC	8	15:00	23:00
51	RT	Planned Transmission Outage	PGAE	Humboldt	11/17/2022	30 - 45	No	INC	24	0:00	0:00
52	RT	Planned Transmission Outage	PGAE	Humboldt	11/18/2022	30 - 45	No	DEC	20	4:00	0:00
53	RT	Planned Transmission Outage	PGAE	Humboldt	11/18/2022	30 - 45	No	INC	24	0:00	0:00
54	RT	Planned Transmission Outage	PGAE	Humboldt	11/19/2022	30	No	DEC	24	0:00	0:00
55	RT	Planned Transmission Outage	PGAE	Humboldt	11/19/2022	30	No	INC	15	0:00	15:00
56	RT	Planned Transmission Outage	PGAE	Humboldt	11/20/2022	30 - 45	No	DEC	24	0:00	0:00
57	RT	Planned Transmission Outage	PGAE	Humboldt	11/20/2022	30	No	INC	6	8:00	14:00
58	RT	Planned Transmission Outage	PGAE	Humboldt	11/21/2022	30 - 45	No	DEC	24	0:00	0:00
59	RT	Planned Transmission Outage	PGAE	Humboldt	11/21/2022	30 - 45	No	INC	6	8:00	14:00
60	RT	Planned Transmission Outage	PGAE	Humboldt	11/22/2022	30 - 45	No	DEC	22	0:00	22:00
61	RT	Planned Transmission Outage	PGAE	Humboldt	11/22/2022	30 - 45	No	INC	24	0:00	0:00
62	RT	Planned Transmission Outage	PGAE	Humboldt	11/23/2022	30 - 45	No	INC	24	0:00	0:00
63	RT	Planned Transmission Outage	PGAE	Humboldt	11/24/2022	30 - 45	No	INC	24	0:00	0:00
64	RT	Planned Transmission Outage	PGAE	Humboldt	11/25/2022	30	No	INC	24	0:00	0:00
65	RT	Planned Transmission Outage	PGAE	Humboldt	11/26/2022	15	No	DEC	2	22:45	0:00
66	RT	Planned Transmission Outage	PGAE	Humboldt	11/26/2022	15 - 30	No	INC	24	0:00	0:00
67	RT	Planned Transmission Outage	PGAE	Humboldt	11/27/2022	15	No	DEC	17	0:00	16:55
68	RT	Planned Transmission Outage	PGAE	Humboldt	11/27/2022	15 - 45	No	INC	24	0:00	0:00
69	RT	Planned Transmission Outage	PGAE	Humboldt	11/28/2022	15 - 45	No	INC	24	0:00	0:00
70	RT	Planned Transmission Outage	PGAE	Humboldt	11/29/2022	30 - 45	No	DEC	9	15:00	0:00
71	RT	Planned Transmission Outage	PGAE	Humboldt	11/29/2022	30 - 45	No	INC	24	0:00	0:00
72	RT	Planned Transmission Outage	PGAE	Humboldt	11/30/2022	30 - 45	No	DEC	6	16:00	22:00
73	RT	Planned Transmission Outage	PGAE	Humboldt	11/30/2022	30 - 60	No	INC	24	0:00	0:00
74	RT	Planned Transmission Outage	PGAE	NCNB	11/1/2022	62 - 68	No	DEC	19	5:55	0:00
75	RT	Planned Transmission Outage	PGAE	NCNB	11/2/2022	62	No	DEC	24	0:00	0:00
76	RT	Planned Transmission Outage	PGAE	NCNB	11/3/2022	62 - 65	No	DEC	24	0:00	0:00
77	RT	Planned Transmission Outage	PGAE	NCNB	11/4/2022	65	No	DEC	6	0:00	5:30
78	RT	Planned Transmission Outage	PGAE	NCNB	11/5/2022	45 - 65	No	DEC	6	7:00	13:00

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	NCNB	11/19/2022	50 - 60	No	DEC	18	6:45	0:00
80	RT	Planned Transmission Outage	PGAE	NCNB	11/20/2022	50	No	DEC	20	0:00	20:00
81	RT	Planned Transmission Outage	PGAE	Sierra	11/1/2022	24	No	DEC	1	17:00	18:00
82	RT	Planned Transmission Outage	PGAE	Sierra	11/1/2022	24	No	INC	3	14:40	17:00
83	RT	Planned Transmission Outage	PGAE	Sierra	11/4/2022	20 - 45	No	DEC	2	7:00	9:00
84	RT	Planned Transmission Outage	PGAE	Sierra	11/4/2022	42 - 45	No	INC	6	7:00	13:00
85	RT	Planned Transmission Outage	PGAE	Sierra	11/9/2022	42	No	INC	15	6:00	21:00
86	RT	Planned Transmission Outage	PGAE	Sierra	11/15/2022	20 - 25	No	DEC	15	8:00	22:10
87	RT	Planned Transmission Outage	PGAE	Sierra	11/15/2022	20 - 25	No	INC	14	7:30	21:00
88	RT	Planned Transmission Outage	PGAE	Sierra	11/20/2022	20	No	DEC	1	21:00	22:00
89	RT	Planned Transmission Outage	PGAE	Sierra	11/20/2022	20	No	INC	4	20:00	23:30
90	RT	Planned Transmission Outage	PGAE	Sierra	11/28/2022	20	No	DEC	2	16:00	18:00
91	RT	Planned Transmission Outage	PGAE	Sierra	11/28/2022	20	No	INC	8	8:00	16:00
92	RT	Planned Transmission Outage	SCE	NA	11/7/2022	700	No	DEC	7	7:30	14:00
93	RT	Planned Transmission Outage	SCE	NA	11/10/2022	5	No	DEC	2	18:30	19:45
94	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/6/2022	38.38	Yes	INC	3	17:15	19:30
95	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/7/2022	44	No	INC	2	19:55	21:00
96	RT	Ramping Capacity	PGAE	NA	11/3/2022	415	No	DEC	1	7:55	8:00
97	RT	Ramping Capacity	PGAE	NA	11/3/2022	415	No	INC	3	8:00	10:30
98	RT	Ramping Capacity	PGAE	NA	11/4/2022	49	No	DEC	3	17:00	20:00
99	RT	Ramping Capacity	PGAE	NA	11/4/2022	49	No	INC	5	12:40	17:00
100	RT	Ramping Capacity	PGAE	NA	11/5/2022	48.95	No	DEC	6	12:55	18:20
101	RT	Ramping Capacity	SDGE	San Diego-IV	11/28/2022	100 - 400	No	INC	6	16:15	22:00
102	RT	Reliability Assessment	PGAE	Bay Area	11/28/2022	22	No	INC	5	17:50	22:00
103	RT	Reliability Assessment	PGAE	Bay Area	11/30/2022	64	No	INC	2	7:40	9:00
104	RT	Reliability Assessment	PGAE	Fresno	11/14/2022	5	No	DEC	1	12:50	13:00
105	RT	Reliability Assessment	PGAE	Humboldt	11/1/2022	28 - 75	No	INC	9	10:55	19:00
106	RT	Reliability Assessment	PGAE	Humboldt	11/2/2022	15 - 45	No	INC	21	3:25	0:00
107	RT	Reliability Assessment	PGAE	Humboldt	11/3/2022	15	No	DEC	3	3:30	6:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
108	RT	Reliability Assessment	PGAE	Humboldt	11/3/2022	30	No	INC	6	0:00	6:00
109	RT	Reliability Assessment	PGAE	Kern	11/4/2022	32	No	INC	1	23:40	23:45
110	RT	Reliability Assessment	PGAE	Kern	11/5/2022	32 - 38.5	No	INC	7	1:00	8:00
111	RT	Reliability Assessment	SCE	Big Creek-Ventura	11/8/2022	20	No	INC	6	18:10	0:00
112	RT	Reliability Assessment	SCE	Big Creek-Ventura	11/9/2022	20	No	INC	12	0:00	12:00
113	RT	Reliability Assessment	SCE	NA	11/1/2022	0	No	INC	1	14:25	14:50
114	RT	Software Limitation	PGAE	Bay Area	11/2/2022	0	No	INC	2	21:15	22:20
115	RT	Software Limitation	PGAE	Bay Area	11/4/2022	0	No	INC	2	5:05	6:10
116	RT	Software Limitation	PGAE	Bay Area	11/8/2022	510	No	INC	1	0:10	1:00
117	RT	Software Limitation	SCE	LA Basin	11/4/2022	0 - 90.58	No	INC	5	1:25	5:35
118	RT	Software Limitation	SCE	LA Basin	11/15/2022	0	No	INC	2	9:20	10:25
119	RT	Software Limitation	SDGE	San Diego-IV	11/28/2022	125	No	INC	3	18:20	21:00
120	RT	Unit Testing	PGAE	NA	11/22/2022	100	No	DEC	1	16:00	16:30
121	RT	Unit Testing	PGAE	NA	11/22/2022	100	No	INC	1	15:00	16:00
122	RT	Unit Testing	SCE	NA	11/24/2022	176.1	No	INC	1	12:00	12:40
123	RT	Voltage Support	PGAE	Fresno	11/1/2022	-330	No	DEC	6	1:10	7:00
124	RT	Voltage Support	PGAE	Fresno	11/6/2022	-330	No	DEC	10	6:15	16:15
125	RT	Voltage Support	PGAE	Fresno	11/6/2022	-330	No	INC	17	0:00	15:50
126	RT	Voltage Support	PGAE	Fresno	11/7/2022	-330	No	DEC	6	0:00	5:30
127	RT	Voltage Support	PGAE	Fresno	11/7/2022	-330	No	INC	8	0:00	8:00
128	RT	Voltage Support	PGAE	Fresno	11/8/2022	-330	No	INC	8	0:10	8:00
129	RT	Voltage Support	PGAE	Fresno	11/10/2022	-330	No	DEC	2	6:00	8:00
130	RT	Voltage Support	PGAE	Fresno	11/10/2022	-330	No	INC	4	2:30	6:00
131	RT	Voltage Support	PGAE	Fresno	11/12/2022	-330	No	DEC	1	6:00	7:00
132	RT	Voltage Support	PGAE	Fresno	11/12/2022	-330	No	INC	3	3:00	6:00
133	RT	Voltage Support	PGAE	Fresno	11/15/2022	-330	No	DEC	6	1:30	7:00
134	RT	Voltage Support	PGAE	Fresno	11/16/2022	-330	No	DEC	7	0:00	7:00
135	RT	Voltage Support	PGAE	Fresno	11/17/2022	-330	No	DEC	7	0:15	7:00
136	RT	Voltage Support	PGAE	Fresno	11/17/2022	83	No	INC	4	20:55	0:00

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time
137	RT	Voltage Support	PGAE	Fresno	11/18/2022	-330	No	DEC	4	3:00	6:30
138	RT	Voltage Support	PGAE	Fresno	11/19/2022	-330	No	DEC	7	0:10	7:00
139	RT	Voltage Support	PGAE	Fresno	11/20/2022	-330	No	DEC	7	2:20	9:00
140	RT	Voltage Support	PGAE	Fresno	11/21/2022	-330	No	DEC	6	0:05	5:30
141	RT	Voltage Support	PGAE	Fresno	11/21/2022	0 - 83	No	INC	3	0:25	2:35
142	RT	Voltage Support	PGAE	Fresno	11/22/2022	-330	No	DEC	2	22:00	0:00
143	RT	Voltage Support	PGAE	Fresno	11/22/2022	-330	No	INC	7	0:00	7:00
144	RT	Voltage Support	PGAE	Fresno	11/23/2022	-330	No	INC	24	0:00	0:00
145	RT	Voltage Support	PGAE	Fresno	11/24/2022	-330	No	DEC	1	21:30	22:00
146	RT	Voltage Support	PGAE	Fresno	11/24/2022	-330	No	INC	24	0:00	0:00
147	RT	Voltage Support	PGAE	Fresno	11/25/2022	-330	No	DEC	24	0:00	0:00
148	RT	Voltage Support	PGAE	Fresno	11/25/2022	-330	No	INC	3	3:05	6:00
149	RT	Voltage Support	PGAE	Fresno	11/26/2022	-330	No	DEC	14	0:00	14:00
150	RT	Voltage Support	PGAE	Sierra	11/1/2022	20	No	INC	6	0:30	6:00
151	RT	Voltage Support	PGAE	Sierra	11/6/2022	20	No	DEC	1	21:00	22:00
152	RT	Voltage Support	PGAE	Sierra	11/6/2022	20	No	INC	22	2:50	0:00
153	RT	Voltage Support	PGAE	Sierra	11/7/2022	20	No	DEC	1	5:00	6:00
154	RT	Voltage Support	PGAE	Sierra	11/7/2022	20	No	INC	7	0:00	7:00
155	RT	Voltage Support	PGAE	Sierra	11/8/2022	20	No	INC	5	2:05	7:00
156	RT	Voltage Support	PGAE	Sierra	11/9/2022	20	No	INC	6	2:45	8:00
157	RT	Voltage Support	PGAE	Sierra	11/11/2022	20	No	DEC	3	21:00	0:00
158	RT	Voltage Support	PGAE	Sierra	11/11/2022	20	No	INC	6	15:50	21:00
159	RT	Voltage Support	PGAE	Sierra	11/12/2022	20	No	DEC	22	0:00	22:00
160	RT	Voltage Support	PGAE	Sierra	11/12/2022	20	No	INC	18	6:00	0:00
161	RT	Voltage Support	PGAE	Sierra	11/13/2022	20	No	DEC	3	21:00	0:00
162	RT	Voltage Support	PGAE	Sierra	11/13/2022	20	No	INC	21	0:00	21:00
163	RT	Voltage Support	PGAE	Sierra	11/14/2022	20	Yes	DEC	24	0:00	0:00
164	RT	Voltage Support	PGAE	Sierra	11/14/2022	20	Yes	INC	19	2:00	21:00
165	RT	Voltage Support	PGAE	Sierra	11/15/2022	20 - 25	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
166	RT	Voltage Support	PGAE	Sierra	11/16/2022	20	Yes	DEC	6	0:00	6:00
167	RT	Voltage Support	PGAE	Sierra	11/16/2022	20	Yes	INC	1	6:00	7:00
168	RT	Voltage Support	PGAE	Sierra	11/20/2022	20	Yes	INC	8	12:25	20:00
169	RT	Voltage Support	PGAE	Sierra	11/25/2022	20	No	INC	17	1:55	18:00
170	RT	Voltage Support	PGAE	Sierra	11/26/2022	20	No	INC	16	2:00	18:00
171	RT	Voltage Support	PGAE	NA	11/5/2022	48.95	No	DEC	9	13:15	22:00
172	RT	Voltage Support	PGAE	NA	11/5/2022	48.95	No	INC	2	22:00	0:00
173	RT	Voltage Support	PGAE	NA	11/6/2022	48.95	No	DEC	23	0:00	22:00
174	RT	Voltage Support	PGAE	NA	11/6/2022	48.95	No	INC	2	22:00	0:00
175	RT	Voltage Support	PGAE	NA	11/7/2022	48.95	No	DEC	2	5:00	7:00
176	RT	Voltage Support	PGAE	NA	11/7/2022	48.95	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 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

**ATTACHMENT B**

**November 2022 Exceptional Dispatch Report  
Chart 2 data**



# Exceptional Dispatch Report

## Table 2: November 2022

Market Analysis and Forecasting

January 15~~17~~17, 2023

## TABLE OF CONTENTS

Introduction .....	<del>33</del>
The Nature of Exceptional Dispatch.....	<del>33</del>
Appendix A: Explanation by Example .....	<del>17</del> <del>17</del>
Example 1: Exceptional Dispatch Instructions Prior to DAM .....	<del>17</del> <del>17</del>
Example 2: Incremental Exceptional Dispatch Instructions in RTM.....	<del>17</del> <del>17</del>
Example 3: Decremental Exceptional Dispatch Instructions in RTM .....	<del>19</del> <del>19</del>
Appendix B: Price Impact Analysis .....	<del>21</del> <del>21</del>
Appendix C: Exceptional Dispatch Bid Mitigation Analysis .....	<del>59</del> <del>59</del>

## LIST OF TABLES AND FIGURES

Table 1: Exceptional Dispatches in November 2022.....	<del>7</del>
Table 2: Instructions Prior to Day-Ahead Market .....	<del>17</del> <del>17</del>
Table 3: FERC Summary of Instructions Prior to DAM .....	<del>17</del> <del>17</del>
Table 4: Incremental Exceptional Dispatch Instructions in RTM .....	<del>18</del> <del>18</del>
Table 5: FERC Summary of ED Instructions in RTM .....	<del>19</del> <del>19</del>
Table 6: Decremental Exceptional Dispatch Instructions in RTM .....	<del>19</del> <del>19</del>
Table 7: FERC Summary of Decremental ED Instructions in RTM.....	<del>20</del> <del>20</del>
Table 8: Price Impact Analysis Information for Pricing Node A in PG&E LAP ..	<del>22</del> <del>22</del>
Table 9: Price Impact Analysis Information for Pricing Node B in SCE LAP ...	<del>58</del> <del>58</del>
Table 10: Bid Mitigation Analysis for November 2022.....	<del>59</del> <del>59</del>

## Introduction

This report is filed pursuant to FERC’s September 2, 2009, and May 4, 2010, orders in ER08-1178. These orders require two monthly Exceptional Dispatch reports—one issued on the 15<sup>th</sup> of each month and one originally issued on the 30<sup>th</sup> of each month. Both Table 1 and Table 2 reports will be issued on the 15<sup>th</sup> of each month due to the availability of necessary data. This report provides data on the frequency, reasons and costs for Exceptional Dispatches issued in November 2022.

This report contains a price impact analysis as prescribed by FERC in its September 2 order. The price impact analysis for the month of November is presented in Appendix B. This report also includes mitigation analysis for November 2022 required by section 34.11.4 of the CAISO tariff. This analysis compares those Exceptional Dispatches subject to bid mitigation ( i.e. Exceptional Dispatches to address noncompetitive constraints and Delta Dispatch), and determines the cost difference between the Exceptional Dispatch bid mitigation settlement rules and what the settlement amount would have been had the Exceptional Dispatches not been subject to bid mitigation. The Exceptional Dispatch bid mitigation analysis for November is presented in Appendix C.

## The Nature of Exceptional Dispatch

The CAISO can issue exceptional dispatch instructions for a resource as a pre-day-ahead unit commitment, a post day-ahead unit commitment or a real-time exceptional dispatch. A pre-day-ahead unit commitment is an exceptional dispatch instruction committing a resource at or above its physical minimum (Pmin) operating level in the day-ahead market. A post-day-ahead unit commitment is an exceptional dispatch instruction committing a resource at or above its (Pmin) operating level in the real-time market. A real-time exceptional dispatch instructs a resource to operate at or above its physical minimum operating point. A real-time exceptional dispatch above the resource’s day-ahead award is an incremental exceptional dispatch instruction and a real-time exceptional dispatch below the day-ahead award is considered 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. Reliability requirements are calculated for both local area and the system wide needs, and are classified into various requirements including local generation, transmission management, non-modeled transmission outages, ramping and intertie emergency assistance. Whenever the CAISO issues an exceptional dispatch instruction, the operators log these instructions and the associated reason for each instruction.

Most of the generation procedures are internal to the CAISO and not available publicly on the CAISO website; however, all of the transmission procedures are available on the CAISO website.<sup>1</sup>

Additional reasons for exceptional dispatch instructions in 2022 include Software Limitation. Software Limitation is used when an exceptional dispatch instruction was issued to bridge schedules across days for resources with a minimum down time of 24 hours, as the CAISO software does not handle multi-day commitment. For instance, a resource has a day-ahead schedule from 0600 till 2300, and then is shut down in 2400. If this resource had a minimum down time of 24 hours and it is required the 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 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, which are self-explanatory.

The data in Table 1 is based on a template specified in the September 2009 order.<sup>2</sup> This table contains all the information published in Table 1 of the first report for November 2022. In addition, it contains volume (MWh) and cost information. Each entry in Table 1 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; (6) End Time; (7) Total Volume (MWh); (8) Min Load Cost; (9) Start Up Cost; (10) CC6470; (11) ED Volume (MWh INC/DEC); (12) CC6470 INC; (13) CC6470 DEC; (14) CC6482; (15) CC6488; and (16) CC6620. Each column is defined:

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<sup>1</sup> A list of all of the CAISO’s Operating Procedures and all the publicly available Operating Procedures are available at the following link:  
<http://www.caiso.com/thegrid/operations/opsdoc/index.html>

<sup>2</sup> The data in Table 1 is principally SLIC information supplemented with data from the Market Quality System (MQS) and Settlements database. The volume and cost information is based on t+51B Recalculation Statements.

- The MW column shows the range of exceptional dispatch instruction in MW for the classification.
- The Commitment column specifies if there was a unit commitment for the classification.
- The INC/DEC/NA column specifies if there was an incremental dispatch (INC), a decremental dispatch (DEC), or only a unit commitment (NA). The Begin Time and End Time columns show the start and end time of exceptional dispatch for the classification respectively.
- The Hours column is the time difference between begin time and end time rounded up to the next hour.
- The total volume column shows the total MWh dispatch quantity dispatched for that classification. This quantity includes the minimum load quantity, the imbalance energy quantity, and the exceptional dispatch quantity.
- The Min-Load Cost column shows eligible minimum load cost for the classification.
- The Start-Up Cost column shows the eligible start up cost for the classification. The CAISO does not explicitly pay resources for its start up and minimum load costs; however, it ensures that resources are compensated adequately through its bid cost recovery.<sup>3</sup>
- The CC6470 column shows the total imbalance energy costs for the classification. This cost contains the portion of exceptional dispatch instruction settled as optimal energy due to its bid price being less than the LMP in the relevant settlement interval.
- The ED Volume MWh (MWh INC/DEC) column shows the incremental or the decremental portion of the real-time exceptional dispatch MWh for the classification. The CC6470-INC shows that portion of incremental exceptional dispatch instruction settled at the resource LMP.
- The CC6470-DEC column shows that portion of decremental exceptional dispatch instruction settled at the resource specific LMP. Both these charge codes are portions of the real-time instructed imbalance energy charge code (6470).<sup>4</sup>
- The CC6482 column shows the real-time excess cost for the classification.<sup>5</sup>
- The CC6488 column shows the real-time exceptional dispatch uplift settlement for the classification.<sup>6</sup> The CC6620 shows the bid cost recovery payment for the classification. This cost is shown for all pre-day-ahead unit commitments only.

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<sup>3</sup> For further details regarding the Bid Cost Recovery process please refer to section 11.8 of the CAISO tariff.

