



# **Exceptional Dispatch Report**

## **Table 2: July 2021**

Market Analysis and Forecasting

September 15, 2021

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## 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 July 2021.

This report contains a price impact analysis as prescribed by FERC in its September 2 order. The price impact analysis for the month of July is presented in Appendix B. This report also includes mitigation analysis for July 2021 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 July 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 2021 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 July, 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 July 2021. 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 issued for the following reasons accounted for approximately 80 percent of the total exceptional dispatches during the reporting period: planned transmission outages, reliability assessment, ramping capacity, and load forecast uncertainty. Exceptional dispatches with the reason “Reliability Assessment” were due to Real Time Contingency Analysis, Voltage Stability Analysis, and operating procedure number 7110 (along with 7230, 7430, 7450, and 7720). Reliability Assessment is the reason as explained in the operator procedure 2330C<sup>7</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>7</sup> The operator procedure 2330C - <http://www.caiso.com/Documents/2330C.pdf>

**Table 1: Exceptional Dispatches in July 2021**

**California Independent System Operator Corporation  
Exceptional Dispatch Report  
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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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	Bridging Schedules	PGAE	Fresno	7/29/2021	83	No	INC	1	0:00	0:30	58.93	2960.81	0.00	-4294.67	0.00	0.00	0.00	0.00	0.00	0.00
2	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/15/2021	50	No	INC	4	20:00	0:00	-1.64	50885.89	0.00	106.66	0.00	0.00	0.00	0.00	0.00	0.00
3	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/16/2021	50	No	INC	17	0:00	16:30	13.54	190856.99	0.00	-674.40	0.00	0.00	0.00	0.00	0.00	0.00
4	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/17/2021	50	No	INC	18	6:20	0:00	1223.53	367601.92	0.00	-50661.86	0.00	0.00	0.00	0.00	0.00	0.00
5	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/18/2021	50	No	INC	16	0:00	16:00	3.91	181851.68	0.00	1323.95	0.00	0.00	0.00	0.00	0.00	0.00
6	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/21/2021	50 - 100	No	INC	2	22:00	0:00	226.56	53471.38	0.00	-12116.33	0.00	0.00	0.00	0.00	0.00	0.00
7	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/27/2021	50 - 100	No	INC	24	0:00	0:00	49.64	285659.84	0.00	-2599.28	0.00	0.00	0.00	0.00	0.00	0.00
8	RT	Bridging Schedules	SCE	Big Creek-Ventura	7/31/2021	50	No	INC	2	22:00	0:00	-17.16	59250.40	0.00	962.65	0.00	0.00	0.00	0.00	0.00	0.00
9	RT	Bridging Schedules	SCE	LA Basin	7/13/2021	10 - 70	Yes	INC	2	22:00	0:00	12.96	56481.66	0.00	-840.53	0.00	0.00	0.00	0.00	0.00	0.00
10	RT	Bridging Schedules	SCE	LA Basin	7/15/2021	20	Yes	INC	1	23:00	0:00	0.00	4577.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	RT	Bridging Schedules	SCE	LA Basin	7/16/2021	20	No	INC	1	23:00	0:00	0.00	4544.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	RT	Bridging Schedules	SCE	LA Basin	7/18/2021	10	No	INC	1	23:00	0:00	0.00	3183.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	RT	Bridging Schedules	SCE	LA Basin	7/19/2021	10 - 20	No	INC	24	0:00	0:00	23.30	9508.64	0.00	-2710.91	0.00	0.00	0.00	0.00	0.00	0.00
14	RT	Bridging Schedules	SCE	LA Basin	7/20/2021	20	No	INC	2	22:00	0:00	62.34	0.00	0.00	-290.05	0.00	0.00	0.00	0.00	0.00	0.00
15	RT	Bridging Schedules	SCE	LA Basin	7/21/2021	10 - 70	Yes	INC	1	23:00	0:00	61.67	20436.40	0.00	-3056.07	0.00	0.00	0.00	0.00	0.00	0.00
16	RT	Bridging Schedules	SCE	LA Basin	7/22/2021	10	Yes	INC	1	23:00	0:00	0.00	3653.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	RT	Bridging Schedules	SCE	LA Basin	7/25/2021	10	No	INC	1	23:00	0:00	0.00	3231.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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18	RT	Bridging Schedules	SCE	LA Basin	7/26/2021	10	Yes	INC	1	23:00	0:00	0.00	6463.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	RT	Bridging Schedules	SCE	LA Basin	7/27/2021	10 - 20	No	INC	2	22:00	0:00	0.00	6496.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	RT	Bridging Schedules	SCE	LA Basin	7/28/2021	10	Yes	INC	1	23:00	0:00	0.00	6770.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	RT	Bridging Schedules	SCE	LA Basin	7/29/2021	10	Yes	INC	1	23:00	0:00	0.00	7952.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	RT	Bridging Schedules	SCE	LA Basin	7/30/2021	10	No	INC	1	23:00	0:00	38.50	7640.24	0.00	-3779.84	0.00	0.00	0.00	0.00	0.00	0.00
23	RT	Bridging Schedules	SCE	LA Basin	7/31/2021	10	No	INC	1	23:00	0:00	0.00	3728.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	RT	Conditions beyond the control of the CAISO	PGAE	NA	7/14/2021	5 - 10	No	DEC	1	10:30	11:30	-14.92	0.00	0.00	540.11	-13.36	0.00	490.90	0.00	0.00	0.00
25	RT	Conditions beyond the control of the CAISO	PGAE	NA	7/14/2021	5	No	INC	1	10:45	11:30	0.37	0.00	0.00	-13.48	0.42	-15.04	0.00	0.00	0.00	0.00
26	RT	Conditions beyond the control of the CAISO	SCE	Big Creek-Ventura	7/13/2021	50	No	INC	15	0:00	15:00	24.17	217132.97	0.00	-1204.27	0.00	0.00	0.00	0.00	0.00	0.00
27	RT	Conditions beyond the control of the CAISO	SCE	Big Creek-Ventura	7/22/2021	50 - 100	No	INC	14	0:00	14:00	283.12	464571.66	0.00	-13709.97	0.00	0.00	0.00	0.00	0.00	0.00
28	RT	Conditions beyond the control of the CAISO	SCE	Big Creek-Ventura	7/23/2021	100	No	INC	14	0:00	14:00	0.08	280049.63	0.00	-3.32	0.00	0.00	0.00	0.00	0.00	0.00
29	RT	Conditions beyond the control of the CAISO	SCE	LA Basin	7/4/2021	251	No	INC	1	17:00	18:00	-34.10	0.00	0.00	971.10	9.92	-291.76	0.00	-28.09	0.00	0.00
30	RT	Conditions beyond the control of the CAISO	SCE	LA Basin	7/22/2021	20	No	INC	24	0:00	0:00	-15.26	97984.96	0.00	1090.86	0.00	0.00	0.00	0.00	0.00	0.00
31	RT	Conditions beyond the control of the CAISO	SDGE	San Diego-IV	7/4/2021	310	No	INC	2	16:15	18:00	-45.37	0.00	0.00	1403.75	0.00	0.00	0.00	-129.72	0.00	0.00
32	RT	Fast Start Unit Management	PGAE	Fresno	7/13/2021	83	No	DEC	3	17:00	20:00	-27.40	0.00	0.00	2020.95	0.00	0.00	0.00	0.00	0.00	0.00
33	RT	Fast Start Unit Management	PGAE	Fresno	7/13/2021	83	No	INC	1	16:50	17:00	22.72	2083.53	0.00	-2012.23	0.00	0.00	0.00	0.00	0.00	0.00
34	RT	Fast Start Unit Management	PGAE	Fresno	7/31/2021	0	No	INC	1	16:30	16:55	-4.24	0.00	0.00	0.00	-4.24	0.00	0.00	0.00	0.00	0.00
35	RT	Fast Start Unit Management	SCE	Fresno	7/29/2021	0	No	INC	11	10:25	21:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



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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
36	RT	Fast Start Unit Management	SCE	LA Basin	7/12/2021	0	No	INC	3	8:15	10:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	RT	Fast Start Unit Management	SCE	LA Basin	7/29/2021	0	No	INC	11	10:25	21:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	RT	Gas Limitations	SDGE	San Diego-IV	7/25/2021	96	No	INC	1	23:30	0:00	-5.10	2734.74	3943.19	203.67	0.00	0.00	0.00	-476.44	0.00	0.00
39	RT	Gas Limitations	SDGE	San Diego-IV	7/26/2021	96	No	INC	24	0:00	0:00	-23.30	61531.76	4036.34	1602.00	12.30	-537.67	0.00	-17019.50	0.00	0.00
40	RT	Gas Limitations	SDGE	San Diego-IV	7/27/2021	96	No	INC	24	0:00	0:00	-2.04	68706.37	3984.13	121.96	0.00	0.00	0.00	-19361.38	0.00	0.00
41	RT	Gas Limitations	SDGE	San Diego-IV	7/28/2021	96	No	INC	8	0:00	8:00	-11.31	23940.08	0.00	543.15	0.00	0.00	0.00	-13150.39	0.00	0.00
42	RT	Incomplete or Inaccurate Transmission	PGAE	Kern	7/15/2021	32	No	INC	4	15:45	19:15	-7.51	8015.37	6547.62	399.07	0.00	0.00	0.00	0.00	0.00	0.00
43	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	7/2/2021	15	No	DEC	1	18:00	18:45	11.36	0.00	0.00	-497.75	0.00	0.00	0.00	0.00	0.00	0.00
44	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	7/2/2021	5 - 40	No	INC	7	15:45	22:00	27.20	19366.44	2424.43	-2857.20	22.29	-1496.91	0.00	0.00	-1185.87	0.00
45	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	7/3/2021	38 - 42	No	DEC	5	17:00	22:00	10.27	0.00	0.00	-786.17	0.00	0.00	0.00	0.00	0.00	0.00
46	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	7/3/2021	20 - 42	No	INC	15	9:55	0:00	13.95	63601.38	1461.91	-646.33	10.50	-375.90	0.00	0.00	-2549.67	0.00
47	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	7/4/2021	20	No	DEC	2	19:00	21:00	-6.79	0.00	0.00	385.64	0.00	0.00	0.00	0.00	0.00	0.00
48	RT	Incomplete or Inaccurate Transmission	PGAE	Sierra	7/4/2021	20 - 42	No	INC	23	0:00	23:00	7.77	45515.61	1299.48	-352.70	0.00	0.00	0.00	0.00	0.00	0.00
49	RT	Load Forecast Uncertainty	Intertie	CAISO Import	7/9/2021	231	No	INC	1	17:10	18:00	106.61	0.00	0.00	-23696.23	56.80	-5105.26	19.94	-327.50	0.00	0.00
50	RT	Load Forecast Uncertainty	Intertie	NA	7/29/2021	70 - 286	No	INC	2	18:00	20:00	14.00	0.00	0.00	-1133.08	14.00	-1133.07	0.00	-214134.46	0.00	0.00
51	RT	Load Forecast Uncertainty	Intertie	NA	7/30/2021	160 - 197	No	INC	2	18:00	20:00	46.25	0.00	0.00	-3971.35	46.25	-3971.36	0.00	-174001.66	0.00	0.00
52	RT	Load Forecast Uncertainty	PGAE	Bay Area	7/10/2021	114.8	No	INC	6	16:00	22:00	358.53	0.00	0.00	-42614.69	358.53	-42614.69	0.00	-317.56	0.00	0.00