<sup>4</sup> For further details please refer to the BPM configuration Guide: Real-Time Instructed Imbalance Energy Settlement published on the CAISO's website.

<sup>5</sup> For further details please refer to the BPM configuration Guide: Real Time Excess Cost for Instructed Energy Settlement published on the CAISO's website.

<sup>6</sup> For further details please refer to the BPM configuration Guide: Real Time Exceptional Dispatch Uplift Settlement published on the CAISO's website.



Charge codes 6470, 6470 INC, 6470 DEC, 6482 and 6488 are shown in Table 1 because all these charge codes pertain to real-time exceptional dispatch MWH quantities. The classification of data is further explained for example in Attachment A.

Exceptional dispatches with the reason “Reliability Assessment” were due to Real Time Contingency Analysis, Voltage Stability Analysis, and operating procedure number 7110. Reliability Assessment is the reason as explained in the operator procedure 2330C 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.

There was one exceptional dispatch issued as a pre-day-ahead commitment, however this did not translate into real-time exception dispatch.

**Table 1: Exceptional Dispatches in November 2022**

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
1	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/7/2022	45 - 60	No	DEC	9	15:00	0:00	-1.97	-23865.58	0.00	-87.65	-5.81	0.00	139.63	0.00	0.00	0.00
2	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/7/2022	45	No	INC	7	8:45	15:00	0.00	16506.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/8/2022	45 - 60	No	DEC	7	14:00	21:00	1.17	-6986.52	0.00	-65.94	0.00	0.00	0.00	0.00	0.00	0.00
4	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/8/2022	30 - 60	No	INC	24	0:00	0:00	31.31	119501.54	0.00	-3019.37	-4.64	0.00	122.65	0.00	0.00	0.00
5	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/9/2022	45	No	DEC	4	16:00	19:15	1.91	-3551.90	0.00	-81.20	0.00	0.00	0.00	0.00	0.00	0.00
6	RT	Conditions beyond the control of the CAISO	PGAE	Humboldt	11/9/2022	30 - 60	No	INC	17	0:00	17:00	-0.35	106682.97	0.00	-454.57	-3.71	0.00	91.39	0.00	0.00	0.00
7	RT	Market Disruption	PGAE	Bay Area	11/28/2022	80 - 195	No	INC	5	16:35	21:00	-17.31	137603.74	0.00	1448.85	73.02	7392.38	0.00	-7557.05	0.00	0.00
8	RT	Market Disruption	PGAE	Fresno	11/28/2022	115	No	INC	3	18:40	21:00	26.61	32107.98	0.00	-2509.51	9.96	-960.44	0.00	-416.21	0.00	0.00
9	RT	Market Disruption	PGAE	Sierra	11/28/2022	47	No	INC	3	16:50	19:00	9.04	10143.08	0.00	-962.14	7.94	-824.17	0.00	-128.58	0.00	0.00
10	RT	Market Disruption	PGAE	NA	11/28/2022	220	No	DEC	2	19:15	21:00	-137.08	0.00	0.00	12824.65	0.00	0.00	0.00	0.00	0.00	0.00
11	RT	Market Disruption	PGAE	NA	11/28/2022	60 - 150	No	INC	4	16:45	20:30	75.22	0.00	0.00	-7982.10	69.58	7404.14	0.00	-6712.88	0.00	0.00
12	RT	Market Disruption	SCE	LA Basin	11/28/2022	65 - 100	No	DEC	2	17:55	19:00	-20.28	0.00	0.00	1960.10	0.00	0.00	0.00	0.00	0.00	0.00
13	RT	Market Disruption	SCE	LA Basin	11/28/2022	65 - 194	No	INC	5	17:05	21:30	-393.69	116516.30	41450.67	37874.45	69.81	6522.93	0.00	-883.08	0.00	0.00
14	RT	Market Disruption	SCE	NA	11/28/2022	200	No	INC	3	18:15	21:00	146.67	0.00	0.00	-12571.03	142.50	12067.66	0.00	-5156.64	0.00	0.00
15	RT	Market Disruption	SDGE	San Diego-IV	11/28/2022	45 - 175	No	INC	5	16:45	21:00	319.46	138603.98	0.00	-29863.55	238.46	21907.92	0.00	-1336.64	0.00	0.00
16	RT	Other Reliability Requirement	PGAE	Fresno	11/9/2022	-320	No	DEC	1	13:45	13:50	-16.00	0.00	0.00	960.04	0.00	0.00	0.00	0.00	0.00	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
17	RT	Other Reliability Requirement	SDGE	San Diego-IV	11/20/2022	305	No	INC	3	13:40	16:30	248.56	27061.15	0.00	-17274.06	23.25	-32.04	0.00	-1472.17	0.00	0.00
18	RT	Planned Transmission Outage	PGAE	Bay Area	11/7/2022	54	No	INC	12	6:00	18:00	-0.05	38485.72	27762.00	3.71	0.00	0.00	0.00	0.00	0.00	0.00
19	RT	Planned Transmission Outage	PGAE	Bay Area	11/14/2022	54	No	INC	3	6:00	9:00	-10.69	18811.89	13263.83	1222.81	0.00	0.00	0.00	0.00	0.00	0.00
20	RT	Planned Transmission Outage	PGAE	Bay Area	11/17/2022	54	No	INC	6	12:00	18:00	-23.77	43391.60	13109.11	2423.13	0.00	0.00	0.00	0.00	0.00	0.00
21	RT	Planned Transmission Outage	PGAE	Fresno	11/27/2022	-330	No	DEC	12	2:45	14:30	-168.69	0.00	0.00	13768.72	0.00	0.00	0.00	0.00	0.00	0.00
22	RT	Planned Transmission Outage	PGAE	Humboldt	11/1/2022	14	No	DEC	11	1:00	11:15	-0.82	319.52	0.00	60.95	0.00	0.00	0.00	0.00	0.00	0.00
23	RT	Planned Transmission Outage	PGAE	Humboldt	11/1/2022	14 - 45	No	INC	19	0:00	19:00	-21.20	48566.17	0.00	2316.13	0.00	0.00	0.00	0.00	0.00	0.00
24	RT	Planned Transmission Outage	PGAE	Humboldt	11/2/2022	30	No	INC	3	21:45	0:00	0.00	5839.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	RT	Planned Transmission Outage	PGAE	Humboldt	11/3/2022	15 - 30	No	DEC	20	3:30	23:00	-4.07	-23149.68	0.00	502.13	0.00	0.00	0.00	0.00	-612.00	0.00
26	RT	Planned Transmission Outage	PGAE	Humboldt	11/3/2022	30 - 45	No	INC	24	0:00	0:00	8.05	71172.35	0.00	-6238.98	0.00	0.00	0.00	0.00	0.00	0.00
27	RT	Planned Transmission Outage	PGAE	Humboldt	11/4/2022	30	No	DEC	4	5:00	9:00	0.33	-10271.06	0.00	-5.60	0.00	0.00	0.00	0.00	-401.14	0.00
28	RT	Planned Transmission Outage	PGAE	Humboldt	11/4/2022	30	No	INC	24	0:00	0:00	-2.60	74408.57	0.00	58.75	-0.65	0.00	27.25	0.00	0.00	0.00
29	RT	Planned Transmission Outage	PGAE	Humboldt	11/5/2022	15	No	DEC	11	0:00	10:05	-3.71	330.14	0.00	198.37	-0.29	0.00	15.58	0.00	-267.76	0.00
30	RT	Planned Transmission Outage	PGAE	Humboldt	11/5/2022	30	No	INC	24	0:00	0:00	7.66	80883.45	0.00	-410.99	0.00	0.00	0.00	0.00	-8.34	0.00
31	RT	Planned Transmission Outage	PGAE	Humboldt	11/6/2022	30 - 45	No	INC	25	0:00	0:00	9.16	104323.13	0.00	-894.05	-1.26	0.00	84.88	0.00	-45.59	0.00
32	RT	Planned Transmission Outage	PGAE	Humboldt	11/7/2022	45	No	DEC	2	17:00	18:45	-0.59	0.00	0.00	-17.11	-1.23	0.00	29.58	0.00	0.00	0.00
33	RT	Planned Transmission Outage	PGAE	Humboldt	11/7/2022	30 - 45	No	INC	17	0:00	17:00	6.72	79232.65	0.00	-501.09	0.00	0.00	0.00	0.00	0.00	0.00
34	RT	Planned Transmission Outage	PGAE	Humboldt	11/9/2022	45	No	DEC	4	19:00	23:00	3.62	-6295.83	0.00	-189.72	0.00	0.00	0.00	0.00	-419.35	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
35	RT	Planned Transmission Outage	PGAE	Humboldt	11/9/2022	45	No	INC	1	23:00	0:00	0.00	6773.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	RT	Planned Transmission Outage	PGAE	Humboldt	11/10/2022	30 - 45	No	DEC	21	3:00	0:00	-2.99	-20844.50	0.00	498.97	-1.55	0.00	125.80	0.00	-2483.78	0.00
37	RT	Planned Transmission Outage	PGAE	Humboldt	11/10/2022	45	No	INC	16	0:00	16:00	-3.72	62417.68	0.00	45.29	0.00	0.00	0.00	0.00	0.00	0.00
38	RT	Planned Transmission Outage	PGAE	Humboldt	11/11/2022	30	No	DEC	24	0:00	0:00	-12.07	-78028.79	0.00	1045.89	0.00	0.00	0.00	0.00	-1853.74	0.00
39	RT	Planned Transmission Outage	PGAE	Humboldt	11/11/2022	30	No	INC	8	7:00	15:00	-0.23	29972.14	0.00	22.25	0.00	0.00	0.00	0.00	0.00	0.00
40	RT	Planned Transmission Outage	PGAE	Humboldt	11/12/2022	15 - 30	No	DEC	24	0:00	0:00	-7.69	-62856.71	0.00	722.43	0.00	0.00	0.00	0.00	-1973.72	0.00
41	RT	Planned Transmission Outage	PGAE	Humboldt	11/12/2022	30	No	INC	17	7:00	0:00	-1.02	43936.46	0.00	11.01	0.00	0.00	0.00	0.00	0.00	0.00
42	RT	Planned Transmission Outage	PGAE	Humboldt	11/13/2022	15	No	DEC	24	0:00	0:00	3.32	10217.77	0.00	-385.17	0.00	0.00	0.00	0.00	0.00	0.00
43	RT	Planned Transmission Outage	PGAE	Humboldt	11/13/2022	30	No	INC	24	0:00	0:00	0.00	65393.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	RT	Planned Transmission Outage	PGAE	Humboldt	11/14/2022	15 - 30	No	DEC	24	0:00	0:00	7.01	-38960.13	0.00	-605.76	0.00	0.00	0.00	0.00	-2200.08	0.00
45	RT	Planned Transmission Outage	PGAE	Humboldt	11/14/2022	30	No	INC	15	0:00	15:00	-4.95	38032.84	0.00	446.23	0.00	0.00	0.00	0.00	0.00	0.00
46	RT	Planned Transmission Outage	PGAE	Humboldt	11/15/2022	30 - 45	No	DEC	24	0:00	0:00	4.93	-87339.55	0.00	-358.99	-1.67	0.00	116.60	0.00	-2302.01	0.00
47	RT	Planned Transmission Outage	PGAE	Humboldt	11/15/2022	30 - 45	No	INC	6	9:00	15:00	-4.28	24859.58	0.00	327.42	0.00	0.00	0.00	0.00	0.00	0.00
48	RT	Planned Transmission Outage	PGAE	Humboldt	11/16/2022	30 - 45	No	DEC	24	0:00	0:00	1.71	-73505.28	0.00	-150.62	0.00	0.00	0.00	0.00	-2208.77	0.00
49	RT	Planned Transmission Outage	PGAE	Humboldt	11/16/2022	30 - 45	No	INC	15	9:00	0:00	-4.44	30986.16	0.00	248.43	0.00	0.00	0.00	0.00	0.00	0.00
50	RT	Planned Transmission Outage	PGAE	Humboldt	11/17/2022	30 - 45	No	DEC	8	15:00	23:00	-4.11	-24273.29	0.00	437.95	0.00	0.00	0.00	0.00	-731.02	0.00
51	RT	Planned Transmission Outage	PGAE	Humboldt	11/17/2022	30 - 45	No	INC	24	0:00	0:00	7.07	80708.64	0.00	-556.13	0.00	0.00	0.00	0.00	0.00	0.00
52	RT	Planned Transmission Outage	PGAE	Humboldt	11/18/2022	30 - 45	No	DEC	20	4:00	0:00	2.92	-37555.20	0.00	-336.09	0.00	0.00	0.00	0.00	-1323.99	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620	
53	RT	Planned Transmission Outage	PGAE	Humboldt	11/18/2022	30 - 45	No	INC	24	0:00	0:00	1.73	64458.42	0.00	-117.32	0.00	0.00	0.00	0.00	0.00	0.00	
54	RT	Planned Transmission Outage	PGAE	Humboldt	11/19/2022	30	No	DEC	24	0:00	0:00	-20.18	-40358.10	0.00	1858.47	0.00	0.00	0.00	0.00	0.00	-72.11	0.00
55	RT	Planned Transmission Outage	PGAE	Humboldt	11/19/2022	30	No	INC	15	0:00	15:00	1.24	57076.77	0.00	-123.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	RT	Planned Transmission Outage	PGAE	Humboldt	11/20/2022	30 - 45	No	DEC	24	0:00	0:00	-20.50	-140488.78	0.00	1824.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	RT	Planned Transmission Outage	PGAE	Humboldt	11/20/2022	30	No	INC	6	8:00	14:00	0.00	16705.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	RT	Planned Transmission Outage	PGAE	Humboldt	11/21/2022	30 - 45	No	DEC	24	0:00	0:00	-16.64	-124512.07	0.00	1298.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	RT	Planned Transmission Outage	PGAE	Humboldt	11/21/2022	30 - 45	No	INC	6	8:00	14:00	0.68	26450.18	0.00	-43.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	RT	Planned Transmission Outage	PGAE	Humboldt	11/22/2022	30 - 45	No	DEC	22	0:00	22:00	5.39	-14641.46	0.00	-328.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61	RT	Planned Transmission Outage	PGAE	Humboldt	11/22/2022	30 - 45	No	INC	24	0:00	0:00	0.55	88898.32	0.00	-77.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	RT	Planned Transmission Outage	PGAE	Humboldt	11/23/2022	30 - 45	No	INC	24	0:00	0:00	0.00	156089.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	RT	Planned Transmission Outage	PGAE	Humboldt	11/24/2022	30 - 45	No	INC	24	0:00	0:00	9.79	154763.47	0.00	-780.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	RT	Planned Transmission Outage	PGAE	Humboldt	11/25/2022	30	No	INC	24	0:00	0:00	1.68	134375.37	0.00	19.98	0.00	0.00	0.00	0.00	0.00	-2.88	0.00
65	RT	Planned Transmission Outage	PGAE	Humboldt	11/26/2022	15	No	DEC	2	22:45	0:00	-4.07	463.36	0.00	390.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	RT	Planned Transmission Outage	PGAE	Humboldt	11/26/2022	15 - 30	No	INC	24	0:00	0:00	1.13	106573.62	0.00	35.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67	RT	Planned Transmission Outage	PGAE	Humboldt	11/27/2022	15	No	DEC	17	0:00	16:55	10.43	-772.28	0.00	-1101.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	RT	Planned Transmission Outage	PGAE	Humboldt	11/27/2022	15 - 45	No	INC	24	0:00	0:00	3.44	109353.84	0.00	-386.12	0.00	0.00	0.00	0.00	0.00	-3.49	0.00
69	RT	Planned Transmission Outage	PGAE	Humboldt	11/28/2022	15 - 45	No	INC	24	0:00	0:00	17.33	131595.31	0.00	-1961.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	RT	Planned Transmission Outage	PGAE	Humboldt	11/29/2022	30 - 45	No	DEC	9	15:00	0:00	6.18	5668.16	0.00	-918.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620		
71	RT	Planned Transmission Outage	PGAE	Humboldt	11/29/2022	30 - 45	No	INC	24	0:00	0:00	-11.56	127281.92	0.00	1114.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
72	RT	Planned Transmission Outage	PGAE	Humboldt	11/30/2022	30 - 45	No	DEC	6	16:00	22:00	5.92	4299.56	0.00	-765.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	RT	Planned Transmission Outage	PGAE	Humboldt	11/30/2022	30 - 60	No	INC	24	0:00	0:00	0.96	185627.51	0.00	-97.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	RT	Planned Transmission Outage	PGAE	NCNB	11/1/2022	62 - 68	No	DEC	19	5:55	0:00	-27.92	0.00	0.00	1604.81	-31.67	0.00	2439.05	0.00	-	42372.48	0.00	
75	RT	Planned Transmission Outage	PGAE	NCNB	11/2/2022	62	No	DEC	24	0:00	0:00	-31.90	0.00	0.00	2407.93	-41.15	0.00	2448.06	0.00	-	48902.48	0.00	
76	RT	Planned Transmission Outage	PGAE	NCNB	11/3/2022	62 - 65	No	DEC	24	0:00	0:00	17.68	0.00	0.00	-11559.13	0.00	0.00	0.00	0.00	-	63575.52	0.00	
77	RT	Planned Transmission Outage	PGAE	NCNB	11/4/2022	65	No	DEC	6	0:00	5:30	7.27	0.00	0.00	294.34	0.00	0.00	0.00	0.00	-7554.97	-	0.00	
78	RT	Planned Transmission Outage	PGAE	NCNB	11/5/2022	45 - 65	No	DEC	6	7:00	13:00	4.43	0.00	0.00	-1076.54	-26.26	0.00	957.86	0.00	-	14047.57	0.00	
79	RT	Planned Transmission Outage	PGAE	NCNB	11/19/2022	50 - 60	No	DEC	18	6:45	0:00	-44.10	0.00	0.00	5904.14	-49.64	0.00	6289.87	0.00	-	69867.91	0.00	
80	RT	Planned Transmission Outage	PGAE	NCNB	11/20/2022	50	No	DEC	20	0:00	20:00	11.30	0.00	0.00	-990.68	0.00	0.00	0.00	0.00	-	86784.27	0.00	
81	RT	Planned Transmission Outage	PGAE	Sierra	11/1/2022	24	No	DEC	1	17:00	18:00	-0.52	0.00	0.00	40.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
82	RT	Planned Transmission Outage	PGAE	Sierra	11/1/2022	24	No	INC	3	14:40	17:00	20.15	0.00	0.00	-1326.90	22.00	-	1478.83	0.00	0.00	0.00	0.00	
83	RT	Planned Transmission Outage	PGAE	Sierra	11/4/2022	20 - 45	No	DEC	2	7:00	9:00	22.76	-943.29	0.00	-2352.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
84	RT	Planned Transmission Outage	PGAE	Sierra	11/4/2022	42 - 45	No	INC	6	7:00	13:00	-10.96	6117.81	1919.76	322.15	0.00	0.00	0.00	0.00	-1849.34	-	0.00	
85	RT	Planned Transmission Outage	PGAE	Sierra	11/9/2022	42	No	INC	15	6:00	21:00	-2.30	95060.40	0.00	225.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
86	RT	Planned Transmission Outage	PGAE	Sierra	11/15/2022	20 - 25	No	DEC	15	8:00	22:10	12.83	-1005.01	0.00	-2003.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
87	RT	Planned Transmission Outage	PGAE	Sierra	11/15/2022	20 - 25	No	INC	14	7:30	21:00	-2.26	2010.02	0.00	162.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
88	RT	Planned Transmission Outage	PGAE	Sierra	11/20/2022	20	No	DEC	1	21:00	22:00	-23.98	0.00	0.00	2094.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
89	RT	Planned Transmission Outage	PGAE	Sierra	11/20/2022	20	No	INC	4	20:00	23:30	-0.95	0.00	0.00	-158.95	0.00	0.00	0.00	0.00	0.00	0.00
90	RT	Planned Transmission Outage	PGAE	Sierra	11/28/2022	20	No	DEC	2	16:00	18:00	-45.41	0.00	0.00	4540.07	0.00	0.00	0.00	0.00	0.00	0.00
91	RT	Planned Transmission Outage	PGAE	Sierra	11/28/2022	20	No	INC	8	8:00	16:00	-17.01	0.00	0.00	1712.27	0.00	0.00	0.00	0.00	0.00	0.00
92	RT	Planned Transmission Outage	SCE	NA	11/7/2022	700	No	DEC	7	7:30	14:00	-10.62	-86800.30	0.00	675.19	-11.66	0.00	741.80	0.00	-69.78	0.00
93	RT	Planned Transmission Outage	SCE	NA	11/10/2022	5	No	DEC	2	18:30	19:45	-16.76	0.00	0.00	-6059.83	-24.34	0.00	-5403.79	0.00	-522.09	0.00
94	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/6/2022	38.38	Yes	INC	3	17:15	19:30	19.19	9244.08	1371.99	-1624.67	0.00	0.00	0.00	0.00	0.00	0.00
95	RT	Planned Transmission Outage	SDGE	San Diego-IV	11/7/2022	44	No	INC	2	19:55	21:00	-0.96	7471.08	788.20	95.02	0.00	0.00	0.00	0.00	0.00	0.00
96	RT	Ramping Capacity	PGAE	NA	11/3/2022	415	No	DEC	1	7:55	8:00	13.03	0.00	113.80	-9868.82	0.00	0.00	0.00	0.00	0.00	0.00
97	RT	Ramping Capacity	PGAE	NA	11/3/2022	415	No	INC	3	8:00	10:30	-3.82	32605.98	2048.49	-249.77	0.00	0.00	0.00	0.00	0.00	0.00
98	RT	Ramping Capacity	PGAE	NA	11/4/2022	49	No	DEC	3	17:00	20:00	-81.19	-44207.04	0.00	5460.24	0.00	0.00	0.00	0.00	0.00	0.00
99	RT	Ramping Capacity	PGAE	NA	11/4/2022	49	No	INC	5	12:40	17:00	-65.13	11509.29	0.00	4578.09	0.00	0.00	0.00	0.00	0.00	0.00
100	RT	Ramping Capacity	PGAE	NA	11/5/2022	48.95	No	DEC	6	12:55	18:20	-21.06	-65380.26	1476.69	2098.74	0.00	0.00	0.00	0.00	0.00	0.00
101	RT	Ramping Capacity	SDGE	San Diego-IV	11/28/2022	100 - 400	No	INC	6	16:15	22:00	125.54	20259.75	1429.31	-12193.96	99.47	-	9748.04	0.00	0.00	0.00
102	RT	Reliability Assessment	PGAE	Bay Area	11/28/2022	22	No	INC	5	17:50	22:00	193.74	0.00	0.00	-22265.11	0.00	0.00	0.00	0.00	0.00	0.00
103	RT	Reliability Assessment	PGAE	Bay Area	11/30/2022	64	No	INC	2	7:40	9:00	-9.53	15940.83	11277.66	1189.83	0.00	0.00	0.00	0.00	0.00	0.00
104	RT	Reliability Assessment	PGAE	Fresno	11/14/2022	5	No	DEC	1	12:50	13:00	-9.82	0.00	0.00	316.76	-4.23	0.00	-63.50	0.00	0.00	0.00
105	RT	Reliability Assessment	PGAE	Humboldt	11/1/2022	28 - 75	No	INC	9	10:55	19:00	7.13	10543.99	0.00	-466.11	0.00	0.00	0.00	0.00	0.00	0.00
106	RT	Reliability Assessment	PGAE	Humboldt	11/2/2022	15 - 45	No	INC	21	3:25	0:00	15.63	92126.42	0.00	-899.30	0.00	0.00	0.00	0.00	0.00	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
107	RT	Reliability Assessment	PGAE	Humboldt	11/3/2022	15	No	DEC	3	3:30	6:00	-4.07	334.14	0.00	325.04	0.00	0.00	0.00	0.00	0.00	0.00
108	RT	Reliability Assessment	PGAE	Humboldt	11/3/2022	30	No	INC	6	0:00	6:00	-0.07	20716.84	0.00	4.67	0.00	0.00	0.00	0.00	0.00	0.00
109	RT	Reliability Assessment	PGAE	Kern	11/4/2022	32	No	INC	1	23:40	23:45	2.67	0.00	0.00	-145.20	0.00	0.00	0.00	0.00	0.00	0.00
110	RT	Reliability Assessment	PGAE	Kern	11/5/2022	32 - 38.5	No	INC	7	1:00	8:00	24.99	28610.93	15629.50	-1550.86	2.99	-244.10	0.00	0.00	0.00	0.00
111	RT	Reliability Assessment	SCE	Big Creek-Ventura	11/8/2022	20	No	INC	6	18:10	0:00	-17.08	0.00	0.00	1388.96	-17.19	0.00	1363.04	0.00	0.00	0.00
112	RT	Reliability Assessment	SCE	Big Creek-Ventura	11/9/2022	20	No	INC	12	0:00	12:00	-35.22	0.00	0.00	2136.09	0.00	0.00	0.00	0.00	0.00	0.00
113	RT	Reliability Assessment	SCE	NA	11/1/2022	0	No	INC	1	14:25	14:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	RT	Software Limitation	PGAE	Bay Area	11/2/2022	0	No	INC	2	21:15	22:20	-30.00	0.00	0.00	0.00	-30.00	0.00	0.00	0.00	0.00	0.00
115	RT	Software Limitation	PGAE	Bay Area	11/4/2022	0	No	INC	2	5:05	6:10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116	RT	Software Limitation	PGAE	Bay Area	11/8/2022	510	No	INC	1	0:10	1:00	1.33	8488.70	0.00	-148.44	0.00	0.00	0.00	0.00	0.00	0.00
117	RT	Software Limitation	SCE	LA Basin	11/4/2022	0 - 90.58	No	INC	5	1:25	5:35	170.76	20740.48	0.00	-13446.50	0.07	-7.74	0.00	0.00	0.00	0.00
118	RT	Software Limitation	SCE	LA Basin	11/15/2022	0	No	INC	2	9:20	10:25	-151.49	11529.72	0.00	0.00	-151.49	0.00	0.00	0.00	0.00	0.00
119	RT	Software Limitation	SDGE	San Diego-IV	11/28/2022	125	No	INC	3	18:20	21:00	59.37	0.00	0.00	-5464.54	77.08	6670.25	0.00	0.00	0.00	0.00
120	RT	Unit Testing	PGAE	NA	11/22/2022	100	No	DEC	1	16:00	16:30	0.02	-20888.00	0.00	-1.69	0.00	0.00	0.00	0.00	0.00	0.00
121	RT	Unit Testing	PGAE	NA	11/22/2022	100	No	INC	1	15:00	16:00	45.29	0.00	0.00	-3038.62	0.00	0.00	0.00	0.00	0.00	0.00
122	RT	Unit Testing	SCE	NA	11/24/2022	176.1	No	INC	1	12:00	12:40	113.73	0.00	0.00	-463.41	113.73	-463.41	0.00	0.00	0.00	0.00
123	RT	Voltage Support	PGAE	Fresno	11/1/2022	-330	No	DEC	6	1:10	7:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
124	RT	Voltage Support	PGAE	Fresno	11/6/2022	-330	No	DEC	10	6:15	16:15	9.22	0.00	0.00	264.75	0.00	0.00	0.00	0.00	0.00	0.00