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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	Load Forecast Uncertainty	PGAE	Bay Area	7/11/2021	114.8	No	INC	6	16:00	22:00	136.31	0.00	0.00	-9626.20	136.31	-9626.20	0.00	-145.55	0.00	0.00
54	RT	Load Forecast Uncertainty	PGAE	Bay Area	7/12/2021	114.8	No	INC	6	16:00	22:00	189.36	0.00	0.00	-14246.81	189.36	-14246.81	0.00	-325.40	0.00	0.00
55	RT	Load Forecast Uncertainty	PGAE	Bay Area	7/19/2021	20 - 95	No	INC	4	10:00	14:00	-3.53	33791.88	0.00	148.44	0.00	0.00	0.00	0.00	0.00	0.00
56	RT	Load Forecast Uncertainty	PGAE	Big Creek-Ventura	7/10/2021	62	No	INC	11	1:00	12:00	174.43	87015.06	0.00	-10628.70	0.00	0.00	0.00	0.00	0.00	0.00
57	RT	Load Forecast Uncertainty	PGAE	Fresno	7/9/2021	103	No	INC	4	18:50	22:00	60.52	22472.61	0.00	-42239.46	0.00	0.00	0.00	0.00	0.00	0.00
58	RT	Load Forecast Uncertainty	PGAE	Fresno	7/10/2021	21	No	DEC	4	18:00	22:00	18.54	-4759.99	0.00	-6531.46	0.00	0.00	0.00	0.00	0.00	0.00
59	RT	Load Forecast Uncertainty	PGAE	Fresno	7/10/2021	21	No	INC	5	13:55	18:00	-39.47	8789.20	21.09	2283.83	0.00	0.00	0.00	0.00	0.00	0.00
60	RT	Load Forecast Uncertainty	PGAE	Fresno	7/11/2021	20	No	DEC	4	18:00	22:00	-31.11	-25378.06	156.50	2461.39	0.00	0.00	0.00	0.00	0.00	0.00
61	RT	Load Forecast Uncertainty	PGAE	Fresno	7/11/2021	20	No	INC	10	8:45	18:00	-12.82	25838.77	361.92	437.39	0.00	0.00	0.00	0.00	0.00	0.00
62	RT	Load Forecast Uncertainty	PGAE	Fresno	7/19/2021	22	No	INC	2	11:00	13:00	1.26	3995.94	169.15	-122.31	0.00	0.00	0.00	0.00	0.00	0.00
63	RT	Load Forecast Uncertainty	PGAE	Fresno	7/30/2021	20	No	DEC	2	18:00	20:00	-9.66	-3328.64	23.66	762.05	0.00	0.00	0.00	0.00	0.00	0.00
64	RT	Load Forecast Uncertainty	PGAE	Fresno	7/30/2021	20	No	INC	12	6:30	18:00	-4.89	35676.91	544.09	-495.91	0.00	0.00	0.00	0.00	0.00	0.00
65	RT	Load Forecast Uncertainty	PGAE	Humboldt	7/16/2021	30	No	DEC	4	19:00	23:00	0.00	-7324.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	RT	Load Forecast Uncertainty	PGAE	Humboldt	7/16/2021	30	No	INC	1	23:00	0:00	0.00	1690.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67	RT	Load Forecast Uncertainty	PGAE	Humboldt	7/17/2021	30	No	DEC	2	14:00	15:15	-2.90	847.37	0.00	123.59	-1.47	0.00	65.49	0.00	-42.06	0.00
68	RT	Load Forecast Uncertainty	PGAE	Humboldt	7/17/2021	30	No	INC	14	0:00	14:00	0.27	22455.45	0.00	-12.66	0.00	0.00	0.00	0.00	0.00	0.00
69	RT	Load Forecast Uncertainty	PGAE	NA	7/9/2021	197.61 - 339	No	INC	8	14:00	21:45	215.32	0.00	0.00	-232609.18	72.87	-25029.87	0.00	-9108.33	0.00	0.00

**California Independent System Operator Corporation  
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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
70	RT	Load Forecast Uncertainty	PGAE	NA	7/10/2021	110.31 - 300	No	INC	23	1:00	0:00	37.25	177829.10	16494.35	-3148.42	0.00	0.00	0.00	0.00	0.00	0.00
71	RT	Load Forecast Uncertainty	PGAE	NA	7/11/2021	110.31	No	INC	11	13:00	0:00	-73.26	96823.65	16494.35	3964.68	0.00	0.00	0.00	0.00	0.00	0.00
72	RT	Load Forecast Uncertainty	PGAE	NA	7/27/2021	50	No	INC	1	16:00	17:00	-8.36	5348.80	1606.40	488.91	0.00	0.00	0.00	0.00	0.00	0.00
73	RT	Load Forecast Uncertainty	PGAE	NA	7/28/2021	48.95	No	DEC	7	15:45	22:00	1092.73	-43734.33	1638.63	-76694.47	0.00	0.00	0.00	0.00	0.00	0.00
74	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/7/2021	50	No	INC	13	11:00	0:00	353.12	6642.26	0.00	-22585.81	0.00	0.00	0.00	0.00	0.00	0.00
75	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/8/2021	-100	No	DEC	2	15:45	17:30	-27.45	0.00	0.00	-3494.80	-31.90	0.00	-595.94	0.00	0.00	0.00
76	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/8/2021	100	No	INC	21	3:00	0:00	4.17	220160.15	0.00	-156.07	0.00	0.00	0.00	0.00	0.00	0.00
77	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/9/2021	43 - 663	No	INC	22	0:00	22:00	305.10	16880.36	0.00	-248572.00	0.00	0.00	0.00	0.00	0.00	0.00
78	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/10/2021	50 - 80	No	INC	21	0:00	21:00	598.32	188678.73	116807.44	-41230.32	148.63	-11313.19	0.00	-365.62	0.00	0.00
79	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/11/2021	50 - 80	No	INC	8	16:00	0:00	547.29	171202.34	0.00	-31784.10	288.18	-18062.35	0.00	-5464.28	0.00	0.00
80	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/12/2021	70 - 80	No	INC	6	16:00	22:00	507.54	13570.44	0.00	-33767.97	143.16	-10206.56	0.00	-2147.19	0.00	0.00
81	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/16/2021	50	No	INC	8	16:20	0:00	136.25	30637.69	0.00	-6295.03	0.00	0.00	0.00	0.00	0.00	0.00
82	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/17/2021	50 - 100	No	INC	24	0:00	0:00	1037.52	332312.62	164714.60	-42808.09	0.00	0.00	0.00	0.00	0.00	0.00
83	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/18/2021	100	No	INC	14	0:00	14:00	4.20	0.00	0.00	-207.32	0.00	0.00	0.00	0.00	0.00	0.00
84	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/20/2021	50 - 100	No	INC	24	0:00	0:00	131.31	573787.61	0.00	-3875.41	0.00	0.00	0.00	0.00	0.00	0.00
85	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/24/2021	100	No	INC	24	0:00	0:00	41.83	432586.91	0.00	-1938.92	0.00	0.00	0.00	0.00	0.00	0.00
86	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/25/2021	100	No	INC	24	0:00	0:00	0.00	430689.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
87	RT	Load Forecast Uncertainty	SCE	Big Creek-Ventura	7/26/2021	50 - 100	No	INC	15	0:00	15:00	4.44	285682.09	104987.76	-266.80	0.00	0.00	0.00	0.00	0.00	0.00
88	RT	Load Forecast Uncertainty	SCE	LA Basin	7/1/2021	20	No	INC	1	23:00	0:00	0.00	3975.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89	RT	Load Forecast Uncertainty	SCE	LA Basin	7/8/2021	-100	No	DEC	3	15:10	18:00	-41.44	0.00	0.00	1584.10	-57.29	0.00	1839.64	0.00	0.00	0.00
90	RT	Load Forecast Uncertainty	SCE	LA Basin	7/8/2021	10 - 133	No	INC	17	7:00	0:00	19.63	149317.40	42781.53	-43456.12	0.00	0.00	0.00	0.00	0.00	0.00
91	RT	Load Forecast Uncertainty	SCE	LA Basin	7/9/2021	248	No	DEC	2	18:00	20:00	69.07	0.00	0.00	-69438.76	0.00	0.00	0.00	0.00	0.00	0.00
92	RT	Load Forecast Uncertainty	SCE	LA Basin	7/9/2021	10 - 416	Yes	INC	24	0:00	0:00	1435.75	273462.72	556128.40	-689264.93	472.01	-42183.51	0.00	-6524.93	0.00	0.00
93	RT	Load Forecast Uncertainty	SCE	LA Basin	7/10/2021	10 - 416.6	Yes	INC	24	0:00	0:00	1062.81	6733.94	0.00	-93452.46	1062.93	-93463.32	0.00	-1418.18	0.00	0.00
94	RT	Load Forecast Uncertainty	SCE	LA Basin	7/11/2021	10 - 416.6	No	INC	24	0:00	0:00	1090.29	9402.30	0.00	-68978.33	1055.60	-67057.32	0.00	-3.26	0.00	0.00
95	RT	Load Forecast Uncertainty	SCE	LA Basin	7/12/2021	10 - 416.6	No	INC	8	16:00	0:00	905.93	11435.59	0.00	-67207.55	905.36	-67174.58	0.00	-98.97	0.00	0.00
96	RT	Load Forecast Uncertainty	SCE	LA Basin	7/14/2021	10	No	INC	2	22:00	0:00	1.47	13219.24	0.00	-135.35	0.00	0.00	0.00	0.00	0.00	0.00
97	RT	Load Forecast Uncertainty	SCE	LA Basin	7/15/2021	10	Yes	INC	24	0:00	0:00	-22.43	156903.36	0.00	1353.91	0.00	0.00	0.00	0.00	0.00	0.00
98	RT	Load Forecast Uncertainty	SCE	LA Basin	7/16/2021	10	No	INC	2	22:00	0:00	0.00	6495.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	RT	Load Forecast Uncertainty	SCE	LA Basin	7/17/2021	10 - 70	Yes	INC	7	17:00	0:00	0.00	20368.48	30856.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	RT	Load Forecast Uncertainty	SCE	LA Basin	7/18/2021	10	No	DEC	1	19:00	20:00	1.67	0.00	0.00	-114.95	0.00	0.00	0.00	0.00	0.00	0.00
101	RT	Load Forecast Uncertainty	SCE	LA Basin	7/18/2021	10 - 130	No	INC	22	0:00	22:00	15.95	5222.19	0.00	-190.48	0.00	0.00	0.00	0.00	0.00	0.00
102	RT	Load Forecast Uncertainty	SCE	LA Basin	7/19/2021	147	No	DEC	7	15:50	22:00	-427.71	-17664.49	16848.25	27247.87	0.00	0.00	0.00	0.00	0.00	0.00
103	RT	Load Forecast Uncertainty	SCE	LA Basin	7/19/2021	140	No	INC	7	16:30	23:00	6.25	0.00	0.00	-382.85	6.25	-382.85	0.00	-18363.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
104	RT	Load Forecast Uncertainty	SCE	LA Basin	7/20/2021	10 - 70	No	INC	24	0:00	0:00	25.56	222120.08	0.00	1356.36	0.00	0.00	0.00	0.00	0.00	0.00
105	RT	Load Forecast Uncertainty	SCE	LA Basin	7/21/2021	147.1	No	DEC	9	13:30	22:00	1247.94	12063.22	0.00	-94795.11	0.03	-1.51	0.00	-0.07	0.00	0.00
106	RT	Load Forecast Uncertainty	SCE	LA Basin	7/21/2021	140 - 160	No	INC	9	13:30	22:00	30.84	0.00	0.00	-2278.13	30.84	-2278.13	0.00	-22234.29	0.00	0.00
107	RT	Load Forecast Uncertainty	SCE	LA Basin	7/24/2021	10 - 130	No	INC	22	2:00	0:00	-33.93	352357.43	0.00	2261.06	0.00	0.00	0.00	0.00	0.00	0.00
108	RT	Load Forecast Uncertainty	SCE	LA Basin	7/25/2021	130	No	INC	24	0:00	0:00	-42.55	375946.80	0.00	2521.18	0.00	0.00	0.00	0.00	0.00	0.00
109	RT	Load Forecast Uncertainty	SCE	LA Basin	7/26/2021	70	No	INC	12	12:00	0:00	33.06	76198.95	98321.00	-2401.52	0.00	0.00	0.00	0.00	0.00	0.00
110	RT	Load Forecast Uncertainty	SCE	LA Basin	7/31/2021	130	No	INC	22	2:00	0:00	-2.71	500399.78	0.00	373.36	0.00	0.00	0.00	0.00	0.00	0.00
111	RT	Load Forecast Uncertainty	SCE	NA	7/8/2021	-115	No	DEC	1	15:35	15:40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	RT	Load Forecast Uncertainty	SCE	NA	7/10/2021	0	No	INC	2	20:10	22:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	7/8/2021	-184	No	DEC	2	15:55	17:00	35.98	0.00	0.00	-4836.54	-3.13	0.00	424.05	0.00	0.00	0.00
114	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	7/9/2021	30	No	INC	2	20:15	22:00	24.79	4596.51	0.00	-12315.68	0.00	0.00	0.00	0.00	0.00	0.00
115	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	7/10/2021	225	No	INC	13	11:00	0:00	31.97	296134.60	12648.55	-2248.65	0.00	0.00	0.00	0.00	0.00	0.00
116	RT	Load Forecast Uncertainty	SDGE	San Diego-IV	7/28/2021	225	No	INC	12	12:00	0:00	-127.68	322846.49	40020.74	10372.06	0.00	0.00	0.00	0.00	0.00	0.00
117	RT	Market Disruption	PGAE	Fresno	7/17/2021	400	No	INC	1	20:05	20:10	8.66	0.00	0.00	-613.27	9.08	-643.09	0.00	-26.20	0.00	0.00
118	RT	Other Reliability Requirement	SCE	LA Basin	7/31/2021	140 - 455	No	INC	6	16:30	22:00	542.94	5165.25	0.00	-31227.19	575.35	-33303.66	0.00	-121894.66	0.00	0.00
119	RT	Planned Transmission Outage	PGAE	Bay Area	7/18/2021	200	No	DEC	1	12:00	12:10	-4.65	0.00	0.00	209.94	-4.65	0.00	209.94	0.00	0.00	0.00
120	RT	Planned Transmission Outage	PGAE	Bay Area	7/19/2021	22	No	DEC	3	18:00	21:00	1.87	0.00	0.00	-111.48	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
121	RT	Planned Transmission Outage	PGAE	Bay Area	7/19/2021	22	No	INC	9	14:45	23:00	9.20	0.00	0.00	-1045.25	0.00	0.00	0.00	0.00	0.00	0.00
122	RT	Planned Transmission Outage	PGAE	Fresno	7/1/2021	83	No	INC	5	0:00	4:30	-41.88	47948.67	0.00	2397.29	0.00	0.00	0.00	0.00	0.00	0.00
123	RT	Planned Transmission Outage	PGAE	Fresno	7/4/2021	20	No	DEC	2	21:30	23:00	6.49	0.00	0.00	-313.84	4.27	-176.43	0.00	0.00	-63.37	0.00
124	RT	Planned Transmission Outage	PGAE	Fresno	7/16/2021	26	No	INC	5	11:00	15:30	-7.11	15690.28	437.66	462.82	0.14	-5.61	0.00	0.00	-243.06	0.00
125	RT	Planned Transmission Outage	PGAE	Humboldt	7/1/2021	30 - 60	No	DEC	4	18:00	22:00	0.53	-3781.24	0.00	-21.34	0.00	0.00	0.00	0.00	0.00	0.00
126	RT	Planned Transmission Outage	PGAE	Humboldt	7/1/2021	30 - 60	No	INC	18	0:00	18:00	1.51	41174.70	0.00	-50.94	0.00	0.00	0.00	0.00	0.00	0.00
127	RT	Planned Transmission Outage	PGAE	Humboldt	7/5/2021	15 - 30	No	DEC	17	6:30	23:00	-2.71	-26781.26	428.89	166.49	0.00	0.00	0.00	0.00	0.00	0.00
128	RT	Planned Transmission Outage	PGAE	Humboldt	7/5/2021	15 - 30	No	INC	18	6:25	0:00	13.58	9243.45	495.91	-472.53	0.00	0.00	0.00	0.00	0.00	0.00
129	RT	Planned Transmission Outage	PGAE	Humboldt	7/6/2021	15 - 30	No	DEC	23	0:00	23:00	24.84	-20245.70	0.00	-1934.92	0.00	0.00	0.00	0.00	0.00	0.00
130	RT	Planned Transmission Outage	PGAE	Humboldt	7/6/2021	15 - 30	No	INC	24	0:00	0:00	0.61	22825.58	0.00	-27.82	0.00	0.00	0.00	0.00	0.00	0.00
131	RT	Planned Transmission Outage	PGAE	Humboldt	7/7/2021	15 - 30	No	DEC	10	13:00	23:00	-1.36	-25560.58	0.00	91.30	0.00	0.00	0.00	0.00	0.00	0.00
132	RT	Planned Transmission Outage	PGAE	Humboldt	7/7/2021	15 - 30	No	INC	24	0:00	0:00	-0.68	15864.80	0.00	34.27	0.00	0.00	0.00	0.00	0.00	0.00
133	RT	Planned Transmission Outage	PGAE	Humboldt	7/8/2021	15 - 58	No	DEC	12	11:00	23:00	7.45	-14387.11	0.00	-645.25	-4.65	0.00	475.03	0.00	-406.50	0.00
134	RT	Planned Transmission Outage	PGAE	Humboldt	7/8/2021	15 - 30	No	INC	24	0:00	0:00	-0.24	14452.80	0.00	11.08	0.00	0.00	0.00	0.00	0.00	0.00
135	RT	Planned Transmission Outage	PGAE	Humboldt	7/9/2021	15 - 30	No	DEC	23	0:00	23:00	0.24	-8427.90	0.00	2238.77	-3.81	0.00	58.26	0.00	0.00	0.00
136	RT	Planned Transmission Outage	PGAE	Humboldt	7/9/2021	30	No	INC	24	0:00	0:00	-0.68	13345.63	0.00	37.76	0.00	0.00	0.00	0.00	0.00	0.00
137	RT	Planned Transmission Outage	PGAE	Humboldt	7/10/2021	15 - 45	No	DEC	23	0:00	23:00	-17.18	-42181.52	0.00	2236.40	-4.35	0.00	534.99	0.00	-	11152.42
138	RT	Planned Transmission Outage	PGAE	Humboldt	7/10/2021	30 - 45	No	INC	24	0:00	0:00	8.67	22405.39	0.00	-197.99	-3.60	0.00	259.07	0.00	-115.71	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
139	RT	Planned Transmission Outage	PGAE	Humboldt	7/11/2021	15 - 45	No	DEC	24	0:00	0:00	-27.05	-49500.28	0.00	2860.60	-10.48	0.00	1692.13	0.00	-8336.27	0.00
140	RT	Planned Transmission Outage	PGAE	Humboldt	7/11/2021	15 - 45	No	INC	11	0:00	11:00	-0.34	2296.21	0.00	25.05	-1.00	0.00	76.35	0.00	-8.62	0.00
141	RT	Planned Transmission Outage	PGAE	Humboldt	7/12/2021	15 - 30	No	DEC	24	0:00	0:00	-4.28	-56963.72	0.00	441.92	-0.95	0.00	86.43	0.00	-4100.77	0.00
142	RT	Planned Transmission Outage	PGAE	Humboldt	7/13/2021	15 - 30	No	DEC	23	0:00	23:00	2.82	-73028.77	0.00	-224.08	-0.94	0.00	66.71	0.00	-3417.14	0.00
143	RT	Planned Transmission Outage	PGAE	Humboldt	7/13/2021	30	No	INC	1	23:00	0:00	0.00	1720.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	RT	Planned Transmission Outage	PGAE	Humboldt	7/14/2021	30	No	DEC	24	0:00	0:00	33.88	-76852.03	0.00	-2054.71	0.00	0.00	0.00	0.00	0.00	0.00
145	RT	Planned Transmission Outage	PGAE	Humboldt	7/15/2021	30	No	DEC	22	0:00	22:00	10.91	-10364.24	0.00	-605.46	0.00	0.00	0.00	0.00	0.00	0.00
146	RT	Planned Transmission Outage	PGAE	Humboldt	7/15/2021	30	No	INC	24	0:00	0:00	35.79	42259.67	0.00	-1816.55	0.00	0.00	0.00	0.00	0.00	0.00
147	RT	Planned Transmission Outage	PGAE	Humboldt	7/16/2021	30	No	DEC	23	0:00	23:00	473.76	-30431.64	0.00	-23842.96	-1.68	-39.29	132.12	0.00	-24.76	0.00
148	RT	Planned Transmission Outage	PGAE	Humboldt	7/16/2021	30	No	INC	16	8:00	0:00	174.07	10987.21	0.00	-6489.97	-2.54	0.00	116.00	0.00	-20.47	0.00
149	RT	Planned Transmission Outage	PGAE	Humboldt	7/17/2021	30 - 60	No	DEC	8	14:55	22:00	0.23	-14064.93	0.00	81.62	-3.97	0.00	216.60	0.00	-2377.28	0.00
150	RT	Planned Transmission Outage	PGAE	Humboldt	7/17/2021	30 - 60	No	INC	24	0:00	0:00	55.69	15888.34	0.00	-2370.40	-34.52	0.00	1423.94	0.00	-226.45	0.00
151	RT	Planned Transmission Outage	PGAE	Humboldt	7/18/2021	30 - 45	No	DEC	14	10:40	0:00	9.71	-27978.32	0.00	-1873.95	-1.43	0.00	77.61	0.00	-5794.56	0.00
152	RT	Planned Transmission Outage	PGAE	Humboldt	7/18/2021	30 - 58	No	INC	24	0:00	0:00	14.02	29305.07	0.00	-941.89	0.00	0.00	0.00	0.00	0.00	0.00
153	RT	Planned Transmission Outage	PGAE	Humboldt	7/19/2021	30 - 45	No	DEC	15	8:00	23:00	-2.12	-45972.19	0.00	129.51	0.00	0.00	0.00	0.00	-3413.75	0.00
154	RT	Planned Transmission Outage	PGAE	Humboldt	7/19/2021	30 - 45	No	INC	24	0:00	0:00	-0.02	16947.50	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00
155	RT	Planned Transmission Outage	PGAE	Humboldt	7/20/2021	30 - 45	No	DEC	24	0:00	0:00	-2.37	-40833.40	0.00	197.73	0.00	0.00	0.00	0.00	-3469.69	0.00
156	RT	Planned Transmission Outage	PGAE	Humboldt	7/20/2021	45	No	INC	24	0:00	0:00	4.18	19438.83	0.00	-181.08	0.00	0.00	0.00	0.00	0.00	0.00