**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
125	RT	Voltage Support	PGAE	Fresno	11/6/2022	-330	No	INC	17	0:00	15:50	-37.19	0.00	0.00	2852.22	0.00	0.00	0.00	0.00	0.00	0.00
126	RT	Voltage Support	PGAE	Fresno	11/7/2022	-330	No	DEC	6	0:00	5:30	-77.17	0.00	0.00	5432.39	0.00	0.00	0.00	0.00	0.00	0.00
127	RT	Voltage Support	PGAE	Fresno	11/7/2022	-330	No	INC	8	0:00	8:00	-13.75	0.00	0.00	1398.57	0.00	0.00	0.00	0.00	0.00	0.00
128	RT	Voltage Support	PGAE	Fresno	11/8/2022	-330	No	INC	8	0:10	8:00	-261.25	0.00	0.00	22677.49	0.00	0.00	0.00	0.00	0.00	0.00
129	RT	Voltage Support	PGAE	Fresno	11/10/2022	-330	No	DEC	2	6:00	8:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	RT	Voltage Support	PGAE	Fresno	11/10/2022	-330	No	INC	4	2:30	6:00	-92.43	0.00	0.00	6733.13	0.00	0.00	0.00	0.00	0.00	0.00
131	RT	Voltage Support	PGAE	Fresno	11/12/2022	-330	No	DEC	1	6:00	7:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	RT	Voltage Support	PGAE	Fresno	11/12/2022	-330	No	INC	3	3:00	6:00	-463.95	5181.41	0.00	48465.66	-41.50	0.00	4308.73	0.00	0.00	0.00
133	RT	Voltage Support	PGAE	Fresno	11/15/2022	-330	No	DEC	6	1:30	7:00	-139.03	0.00	0.00	14573.28	0.00	0.00	0.00	0.00	0.00	0.00
134	RT	Voltage Support	PGAE	Fresno	11/16/2022	-330	No	DEC	7	0:00	7:00	-213.35	0.00	0.00	17773.22	0.00	0.00	0.00	0.00	0.00	0.00
135	RT	Voltage Support	PGAE	Fresno	11/17/2022	-330	No	DEC	7	0:15	7:00	14.39	0.00	0.00	-1462.01	0.00	0.00	0.00	0.00	0.00	0.00
136	RT	Voltage Support	PGAE	Fresno	11/17/2022	83	No	INC	4	20:55	0:00	-16.59	43048.85	0.00	1531.19	0.00	0.00	0.00	0.00	0.00	0.00
137	RT	Voltage Support	PGAE	Fresno	11/18/2022	-330	No	DEC	4	3:00	6:30	-146.06	0.00	0.00	15256.71	0.00	0.00	0.00	0.00	-5169.11	0.00
138	RT	Voltage Support	PGAE	Fresno	11/19/2022	-330	No	DEC	7	0:10	7:00	-485.10	6765.00	0.00	47275.56	-20.75	0.00	1939.90	0.00	0.00	0.00
139	RT	Voltage Support	PGAE	Fresno	11/20/2022	-330	No	DEC	7	2:20	9:00	-279.90	0.00	0.00	35910.55	0.00	0.00	0.00	0.00	0.00	0.00
140	RT	Voltage Support	PGAE	Fresno	11/21/2022	-330	No	DEC	6	0:05	5:30	-46.03	0.00	0.00	4842.08	0.00	0.00	0.00	0.00	0.00	0.00
141	RT	Voltage Support	PGAE	Fresno	11/21/2022	0 - 83	No	INC	3	0:25	2:35	-24.77	8087.39	0.00	1870.40	-27.67	0.00	2184.00	0.00	-2184.00	0.00
142	RT	Voltage Support	PGAE	Fresno	11/22/2022	-330	No	DEC	2	22:00	0:00	-92.94	0.00	0.00	9186.77	0.00	0.00	0.00	0.00	0.00	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
143	RT	Voltage Support	PGAE	Fresno	11/22/2022	-330	No	INC	7	0:00	7:00	-27.50	0.00	0.00	2788.62	0.00	0.00	0.00	0.00	0.00	0.00
144	RT	Voltage Support	PGAE	Fresno	11/23/2022	-330	No	INC	24	0:00	0:00	-30.61	0.00	0.00	2912.25	0.00	0.00	0.00	0.00	0.00	0.00
145	RT	Voltage Support	PGAE	Fresno	11/24/2022	-330	No	DEC	1	21:30	22:00	10.85	0.00	0.00	-1100.92	0.00	0.00	0.00	0.00	0.00	0.00
146	RT	Voltage Support	PGAE	Fresno	11/24/2022	-330	No	INC	24	0:00	0:00	-41.25	0.00	0.00	5620.09	0.00	0.00	0.00	0.00	0.00	0.00
147	RT	Voltage Support	PGAE	Fresno	11/25/2022	-330	No	DEC	24	0:00	0:00	-44.21	0.00	0.00	4832.85	0.00	0.00	0.00	0.00	0.00	0.00
148	RT	Voltage Support	PGAE	Fresno	11/25/2022	-330	No	INC	3	3:05	6:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149	RT	Voltage Support	PGAE	Fresno	11/26/2022	-330	No	DEC	14	0:00	14:00	-330.00	0.00	0.00	54448.54	0.00	0.00	0.00	0.00	0.00	0.00
150	RT	Voltage Support	PGAE	Sierra	11/1/2022	20	No	INC	6	0:30	6:00	10.58	0.00	0.00	-806.26	0.00	0.00	0.00	0.00	0.00	0.00
151	RT	Voltage Support	PGAE	Sierra	11/6/2022	20	No	DEC	1	21:00	22:00	-10.77	0.00	0.00	802.34	0.00	0.00	0.00	0.00	0.00	0.00
152	RT	Voltage Support	PGAE	Sierra	11/6/2022	20	No	INC	22	2:50	0:00	0.54	59626.35	0.00	-868.44	0.00	0.00	0.00	0.00	0.00	0.00
153	RT	Voltage Support	PGAE	Sierra	11/7/2022	20	No	DEC	1	5:00	6:00	4.23	0.00	0.00	-338.31	0.00	0.00	0.00	0.00	0.00	0.00
154	RT	Voltage Support	PGAE	Sierra	11/7/2022	20	No	INC	7	0:00	7:00	-9.06	3826.29	0.00	690.09	0.00	0.00	0.00	0.00	0.00	0.00
155	RT	Voltage Support	PGAE	Sierra	11/8/2022	20	No	INC	5	2:05	7:00	-3.51	3413.78	0.00	341.41	0.00	0.00	0.00	0.00	0.00	0.00
156	RT	Voltage Support	PGAE	Sierra	11/9/2022	20	No	INC	6	2:45	8:00	-8.84	6751.76	0.00	479.50	0.00	0.00	0.00	0.00	0.00	0.00
157	RT	Voltage Support	PGAE	Sierra	11/11/2022	20	No	DEC	3	21:00	0:00	1.97	0.00	0.00	-228.15	0.00	0.00	0.00	0.00	0.00	0.00
158	RT	Voltage Support	PGAE	Sierra	11/11/2022	20	No	INC	6	15:50	21:00	21.04	15561.16	0.00	-2047.37	0.00	0.00	0.00	0.00	0.00	0.00
159	RT	Voltage Support	PGAE	Sierra	11/12/2022	20	No	DEC	22	0:00	22:00	10.29	0.00	0.00	-1027.92	0.00	0.00	0.00	0.00	0.00	0.00
160	RT	Voltage Support	PGAE	Sierra	11/12/2022	20	No	INC	18	6:00	0:00	28.39	58307.40	0.00	-2819.57	0.00	0.00	0.00	0.00	0.00	0.00

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
January 15, 2023**

**Chart 2: Table of Exceptional Dispatches for Period 01/November/2022 – 30/November/2022**

Number	Market Type	Reason	Location	Local Reliability Area	Trade Date	MW	Commitment	INC_DEC	Hours	Begin Time	End Time	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488	CC6620
161	RT	Voltage Support	PGAE	Sierra	11/13/2022	20	No	DEC	3	21:00	0:00	1.97	0.00	0.00	-207.91	0.00	0.00	0.00	0.00	0.00	0.00
162	RT	Voltage Support	PGAE	Sierra	11/13/2022	20	No	INC	21	0:00	21:00	63.63	54420.24	0.00	-6098.79	0.00	0.00	0.00	0.00	0.00	0.00
163	RT	Voltage Support	PGAE	Sierra	11/14/2022	20	Yes	DEC	24	0:00	0:00	7.42	0.00	0.00	-796.80	0.00	0.00	0.00	0.00	0.00	0.00
164	RT	Voltage Support	PGAE	Sierra	11/14/2022	20	Yes	INC	19	2:00	21:00	-23.22	21485.00	0.00	1822.15	0.00	0.00	0.00	0.00	0.00	0.00
165	RT	Voltage Support	PGAE	Sierra	11/15/2022	20 - 25	No	DEC	24	0:00	0:00	22.33	0.00	0.00	-2019.92	0.00	0.00	0.00	0.00	0.00	0.00
166	RT	Voltage Support	PGAE	Sierra	11/16/2022	20	Yes	DEC	6	0:00	6:00	8.76	0.00	0.00	-835.42	0.00	0.00	0.00	0.00	0.00	0.00
167	RT	Voltage Support	PGAE	Sierra	11/16/2022	20	Yes	INC	1	6:00	7:00	-0.74	4113.79	0.00	81.91	0.00	0.00	0.00	0.00	0.00	0.00
168	RT	Voltage Support	PGAE	Sierra	11/20/2022	20	Yes	INC	8	12:25	20:00	-32.00	28725.66	730.72	2715.58	0.00	0.00	0.00	0.00	0.00	0.00
169	RT	Voltage Support	PGAE	Sierra	11/25/2022	20	No	INC	17	1:55	18:00	-48.73	57900.08	0.00	4713.46	0.00	0.00	0.00	0.00	0.00	0.00
170	RT	Voltage Support	PGAE	Sierra	11/26/2022	20	No	INC	16	2:00	18:00	69.01	56251.69	0.00	-9939.54	0.00	0.00	0.00	0.00	0.00	0.00
171	RT	Voltage Support	PGAE	NA	11/5/2022	48.95	No	DEC	9	13:15	22:00	-29.95	-92756.57	1286.15	2743.35	0.00	0.00	0.00	0.00	0.00	0.00
172	RT	Voltage Support	PGAE	NA	11/5/2022	48.95	No	INC	2	22:00	0:00	-13.62	10782.24	0.00	891.55	0.00	0.00	0.00	0.00	0.00	0.00
173	RT	Voltage Support	PGAE	NA	11/6/2022	48.95	No	DEC	23	0:00	22:00	-80.33	-8638.85	0.00	22601.73	0.00	0.00	0.00	0.00	0.00	0.00
174	RT	Voltage Support	PGAE	NA	11/6/2022	48.95	No	INC	2	22:00	0:00	-13.34	10782.24	0.00	883.78	0.00	0.00	0.00	0.00	0.00	0.00
175	RT	Voltage Support	PGAE	NA	11/7/2022	48.95	No	DEC	2	5:00	7:00	-1.11	-41244.83	0.00	73.56	0.00	0.00	0.00	0.00	0.00	0.00
176	RT	Voltage Support	PGAE	NA	11/7/2022	48.95	No	INC	5	0:00	5:00	11.92	10782.24	0.00	-893.52	0.00	0.00	0.00	0.00	0.00	0.00

## Appendix A: Explanation by Example

All examples listed below are based on fictitious data. Many simplified assumptions are made to explain settlement charge codes, and not all assumptions are explicitly stated in these examples. For instance, settlement charge codes are calculated based on metered quantities, whereas in these examples, the dispatch quantities are assumed to be equal to metered quantities. These assumptions have been made to simplify the understanding of settlements calculations.

### 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 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 in Table 2. Exceptional dispatches prior to the day-ahead market are commitments to minimum load. Here the dispatch levels are all at minimum load. Table 2 below also shows the commitment costs and the total volume (MWh) of exceptional dispatch instruction for each resource. The minimum load costs and start up costs, shown in Table 2 are the eligible minimum load and start up costs different from the bid-in minimum load and start up costs<sup>7</sup>. Only those quantities which relate to pre-day-ahead unit commitments are shown in this table.

**Table 2: Instructions Prior to Day-Ahead Market**

Date	Market	Resource	Location	Local Reliability Area (LRA)	Begin Time	End Time	Dispatch level (MW)	Reason	Total Volume (MWh)	Min-Load Cost	Start- Up Cost	CC6620 (BCR)
01-Jul-09	DA	A	SCE	LA BASIN	05:00	10:00	50	7630	300	\$5000	\$0	0
01-Jul-09	DA	B	SCE	LA BASIN	08:00	20:00	30	7630	390	\$6000	\$500	\$4000
01-Jul-09	DA	C	SCE	LA BASIN	09:00	23:00	20	7630	300	\$400	\$1000	\$1000

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 there might be hours between the begin time and the end time where there might not be exceptional dispatch instructions for the reason, meaning that the range between the begin time and end time can include null hours with no dispatch. The total volume (MWh) is the MWh quantity for each resource, which adds up to 990 MWh. Similarly, all cost information is sum of individual resource costs. Some resources bid-in zero start-up cost; as seen in this example, resource A bid in zero for its start up cost. Since the CAISO does not explicitly pay a resource for bid-in minimum load costs and start-up costs; these costs are recovered through the charge code CC6620 (Bid Cost Recovery), this table shows the summary of CC6620 for the classification. Here, it is the CC6620 for all three resources which adds up to \$5000. This column shows the impact of exceptional dispatch on bid cost recovery for all pre-day-ahead exceptional dispatch commitments.

**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	Total Volume (MWh)	Min-Load Cost	Start-Up Cost	CC6620
1	DA	7630	SCE	LA Basin	1-Jul-09	20-100	Yes	N/A	19	05:00	23:00	990	\$11,400	\$1,500	\$5000

### 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 6:00 through 11:00 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 7:00

<sup>7</sup> Please refer to the BPM configuration Guide: Bid Cost Recovery Settlements published on the CAISO's website for details about eligible minimum load and start up costs.

through 9:00 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 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. This table also shows volume (MWh) and various real-time charge codes associated with the exceptional dispatch instructions. The total MWh column for each resource shows all types of imbalance energy quantities for this resource between the begin time and end time which includes both the exceptional dispatch energy quantities and optimal energy quantities.

Resource A was committed at its Pmin so its total volume (MWh) is equal to its Pmin times the number of hours, which is calculated as 30 MW times 6 hours and is equal to 180 MWh. The resource Minimum load costs and the start up costs are its eligible commitment costs for that period. LMP at this resource is \$10/MWh, so the charge code CC6470 is calculated at (180 MWh \*\$10/MWh) and is equal to \$1,800. Since this resource is not dispatched above its Pmin, it has a zero volume (MWh) of exceptional dispatch. All charge codes associated with the exceptional dispatch increment or decrement quantities are zero.

Resource B is dispatched 20 MW above its day-ahead schedule, so its total volume (MWh) is calculated as 20 MW times 3 hours which is equal to 60 MWh. Since the resource was committed in the Day-Ahead Market there are no minimum load quantity and start up costs associated with this resource. The resource had a bid price of \$100/MWh and the LMP at that resource was \$10/MWh. All of 60 MWh is considered as exceptional dispatch incremental quantity shown in ED Volume (MWH INC/DEC) column. The charge code CC6470 INC is calculated as 60 MWh \* resource LMP (\$10/MWh) which is equal to \$600. Since the only imbalance energy in this timeframe was the exceptional dispatch volume, the charge code CC6470 is equal to CC6470 INC. The charge code CC6488 is calculated as MWH quantity \*(bid price – LMP), which is equal to \$5400 (60 MWh \*(\$10/MWh-\$100/MWh)). Similarly, volumes and real-time charge codes are calculated for resource C.

**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	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1-Jul-09	RT	A	PG&E	Humboldt	6:00	11:00	30	0	Yes	INC	30	7110	180	1000	50	1800	0	0	0	0	0
1-Jul-09	RT	B	PG&E	Humboldt	7:00	9:00	40	20	No	INC	20	7110	60	0	0	600	60	600	0	0	5400
1-Jul-09	RT	C	PG&E	Humboldt	12:00	15:00	50	50	No	INC	0	7110	0	0	0	0	0	0	0	0	0
1-Jul-09	RT	C	PG&E	Humboldt	16:00	20:00	50	40	No	INC	10	7110	50	0	0	300	20	300	0	0	200

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, 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 there might be hours between the begin time and end time where there were no exceptional dispatch instructions for the reason. Both volume and cost information columns are the summation for all the respective columns for resources A, B and C. For instance, the Total volume (MWh) column is calculated as summation of 180,60,0 and 50, which are the individual volumes (MWh) for resources A, B and C for time periods shown in Table 4.

**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	Total MWh	Min Load Cost	Start Up Cost	CC6470	ED MWh (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1	RT	7110	PG&E	Humboldt	1-Jul-09	0-50	Yes	INC	15	6:00	20:00	290	1000	50	1700	140	1500	0	0	11000

It is possible that the CAISO would dispatch a particular resource, for instance at 10 MW from hours ending 1 through 4, and all or part of its energy might settle as optimal energy. This situation occurs when the LMP at the resource pricing node is above the resource bid price. This cost will only be captured in charge code 6470. It is also possible that CAISO issues an exceptional dispatch for the resource to operate at a minimum of 10 MW which is its Pmin; however the market application might dispatch this resource above Pmin because the resource is economical. When this occurs, the charge code CC6470 and the total MWh quantity might overstate the actual exceptional dispatch MWh quantities. So, to best estimate the cost and volume (MWh) of exceptional dispatch, it is appropriate to consider only the following columns: ED MWh (INC/DEC), CC6470 INC, CC6470 DEC, CC6482, CC6488.