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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
157	RT	Planned Transmission Outage	PGAE	Humboldt	7/21/2021	30 - 45	No	DEC	22	0:00	22:00	-14.48	-48313.23	0.00	853.70	-2.03	0.00	112.41	0.00	-2871.90	0.00
158	RT	Planned Transmission Outage	PGAE	Humboldt	7/21/2021	30 - 45	No	INC	8	2:00	10:00	5.33	11378.76	0.00	-180.44	0.00	0.00	0.00	0.00	0.00	0.00
159	RT	Planned Transmission Outage	PGAE	NA	7/19/2021	5	No	INC	2	22:45	0:00	4.67	0.00	0.00	-247.38	0.50	-22.20	0.00	0.00	0.00	0.00
160	RT	Planned Transmission Outage	PGAE	NA	7/27/2021	10 - 32	No	DEC	3	16:50	19:00	-3.82	0.00	0.00	227.50	-3.76	0.00	224.87	0.00	-841.48	0.00
161	RT	Planned Transmission Outage	PGAE	NA	7/27/2021	10 - 32	No	INC	2	17:15	19:00	-7.03	0.00	0.00	471.40	-6.19	0.00	413.17	0.00	-190.70	0.00
162	RT	Planned Transmission Outage	PGAE	NCNB	7/6/2021	35 - 70	No	DEC	14	10:35	0:00	11.19	0.00	0.00	-759.35	-15.73	0.00	517.17	0.00	-	29261.92
163	RT	Planned Transmission Outage	PGAE	NCNB	7/6/2021	35 - 70	No	INC	3	19:00	22:00	-16.71	0.00	0.00	67.44	-1.25	0.00	-18.47	0.00	0.00	0.00
164	RT	Planned Transmission Outage	PGAE	NCNB	7/7/2021	35 - 50	No	DEC	8	0:00	7:30	18.40	0.00	0.00	-687.02	0.00	0.00	0.00	0.00	-	45719.34
165	RT	Planned Transmission Outage	PGAE	NCNB	7/22/2021	67	No	DEC	9	7:10	15:15	-12.72	0.00	0.00	164.40	-14.82	0.00	626.18	0.00	-	13299.11
166	RT	Planned Transmission Outage	PGAE	Sierra	7/1/2021	20 - 49	No	INC	15	9:00	0:00	149.86	40224.80	404.44	-6560.29	30.00	-781.31	0.00	0.00	-2744.99	0.00
167	RT	Planned Transmission Outage	PGAE	Sierra	7/2/2021	42 - 47	No	INC	1	0:00	1:00	-8.42	5493.29	0.00	331.21	0.00	0.00	0.00	0.00	-778.04	0.00
168	RT	Planned Transmission Outage	PGAE	Sierra	7/5/2021	20	No	DEC	3	18:00	21:00	3.58	0.00	0.00	-196.98	0.00	0.00	0.00	0.00	0.00	0.00
169	RT	Planned Transmission Outage	PGAE	Sierra	7/5/2021	20	No	INC	18	5:40	23:00	1.84	30201.48	0.00	-315.13	0.00	0.00	0.00	0.00	0.00	0.00
170	RT	Planned Transmission Outage	PGAE	Sierra	7/9/2021	10 - 40	No	DEC	5	16:00	21:00	3.65	0.00	0.00	-1711.26	0.00	0.00	0.00	0.00	-	81451.77
171	RT	Planned Transmission Outage	PGAE	Sierra	7/9/2021	10 - 40	No	INC	10	14:20	0:00	8.33	0.00	0.00	-2528.81	5.48	-616.13	0.00	0.00	-8523.82	0.00
172	RT	Planned Transmission Outage	PGAE	Sierra	7/10/2021	10 - 20	No	DEC	7	15:10	22:00	0.49	6936.63	0.00	665.90	0.00	0.00	0.00	0.00	0.00	0.00
173	RT	Planned Transmission Outage	PGAE	Sierra	7/10/2021	10 - 42	No	INC	23	0:00	23:00	-61.49	54542.20	0.00	3805.81	5.00	-517.95	0.00	0.00	-	25999.60
174	RT	Planned Transmission Outage	PGAE	Sierra	7/15/2021	8 - 25	No	INC	3	8:30	11:15	7.83	0.00	0.00	-446.71	6.97	-389.49	0.00	0.00	0.00	0.00