**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. This table also includes volume (MWh) and cost information.

Resource A is committed in real-time at its Pmin, its total volume (MWh) is 20MW \*6 hours which is equal to 120 MWh. This resource has a zero MW of incremental dispatch in all hours, so all other relevant cost and volume columns result in zeros. Resource B has a decremental MW of 20 MW in 3 hours, which results in 60 MWh of decremental volume. Since this resource is not committed in real-time, both the minimum load cost and start up costs are zero. This resource had a bid price of \$50/MWh and LMP at the resource pricing node is \$10/ MWh. Based on this information CC6470-Dec is calculated as 60 MWh \*\$10/MWh which is equal to \$600. Since this resource has its ED volume (MWh) equal to its Total volume, CC6470 is equal to CC6470- DEC. The CC6488 is calculated as (60 MWh \* (\$50/MWh - \$10/MWh)), which is equal to \$2400. Resource C had a bid price of \$10/MWh and the LMP at its pricing node is \$50/MWh. Based on this information, volume and cost information is calculated for resource C.

**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	Total MWh	Min Load Cost	Start Up Cost	CC6470	ED MWh (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1-Jul-09	RT	A	PG&E	Fresno	15:00	20:00	20	0	Yes	INC	20	7430	120	\$ 120	\$ 100	\$ -	0	\$ -	\$ -	\$ -	\$ -
1-Jul-09	RT	B	PG&E	Fresno	7:00	9:00	40	60	No	DEC	20	7430	(60)	\$ -	\$ -	\$ 600	-60	\$ -	\$ 600	\$ -	\$2,400
1-Jul-09	RT	C	PG&E	Fresno	10:00	14:00	40	50	No	DEC	10	7430	(50)	\$ -	\$ -	\$ 500	-50	\$ -	\$ 500	\$ -	\$2,000

This data is summarized according to FERC convention in Table 7. This summary classifies the data by reason, resource location, local reliability area, and trade date. Incs and decs 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. The volume and cost information are summarized by INC and DEC classification.

**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	Total MWH	Min Load Cost	Start Up Cost	CC6470	ED MWH (INC/DEC)	CC6470 INC	CC6470 DEC	CC6482	CC6488
1	RT	7430	PG&E	Fresno	1-Jul-09	20	Yes	INC	6	15:00	20:00	120	\$ 120	\$ 100	\$ -	0	\$ -	\$ -	\$ -	\$ -
2	RT	7430	PG&E	Fresno	1-Jul-09	10-20	Yes	DEC	8	7:00	14:00	(110)	\$ -	\$ -	\$ (1,100)	\$ (110)	\$ -	\$ (1,100)	\$ -	\$ (4,400)

## Appendix B: Price Impact Analysis

In the September 2 FERC order, FERC requested the CAISO to perform price impact analysis on two distinct pricing nodes for the entire reporting period. The order also mentioned that the CAISO must pick two pricing nodes for the entire reporting period that are most affected by the exceptional dispatch instructions, and the two pricing nodes must belong to two load aggregation points (LAPs).

Based on this requirement the CAISO implemented a methodology to perform price impact analysis. First, the CAISO identified a heavily affected pricing node from each of the Pacific Gas & Electric (PG&E) LAP and Southern California Edison (SCE) LAP. These two pricing nodes had the maximum amount of exceptional dispatch volume (MWh) in their respective LAP. Point A is in PG&E LAP and point B is in SCE LAP. Please note these two points correspond to an actual pricing node in the CAISO system. Only one resource was connected to each of these pricing nodes. For each resource the following input parameters were obtained to perform the analysis:

Exceptional dispatch information: constrained level, constraint type, start of exceptional dispatch instruction and end of exceptional dispatch instruction.  
 Real-Time LMPs for each of the five minute intervals for the month.  
 Real-Time hourly bid set for each trade hour.  
 Day-Ahead award for the resources.

The exceptional dispatch intervals have a begin time and an end time which can span as small as one minute to as large as 24 hours. Since the market application dispatches resources on five-minute basis, the exceptional dispatch instructions for each of these resources were broken down into five-minute intervals. If the begin time or end time for an instruction was in the middle of the five-minute interval, that instruction was rounded up to the next five-minute interval. These five-minute intervals were then coupled with resource five-minute LMPs calculated by the real-time market application. Also, the hourly bid information and the hourly day-ahead schedule were put together to create a dataset that had all the information to perform price impact analysis.

An exceptional dispatch instruction can be classified as a start up instruction, an instruction to be dispatched at or above the constrained level, an instruction to be dispatched at or below a constrained level, an instruction to be dispatched at a fixed constrained level, or a shut down instruction. The Locational Marginal Price (LMP) is set by a resource which can provide the next incremental MW of energy. Based on this definition of LMP and the classification of exceptional dispatches based on constraint type, a resource may set the LMP in only those intervals in which the resource is eligible to move either up or down from its constrained level. Hence, in those intervals in which the resource was constrained up at its Pmax or the resource was exceptionally dispatched to its Pmax and forced to generate at that level, the resource was ineligible to set the price as it had no room to move up. Similarly, if the resource was constrained down at its Pmin, then the resource was not eligible to set the price. All those intervals in which the resource was ineligible to set the price were dropped from the dataset under consideration. From this dataset of only eligible intervals, for both pricing nodes A and B, LMPs were calculated for all intervals based on the resource dispatch level and the its bid set. The calculated LMP is equal to that bid price corresponding to the constrained MW segment.

Table 8 shows the price impact analysis information for node A, which is in the PG&E area. This table shows all the five minute intervals in which the resource at PNode A was issued an exceptional dispatch instruction and was eligible to set the price. Out of the 8,652 five-minute intervals in November, this resource was issued exceptional dispatch instructions in 1,363 five-minute intervals. This resource was eligible to set the LMP in 1,363 intervals. Out of the 1,363 intervals, resource calculated LMP was larger than the market LMP in 65 intervals. In the 65 interval, the average increase in five minute LMP was \$0.28/MWh. Out of the 1,363 intervals, resource calculated LMP was less than the market LMP in 1,298 intervals. This implies that if the CAISO could model the constraint for this exceptional dispatch, then this resource and all other pricing nodes associated with that constraint would observe an average decrease of \$93.32/MWh.

Table 9 shows the price impact analysis information for node B, which is in the SCE area. This table shows all the five minute intervals in which the resource at PNode B was issued an exceptional dispatch instruction and was eligible to set the price. Out of the 8,652 five-minute intervals in November, this resource was issued exceptional dispatch instructions in 8 five-minute intervals. This resource was eligible to set the LMP in 8 intervals. Out of the 8 intervals, resource calculated LMP was larger than the market LMP in 0 intervals. In the 8 intervals, the average increase in five minute LMP was \$98.62/MWh. This implies that if the CAISO could model the constraint for this exceptional dispatch, then this resource and all other pricing nodes associated with that constraint would observe an average decrease of \$98.62/MWh.



**Table 8: Price Impact Analysis Information for Pricing Node A in PG&E LAP**

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1	11/1/2022	6	12	96.21	Yes	-15.00	-111.21
2	11/1/2022	7	1	82.47	Yes	-15.00	-97.47
3	11/1/2022	7	2	78.77	Yes	-15.00	-93.77
4	11/1/2022	7	3	75.51	Yes	-15.00	-90.51
5	11/1/2022	7	4	75.51	Yes	-15.00	-90.51
6	11/1/2022	7	5	78.77	Yes	-15.00	-93.77
7	11/1/2022	7	6	81.78	Yes	-15.00	-96.78
8	11/1/2022	7	7	83.09	Yes	-15.00	-98.09
9	11/1/2022	7	8	83.07	Yes	-15.00	-98.07
10	11/1/2022	7	9	82.99	Yes	-15.00	-97.99
11	11/1/2022	7	10	-15.15	Yes	-15.00	0.15
12	11/1/2022	7	11	-15.13	Yes	-15.00	0.13
13	11/1/2022	7	12	-15.15	Yes	-15.00	0.15
14	11/1/2022	8	1	79.86	Yes	-15.00	-94.86
15	11/1/2022	8	2	81.00	Yes	-15.00	-96.00
16	11/1/2022	8	3	79.43	Yes	-15.00	-94.43
17	11/1/2022	8	4	79.46	Yes	-15.00	-94.46
18	11/1/2022	8	5	90.01	Yes	-15.00	-105.01
19	11/1/2022	8	6	103.86	Yes	-15.00	-118.86
20	11/1/2022	8	7	197.63	Yes	-15.00	-212.63
21	11/1/2022	8	8	123.49	Yes	-15.00	-138.49
22	11/1/2022	8	9	184.45	Yes	-15.00	-199.45
23	11/1/2022	8	10	184.45	Yes	-15.00	-199.45
24	11/1/2022	8	11	111.43	Yes	-15.00	-126.43
25	11/1/2022	8	12	111.14	Yes	-15.00	-126.14
26	11/1/2022	9	1	165.53	Yes	-15.00	-180.53
27	11/1/2022	9	2	124.87	Yes	-15.00	-139.87
28	11/1/2022	9	3	94.77	Yes	-15.00	-109.77
29	11/1/2022	9	4	90.35	Yes	-15.00	-105.35
30	11/1/2022	9	5	86.52	Yes	-15.00	-101.52
31	11/1/2022	9	6	80.03	Yes	-15.00	-95.03
32	11/1/2022	9	7	80.09	Yes	-15.00	-95.09
33	11/1/2022	9	8	79.31	Yes	-15.00	-94.31
34	11/1/2022	9	9	80.11	Yes	-15.00	-95.11

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
35	11/1/2022	9	10	71.45	Yes	-15.00	-86.45
36	11/1/2022	9	11	69.74	Yes	-15.00	-84.74
37	11/1/2022	9	12	69.31	Yes	-15.00	-84.31
38	11/1/2022	10	1	73.52	Yes	-15.00	-88.52
39	11/1/2022	10	2	79.07	Yes	-15.00	-94.07
40	11/1/2022	10	3	75.42	Yes	-15.00	-90.42
41	11/1/2022	10	4	75.63	Yes	-15.00	-90.63
42	11/1/2022	10	5	79.38	Yes	-15.00	-94.38
43	11/1/2022	10	6	79.37	Yes	-15.00	-94.37
44	11/1/2022	10	7	78.18	Yes	-15.00	-93.18
45	11/1/2022	10	8	78.64	Yes	-15.00	-93.64
46	11/1/2022	10	9	80.11	Yes	-15.00	-95.11
47	11/1/2022	10	10	80.48	Yes	-15.00	-95.48
48	11/1/2022	10	11	80.48	Yes	-15.00	-95.48
49	11/1/2022	10	12	80.48	Yes	-15.00	-95.48
50	11/1/2022	11	1	83.20	Yes	-15.00	-98.20
51	11/1/2022	11	2	80.12	Yes	-15.00	-95.12
52	11/1/2022	11	3	70.77	Yes	-15.00	-85.77
53	11/1/2022	11	4	68.90	Yes	-15.00	-83.90
54	11/1/2022	11	5	63.08	Yes	-15.00	-78.08
55	11/1/2022	11	6	64.14	Yes	-15.00	-79.14
56	11/1/2022	11	7	67.17	Yes	-15.00	-82.17
57	11/1/2022	11	8	63.60	Yes	-15.00	-78.60
58	11/1/2022	11	9	64.36	Yes	-15.00	-79.36
59	11/1/2022	11	10	63.60	Yes	-15.00	-78.60
60	11/1/2022	11	11	71.09	Yes	-15.00	-86.09
61	11/1/2022	11	12	72.88	Yes	-15.00	-87.88
62	11/1/2022	12	1	78.25	Yes	-15.00	-93.25
63	11/1/2022	12	2	71.87	Yes	-15.00	-86.87
64	11/1/2022	12	3	66.29	Yes	-15.00	-81.29
65	11/1/2022	12	4	69.64	Yes	-15.00	-84.64
66	11/1/2022	12	5	68.02	Yes	-15.00	-83.02
67	11/1/2022	12	6	70.03	Yes	-15.00	-85.03
68	11/1/2022	12	7	71.63	Yes	-15.00	-86.63
69	11/1/2022	12	8	69.80	Yes	-15.00	-84.80
70	11/1/2022	12	9	64.00	Yes	-15.00	-79.00
71	11/1/2022	12	10	65.23	Yes	-15.00	-80.23
72	11/1/2022	12	11	66.45	Yes	-15.00	-81.45

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
73	11/1/2022	12	12	74.77	Yes	-15.00	-89.77
74	11/1/2022	13	1	81.77	Yes	-15.00	-96.77
75	11/1/2022	13	2	80.81	Yes	-15.00	-95.81
76	11/1/2022	13	3	73.61	Yes	-15.00	-88.61
77	11/1/2022	13	4	71.92	Yes	-15.00	-86.92
78	11/1/2022	13	5	78.44	Yes	-15.00	-93.44
79	11/1/2022	13	6	75.51	Yes	-15.00	-90.51
80	11/1/2022	13	7	80.32	Yes	-15.00	-95.32
81	11/1/2022	13	8	82.81	Yes	-15.00	-97.81
82	11/1/2022	13	9	79.09	Yes	-15.00	-94.09
83	11/1/2022	13	10	75.39	Yes	-15.00	-90.39
84	11/1/2022	13	11	70.07	Yes	-15.00	-85.07
85	11/1/2022	13	12	83.03	Yes	-15.00	-98.03
86	11/1/2022	14	1	69.43	Yes	-15.00	-84.43
87	11/1/2022	14	2	71.77	Yes	-15.00	-86.77
88	11/1/2022	14	3	75.47	Yes	-15.00	-90.47
89	11/1/2022	14	4	91.17	Yes	-15.00	-106.17
90	11/1/2022	14	5	80.52	Yes	-15.00	-95.52
91	11/1/2022	14	6	80.73	Yes	-15.00	-95.73
92	11/1/2022	14	7	82.30	Yes	-15.00	-97.30
93	11/1/2022	14	8	77.23	Yes	-15.00	-92.23
94	11/1/2022	14	9	83.09	Yes	-15.00	-98.09
95	11/1/2022	14	10	89.97	Yes	-15.00	-104.97
96	11/1/2022	14	11	93.04	Yes	-15.00	-108.04
97	11/1/2022	14	12	93.66	Yes	-15.00	-108.66
98	11/1/2022	15	1	84.88	Yes	-15.00	-99.88
99	11/1/2022	15	2	89.81	Yes	-15.00	-104.81
100	11/1/2022	15	3	82.58	Yes	-15.00	-97.58
101	11/1/2022	15	4	82.55	Yes	-15.00	-97.55
102	11/1/2022	15	5	85.93	Yes	-15.00	-100.93
103	11/1/2022	15	6	85.27	Yes	-15.00	-100.27
104	11/1/2022	15	7	82.03	Yes	-15.00	-97.03
105	11/1/2022	15	8	68.37	Yes	-15.00	-83.37
106	11/1/2022	15	9	66.40	Yes	-15.00	-81.40
107	11/1/2022	15	10	68.95	Yes	-15.00	-83.95
108	11/1/2022	15	11	71.72	Yes	-15.00	-86.72
109	11/1/2022	15	12	75.65	Yes	-15.00	-90.65
110	11/1/2022	16	1	67.53	Yes	-15.00	-82.53

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
111	11/1/2022	16	2	74.66	Yes	-15.00	-89.66
112	11/1/2022	16	3	67.44	Yes	-15.00	-82.44
113	11/1/2022	16	4	59.42	Yes	-15.00	-74.42
114	11/1/2022	16	5	45.65	Yes	-15.00	-60.65
115	11/1/2022	16	6	58.56	Yes	-15.00	-73.56
116	11/1/2022	16	7	48.47	Yes	-15.00	-63.47
117	11/1/2022	16	8	47.01	Yes	-15.00	-62.01
118	11/1/2022	16	9	48.36	Yes	-15.00	-63.36
119	11/1/2022	16	10	45.82	Yes	-15.00	-60.82
120	11/1/2022	16	11	45.60	Yes	-15.00	-60.60
121	11/1/2022	16	12	50.09	Yes	-15.00	-65.09
122	11/1/2022	17	1	46.96	Yes	-15.00	-61.96
123	11/1/2022	17	2	46.41	Yes	-15.00	-61.41
124	11/1/2022	17	3	50.68	Yes	-15.00	-65.68
125	11/1/2022	17	4	52.00	Yes	-15.00	-67.00
126	11/1/2022	17	5	54.20	Yes	-15.00	-69.20
127	11/1/2022	17	6	54.63	Yes	-15.00	-69.63
128	11/1/2022	17	7	61.78	Yes	-15.00	-76.78
129	11/1/2022	17	8	67.36	Yes	-15.00	-82.36
130	11/1/2022	17	9	72.86	Yes	-15.00	-87.86
131	11/1/2022	17	10	79.52	Yes	-15.00	-94.52
132	11/1/2022	17	11	79.99	Yes	-15.00	-94.99
133	11/1/2022	17	12	83.09	Yes	-15.00	-98.09
134	11/1/2022	18	1	61.97	Yes	-15.00	-76.97
135	11/1/2022	18	2	62.51	Yes	-15.00	-77.51
136	11/1/2022	18	3	63.58	Yes	-15.00	-78.58
137	11/1/2022	18	4	70.39	Yes	-15.00	-85.39
138	11/1/2022	18	5	72.77	Yes	-15.00	-87.77
139	11/1/2022	18	6	74.49	Yes	-15.00	-89.49
140	11/1/2022	18	7	85.00	Yes	-15.00	-100.00
141	11/1/2022	18	8	85.99	Yes	-15.00	-100.99
142	11/1/2022	18	9	85.46	Yes	-15.00	-100.46
143	11/1/2022	18	10	89.14	Yes	-15.00	-104.14
144	11/1/2022	18	11	88.00	Yes	-15.00	-103.00
145	11/1/2022	18	12	88.00	Yes	-15.00	-103.00
146	11/1/2022	19	1	72.65	Yes	-15.00	-87.65
147	11/1/2022	19	2	71.75	Yes	-15.00	-86.75
148	11/1/2022	19	3	71.03	Yes	-15.00	-86.03

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
149	11/1/2022	19	4	72.06	Yes	-15.00	-87.06
150	11/1/2022	19	5	72.14	Yes	-15.00	-87.14
151	11/1/2022	19	6	72.35	Yes	-15.00	-87.35
152	11/1/2022	19	7	74.07	Yes	-15.00	-89.07
153	11/1/2022	19	8	72.24	Yes	-15.00	-87.24
154	11/1/2022	19	9	73.08	Yes	-15.00	-88.08
155	11/1/2022	19	10	73.13	Yes	-15.00	-88.13
156	11/1/2022	19	11	73.13	Yes	-15.00	-88.13
157	11/1/2022	19	12	73.45	Yes	-15.00	-88.45
158	11/1/2022	20	1	73.43	Yes	-15.00	-88.43
159	11/1/2022	20	2	71.69	Yes	-15.00	-86.69
160	11/1/2022	20	3	71.67	Yes	-15.00	-86.67
161	11/1/2022	20	4	71.63	Yes	-15.00	-86.63
162	11/1/2022	20	5	71.63	Yes	-15.00	-86.63
163	11/1/2022	20	6	71.63	Yes	-15.00	-86.63
164	11/1/2022	20	7	71.50	Yes	-15.00	-86.50
165	11/1/2022	20	8	71.50	Yes	-15.00	-86.50
166	11/1/2022	20	9	71.50	Yes	-15.00	-86.50
167	11/1/2022	20	10	71.25	Yes	-15.00	-86.25
168	11/1/2022	20	11	71.73	Yes	-15.00	-86.73
169	11/1/2022	20	12	71.31	Yes	-15.00	-86.31
170	11/1/2022	21	1	72.18	Yes	-15.00	-87.18
171	11/1/2022	21	2	72.03	Yes	-15.00	-87.03
172	11/1/2022	21	3	71.73	Yes	-15.00	-86.73
173	11/1/2022	21	4	72.15	Yes	-15.00	-87.15
174	11/1/2022	21	5	72.15	Yes	-15.00	-87.15
175	11/1/2022	21	6	71.81	Yes	-15.00	-86.81
176	11/1/2022	21	7	72.38	Yes	-15.00	-87.38
177	11/1/2022	21	8	71.52	Yes	-15.00	-86.52
178	11/1/2022	21	9	70.17	Yes	-15.00	-85.17
179	11/1/2022	21	10	69.21	Yes	-15.00	-84.21
180	11/1/2022	21	11	68.54	Yes	-15.00	-83.54
181	11/1/2022	21	12	68.03	Yes	-15.00	-83.03
182	11/1/2022	22	1	73.54	Yes	-15.00	-88.54
183	11/1/2022	22	2	72.71	Yes	-15.00	-87.71
184	11/1/2022	22	3	72.00	Yes	-15.00	-87.00
185	11/1/2022	22	4	71.15	Yes	-15.00	-86.15
186	11/1/2022	22	5	71.83	Yes	-15.00	-86.83

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
187	11/1/2022	22	6	71.29	Yes	-15.00	-86.29
188	11/1/2022	22	7	70.50	Yes	-15.00	-85.50
189	11/1/2022	22	8	65.91	Yes	-15.00	-80.91
190	11/1/2022	22	9	68.43	Yes	-15.00	-83.43
191	11/1/2022	22	10	68.92	Yes	-15.00	-83.92
192	11/1/2022	22	11	65.44	Yes	-15.00	-80.44
193	11/1/2022	22	12	64.17	Yes	-15.00	-79.17
194	11/1/2022	23	1	63.96	Yes	-15.00	-78.96
195	11/1/2022	23	2	61.56	Yes	-15.00	-76.56
196	11/1/2022	23	3	60.77	Yes	-15.00	-75.77
197	11/1/2022	23	4	58.49	Yes	-15.00	-73.49
198	11/1/2022	23	5	58.68	Yes	-15.00	-73.68
199	11/1/2022	23	6	59.67	Yes	-15.00	-74.67
200	11/1/2022	23	7	61.97	Yes	-15.00	-76.97
201	11/1/2022	23	8	63.72	Yes	-15.00	-78.72
202	11/1/2022	23	9	64.78	Yes	-15.00	-79.78
203	11/1/2022	23	10	61.72	Yes	-15.00	-76.72
204	11/1/2022	23	11	61.77	Yes	-15.00	-76.77
205	11/1/2022	23	12	62.15	Yes	-15.00	-77.15
206	11/1/2022	24	1	64.90	Yes	-15.00	-79.90
207	11/1/2022	24	2	62.71	Yes	-15.00	-77.71
208	11/1/2022	24	3	61.55	Yes	-15.00	-76.55
209	11/1/2022	24	4	60.27	Yes	-15.00	-75.27
210	11/1/2022	24	5	61.62	Yes	-15.00	-76.62
211	11/1/2022	24	6	61.55	Yes	-15.00	-76.55
212	11/1/2022	24	7	62.13	Yes	-15.00	-77.13
213	11/1/2022	24	8	60.65	Yes	-15.00	-75.65
214	11/1/2022	24	9	57.21	Yes	-15.00	-72.21
215	11/1/2022	24	10	56.45	Yes	-15.00	-71.45
216	11/1/2022	24	11	55.76	Yes	-15.00	-70.76
217	11/1/2022	24	12	54.25	Yes	-15.00	-69.25
218	11/2/2022	1	1	57.16	Yes	-15.00	-72.16
219	11/2/2022	1	2	58.84	Yes	-15.00	-73.84
220	11/2/2022	1	3	58.15	Yes	-15.00	-73.15
221	11/2/2022	1	4	56.48	Yes	-15.00	-71.48
222	11/2/2022	1	5	55.84	Yes	-15.00	-70.84
223	11/2/2022	1	6	52.67	Yes	-15.00	-67.67
224	11/2/2022	1	7	52.96	Yes	-15.00	-67.96

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
225	11/2/2022	1	8	52.51	Yes	-15.00	-67.51
226	11/2/2022	1	9	51.52	Yes	-15.00	-66.52
227	11/2/2022	1	10	51.37	Yes	-15.00	-66.37
228	11/2/2022	1	11	50.28	Yes	-15.00	-65.28
229	11/2/2022	1	12	50.11	Yes	-15.00	-65.11
230	11/2/2022	2	1	56.01	Yes	-15.00	-71.01
231	11/2/2022	2	2	56.01	Yes	-15.00	-71.01
232	11/2/2022	2	3	55.24	Yes	-15.00	-70.24
233	11/2/2022	2	4	54.73	Yes	-15.00	-69.73
234	11/2/2022	2	5	54.88	Yes	-15.00	-69.88
235	11/2/2022	2	6	54.52	Yes	-15.00	-69.52
236	11/2/2022	2	7	54.93	Yes	-15.00	-69.93
237	11/2/2022	2	8	55.16	Yes	-15.00	-70.16
238	11/2/2022	2	9	55.41	Yes	-15.00	-70.41
239	11/2/2022	2	10	55.56	Yes	-15.00	-70.56
240	11/2/2022	2	11	55.56	Yes	-15.00	-70.56
241	11/2/2022	2	12	54.65	Yes	-15.00	-69.65
242	11/2/2022	3	1	49.00	Yes	-15.00	-64.00
243	11/2/2022	3	2	50.34	Yes	-15.00	-65.34
244	11/2/2022	3	3	50.76	Yes	-15.00	-65.76
245	11/2/2022	3	4	-15.09	Yes	-15.00	0.09
246	11/2/2022	3	5	-15.09	Yes	-15.00	0.09
247	11/2/2022	3	6	-15.10	Yes	-15.00	0.10
248	11/2/2022	3	7	-10.02	Yes	-15.00	-4.98
249	11/2/2022	3	8	-10.02	Yes	-15.00	-4.98
250	11/2/2022	3	9	-10.05	Yes	-15.00	-4.95
251	11/2/2022	3	10	-15.09	Yes	-15.00	0.09
252	11/2/2022	3	11	-15.09	Yes	-15.00	0.09
253	11/2/2022	3	12	-15.09	Yes	-15.00	0.09
254	11/2/2022	4	1	-15.09	Yes	-15.00	0.09
255	11/2/2022	4	2	-15.09	Yes	-15.00	0.09
256	11/2/2022	4	3	-15.09	Yes	-15.00	0.09
257	11/2/2022	4	4	-10.28	Yes	-15.00	-4.72
258	11/2/2022	4	5	-10.25	Yes	-15.00	-4.75
259	11/2/2022	4	6	-10.29	Yes	-15.00	-4.71
260	11/2/2022	4	7	-10.23	Yes	-15.00	-4.77
261	11/2/2022	4	8	-10.16	Yes	-15.00	-4.84
262	11/2/2022	4	9	-10.08	Yes	-15.00	-4.92

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
263	11/2/2022	4	10	-10.05	Yes	-15.00	-4.95
264	11/2/2022	4	11	-10.04	Yes	-15.00	-4.96
265	11/2/2022	4	12	-10.05	Yes	-15.00	-4.95
266	11/2/2022	5	1	-15.09	Yes	-15.00	0.09
267	11/2/2022	5	2	-15.10	Yes	-15.00	0.10
268	11/2/2022	5	3	-15.10	Yes	-15.00	0.10
269	11/2/2022	5	4	-15.10	Yes	-15.00	0.10
270	11/2/2022	5	5	-15.10	Yes	-15.00	0.10
271	11/2/2022	5	6	-15.10	Yes	-15.00	0.10
272	11/2/2022	5	7	-15.10	Yes	-15.00	0.10
273	11/2/2022	5	8	-15.10	Yes	-15.00	0.10
274	11/2/2022	5	9	-15.10	Yes	-15.00	0.10
275	11/2/2022	5	10	-9.84	Yes	-15.00	-5.16
276	11/2/2022	5	11	-15.10	Yes	-15.00	0.10
277	11/2/2022	5	12	-15.10	Yes	-15.00	0.10
278	11/2/2022	6	1	-8.84	Yes	-15.00	-6.16
279	11/2/2022	6	2	-8.94	Yes	-15.00	-6.06
280	11/2/2022	6	3	-8.94	Yes	-15.00	-6.06
281	11/2/2022	6	4	-8.61	Yes	-15.00	-6.39
282	11/2/2022	6	5	-8.43	Yes	-15.00	-6.57
283	11/2/2022	6	6	-8.43	Yes	-15.00	-6.57
284	11/2/2022	6	7	-8.18	Yes	-15.00	-6.82
285	11/2/2022	6	8	-7.60	Yes	-15.00	-7.40
286	11/2/2022	6	9	-7.60	Yes	-15.00	-7.40
287	11/2/2022	6	10	-7.44	Yes	-15.00	-7.56
288	11/2/2022	6	11	-7.33	Yes	-15.00	-7.67
289	11/2/2022	6	12	-7.60	Yes	-15.00	-7.40
290	11/2/2022	7	1	-15.11	Yes	-15.00	0.11
291	11/2/2022	7	2	-15.11	Yes	-15.00	0.11
292	11/2/2022	7	3	-15.11	Yes	-15.00	0.11
293	11/2/2022	7	4	-15.11	Yes	-15.00	0.11
294	11/2/2022	7	5	-15.11	Yes	-15.00	0.11
295	11/2/2022	7	6	-15.11	Yes	-15.00	0.11
296	11/2/2022	7	7	-15.12	Yes	-15.00	0.12
297	11/2/2022	7	8	-15.12	Yes	-15.00	0.12
298	11/2/2022	7	9	-15.12	Yes	-15.00	0.12
299	11/2/2022	7	10	-15.12	Yes	-15.00	0.12
300	11/2/2022	7	11	-15.13	Yes	-15.00	0.13



Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
301	11/2/2022	7	12	-15.13	Yes	-15.00	0.13
302	11/2/2022	8	1	-15.83	Yes	-15.00	0.83
303	11/2/2022	8	2	-15.81	Yes	-15.00	0.81
304	11/2/2022	8	3	-15.79	Yes	-15.00	0.79
305	11/2/2022	8	4	-15.78	Yes	-15.00	0.78
306	11/2/2022	8	5	-15.78	Yes	-15.00	0.78
307	11/2/2022	8	6	-15.78	Yes	-15.00	0.78
308	11/2/2022	8	7	-15.78	Yes	-15.00	0.78
309	11/2/2022	8	8	-15.78	Yes	-15.00	0.78
310	11/2/2022	8	9	-15.76	Yes	-15.00	0.76
311	11/2/2022	8	10	-15.12	Yes	-15.00	0.12
312	11/2/2022	8	11	-15.12	Yes	-15.00	0.12
313	11/2/2022	8	12	-15.78	Yes	-15.00	0.78
314	11/2/2022	9	1	-14.49	Yes	-15.00	-0.51
315	11/2/2022	9	2	-15.15	Yes	-15.00	0.15
316	11/2/2022	9	3	-15.14	Yes	-15.00	0.14
317	11/2/2022	9	4	-6.31	Yes	-15.00	-8.69
318	11/2/2022	9	5	-15.13	Yes	-15.00	0.13
319	11/2/2022	9	6	-15.12	Yes	-15.00	0.12
320	11/2/2022	9	7	-15.11	Yes	-15.00	0.11
321	11/2/2022	9	8	-15.10	Yes	-15.00	0.10
322	11/2/2022	9	9	-15.10	Yes	-15.00	0.10
323	11/2/2022	9	10	-8.29	Yes	-15.00	-6.71
324	11/2/2022	9	11	-8.29	Yes	-15.00	-6.71
325	11/2/2022	9	12	-8.47	Yes	-15.00	-6.53
326	11/2/2022	10	1	65.35	Yes	-15.00	-80.35
327	11/2/2022	10	2	64.49	Yes	-15.00	-79.49
328	11/2/2022	10	3	66.70	Yes	-15.00	-81.70
329	11/2/2022	10	4	62.90	Yes	-15.00	-77.90
330	11/2/2022	10	5	62.90	Yes	-15.00	-77.90
331	11/2/2022	10	6	59.33	Yes	-15.00	-74.33
332	11/2/2022	10	7	58.53	Yes	-15.00	-73.53
333	11/2/2022	10	8	57.63	Yes	-15.00	-72.63
334	11/2/2022	10	9	55.00	Yes	-15.00	-70.00
335	11/2/2022	10	10	50.11	Yes	-15.00	-65.11
336	11/2/2022	10	11	55.82	Yes	-15.00	-70.82
337	11/2/2022	10	12	57.86	Yes	-15.00	-72.86
338	11/2/2022	11	4	61.23	Yes	-15.00	-76.23

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
339	11/2/2022	11	5	56.00	Yes	-15.00	-71.00
340	11/2/2022	11	6	55.43	Yes	-15.00	-70.43
341	11/2/2022	11	7	59.96	Yes	-15.00	-74.96
342	11/2/2022	11	8	62.14	Yes	-15.00	-77.14
343	11/2/2022	11	9	62.31	Yes	-15.00	-77.31
344	11/2/2022	11	10	57.51	Yes	-15.00	-72.51
345	11/2/2022	11	11	57.80	Yes	-15.00	-72.80
346	11/2/2022	11	12	56.31	Yes	-15.00	-71.31
347	11/2/2022	12	1	61.74	Yes	-15.00	-76.74
348	11/2/2022	12	2	63.62	Yes	-15.00	-78.62
349	11/2/2022	12	3	63.28	Yes	-15.00	-78.28
350	11/2/2022	12	4	63.69	Yes	-15.00	-78.69
351	11/2/2022	12	5	63.86	Yes	-15.00	-78.86
352	11/2/2022	12	6	64.87	Yes	-15.00	-79.87
353	11/2/2022	12	7	77.90	Yes	-15.00	-92.90
354	11/2/2022	12	8	76.90	Yes	-15.00	-91.90
355	11/2/2022	12	9	74.84	Yes	-15.00	-89.84
356	11/2/2022	12	10	85.64	Yes	-15.00	-100.64
357	11/2/2022	12	11	80.30	Yes	-15.00	-95.30
358	11/2/2022	12	12	70.25	Yes	-15.00	-85.25
359	11/2/2022	13	1	70.33	Yes	-15.00	-85.33
360	11/2/2022	13	2	66.34	Yes	-15.00	-81.34
361	11/2/2022	13	3	67.36	Yes	-15.00	-82.36
362	11/2/2022	13	4	64.17	Yes	-15.00	-79.17
363	11/2/2022	13	5	64.24	Yes	-15.00	-79.24
364	11/2/2022	13	6	66.22	Yes	-15.00	-81.22
365	11/2/2022	13	7	66.20	Yes	-15.00	-81.20
366	11/2/2022	13	8	64.50	Yes	-15.00	-79.50
367	11/2/2022	13	9	66.20	Yes	-15.00	-81.20
368	11/2/2022	13	10	64.66	Yes	-15.00	-79.66
369	11/2/2022	13	11	69.85	Yes	-15.00	-84.85
370	11/2/2022	13	12	72.89	Yes	-15.00	-87.89
371	11/2/2022	14	1	73.71	Yes	-15.00	-88.71
372	11/2/2022	14	2	66.85	Yes	-15.00	-81.85
373	11/2/2022	14	3	66.82	Yes	-15.00	-81.82
374	11/2/2022	14	4	63.85	Yes	-15.00	-78.85
375	11/2/2022	14	5	61.88	Yes	-15.00	-76.88
376	11/2/2022	14	6	65.81	Yes	-15.00	-80.81

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
377	11/2/2022	14	7	66.45	Yes	-15.00	-81.45
378	11/2/2022	14	8	63.51	Yes	-15.00	-78.51
379	11/2/2022	14	9	61.38	Yes	-15.00	-76.38
380	11/2/2022	14	10	64.53	Yes	-15.00	-79.53
381	11/2/2022	14	11	64.99	Yes	-15.00	-79.99
382	11/2/2022	14	12	68.14	Yes	-15.00	-83.14
383	11/2/2022	15	1	67.10	Yes	-15.00	-82.10
384	11/2/2022	15	2	66.86	Yes	-15.00	-81.86
385	11/2/2022	15	3	67.67	Yes	-15.00	-82.67
386	11/2/2022	15	4	66.42	Yes	-15.00	-81.42
387	11/2/2022	15	5	66.47	Yes	-15.00	-81.47
388	11/2/2022	15	6	65.34	Yes	-15.00	-80.34
389	11/2/2022	15	7	65.98	Yes	-15.00	-80.98
390	11/2/2022	15	8	66.92	Yes	-15.00	-81.92
391	11/2/2022	15	9	58.34	Yes	-15.00	-73.34
392	11/2/2022	15	10	64.94	Yes	-15.00	-79.94
393	11/2/2022	15	11	65.66	Yes	-15.00	-80.66
394	11/2/2022	15	12	65.93	Yes	-15.00	-80.93
395	11/2/2022	16	5	59.84	Yes	-15.00	-74.84
396	11/2/2022	16	6	62.25	Yes	-15.00	-77.25
397	11/2/2022	16	7	61.16	Yes	-15.00	-76.16
398	11/2/2022	16	8	59.22	Yes	-15.00	-74.22
399	11/2/2022	16	9	57.56	Yes	-15.00	-72.56
400	11/2/2022	16	10	59.01	Yes	-15.00	-74.01
401	11/2/2022	16	11	58.89	Yes	-15.00	-73.89
402	11/2/2022	16	12	57.74	Yes	-15.00	-72.74
403	11/2/2022	17	1	52.10	Yes	-15.00	-67.10
404	11/2/2022	17	2	46.85	Yes	-15.00	-61.85
405	11/2/2022	17	3	42.73	Yes	-15.00	-57.73
406	11/2/2022	17	4	45.54	Yes	-15.00	-60.54
407	11/2/2022	17	5	52.97	Yes	-15.00	-67.97
408	11/2/2022	17	6	56.44	Yes	-15.00	-71.44
409	11/2/2022	17	7	64.13	Yes	-15.00	-79.13
410	11/2/2022	17	8	69.52	Yes	-15.00	-84.52
411	11/2/2022	17	9	78.45	Yes	-15.00	-93.45
412	11/2/2022	17	10	87.46	Yes	-15.00	-102.46
413	11/2/2022	17	11	88.49	Yes	-15.00	-103.49
414	11/2/2022	17	12	89.00	Yes	-15.00	-104.00

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
415	11/2/2022	18	1	55.87	Yes	-15.00	-70.87
416	11/2/2022	18	2	55.30	Yes	-15.00	-70.30
417	11/2/2022	18	3	55.84	Yes	-15.00	-70.84
418	11/2/2022	18	4	-14.80	Yes	-15.00	-0.20
419	11/2/2022	18	5	-14.78	Yes	-15.00	-0.22
420	11/2/2022	18	6	-14.76	Yes	-15.00	-0.24
421	11/2/2022	18	7	78.84	Yes	-15.00	-93.84
422	11/2/2022	18	8	81.05	Yes	-15.00	-96.05
423	11/2/2022	18	9	81.32	Yes	-15.00	-96.32
424	11/2/2022	18	10	88.00	Yes	-15.00	-103.00
425	11/2/2022	18	11	87.04	Yes	-15.00	-102.04
426	11/2/2022	18	12	101.39	Yes	-15.00	-116.39
427	11/2/2022	19	1	-7.75	Yes	-15.00	-7.25
428	11/2/2022	19	2	-7.64	Yes	-15.00	-7.36
429	11/2/2022	19	3	-6.94	Yes	-15.00	-8.06
430	11/2/2022	19	4	-14.74	Yes	-15.00	-0.26
431	11/2/2022	19	5	-14.74	Yes	-15.00	-0.26
432	11/2/2022	19	6	-14.71	Yes	-15.00	-0.29
433	11/2/2022	19	7	84.44	Yes	-15.00	-99.44
434	11/2/2022	19	8	85.44	Yes	-15.00	-100.44
435	11/2/2022	19	9	83.21	Yes	-15.00	-98.21
436	11/2/2022	19	10	82.76	Yes	-15.00	-97.76
437	11/2/2022	19	11	81.06	Yes	-15.00	-96.06
438	11/2/2022	19	12	81.85	Yes	-15.00	-96.85
439	11/2/2022	20	1	80.24	Yes	-15.00	-95.24
440	11/2/2022	20	2	81.50	Yes	-15.00	-96.50
441	11/2/2022	20	3	79.69	Yes	-15.00	-94.69
442	11/2/2022	20	4	80.06	Yes	-15.00	-95.06
443	11/2/2022	20	5	79.72	Yes	-15.00	-94.72
444	11/2/2022	20	6	78.45	Yes	-15.00	-93.45
445	11/2/2022	20	7	78.67	Yes	-15.00	-93.67
446	11/2/2022	20	8	79.22	Yes	-15.00	-94.22
447	11/2/2022	20	9	80.79	Yes	-15.00	-95.79
448	11/2/2022	20	10	82.02	Yes	-15.00	-97.02
449	11/2/2022	20	11	81.00	Yes	-15.00	-96.00
450	11/2/2022	20	12	80.58	Yes	-15.00	-95.58
451	11/2/2022	21	1	80.83	Yes	-15.00	-95.83
452	11/2/2022	21	2	79.88	Yes	-15.00	-94.88

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
453	11/2/2022	21	3	79.75	Yes	-15.00	-94.75
454	11/2/2022	21	4	81.58	Yes	-15.00	-96.58
455	11/2/2022	21	5	81.58	Yes	-15.00	-96.58
456	11/2/2022	21	6	81.15	Yes	-15.00	-96.15
457	11/2/2022	21	7	82.95	Yes	-15.00	-97.95
458	11/2/2022	21	8	82.95	Yes	-15.00	-97.95
459	11/2/2022	21	9	81.61	Yes	-15.00	-96.61
460	11/2/2022	21	10	80.85	Yes	-15.00	-95.85
461	11/2/2022	21	11	80.93	Yes	-15.00	-95.93
462	11/2/2022	21	12	80.93	Yes	-15.00	-95.93
463	11/2/2022	22	1	90.14	Yes	-15.00	-105.14
464	11/2/2022	22	2	86.12	Yes	-15.00	-101.12
465	11/2/2022	22	3	82.56	Yes	-15.00	-97.56
466	11/2/2022	22	4	85.80	Yes	-15.00	-100.80
467	11/2/2022	22	5	88.06	Yes	-15.00	-103.06
468	11/2/2022	22	6	86.06	Yes	-15.00	-101.06
469	11/2/2022	22	7	86.03	Yes	-15.00	-101.03
470	11/2/2022	22	8	89.43	Yes	-15.00	-104.43
471	11/2/2022	22	9	86.08	Yes	-15.00	-101.08
472	11/2/2022	22	10	85.86	Yes	-15.00	-100.86
473	11/2/2022	22	11	85.86	Yes	-15.00	-100.86
474	11/2/2022	22	12	89.02	Yes	-15.00	-104.02
475	11/2/2022	23	1	90.06	Yes	-15.00	-105.06
476	11/2/2022	23	2	90.03	Yes	-15.00	-105.03
477	11/2/2022	23	3	88.32	Yes	-15.00	-103.32
478	11/2/2022	23	4	80.88	Yes	-15.00	-95.88
479	11/2/2022	23	5	81.04	Yes	-15.00	-96.04
480	11/2/2022	23	6	81.04	Yes	-15.00	-96.04
481	11/2/2022	23	7	79.90	Yes	-15.00	-94.90
482	11/2/2022	23	8	79.90	Yes	-15.00	-94.90
483	11/2/2022	23	9	79.74	Yes	-15.00	-94.74
484	11/2/2022	23	10	80.05	Yes	-15.00	-95.05
485	11/2/2022	23	11	80.05	Yes	-15.00	-95.05
486	11/2/2022	23	12	80.05	Yes	-15.00	-95.05
487	11/2/2022	24	1	81.42	Yes	-15.00	-96.42
488	11/2/2022	24	2	81.65	Yes	-15.00	-96.65
489	11/2/2022	24	3	80.54	Yes	-15.00	-95.54
490	11/2/2022	24	4	79.99	Yes	-15.00	-94.99