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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
175	RT	Planned Transmission Outage	PGAE	Sierra	7/27/2021	20 - 42	No	INC	6	9:45	15:00	-53.62	29421.98	734.48	3438.67	0.00	0.00	0.00	0.00	0.00	0.00
176	RT	Planned Transmission Outage	PGAE	Stockton	7/5/2021	30	No	INC	2	18:40	20:00	12.84	0.00	0.00	-1221.74	13.05	-1235.30	0.00	0.00	-3040.23	0.00
177	RT	Planned Transmission Outage	PGAE	Stockton	7/7/2021	32	No	INC	1	16:35	17:15	12.33	0.00	0.00	-530.51	12.00	-514.68	0.00	0.00	-1757.11	0.00
178	RT	Planned Transmission Outage	PGAE	Stockton	7/12/2021	100	No	DEC	10	3:15	13:00	127.35	-68723.10	0.00	-6666.93	0.00	0.00	0.00	0.00	-2340.88	0.00
179	RT	Planned Transmission Outage	PGAE	Stockton	7/30/2021	60	No	INC	5	17:40	22:00	6.45	0.00	0.00	-3750.61	3.33	-903.65	0.00	0.00	-5437.18	0.00
180	RT	Planned Transmission Outage	SDGE	San Diego-IV	7/18/2021	51	No	INC	2	19:30	21:00	3.08	0.00	0.00	-253.95	1.23	-105.37	0.00	0.00	0.00	0.00
181	RT	Planned Transmission Outage	SDGE	San Diego-IV	7/20/2021	18.2 - 38.38	No	DEC	2	19:35	21:00	28.92	0.00	493.00	-2670.78	0.00	0.00	0.00	0.00	0.00	0.00
182	RT	Planned Transmission Outage	SDGE	San Diego-IV	7/20/2021	18.2 - 38.38	No	INC	3	20:00	23:00	5.97	31508.27	884.30	-806.11	0.00	0.00	0.00	0.00	0.00	0.00
183	RT	Ramping Capacity	PGAE	Fresno	7/29/2021	96	No	INC	5	16:40	21:00	94.43	0.00	0.00	-7307.53	95.45	-7384.43	0.00	0.00	0.00	0.00
184	RT	Ramping Capacity	PGAE	Fresno	7/30/2021	21	No	DEC	6	16:50	22:00	-16.45	-12100.63	126.14	137.59	0.00	0.00	0.00	0.00	0.00	0.00
185	RT	Ramping Capacity	PGAE	Kern	7/18/2021	32	No	DEC	8	15:00	23:00	3.58	0.00	0.00	-221.40	0.00	0.00	0.00	0.00	0.00	0.00
186	RT	Ramping Capacity	PGAE	Kern	7/18/2021	32	No	INC	1	14:45	15:00	-0.49	518.83	0.00	39.11	0.00	0.00	0.00	0.00	0.00	0.00
187	RT	Ramping Capacity	PGAE	NA	7/28/2021	-182.5	No	DEC	4	14:15	18:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
188	RT	Ramping Capacity	PGAE	NA	7/29/2021	-138.84 - 390	No	DEC	9	12:40	21:00	-0.71	0.00	0.00	-45.41	0.00	0.00	0.00	0.00	0.00	0.00
189	RT	Ramping Capacity	PGAE	NA	7/29/2021	390	No	INC	1	16:00	17:00	59.42	-4819.86	283.92	-3492.28	73.86	-3204.38	0.00	0.00	0.00	0.00
190	RT	Ramping Capacity	PGAE	Sierra	7/6/2021	49	No	INC	1	14:40	14:45	0.44	0.00	0.00	-32.22	0.44	-32.22	0.00	0.00	0.00	0.00
191	RT	Ramping Capacity	PGAE	Sierra	7/14/2021	20	No	DEC	8	15:50	23:00	-14.18	-733.12	0.00	540.54	0.00	0.00	0.00	0.00	0.00	0.00