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
491	11/2/2022	24	5	80.77	Yes	-15.00	-95.77
492	11/2/2022	24	6	81.40	Yes	-15.00	-96.40
493	11/2/2022	24	7	81.65	Yes	-15.00	-96.65
494	11/2/2022	24	8	80.14	Yes	-15.00	-95.14
495	11/2/2022	24	9	80.08	Yes	-15.00	-95.08
496	11/2/2022	24	10	78.94	Yes	-15.00	-93.94
497	11/2/2022	24	11	71.84	Yes	-15.00	-86.84
498	11/2/2022	24	12	71.12	Yes	-15.00	-86.12
499	11/3/2022	1	1	79.41	Yes	-15.00	-94.41
500	11/3/2022	1	2	77.38	Yes	-15.00	-92.38
501	11/3/2022	1	3	74.03	Yes	-15.00	-89.03
502	11/3/2022	1	4	71.86	Yes	-15.00	-86.86
503	11/3/2022	1	5	74.99	Yes	-15.00	-89.99
504	11/3/2022	1	6	79.21	Yes	-15.00	-94.21
505	11/3/2022	1	7	80.41	Yes	-15.00	-95.41
506	11/3/2022	1	8	84.24	Yes	-15.00	-99.24
507	11/3/2022	1	9	82.57	Yes	-15.00	-97.57
508	11/3/2022	1	10	93.75	Yes	-15.00	-108.75
509	11/3/2022	1	11	89.49	Yes	-15.00	-104.49
510	11/3/2022	1	12	89.75	Yes	-15.00	-104.75
511	11/3/2022	2	1	92.73	Yes	-15.00	-107.73
512	11/3/2022	2	2	94.94	Yes	-15.00	-109.94
513	11/3/2022	2	3	81.31	Yes	-15.00	-96.31
514	11/3/2022	2	4	81.48	Yes	-15.00	-96.48
515	11/3/2022	2	5	97.33	Yes	-15.00	-112.33
516	11/3/2022	2	6	95.66	Yes	-15.00	-110.66
517	11/3/2022	2	7	84.85	Yes	-15.00	-99.85
518	11/3/2022	2	8	82.03	Yes	-15.00	-97.03
519	11/3/2022	2	9	74.32	Yes	-15.00	-89.32
520	11/3/2022	2	10	68.98	Yes	-15.00	-83.98
521	11/3/2022	2	11	68.90	Yes	-15.00	-83.90
522	11/3/2022	2	12	70.88	Yes	-15.00	-85.88
523	11/3/2022	3	1	70.54	Yes	-15.00	-85.54
524	11/3/2022	3	2	72.20	Yes	-15.00	-87.20
525	11/3/2022	3	3	69.16	Yes	-15.00	-84.16
526	11/3/2022	3	4	67.08	Yes	-15.00	-82.08
527	11/3/2022	3	5	67.08	Yes	-15.00	-82.08
528	11/3/2022	3	6	67.29	Yes	-15.00	-82.29

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
529	11/3/2022	3	7	66.84	Yes	-15.00	-81.84
530	11/3/2022	3	8	65.17	Yes	-15.00	-80.17
531	11/3/2022	3	9	66.84	Yes	-15.00	-81.84
532	11/3/2022	3	10	65.99	Yes	-15.00	-80.99
533	11/3/2022	3	11	65.99	Yes	-15.00	-80.99
534	11/3/2022	3	12	64.84	Yes	-15.00	-79.84
535	11/3/2022	4	1	66.87	Yes	-15.00	-81.87
536	11/3/2022	4	2	66.53	Yes	-15.00	-81.53
537	11/3/2022	4	3	66.80	Yes	-15.00	-81.80
538	11/3/2022	4	4	66.56	Yes	-15.00	-81.56
539	11/3/2022	4	5	67.05	Yes	-15.00	-82.05
540	11/3/2022	4	6	68.27	Yes	-15.00	-83.27
541	11/3/2022	4	7	69.41	Yes	-15.00	-84.41
542	11/3/2022	4	8	72.21	Yes	-15.00	-87.21
543	11/3/2022	4	9	72.42	Yes	-15.00	-87.42
544	11/3/2022	4	10	72.36	Yes	-15.00	-87.36
545	11/3/2022	4	11	72.36	Yes	-15.00	-87.36
546	11/3/2022	4	12	72.13	Yes	-15.00	-87.13
547	11/3/2022	5	1	65.66	Yes	-15.00	-80.66
548	11/3/2022	5	2	68.15	Yes	-15.00	-83.15
549	11/3/2022	5	3	69.53	Yes	-15.00	-84.53
550	11/3/2022	5	4	68.72	Yes	-15.00	-83.72
551	11/3/2022	5	5	69.17	Yes	-15.00	-84.17
552	11/3/2022	5	6	71.00	Yes	-15.00	-86.00
553	11/3/2022	5	7	75.83	Yes	-15.00	-90.83
554	11/3/2022	5	8	79.68	Yes	-15.00	-94.68
555	11/3/2022	5	9	82.65	Yes	-15.00	-97.65
556	11/3/2022	5	10	83.77	Yes	-15.00	-98.77
557	11/3/2022	5	11	84.97	Yes	-15.00	-99.97
558	11/3/2022	5	12	87.81	Yes	-15.00	-102.81
559	11/3/2022	6	1	79.08	Yes	-15.00	-94.08
560	11/3/2022	6	2	75.10	Yes	-15.00	-90.10
561	11/3/2022	6	3	74.53	Yes	-15.00	-89.53
562	11/3/2022	6	4	65.98	Yes	-15.00	-80.98
563	11/3/2022	6	5	68.65	Yes	-15.00	-83.65
564	11/3/2022	6	6	73.60	Yes	-15.00	-88.60
565	11/3/2022	6	7	70.50	Yes	-15.00	-85.50
566	11/3/2022	6	8	73.48	Yes	-15.00	-88.48

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
567	11/3/2022	6	9	75.82	Yes	-15.00	-90.82
568	11/3/2022	6	10	78.81	Yes	-15.00	-93.81
569	11/3/2022	6	11	78.01	Yes	-15.00	-93.01
570	11/3/2022	6	12	75.84	Yes	-15.00	-90.84
571	11/3/2022	7	1	-6.64	Yes	-15.00	-8.36
572	11/3/2022	7	2	-6.93	Yes	-15.00	-8.07
573	11/3/2022	7	3	-6.74	Yes	-15.00	-8.26
574	11/3/2022	7	4	-15.14	Yes	-15.00	0.14
575	11/3/2022	7	5	-15.15	Yes	-15.00	0.15
576	11/3/2022	7	6	-15.17	Yes	-15.00	0.17
577	11/3/2022	7	7	118.73	Yes	-15.00	-133.73
578	11/3/2022	7	8	136.05	Yes	-15.00	-151.05
579	11/3/2022	7	9	136.07	Yes	-15.00	-151.07
580	11/3/2022	7	10	136.64	Yes	-15.00	-151.64
581	11/3/2022	7	11	-0.54	Yes	-15.00	-14.46
582	11/3/2022	7	12	-1.99	Yes	-15.00	-13.01
583	11/3/2022	8	1	-16.20	Yes	-15.00	1.20
584	11/3/2022	8	2	-16.34	Yes	-15.00	1.34
585	11/3/2022	8	3	-16.35	Yes	-15.00	1.35
586	11/3/2022	8	4	-15.37	Yes	-15.00	0.37
587	11/3/2022	8	5	-15.40	Yes	-15.00	0.40
588	11/3/2022	8	6	983.09	Yes	-15.00	-998.09
589	11/3/2022	8	7	983.09	Yes	-15.00	-998.09
590	11/3/2022	8	8	983.09	Yes	-15.00	-998.09
591	11/3/2022	8	9	869.89	Yes	-15.00	-884.89
592	11/3/2022	8	10	983.09	Yes	-15.00	-998.09
593	11/3/2022	8	11	788.51	Yes	-15.00	-803.51
594	11/3/2022	8	12	757.32	Yes	-15.00	-772.32
595	11/3/2022	9	1	732.11	Yes	-15.00	-747.11
596	11/3/2022	9	2	732.11	Yes	-15.00	-747.11
597	11/3/2022	9	3	207.34	Yes	-15.00	-222.34
598	11/3/2022	9	4	145.80	Yes	-15.00	-160.80
599	11/3/2022	9	5	122.27	Yes	-15.00	-137.27
600	11/3/2022	9	6	86.32	Yes	-15.00	-101.32
601	11/3/2022	9	7	113.88	Yes	-15.00	-128.88
602	11/3/2022	9	8	113.88	Yes	-15.00	-128.88
603	11/3/2022	9	9	128.33	Yes	-15.00	-143.33
604	11/3/2022	9	10	113.70	Yes	-15.00	-128.70



Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
605	11/3/2022	9	11	112.02	Yes	-15.00	-127.02
606	11/3/2022	9	12	136.57	Yes	-15.00	-151.57
607	11/3/2022	10	1	115.22	Yes	-15.00	-130.22
608	11/3/2022	10	2	106.06	Yes	-15.00	-121.06
609	11/3/2022	10	3	88.74	Yes	-15.00	-103.74
610	11/3/2022	10	4	78.74	Yes	-15.00	-93.74
611	11/3/2022	10	5	68.35	Yes	-15.00	-83.35
612	11/3/2022	10	6	70.15	Yes	-15.00	-85.15
613	11/3/2022	10	7	64.19	Yes	-15.00	-79.19
614	11/3/2022	10	8	64.72	Yes	-15.00	-79.72
615	11/3/2022	10	9	58.83	Yes	-15.00	-73.83
616	11/3/2022	10	10	55.18	Yes	-15.00	-70.18
617	11/3/2022	10	11	53.77	Yes	-15.00	-68.77
618	11/3/2022	10	12	51.62	Yes	-15.00	-66.62
619	11/3/2022	11	1	54.00	Yes	-15.00	-69.00
620	11/3/2022	11	2	71.03	Yes	-15.00	-86.03
621	11/3/2022	11	3	75.12	Yes	-15.00	-90.12
622	11/3/2022	11	4	77.16	Yes	-15.00	-92.16
623	11/3/2022	11	5	77.81	Yes	-15.00	-92.81
624	11/3/2022	11	6	77.38	Yes	-15.00	-92.38
625	11/3/2022	11	7	71.13	Yes	-15.00	-86.13
626	11/3/2022	11	8	72.14	Yes	-15.00	-87.14
627	11/3/2022	11	9	73.83	Yes	-15.00	-88.83
628	11/3/2022	11	10	69.28	Yes	-15.00	-84.28
629	11/3/2022	11	11	73.76	Yes	-15.00	-88.76
630	11/3/2022	11	12	72.28	Yes	-15.00	-87.28
631	11/3/2022	12	1	79.17	Yes	-15.00	-94.17
632	11/3/2022	12	2	80.22	Yes	-15.00	-95.22
633	11/3/2022	12	3	79.28	Yes	-15.00	-94.28
634	11/3/2022	12	4	76.31	Yes	-15.00	-91.31
635	11/3/2022	12	5	70.93	Yes	-15.00	-85.93
636	11/3/2022	12	6	63.56	Yes	-15.00	-78.56
637	11/3/2022	12	7	58.38	Yes	-15.00	-73.38
638	11/3/2022	12	8	59.43	Yes	-15.00	-74.43
639	11/3/2022	12	9	59.67	Yes	-15.00	-74.67
640	11/3/2022	12	10	58.96	Yes	-15.00	-73.96
641	11/3/2022	12	11	58.74	Yes	-15.00	-73.74
642	11/3/2022	12	12	64.74	Yes	-15.00	-79.74

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
643	11/3/2022	13	1	55.37	Yes	-15.00	-70.37
644	11/3/2022	13	2	55.38	Yes	-15.00	-70.38
645	11/3/2022	13	3	55.95	Yes	-15.00	-70.95
646	11/3/2022	13	4	51.70	Yes	-15.00	-66.70
647	11/3/2022	13	5	54.07	Yes	-15.00	-69.07
648	11/3/2022	13	6	56.26	Yes	-15.00	-71.26
649	11/3/2022	13	7	63.15	Yes	-15.00	-78.15
650	11/3/2022	13	8	62.26	Yes	-15.00	-77.26
651	11/3/2022	13	9	61.15	Yes	-15.00	-76.15
652	11/3/2022	13	10	61.78	Yes	-15.00	-76.78
653	11/3/2022	13	11	59.89	Yes	-15.00	-74.89
654	11/3/2022	13	12	59.22	Yes	-15.00	-74.22
655	11/3/2022	14	1	53.49	Yes	-15.00	-68.49
656	11/3/2022	14	2	52.27	Yes	-15.00	-67.27
657	11/3/2022	14	3	49.67	Yes	-15.00	-64.67
658	11/3/2022	14	4	50.13	Yes	-15.00	-65.13
659	11/3/2022	14	5	51.07	Yes	-15.00	-66.07
660	11/3/2022	14	6	53.12	Yes	-15.00	-68.12
661	11/3/2022	14	7	46.96	Yes	-15.00	-61.96
662	11/3/2022	14	8	50.18	Yes	-15.00	-65.18
663	11/3/2022	14	9	50.58	Yes	-15.00	-65.58
664	11/3/2022	14	10	50.46	Yes	-15.00	-65.46
665	11/3/2022	14	11	49.14	Yes	-15.00	-64.14
666	11/3/2022	14	12	48.55	Yes	-15.00	-63.55
667	11/3/2022	15	1	50.05	Yes	-15.00	-65.05
668	11/3/2022	15	2	50.38	Yes	-15.00	-65.38
669	11/3/2022	15	3	50.54	Yes	-15.00	-65.54
670	11/3/2022	15	4	50.37	Yes	-15.00	-65.37
671	11/3/2022	15	5	51.18	Yes	-15.00	-66.18
672	11/3/2022	15	6	49.62	Yes	-15.00	-64.62
673	11/3/2022	15	7	49.62	Yes	-15.00	-64.62
674	11/3/2022	15	8	49.62	Yes	-15.00	-64.62
675	11/3/2022	15	9	49.62	Yes	-15.00	-64.62
676	11/3/2022	15	10	49.62	Yes	-15.00	-64.62
677	11/3/2022	15	11	61.03	Yes	-15.00	-76.03
678	11/3/2022	15	12	48.94	Yes	-15.00	-63.94
679	11/3/2022	16	1	41.68	Yes	-15.00	-56.68
680	11/3/2022	16	2	44.10	Yes	-15.00	-59.10

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
681	11/3/2022	16	3	49.00	Yes	-15.00	-64.00
682	11/3/2022	16	4	48.54	Yes	-15.00	-63.54
683	11/3/2022	16	5	51.78	Yes	-15.00	-66.78
684	11/3/2022	16	6	58.22	Yes	-15.00	-73.22
685	11/3/2022	16	7	62.41	Yes	-15.00	-77.41
686	11/3/2022	16	8	62.41	Yes	-15.00	-77.41
687	11/3/2022	16	9	62.50	Yes	-15.00	-77.50
688	11/3/2022	16	10	57.95	Yes	-15.00	-72.95
689	11/3/2022	16	11	62.43	Yes	-15.00	-77.43
690	11/3/2022	16	12	60.64	Yes	-15.00	-75.64
691	11/3/2022	17	1	34.03	Yes	-15.00	-49.03
692	11/3/2022	17	2	33.55	Yes	-15.00	-48.55
693	11/3/2022	17	3	31.36	Yes	-15.00	-46.36
694	11/3/2022	17	4	43.96	Yes	-15.00	-58.96
695	11/3/2022	17	5	39.57	Yes	-15.00	-54.57
696	11/3/2022	17	6	45.06	Yes	-15.00	-60.06
697	11/3/2022	17	7	45.04	Yes	-15.00	-60.04
698	11/3/2022	17	8	51.03	Yes	-15.00	-66.03
699	11/3/2022	17	9	53.90	Yes	-15.00	-68.90
700	11/3/2022	17	10	62.50	Yes	-15.00	-77.50
701	11/3/2022	17	11	72.86	Yes	-15.00	-87.86
702	11/3/2022	17	12	75.00	Yes	-15.00	-90.00
703	11/3/2022	18	1	57.17	Yes	-15.00	-72.17
704	11/3/2022	18	2	58.60	Yes	-15.00	-73.60
705	11/3/2022	18	3	59.39	Yes	-15.00	-74.39
706	11/3/2022	18	4	65.90	Yes	-15.00	-80.90
707	11/3/2022	18	5	76.77	Yes	-15.00	-91.77
708	11/3/2022	18	6	83.54	Yes	-15.00	-98.54
709	11/3/2022	18	7	83.35	Yes	-15.00	-98.35
710	11/3/2022	18	8	94.28	Yes	-15.00	-109.28
711	11/3/2022	18	9	99.09	Yes	-15.00	-114.09
712	11/3/2022	18	10	112.86	Yes	-15.00	-127.86
713	11/3/2022	18	11	139.64	Yes	-15.00	-154.64
714	11/3/2022	18	12	185.10	Yes	-15.00	-200.10
715	11/3/2022	19	1	99.85	Yes	-15.00	-114.85
716	11/3/2022	19	2	94.60	Yes	-15.00	-109.60
717	11/3/2022	19	3	92.14	Yes	-15.00	-107.14
718	11/3/2022	19	4	99.88	Yes	-15.00	-114.88

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
719	11/3/2022	19	5	95.33	Yes	-15.00	-110.33
720	11/3/2022	19	6	97.72	Yes	-15.00	-112.72
721	11/3/2022	19	7	89.89	Yes	-15.00	-104.89
722	11/3/2022	19	8	88.00	Yes	-15.00	-103.00
723	11/3/2022	19	9	86.93	Yes	-15.00	-101.93
724	11/3/2022	19	10	86.20	Yes	-15.00	-101.20
725	11/3/2022	19	11	87.67	Yes	-15.00	-102.67
726	11/3/2022	19	12	85.42	Yes	-15.00	-100.42
727	11/3/2022	20	1	88.00	Yes	-15.00	-103.00
728	11/3/2022	20	2	88.00	Yes	-15.00	-103.00
729	11/3/2022	20	3	88.00	Yes	-15.00	-103.00
730	11/3/2022	20	4	81.86	Yes	-15.00	-96.86
731	11/3/2022	20	5	83.99	Yes	-15.00	-98.99
732	11/3/2022	20	6	83.99	Yes	-15.00	-98.99
733	11/3/2022	20	7	88.00	Yes	-15.00	-103.00
734	11/3/2022	20	8	87.67	Yes	-15.00	-102.67
735	11/3/2022	20	9	87.67	Yes	-15.00	-102.67
736	11/3/2022	20	10	87.67	Yes	-15.00	-102.67
737	11/3/2022	20	11	87.43	Yes	-15.00	-102.43
738	11/3/2022	20	12	87.67	Yes	-15.00	-102.67
739	11/3/2022	21	1	82.40	Yes	-15.00	-97.40
740	11/3/2022	21	2	84.02	Yes	-15.00	-99.02
741	11/3/2022	21	3	83.95	Yes	-15.00	-98.95
742	11/3/2022	21	4	83.35	Yes	-15.00	-98.35
743	11/3/2022	21	5	82.67	Yes	-15.00	-97.67
744	11/3/2022	21	6	82.67	Yes	-15.00	-97.67
745	11/3/2022	21	7	82.78	Yes	-15.00	-97.78
746	11/3/2022	21	8	82.29	Yes	-15.00	-97.29
747	11/3/2022	21	9	82.78	Yes	-15.00	-97.78
748	11/3/2022	21	10	82.81	Yes	-15.00	-97.81
749	11/3/2022	21	11	82.81	Yes	-15.00	-97.81
750	11/3/2022	21	12	82.81	Yes	-15.00	-97.81
751	11/3/2022	22	1	100.58	Yes	-15.00	-115.58
752	11/3/2022	22	2	100.70	Yes	-15.00	-115.70
753	11/3/2022	22	3	97.79	Yes	-15.00	-112.79
754	11/3/2022	22	4	98.52	Yes	-15.00	-113.52
755	11/3/2022	22	5	98.52	Yes	-15.00	-113.52
756	11/3/2022	22	6	107.32	Yes	-15.00	-122.32

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
757	11/3/2022	22	7	110.09	Yes	-15.00	-125.09
758	11/3/2022	22	8	110.10	Yes	-15.00	-125.10
759	11/3/2022	22	9	106.18	Yes	-15.00	-121.18
760	11/3/2022	22	10	96.98	Yes	-15.00	-111.98
761	11/3/2022	22	11	105.79	Yes	-15.00	-120.79
762	11/3/2022	22	12	104.03	Yes	-15.00	-119.03
763	11/3/2022	23	1	110.10	Yes	-15.00	-125.10
764	11/3/2022	23	2	112.48	Yes	-15.00	-127.48
765	11/3/2022	23	3	109.33	Yes	-15.00	-124.33
766	11/3/2022	23	4	108.77	Yes	-15.00	-123.77
767	11/3/2022	23	5	116.74	Yes	-15.00	-131.74
768	11/3/2022	23	6	116.25	Yes	-15.00	-131.25
769	11/3/2022	23	7	110.26	Yes	-15.00	-125.26
770	11/3/2022	23	8	109.94	Yes	-15.00	-124.94
771	11/3/2022	23	9	102.08	Yes	-15.00	-117.08
772	11/3/2022	23	10	102.57	Yes	-15.00	-117.57
773	11/3/2022	23	11	108.21	Yes	-15.00	-123.21
774	11/3/2022	23	12	115.38	Yes	-15.00	-130.38
775	11/3/2022	24	1	116.08	Yes	-15.00	-131.08
776	11/3/2022	24	2	117.22	Yes	-15.00	-132.22
777	11/3/2022	24	3	112.73	Yes	-15.00	-127.73
778	11/3/2022	24	4	101.86	Yes	-15.00	-116.86
779	11/3/2022	24	5	93.58	Yes	-15.00	-108.58
780	11/3/2022	24	6	92.47	Yes	-15.00	-107.47
781	11/3/2022	24	7	83.71	Yes	-15.00	-98.71
782	11/3/2022	24	8	78.60	Yes	-15.00	-93.60
783	11/3/2022	24	9	78.99	Yes	-15.00	-93.99
784	11/3/2022	24	10	78.93	Yes	-15.00	-93.93
785	11/3/2022	24	11	78.09	Yes	-15.00	-93.09
786	11/3/2022	24	12	78.09	Yes	-15.00	-93.09
787	11/4/2022	1	1	75.89	Yes	-15.00	-90.89
788	11/4/2022	1	2	76.59	Yes	-15.00	-91.59
789	11/4/2022	1	3	75.89	Yes	-15.00	-90.89
790	11/4/2022	1	4	76.58	Yes	-15.00	-91.58
791	11/4/2022	1	5	76.38	Yes	-15.00	-91.38
792	11/4/2022	1	6	75.79	Yes	-15.00	-90.79
793	11/4/2022	1	7	76.28	Yes	-15.00	-91.28
794	11/4/2022	1	8	75.27	Yes	-15.00	-90.27

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
795	11/4/2022	1	9	75.27	Yes	-15.00	-90.27
796	11/4/2022	1	10	72.97	Yes	-15.00	-87.97
797	11/4/2022	1	11	68.41	Yes	-15.00	-83.41
798	11/4/2022	1	12	68.36	Yes	-15.00	-83.36
799	11/4/2022	2	1	74.31	Yes	-15.00	-89.31
800	11/4/2022	2	2	74.31	Yes	-15.00	-89.31
801	11/4/2022	2	3	71.81	Yes	-15.00	-86.81
802	11/4/2022	2	4	70.11	Yes	-15.00	-85.11
803	11/4/2022	2	5	71.86	Yes	-15.00	-86.86
804	11/4/2022	2	6	71.86	Yes	-15.00	-86.86
805	11/4/2022	2	7	71.86	Yes	-15.00	-86.86
806	11/4/2022	2	8	71.86	Yes	-15.00	-86.86
807	11/4/2022	2	9	71.86	Yes	-15.00	-86.86
808	11/4/2022	2	10	63.15	Yes	-15.00	-78.15
809	11/4/2022	2	11	59.49	Yes	-15.00	-74.49
810	11/4/2022	2	12	60.59	Yes	-15.00	-75.59
811	11/4/2022	3	1	69.41	Yes	-15.00	-84.41
812	11/4/2022	3	2	66.96	Yes	-15.00	-81.96
813	11/4/2022	3	3	68.56	Yes	-15.00	-83.56
814	11/4/2022	3	4	67.32	Yes	-15.00	-82.32
815	11/4/2022	3	5	66.23	Yes	-15.00	-81.23
816	11/4/2022	3	6	65.34	Yes	-15.00	-80.34
817	11/4/2022	3	7	63.70	Yes	-15.00	-78.70
818	11/4/2022	3	8	63.54	Yes	-15.00	-78.54
819	11/4/2022	3	9	63.93	Yes	-15.00	-78.93
820	11/4/2022	3	10	-14.99	Yes	-15.00	-0.01
821	11/4/2022	3	11	-14.96	Yes	-15.00	-0.04
822	11/4/2022	3	12	102.33	Yes	-15.00	-117.33
823	11/4/2022	4	1	-15.16	Yes	-15.00	0.16
824	11/4/2022	4	2	-15.13	Yes	-15.00	0.13
825	11/4/2022	4	3	-15.12	Yes	-15.00	0.12
826	11/4/2022	4	4	-14.93	Yes	-15.00	-0.07
827	11/4/2022	4	5	-14.93	Yes	-15.00	-0.07
828	11/4/2022	4	6	-14.92	Yes	-15.00	-0.08
829	11/4/2022	4	7	-14.87	Yes	-15.00	-0.13
830	11/4/2022	4	8	-14.88	Yes	-15.00	-0.12
831	11/4/2022	4	9	-14.88	Yes	-15.00	-0.12
832	11/4/2022	4	10	-14.88	Yes	-15.00	-0.12

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
833	11/4/2022	4	11	-14.88	Yes	-15.00	-0.12
834	11/4/2022	4	12	-14.88	Yes	-15.00	-0.12
835	11/4/2022	5	1	-14.95	Yes	-15.00	-0.05
836	11/4/2022	5	2	-14.95	Yes	-15.00	-0.05
837	11/4/2022	5	3	-14.95	Yes	-15.00	-0.05
838	11/4/2022	5	4	-14.95	Yes	-15.00	-0.05
839	11/4/2022	5	5	-14.95	Yes	-15.00	-0.05
840	11/4/2022	5	6	-14.96	Yes	-15.00	-0.04
841	11/4/2022	5	7	-14.94	Yes	-15.00	-0.06
842	11/4/2022	5	8	-14.94	Yes	-15.00	-0.06
843	11/4/2022	5	9	-14.93	Yes	-15.00	-0.07
844	11/4/2022	5	10	-14.95	Yes	-15.00	-0.05
845	11/4/2022	5	11	-14.95	Yes	-15.00	-0.05
846	11/4/2022	5	12	-14.95	Yes	-15.00	-0.05
847	11/5/2022	8	1	-14.83	Yes	-15.00	-0.17
848	11/5/2022	8	2	-14.83	Yes	-15.00	-0.17
849	11/5/2022	8	3	-14.83	Yes	-15.00	-0.17
850	11/5/2022	8	4	53.87	Yes	-15.00	-68.87
851	11/5/2022	8	5	55.65	Yes	-15.00	-70.65
852	11/5/2022	8	6	53.17	Yes	-15.00	-68.17
853	11/5/2022	8	7	54.05	Yes	-15.00	-69.05
854	11/5/2022	8	8	53.38	Yes	-15.00	-68.38
855	11/5/2022	8	9	53.56	Yes	-15.00	-68.56
856	11/5/2022	8	10	52.40	Yes	-15.00	-67.40
857	11/5/2022	8	11	51.28	Yes	-15.00	-66.28
858	11/5/2022	8	12	48.19	Yes	-15.00	-63.19
859	11/5/2022	9	1	61.27	Yes	-15.00	-76.27
860	11/5/2022	9	2	64.75	Yes	-15.00	-79.75
861	11/5/2022	9	3	64.54	Yes	-15.00	-79.54
862	11/5/2022	9	4	75.43	Yes	-15.00	-90.43
863	11/5/2022	9	5	84.01	Yes	-15.00	-99.01
864	11/5/2022	9	6	83.82	Yes	-15.00	-98.82
865	11/5/2022	9	7	81.09	Yes	-15.00	-96.09
866	11/5/2022	9	8	69.31	Yes	-15.00	-84.31
867	11/5/2022	9	9	53.29	Yes	-15.00	-68.29
868	11/5/2022	9	10	52.96	Yes	-15.00	-67.96
869	11/5/2022	9	11	51.13	Yes	-15.00	-66.13
870	11/5/2022	9	12	54.88	Yes	-15.00	-69.88

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
871	11/5/2022	10	1	50.63	Yes	-15.00	-65.63
872	11/5/2022	10	2	53.50	Yes	-15.00	-68.50
873	11/5/2022	10	3	59.19	Yes	-15.00	-74.19
874	11/5/2022	10	4	58.17	Yes	-15.00	-73.17
875	11/5/2022	10	5	55.45	Yes	-15.00	-70.45
876	11/5/2022	10	6	56.65	Yes	-15.00	-71.65
877	11/5/2022	10	7	57.11	Yes	-15.00	-72.11
878	11/5/2022	10	8	55.01	Yes	-15.00	-70.01
879	11/5/2022	10	9	53.39	Yes	-15.00	-68.39
880	11/5/2022	10	10	56.91	Yes	-15.00	-71.91
881	11/5/2022	10	11	51.32	Yes	-15.00	-66.32
882	11/5/2022	10	12	44.56	Yes	-15.00	-59.56
883	11/5/2022	11	1	53.03	Yes	-15.00	-68.03
884	11/5/2022	11	2	51.53	Yes	-15.00	-66.53
885	11/5/2022	11	3	51.01	Yes	-15.00	-66.01
886	11/5/2022	11	4	46.94	Yes	-15.00	-61.94
887	11/5/2022	11	5	48.25	Yes	-15.00	-63.25
888	11/5/2022	11	6	53.98	Yes	-15.00	-68.98
889	11/5/2022	11	7	51.04	Yes	-15.00	-66.04
890	11/5/2022	11	8	53.90	Yes	-15.00	-68.90
891	11/5/2022	11	9	52.08	Yes	-15.00	-67.08
892	11/5/2022	11	10	51.89	Yes	-15.00	-66.89
893	11/5/2022	11	11	49.30	Yes	-15.00	-64.30
894	11/5/2022	11	12	49.69	Yes	-15.00	-64.69
895	11/5/2022	12	1	53.69	Yes	-15.00	-68.69
896	11/5/2022	12	2	53.69	Yes	-15.00	-68.69
897	11/5/2022	12	3	53.83	Yes	-15.00	-68.83
898	11/5/2022	12	4	50.43	Yes	-15.00	-65.43
899	11/5/2022	12	5	45.99	Yes	-15.00	-60.99
900	11/5/2022	12	6	46.69	Yes	-15.00	-61.69
901	11/5/2022	12	7	48.71	Yes	-15.00	-63.71
902	11/5/2022	12	8	51.18	Yes	-15.00	-66.18
903	11/5/2022	12	9	53.55	Yes	-15.00	-68.55
904	11/5/2022	12	10	53.00	Yes	-15.00	-68.00
905	11/5/2022	12	11	54.41	Yes	-15.00	-69.41
906	11/5/2022	12	12	66.66	Yes	-15.00	-81.66
907	11/5/2022	13	1	57.59	Yes	-15.00	-72.59
908	11/5/2022	13	2	55.46	Yes	-15.00	-70.46



Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
909	11/5/2022	13	3	54.80	Yes	-15.00	-69.80
910	11/5/2022	13	4	48.76	Yes	-15.00	-63.76
911	11/5/2022	13	5	46.80	Yes	-15.00	-61.80
912	11/5/2022	13	6	46.80	Yes	-15.00	-61.80
913	11/5/2022	13	7	51.27	Yes	-15.00	-66.27
914	11/5/2022	13	8	50.93	Yes	-15.00	-65.93
915	11/5/2022	13	9	48.98	Yes	-15.00	-63.98
916	11/5/2022	13	10	60.95	Yes	-15.00	-75.95
917	11/5/2022	13	11	56.98	Yes	-15.00	-71.98
918	11/5/2022	13	12	55.99	Yes	-15.00	-70.99
919	11/19/2022	7	10	110.00	Yes	-15.00	-125.00
920	11/19/2022	7	11	105.43	Yes	-15.00	-120.43
921	11/19/2022	7	12	107.02	Yes	-15.00	-122.02
922	11/19/2022	8	1	273.97	Yes	-15.00	-288.97
923	11/19/2022	8	2	224.47	Yes	-15.00	-239.47
924	11/19/2022	8	3	223.62	Yes	-15.00	-238.62
925	11/19/2022	8	4	133.13	Yes	-15.00	-148.13
926	11/19/2022	8	5	113.50	Yes	-15.00	-128.50
927	11/19/2022	8	6	108.66	Yes	-15.00	-123.66
928	11/19/2022	8	7	84.48	Yes	-15.00	-99.48
929	11/19/2022	8	8	76.14	Yes	-15.00	-91.14
930	11/19/2022	8	9	75.02	Yes	-15.00	-90.02
931	11/19/2022	8	10	72.92	Yes	-15.00	-87.92
932	11/19/2022	8	11	69.74	Yes	-15.00	-84.74
933	11/19/2022	8	12	68.25	Yes	-15.00	-83.25
934	11/19/2022	9	1	60.48	Yes	-15.00	-75.48
935	11/19/2022	9	2	63.23	Yes	-15.00	-78.23
936	11/19/2022	9	3	70.10	Yes	-15.00	-85.10
937	11/19/2022	9	4	62.35	Yes	-15.00	-77.35
938	11/19/2022	9	5	66.37	Yes	-15.00	-81.37
939	11/19/2022	9	6	64.07	Yes	-15.00	-79.07
940	11/19/2022	9	7	74.34	Yes	-15.00	-89.34
941	11/19/2022	9	8	72.69	Yes	-15.00	-87.69
942	11/19/2022	9	9	70.70	Yes	-15.00	-85.70
943	11/19/2022	9	10	67.36	Yes	-15.00	-82.36
944	11/19/2022	9	11	68.31	Yes	-15.00	-83.31
945	11/19/2022	9	12	68.37	Yes	-15.00	-83.37
946	11/19/2022	10	1	66.89	Yes	-15.00	-81.89

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
947	11/19/2022	10	2	67.44	Yes	-15.00	-82.44
948	11/19/2022	10	3	67.38	Yes	-15.00	-82.38
949	11/19/2022	10	4	67.36	Yes	-15.00	-82.36
950	11/19/2022	10	5	66.99	Yes	-15.00	-81.99
951	11/19/2022	10	6	67.05	Yes	-15.00	-82.05
952	11/19/2022	10	7	69.44	Yes	-15.00	-84.44
953	11/19/2022	10	8	67.41	Yes	-15.00	-82.41
954	11/19/2022	10	9	67.29	Yes	-15.00	-82.29
955	11/19/2022	10	10	67.63	Yes	-15.00	-82.63
956	11/19/2022	10	11	68.60	Yes	-15.00	-83.60
957	11/19/2022	10	12	69.49	Yes	-15.00	-84.49
958	11/19/2022	11	1	66.46	Yes	-15.00	-81.46
959	11/19/2022	11	2	68.77	Yes	-15.00	-83.77
960	11/19/2022	11	3	68.27	Yes	-15.00	-83.27
961	11/19/2022	11	4	71.70	Yes	-15.00	-86.70
962	11/19/2022	11	5	67.52	Yes	-15.00	-82.52
963	11/19/2022	11	6	67.44	Yes	-15.00	-82.44
964	11/19/2022	11	7	67.79	Yes	-15.00	-82.79
965	11/19/2022	11	8	67.41	Yes	-15.00	-82.41
966	11/19/2022	11	9	66.11	Yes	-15.00	-81.11
967	11/19/2022	11	10	65.60	Yes	-15.00	-80.60
968	11/19/2022	11	11	64.81	Yes	-15.00	-79.81
969	11/19/2022	11	12	65.92	Yes	-15.00	-80.92
970	11/19/2022	12	1	67.01	Yes	-15.00	-82.01
971	11/19/2022	12	2	67.03	Yes	-15.00	-82.03
972	11/19/2022	12	3	66.22	Yes	-15.00	-81.22
973	11/19/2022	12	4	65.29	Yes	-15.00	-80.29
974	11/19/2022	12	5	66.35	Yes	-15.00	-81.35
975	11/19/2022	12	6	65.71	Yes	-15.00	-80.71
976	11/19/2022	12	7	65.13	Yes	-15.00	-80.13
977	11/19/2022	12	8	65.08	Yes	-15.00	-80.08
978	11/19/2022	12	9	64.74	Yes	-15.00	-79.74
979	11/19/2022	12	10	64.30	Yes	-15.00	-79.30
980	11/19/2022	12	11	63.51	Yes	-15.00	-78.51
981	11/19/2022	12	12	64.46	Yes	-15.00	-79.46
982	11/19/2022	13	1	68.79	Yes	-15.00	-83.79
983	11/19/2022	13	2	69.13	Yes	-15.00	-84.13
984	11/19/2022	13	3	69.36	Yes	-15.00	-84.36

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
985	11/19/2022	13	4	68.35	Yes	-15.00	-83.35
986	11/19/2022	13	5	69.08	Yes	-15.00	-84.08
987	11/19/2022	13	6	70.00	Yes	-15.00	-85.00
988	11/19/2022	13	7	69.43	Yes	-15.00	-84.43
989	11/19/2022	13	8	68.77	Yes	-15.00	-83.77
990	11/19/2022	13	9	67.86	Yes	-15.00	-82.86
991	11/19/2022	13	10	64.82	Yes	-15.00	-79.82
992	11/19/2022	13	11	64.59	Yes	-15.00	-79.59
993	11/19/2022	13	12	65.56	Yes	-15.00	-80.56
994	11/19/2022	14	1	65.10	Yes	-15.00	-80.10
995	11/19/2022	14	2	65.32	Yes	-15.00	-80.32
996	11/19/2022	14	3	65.38	Yes	-15.00	-80.38
997	11/19/2022	14	4	64.95	Yes	-15.00	-79.95
998	11/19/2022	14	5	65.01	Yes	-15.00	-80.01
999	11/19/2022	14	6	65.16	Yes	-15.00	-80.16
1000	11/19/2022	14	7	64.17	Yes	-15.00	-79.17
1001	11/19/2022	14	8	64.49	Yes	-15.00	-79.49
1002	11/19/2022	14	9	64.84	Yes	-15.00	-79.84
1003	11/19/2022	14	10	64.52	Yes	-15.00	-79.52
1004	11/19/2022	14	11	64.83	Yes	-15.00	-79.83
1005	11/19/2022	14	12	65.01	Yes	-15.00	-80.01
1006	11/19/2022	15	1	62.74	Yes	-15.00	-77.74
1007	11/19/2022	15	2	62.07	Yes	-15.00	-77.07
1008	11/19/2022	15	3	61.74	Yes	-15.00	-76.74
1009	11/19/2022	15	4	34.23	Yes	-15.00	-49.23
1010	11/19/2022	15	5	57.71	Yes	-15.00	-72.71
1011	11/19/2022	15	6	57.95	Yes	-15.00	-72.95
1012	11/19/2022	15	7	56.48	Yes	-15.00	-71.48
1013	11/19/2022	15	8	56.48	Yes	-15.00	-71.48
1014	11/19/2022	15	9	62.76	Yes	-15.00	-77.76
1015	11/19/2022	15	10	57.54	Yes	-15.00	-72.54
1016	11/19/2022	15	11	62.63	Yes	-15.00	-77.63
1017	11/19/2022	15	12	59.55	Yes	-15.00	-74.55
1018	11/19/2022	16	1	50.22	Yes	-15.00	-65.22
1019	11/19/2022	16	2	56.34	Yes	-15.00	-71.34
1020	11/19/2022	16	3	55.78	Yes	-15.00	-70.78
1021	11/19/2022	16	4	57.47	Yes	-15.00	-72.47
1022	11/19/2022	16	5	64.60	Yes	-15.00	-79.60

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1023	11/19/2022	16	6	67.92	Yes	-15.00	-82.92
1024	11/19/2022	16	7	69.57	Yes	-15.00	-84.57
1025	11/19/2022	16	8	75.62	Yes	-15.00	-90.62
1026	11/19/2022	16	9	82.82	Yes	-15.00	-97.82
1027	11/19/2022	16	10	86.98	Yes	-15.00	-101.98
1028	11/19/2022	16	11	100.27	Yes	-15.00	-115.27
1029	11/19/2022	16	12	105.60	Yes	-15.00	-120.60
1030	11/19/2022	17	1	71.21	Yes	-15.00	-86.21
1031	11/19/2022	17	2	71.88	Yes	-15.00	-86.88
1032	11/19/2022	17	3	71.21	Yes	-15.00	-86.21
1033	11/19/2022	17	4	76.99	Yes	-15.00	-91.99
1034	11/19/2022	17	5	81.03	Yes	-15.00	-96.03
1035	11/19/2022	17	6	83.51	Yes	-15.00	-98.51
1036	11/19/2022	17	7	89.06	Yes	-15.00	-104.06
1037	11/19/2022	17	8	94.27	Yes	-15.00	-109.27
1038	11/19/2022	17	9	102.77	Yes	-15.00	-117.77
1039	11/19/2022	17	10	100.73	Yes	-15.00	-115.73
1040	11/19/2022	17	11	102.38	Yes	-15.00	-117.38
1041	11/19/2022	17	12	104.50	Yes	-15.00	-119.50
1042	11/19/2022	18	1	87.41	Yes	-15.00	-102.41
1043	11/19/2022	18	2	86.26	Yes	-15.00	-101.26
1044	11/19/2022	18	3	86.17	Yes	-15.00	-101.17
1045	11/19/2022	18	4	89.31	Yes	-15.00	-104.31
1046	11/19/2022	18	5	89.83	Yes	-15.00	-104.83
1047	11/19/2022	18	6	85.79	Yes	-15.00	-100.79
1048	11/19/2022	18	7	84.79	Yes	-15.00	-99.79
1049	11/19/2022	18	8	85.34	Yes	-15.00	-100.34
1050	11/19/2022	18	9	87.24	Yes	-15.00	-102.24
1051	11/19/2022	18	10	84.42	Yes	-15.00	-99.42
1052	11/19/2022	18	11	84.42	Yes	-15.00	-99.42
1053	11/19/2022	18	12	84.53	Yes	-15.00	-99.53
1054	11/19/2022	19	1	86.06	Yes	-15.00	-101.06
1055	11/19/2022	19	2	86.20	Yes	-15.00	-101.20
1056	11/19/2022	19	3	85.89	Yes	-15.00	-100.89
1057	11/19/2022	19	4	85.81	Yes	-15.00	-100.81
1058	11/19/2022	19	5	87.98	Yes	-15.00	-102.98
1059	11/19/2022	19	6	87.79	Yes	-15.00	-102.79
1060	11/19/2022	19	7	87.89	Yes	-15.00	-102.89

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1061	11/19/2022	19	8	87.07	Yes	-15.00	-102.07
1062	11/19/2022	19	9	86.38	Yes	-15.00	-101.38
1063	11/19/2022	19	10	87.31	Yes	-15.00	-102.31
1064	11/19/2022	19	11	87.62	Yes	-15.00	-102.62
1065	11/19/2022	19	12	88.60	Yes	-15.00	-103.60
1066	11/19/2022	20	1	93.21	Yes	-15.00	-108.21
1067	11/19/2022	20	2	94.07	Yes	-15.00	-109.07
1068	11/19/2022	20	3	94.33	Yes	-15.00	-109.33
1069	11/19/2022	20	4	96.90	Yes	-15.00	-111.90
1070	11/19/2022	20	5	96.65	Yes	-15.00	-111.65
1071	11/19/2022	20	6	96.90	Yes	-15.00	-111.90
1072	11/19/2022	20	7	95.56	Yes	-15.00	-110.56
1073	11/19/2022	20	8	98.00	Yes	-15.00	-113.00
1074	11/19/2022	20	9	95.80	Yes	-15.00	-110.80
1075	11/19/2022	20	10	97.94	Yes	-15.00	-112.94
1076	11/19/2022	20	11	101.66	Yes	-15.00	-116.66
1077	11/19/2022	20	12	102.50	Yes	-15.00	-117.50
1078	11/19/2022	21	1	108.41	Yes	-15.00	-123.41
1079	11/19/2022	21	2	108.37	Yes	-15.00	-123.37
1080	11/19/2022	21	3	105.81	Yes	-15.00	-120.81
1081	11/19/2022	21	4	104.55	Yes	-15.00	-119.55
1082	11/19/2022	21	5	104.30	Yes	-15.00	-119.30
1083	11/19/2022	21	6	104.30	Yes	-15.00	-119.30
1084	11/19/2022	21	7	98.44	Yes	-15.00	-113.44
1085	11/19/2022	21	8	98.91	Yes	-15.00	-113.91
1086	11/19/2022	21	9	98.04	Yes	-15.00	-113.04
1087	11/19/2022	21	10	97.52	Yes	-15.00	-112.52
1088	11/19/2022	21	11	97.52	Yes	-15.00	-112.52
1089	11/19/2022	21	12	98.44	Yes	-15.00	-113.44
1090	11/19/2022	22	1	105.63	Yes	-15.00	-120.63
1091	11/19/2022	22	2	107.33	Yes	-15.00	-122.33
1092	11/19/2022	22	3	108.99	Yes	-15.00	-123.99
1093	11/19/2022	22	4	108.05	Yes	-15.00	-123.05
1094	11/19/2022	22	5	108.05	Yes	-15.00	-123.05
1095	11/19/2022	22	6	105.99	Yes	-15.00	-120.99
1096	11/19/2022	22	7	103.33	Yes	-15.00	-118.33
1097	11/19/2022	22	8	102.79	Yes	-15.00	-117.79
1098	11/19/2022	22	9	102.55	Yes	-15.00	-117.55