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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
192	RT	Ramping Capacity	PGAE	Sierra	7/14/2021	20 - 47	No	INC	8	16:10	0:00	24.67	2016.07	0.00	-1534.76	15.75	-1019.34	0.00	0.00	0.00	0.00
193	RT	Ramping Capacity	PGAE	Sierra	7/15/2021	20	Yes	INC	5	0:00	5:00	-14.20	10740.50	0.00	868.98	0.00	0.00	0.00	0.00	0.00	0.00
194	RT	Ramping Capacity	PGAE	Sierra	7/16/2021	20	No	DEC	2	19:00	21:00	-24.92	0.00	97.59	1386.02	0.00	0.00	0.00	0.00	0.00	0.00
195	RT	Ramping Capacity	PGAE	Sierra	7/16/2021	20	No	INC	4	18:00	22:00	-26.36	-3.10	97.59	1315.79	0.00	0.00	0.00	0.00	0.00	0.00
196	RT	Ramping Capacity	PGAE	Sierra	7/17/2021	20	No	INC	1	15:10	15:30	-3.54	580.67	0.00	211.23	0.00	0.00	0.00	0.00	0.00	0.00
197	RT	Ramping Capacity	PGAE	Stockton	7/11/2021	30	No	DEC	1	19:55	20:00	0.42	0.00	0.00	-137.40	0.00	0.00	0.00	0.00	0.00	0.00
198	RT	Ramping Capacity	PGAE	Stockton	7/11/2021	20 - 35	No	INC	3	20:00	23:00	-0.28	0.00	0.00	142.56	6.08	-985.14	0.00	0.00	0.00	0.00
199	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/10/2021	401	No	INC	6	16:05	22:00	190.36	10910.94	0.00	-12736.51	77.01	-6353.55	0.00	0.00	0.00	0.00
200	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/11/2021	405	No	INC	5	17:00	22:00	-0.62	32783.11	0.00	32.92	0.00	0.00	0.00	0.00	0.00	0.00
201	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/12/2021	400.1	No	DEC	4	17:00	21:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/12/2021	400.1	No	INC	7	15:00	22:00	6.98	0.00	0.00	-137.53	0.00	0.00	0.00	0.00	0.00	0.00
203	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/13/2021	400.1	No	INC	6	15:00	21:00	10.43	168887.66	0.00	-4330.74	0.00	0.00	0.00	0.00	0.00	0.00
204	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/16/2021	400.1	No	INC	7	16:30	23:00	2444.36	75186.09	0.00	-143432.13	2131.86	-125839.03	0.00	0.00	0.00	0.00
205	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/18/2021	401	No	INC	6	16:00	22:00	630.37	80121.71	0.00	-49447.71	613.92	-48114.10	0.00	0.00	0.00	0.00
206	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/20/2021	400.1	No	INC	7	15:00	22:00	-108.14	643039.09	0.00	6167.98	0.00	0.00	0.00	0.00	0.00	0.00
207	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/21/2021	400.1	No	INC	6	16:00	22:00	377.06	100298.05	0.00	-27514.50	22.50	-1792.60	0.00	0.00	0.00	0.00
208	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/22/2021	400.1	No	INC	6	15:00	21:00	70.02	286434.69	0.00	-8046.18	0.00	0.00	0.00	0.00	0.00	0.00
209	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/23/2021	400.1	No	INC	5	17:00	22:00	0.09	0.00	0.00	-4.97	0.00	0.00	0.00	0.00	0.00	0.00