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1099	11/19/2022	22	10	100.55	Yes	-15.00	-115.55
1100	11/19/2022	22	11	100.55	Yes	-15.00	-115.55
1101	11/19/2022	22	12	101.20	Yes	-15.00	-116.20
1102	11/19/2022	23	3	100.58	Yes	-15.00	-115.58
1103	11/19/2022	23	4	98.23	Yes	-15.00	-113.23
1104	11/19/2022	23	5	97.43	Yes	-15.00	-112.43
1105	11/19/2022	23	6	95.66	Yes	-15.00	-110.66
1106	11/19/2022	23	7	101.65	Yes	-15.00	-116.65
1107	11/19/2022	23	8	101.54	Yes	-15.00	-116.54
1108	11/19/2022	23	9	101.43	Yes	-15.00	-116.43
1109	11/19/2022	23	10	100.12	Yes	-15.00	-115.12
1110	11/19/2022	23	11	100.12	Yes	-15.00	-115.12
1111	11/19/2022	23	12	100.09	Yes	-15.00	-115.09
1112	11/19/2022	24	1	99.43	Yes	-15.00	-114.43
1113	11/19/2022	24	2	95.80	Yes	-15.00	-110.80
1114	11/19/2022	24	3	93.39	Yes	-15.00	-108.39
1115	11/19/2022	24	4	87.97	Yes	-15.00	-102.97
1116	11/19/2022	24	5	87.97	Yes	-15.00	-102.97
1117	11/19/2022	24	6	86.66	Yes	-15.00	-101.66
1118	11/19/2022	24	7	86.83	Yes	-15.00	-101.83
1119	11/19/2022	24	8	88.32	Yes	-15.00	-103.32
1120	11/19/2022	24	9	89.72	Yes	-15.00	-104.72
1121	11/19/2022	24	10	91.61	Yes	-15.00	-106.61
1122	11/19/2022	24	11	92.70	Yes	-15.00	-107.70
1123	11/19/2022	24	12	98.52	Yes	-15.00	-113.52
1124	11/20/2022	1	1	86.20	Yes	-15.00	-101.20
1125	11/20/2022	1	2	96.25	Yes	-15.00	-111.25
1126	11/20/2022	1	3	94.96	Yes	-15.00	-109.96
1127	11/20/2022	1	4	95.42	Yes	-15.00	-110.42
1128	11/20/2022	1	5	92.89	Yes	-15.00	-107.89
1129	11/20/2022	1	6	95.37	Yes	-15.00	-110.37
1130	11/20/2022	1	7	99.07	Yes	-15.00	-114.07
1131	11/20/2022	1	8	96.87	Yes	-15.00	-111.87
1132	11/20/2022	1	9	96.87	Yes	-15.00	-111.87
1133	11/20/2022	1	10	98.58	Yes	-15.00	-113.58
1134	11/20/2022	1	11	100.11	Yes	-15.00	-115.11
1135	11/20/2022	1	12	101.29	Yes	-15.00	-116.29
1136	11/20/2022	2	1	99.00	Yes	-15.00	-114.00

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1137	11/20/2022	2	2	99.89	Yes	-15.00	-114.89
1138	11/20/2022	2	3	99.46	Yes	-15.00	-114.46
1139	11/20/2022	2	4	99.49	Yes	-15.00	-114.49
1140	11/20/2022	2	5	100.04	Yes	-15.00	-115.04
1141	11/20/2022	2	6	103.15	Yes	-15.00	-118.15
1142	11/20/2022	2	7	103.86	Yes	-15.00	-118.86
1143	11/20/2022	2	8	105.45	Yes	-15.00	-120.45
1144	11/20/2022	2	9	108.05	Yes	-15.00	-123.05
1145	11/20/2022	2	10	107.98	Yes	-15.00	-122.98
1146	11/20/2022	2	11	104.58	Yes	-15.00	-119.58
1147	11/20/2022	2	12	104.62	Yes	-15.00	-119.62
1148	11/20/2022	3	1	104.71	Yes	-15.00	-119.71
1149	11/20/2022	3	2	104.59	Yes	-15.00	-119.59
1150	11/20/2022	3	3	100.12	Yes	-15.00	-115.12
1151	11/20/2022	3	4	99.95	Yes	-15.00	-114.95
1152	11/20/2022	3	5	120.26	Yes	-15.00	-135.26
1153	11/20/2022	3	6	106.04	Yes	-15.00	-121.04
1154	11/20/2022	3	7	104.84	Yes	-15.00	-119.84
1155	11/20/2022	3	8	104.19	Yes	-15.00	-119.19
1156	11/20/2022	3	9	100.44	Yes	-15.00	-115.44
1157	11/20/2022	3	10	102.59	Yes	-15.00	-117.59
1158	11/20/2022	3	11	99.95	Yes	-15.00	-114.95
1159	11/20/2022	3	12	98.30	Yes	-15.00	-113.30
1160	11/20/2022	4	1	85.16	Yes	-15.00	-100.16
1161	11/20/2022	4	2	104.68	Yes	-15.00	-119.68
1162	11/20/2022	4	3	104.78	Yes	-15.00	-119.78
1163	11/20/2022	4	4	105.65	Yes	-15.00	-120.65
1164	11/20/2022	4	5	106.12	Yes	-15.00	-121.12
1165	11/20/2022	4	6	106.76	Yes	-15.00	-121.76
1166	11/20/2022	4	7	94.98	Yes	-15.00	-109.98
1167	11/20/2022	4	8	94.98	Yes	-15.00	-109.98
1168	11/20/2022	4	9	98.35	Yes	-15.00	-113.35
1169	11/20/2022	4	10	98.24	Yes	-15.00	-113.24
1170	11/20/2022	4	11	97.90	Yes	-15.00	-112.90
1171	11/20/2022	4	12	98.24	Yes	-15.00	-113.24
1172	11/20/2022	5	1	89.31	Yes	-15.00	-104.31
1173	11/20/2022	5	2	94.25	Yes	-15.00	-109.25
1174	11/20/2022	5	3	94.52	Yes	-15.00	-109.52

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1175	11/20/2022	5	4	91.13	Yes	-15.00	-106.13
1176	11/20/2022	5	5	94.36	Yes	-15.00	-109.36
1177	11/20/2022	5	6	94.17	Yes	-15.00	-109.17
1178	11/20/2022	5	7	95.36	Yes	-15.00	-110.36
1179	11/20/2022	5	8	100.19	Yes	-15.00	-115.19
1180	11/20/2022	5	9	100.19	Yes	-15.00	-115.19
1181	11/20/2022	5	10	100.26	Yes	-15.00	-115.26
1182	11/20/2022	5	11	100.86	Yes	-15.00	-115.86
1183	11/20/2022	5	12	101.28	Yes	-15.00	-116.28
1184	11/20/2022	6	1	86.31	Yes	-15.00	-101.31
1185	11/20/2022	6	2	85.33	Yes	-15.00	-100.33
1186	11/20/2022	6	3	85.33	Yes	-15.00	-100.33
1187	11/20/2022	6	4	88.80	Yes	-15.00	-103.80
1188	11/20/2022	6	5	92.26	Yes	-15.00	-107.26
1189	11/20/2022	6	6	93.49	Yes	-15.00	-108.49
1190	11/20/2022	6	7	97.25	Yes	-15.00	-112.25
1191	11/20/2022	6	8	96.12	Yes	-15.00	-111.12
1192	11/20/2022	6	9	99.04	Yes	-15.00	-114.04
1193	11/20/2022	6	10	99.48	Yes	-15.00	-114.48
1194	11/20/2022	6	11	99.48	Yes	-15.00	-114.48
1195	11/20/2022	6	12	100.07	Yes	-15.00	-115.07
1196	11/20/2022	7	1	96.17	Yes	-15.00	-111.17
1197	11/20/2022	7	2	92.83	Yes	-15.00	-107.83
1198	11/20/2022	7	3	90.57	Yes	-15.00	-105.57
1199	11/20/2022	7	4	95.17	Yes	-15.00	-110.17
1200	11/20/2022	7	5	95.68	Yes	-15.00	-110.68
1201	11/20/2022	7	6	96.71	Yes	-15.00	-111.71
1202	11/20/2022	7	7	98.48	Yes	-15.00	-113.48
1203	11/20/2022	7	8	98.64	Yes	-15.00	-113.64
1204	11/20/2022	7	9	98.16	Yes	-15.00	-113.16
1205	11/20/2022	7	10	102.61	Yes	-15.00	-117.61
1206	11/20/2022	7	11	99.14	Yes	-15.00	-114.14
1207	11/20/2022	7	12	100.52	Yes	-15.00	-115.52
1208	11/20/2022	8	1	99.52	Yes	-15.00	-114.52
1209	11/20/2022	8	2	96.85	Yes	-15.00	-111.85
1210	11/20/2022	8	3	98.11	Yes	-15.00	-113.11
1211	11/20/2022	8	4	92.87	Yes	-15.00	-107.87
1212	11/20/2022	8	5	91.52	Yes	-15.00	-106.52



Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1213	11/20/2022	8	6	87.85	Yes	-15.00	-102.85
1214	11/20/2022	8	7	86.81	Yes	-15.00	-101.81
1215	11/20/2022	8	8	87.34	Yes	-15.00	-102.34
1216	11/20/2022	8	9	86.27	Yes	-15.00	-101.27
1217	11/20/2022	8	10	90.22	Yes	-15.00	-105.22
1218	11/20/2022	8	11	91.79	Yes	-15.00	-106.79
1219	11/20/2022	8	12	85.40	Yes	-15.00	-100.40
1220	11/20/2022	9	1	62.06	Yes	-15.00	-77.06
1221	11/20/2022	9	2	78.76	Yes	-15.00	-93.76
1222	11/20/2022	9	3	80.66	Yes	-15.00	-95.66
1223	11/20/2022	9	4	68.78	Yes	-15.00	-83.78
1224	11/20/2022	9	5	64.77	Yes	-15.00	-79.77
1225	11/20/2022	9	6	76.40	Yes	-15.00	-91.40
1226	11/20/2022	9	7	77.36	Yes	-15.00	-92.36
1227	11/20/2022	9	8	71.32	Yes	-15.00	-86.32
1228	11/20/2022	9	9	73.22	Yes	-15.00	-88.22
1229	11/20/2022	9	10	70.17	Yes	-15.00	-85.17
1230	11/20/2022	9	11	74.19	Yes	-15.00	-89.19
1231	11/20/2022	9	12	74.35	Yes	-15.00	-89.35
1232	11/20/2022	10	1	81.27	Yes	-15.00	-96.27
1233	11/20/2022	10	2	80.86	Yes	-15.00	-95.86
1234	11/20/2022	10	3	80.97	Yes	-15.00	-95.97
1235	11/20/2022	10	4	81.82	Yes	-15.00	-96.82
1236	11/20/2022	10	5	85.53	Yes	-15.00	-100.53
1237	11/20/2022	10	6	82.58	Yes	-15.00	-97.58
1238	11/20/2022	10	7	82.98	Yes	-15.00	-97.98
1239	11/20/2022	10	8	77.46	Yes	-15.00	-92.46
1240	11/20/2022	10	9	77.58	Yes	-15.00	-92.58
1241	11/20/2022	10	10	80.55	Yes	-15.00	-95.55
1242	11/20/2022	10	11	80.55	Yes	-15.00	-95.55
1243	11/20/2022	10	12	81.53	Yes	-15.00	-96.53
1244	11/20/2022	11	1	94.60	Yes	-15.00	-109.60
1245	11/20/2022	11	2	91.60	Yes	-15.00	-106.60
1246	11/20/2022	11	3	91.14	Yes	-15.00	-106.14
1247	11/20/2022	11	4	90.72	Yes	-15.00	-105.72
1248	11/20/2022	11	5	89.65	Yes	-15.00	-104.65
1249	11/20/2022	11	6	88.51	Yes	-15.00	-103.51
1250	11/20/2022	11	7	79.50	Yes	-15.00	-94.50

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1251	11/20/2022	11	8	79.50	Yes	-15.00	-94.50
1252	11/20/2022	11	9	70.78	Yes	-15.00	-85.78
1253	11/20/2022	11	10	31.33	Yes	-15.00	-46.33
1254	11/20/2022	11	11	56.19	Yes	-15.00	-71.19
1255	11/20/2022	11	12	71.41	Yes	-15.00	-86.41
1256	11/20/2022	12	1	80.04	Yes	-15.00	-95.04
1257	11/20/2022	12	2	80.04	Yes	-15.00	-95.04
1258	11/20/2022	12	3	80.05	Yes	-15.00	-95.05
1259	11/20/2022	12	4	79.70	Yes	-15.00	-94.70
1260	11/20/2022	12	5	79.70	Yes	-15.00	-94.70
1261	11/20/2022	12	6	79.69	Yes	-15.00	-94.69
1262	11/20/2022	12	7	79.79	Yes	-15.00	-94.79
1263	11/20/2022	12	8	79.79	Yes	-15.00	-94.79
1264	11/20/2022	12	9	79.06	Yes	-15.00	-94.06
1265	11/20/2022	12	10	79.26	Yes	-15.00	-94.26
1266	11/20/2022	12	11	78.26	Yes	-15.00	-93.26
1267	11/20/2022	12	12	79.75	Yes	-15.00	-94.75
1268	11/20/2022	13	1	78.93	Yes	-15.00	-93.93
1269	11/20/2022	13	2	78.93	Yes	-15.00	-93.93
1270	11/20/2022	13	3	78.93	Yes	-15.00	-93.93
1271	11/20/2022	13	4	79.05	Yes	-15.00	-94.05
1272	11/20/2022	13	5	79.03	Yes	-15.00	-94.03
1273	11/20/2022	13	6	79.05	Yes	-15.00	-94.05
1274	11/20/2022	13	7	78.59	Yes	-15.00	-93.59
1275	11/20/2022	13	8	78.76	Yes	-15.00	-93.76
1276	11/20/2022	13	9	77.10	Yes	-15.00	-92.10
1277	11/20/2022	13	10	80.33	Yes	-15.00	-95.33
1278	11/20/2022	13	11	80.39	Yes	-15.00	-95.39
1279	11/20/2022	13	12	80.40	Yes	-15.00	-95.40
1280	11/20/2022	14	1	72.49	Yes	-15.00	-87.49
1281	11/20/2022	14	2	72.56	Yes	-15.00	-87.56
1282	11/20/2022	14	3	75.79	Yes	-15.00	-90.79
1283	11/20/2022	14	4	73.15	Yes	-15.00	-88.15
1284	11/20/2022	14	5	74.21	Yes	-15.00	-89.21
1285	11/20/2022	14	6	74.75	Yes	-15.00	-89.75
1286	11/20/2022	14	7	78.35	Yes	-15.00	-93.35
1287	11/20/2022	14	8	78.30	Yes	-15.00	-93.30
1288	11/20/2022	14	9	79.19	Yes	-15.00	-94.19

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1289	11/20/2022	14	10	79.25	Yes	-15.00	-94.25
1290	11/20/2022	14	11	80.01	Yes	-15.00	-95.01
1291	11/20/2022	14	12	80.29	Yes	-15.00	-95.29
1292	11/20/2022	15	1	69.09	Yes	-15.00	-84.09
1293	11/20/2022	15	2	70.44	Yes	-15.00	-85.44
1294	11/20/2022	15	3	72.96	Yes	-15.00	-87.96
1295	11/20/2022	15	4	71.96	Yes	-15.00	-86.96
1296	11/20/2022	15	5	71.39	Yes	-15.00	-86.39
1297	11/20/2022	15	6	72.38	Yes	-15.00	-87.38
1298	11/20/2022	15	7	74.82	Yes	-15.00	-89.82
1299	11/20/2022	15	8	79.49	Yes	-15.00	-94.49
1300	11/20/2022	15	9	82.85	Yes	-15.00	-97.85
1301	11/20/2022	15	10	85.60	Yes	-15.00	-100.60
1302	11/20/2022	15	11	79.90	Yes	-15.00	-94.90
1303	11/20/2022	15	12	82.43	Yes	-15.00	-97.43
1304	11/20/2022	16	1	82.43	Yes	-15.00	-97.43
1305	11/20/2022	16	2	67.25	Yes	-15.00	-82.25
1306	11/20/2022	16	3	68.01	Yes	-15.00	-83.01
1307	11/20/2022	16	4	62.03	Yes	-15.00	-77.03
1308	11/20/2022	16	5	67.32	Yes	-15.00	-82.32
1309	11/20/2022	16	6	72.89	Yes	-15.00	-87.89
1310	11/20/2022	16	7	72.43	Yes	-15.00	-87.43
1311	11/20/2022	16	8	79.35	Yes	-15.00	-94.35
1312	11/20/2022	16	9	91.64	Yes	-15.00	-106.64
1313	11/20/2022	16	10	98.58	Yes	-15.00	-113.58
1314	11/20/2022	16	11	100.49	Yes	-15.00	-115.49
1315	11/20/2022	16	12	100.36	Yes	-15.00	-115.36
1316	11/20/2022	17	1	72.47	Yes	-15.00	-87.47
1317	11/20/2022	17	2	70.52	Yes	-15.00	-85.52
1318	11/20/2022	17	3	73.18	Yes	-15.00	-88.18
1319	11/20/2022	17	4	77.54	Yes	-15.00	-92.54
1320	11/20/2022	17	5	79.43	Yes	-15.00	-94.43
1321	11/20/2022	17	6	85.26	Yes	-15.00	-100.26
1322	11/20/2022	17	7	89.05	Yes	-15.00	-104.05
1323	11/20/2022	17	8	97.44	Yes	-15.00	-112.44
1324	11/20/2022	17	9	99.05	Yes	-15.00	-114.05
1325	11/20/2022	17	10	100.00	Yes	-15.00	-115.00
1326	11/20/2022	17	11	105.26	Yes	-15.00	-120.26

Department of Market Analysis and Forecasting – California ISO

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1327	11/20/2022	17	12	102.59	Yes	-15.00	-117.59
1328	11/20/2022	18	1	101.79	Yes	-15.00	-116.79
1329	11/20/2022	18	2	97.61	Yes	-15.00	-112.61
1330	11/20/2022	18	3	96.67	Yes	-15.00	-111.67
1331	11/20/2022	18	4	95.54	Yes	-15.00	-110.54
1332	11/20/2022	18	5	95.54	Yes	-15.00	-110.54
1333	11/20/2022	18	6	95.54	Yes	-15.00	-110.54
1334	11/20/2022	18	7	94.11	Yes	-15.00	-109.11
1335	11/20/2022	18	8	96.94	Yes	-15.00	-111.94
1336	11/20/2022	18	9	97.06	Yes	-15.00	-112.06
1337	11/20/2022	18	10	94.48	Yes	-15.00	-109.48
1338	11/20/2022	18	11	94.50	Yes	-15.00	-109.50
1339	11/20/2022	18	12	94.74	Yes	-15.00	-109.74
1340	11/20/2022	19	1	88.79	Yes	-15.00	-103.79
1341	11/20/2022	19	2	90.59	Yes	-15.00	-105.59
1342	11/20/2022	19	3	88.74	Yes	-15.00	-103.74
1343	11/20/2022	19	4	88.79	Yes	-15.00	-103.79
1344	11/20/2022	19	5	88.55	Yes	-15.00	-103.55
1345	11/20/2022	19	6	88.49	Yes	-15.00	-103.49
1346	11/20/2022	19	7	88.39	Yes	-15.00	-103.39
1347	11/20/2022	19	8	88.77	Yes	-15.00	-103.77
1348	11/20/2022	19	9	88.77	Yes	-15.00	-103.77
1349	11/20/2022	19	10	86.31	Yes	-15.00	-101.31
1350	11/20/2022	19	11	85.84	Yes	-15.00	-100.84
1351	11/20/2022	19	12	84.90	Yes	-15.00	-99.90
1352	11/20/2022	20	1	86.28	Yes	-15.00	-101.28
1353	11/20/2022	20	2	86.48	Yes	-15.00	-101.48
1354	11/20/2022	20	3	86.21	Yes	-15.00	-101.21
1355	11/20/2022	20	4	86.23	Yes	-15.00	-101.23
1356	11/20/2022	20	5	89.35	Yes	-15.00	-104.35
1357	11/20/2022	20	6	90.90	Yes	-15.00	-105.90
1358	11/20/2022	20	7	87.32	Yes	-15.00	-102.32
1359	11/20/2022	20	8	89.70	Yes	-15.00	-104.70
1360	11/20/2022	20	9	87.92	Yes	-15.00	-102.92
1361	11/20/2022	20	10	88.18	Yes	-15.00	-103.18
1362	11/20/2022	20	11	87.01	Yes	-15.00	-102.01
1363	11/20/2022	20	12	87.75	Yes	-15.00	-102.75

**Table 9: Price Impact Analysis Information for Pricing Node B in SCE LAP**

Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
1	11/24/2022	13	1	7.84	Yes	102.7	94.86
2	11/24/2022	13	2	6.67	Yes	102.7	96.03
3	11/24/2022	13	3	6.02	Yes	102.7	96.68
4	11/24/2022	13	4	4.40	Yes	102.7	98.30
5	11/24/2022	13	5	3.89	Yes	102.7	98.81
6	11/24/2022	13	6	1.77	Yes	102.7	100.93
7	11/24/2022	13	7	1.21	Yes	102.7	101.49
8	11/24/2022	13	8	0.87	Yes	102.7	101.83

## Appendix C: Exceptional Dispatch Bid Mitigation Analysis

In November 2022, the ISO applied the exceptional dispatch bid mitigation to the exceptional dispatches. Table 10 shows the costs by instruction type in November. With exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches were \$31,318. Without the exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches would be \$235,674. The cost saving from the exceptional dispatch bid mitigation was \$204,356.

**Table 10: Bid Mitigation Analysis for November 2022**

Type	Number of Resources	Costs without Bid Mitigation	Costs with Bid Mitigation	Cost Savings
NONTMOD	4	243,470	15,551	227,919
TMODEL5	2	(7,796)	15,621	(23,417)
TMODEL6	1	-	146	(146)
Total	7	235,674	31,318	204,356

## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California, this 17<sup>th</sup> day of January, 2023.

*Is/ Anna Pascuzzo*  
Anna Pascuzzo