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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
210	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/26/2021	401	No	INC	6	16:00	22:00	8.23	222763.97	0.00	-1414.23	37.50	-2991.81	0.00	0.00	0.00	0.00
211	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/27/2021	410	No	INC	6	16:00	22:00	22.24	54287.67	0.00	-1442.58	24.38	-1939.89	0.00	0.00	0.00	0.00
212	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/28/2021	410	No	INC	6	16:00	22:00	-167.17	0.00	0.00	15972.74	0.00	0.00	0.00	0.00	0.00	0.00
213	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/29/2021	400.1	No	DEC	2	18:00	20:00	-49.95	0.00	0.00	4437.31	0.00	0.00	0.00	0.00	0.00	0.00
214	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/29/2021	400.1	No	INC	6	15:00	21:00	-85.87	18760.71	0.00	9235.79	0.00	0.00	0.00	0.00	0.00	0.00
215	RT	Ramping Capacity	SCE	Big Creek-Ventura	7/30/2021	-98.33	No	DEC	2	16:50	18:00	-18.09	0.00	0.00	1764.86	-4.92	0.00	491.67	0.00	0.00	0.00
216	RT	Ramping Capacity	SCE	LA Basin	7/7/2021	194 - 240	No	INC	6	16:40	22:00	44.49	54017.72	0.00	-2912.07	47.69	-2797.51	0.00	0.00	0.00	0.00
217	RT	Ramping Capacity	SCE	LA Basin	7/10/2021	310	No	DEC	5	16:00	21:00	-198.37	0.00	0.00	17190.03	0.00	0.00	0.00	0.00	0.00	0.00
218	RT	Ramping Capacity	SCE	LA Basin	7/10/2021	180 - 310	No	INC	7	15:25	22:00	-64.22	0.00	0.00	4557.90	0.00	0.00	0.00	0.00	0.00	0.00
219	RT	Ramping Capacity	SCE	LA Basin	7/11/2021	194 - 245	No	DEC	5	17:00	22:00	-387.66	0.00	0.00	25797.73	3.94	-320.80	0.00	0.00	0.00	0.00
220	RT	Ramping Capacity	SCE	LA Basin	7/11/2021	180	No	INC	5	17:00	22:00	1.03	0.00	0.00	-86.06	1.11	-90.92	0.00	0.00	0.00	0.00
221	RT	Ramping Capacity	SCE	LA Basin	7/12/2021	194 - 240.1	No	DEC	6	16:00	22:00	-169.57	0.00	0.00	12290.57	0.07	-5.38	0.00	0.00	0.00	0.00
222	RT	Ramping Capacity	SCE	LA Basin	7/12/2021	180 - 240.1	No	INC	7	15:30	22:30	10.03	0.00	0.00	-689.97	0.00	0.00	0.00	0.00	0.00	0.00
223	RT	Ramping Capacity	SCE	LA Basin	7/13/2021	194	No	DEC	5	16:00	21:00	-10.33	0.00	0.00	1776.06	0.00	0.00	0.00	0.00	0.00	0.00
224	RT	Ramping Capacity	SCE	LA Basin	7/13/2021	180 - 241	No	INC	6	15:00	21:00	456.08	165968.40	0.00	-81341.43	69.49	-6549.58	0.00	0.00	0.00	0.00
225	RT	Ramping Capacity	SCE	LA Basin	7/18/2021	190 - 240	No	INC	6	16:00	22:00	-697.47	0.00	0.00	47800.48	5.62	-435.34	0.00	0.00	0.00	0.00
226	RT	Ramping Capacity	SCE	LA Basin	7/19/2021	190 - 240	No	DEC	6	16:00	22:00	-23.84	-91988.49	0.00	1423.44	0.00	0.00	0.00	0.00	0.00	0.00
227	RT	Ramping Capacity	SCE	LA Basin	7/19/2021	190 - 194	No	INC	1	21:00	22:00	22.57	0.00	0.00	-1279.02	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
228	RT	Ramping Capacity	SCE	LA Basin	7/20/2021	100 - 240	No	INC	7	15:00	22:00	-338.41	142319.88	0.00	23739.51	29.22	-2831.90	0.00	0.00	0.00	0.00
229	RT	Ramping Capacity	SCE	LA Basin	7/21/2021	194	No	DEC	5	16:00	21:00	0.59	0.00	0.00	-40.11	0.00	0.00	0.00	0.00	0.00	0.00
230	RT	Ramping Capacity	SCE	LA Basin	7/21/2021	190 - 240	No	INC	6	16:00	22:00	-22.12	117284.40	0.00	1553.73	0.00	0.00	0.00	0.00	0.00	0.00
231	RT	Ramping Capacity	SCE	LA Basin	7/22/2021	241	No	INC	6	15:00	21:00	61.52	122566.92	0.00	-7002.01	4.38	-387.98	0.00	0.00	0.00	0.00
232	RT	Ramping Capacity	SCE	LA Basin	7/23/2021	240	No	INC	6	16:45	22:00	32.24	84975.27	0.00	-2021.04	0.00	0.00	0.00	0.00	0.00	0.00
233	RT	Ramping Capacity	SCE	LA Basin	7/26/2021	240	No	INC	6	16:00	22:00	7.48	107877.06	0.00	-590.97	7.48	-590.97	0.00	0.00	0.00	0.00
234	RT	Ramping Capacity	SCE	LA Basin	7/27/2021	190 - 240	No	INC	7	15:00	22:00	-929.99	15742.30	0.00	70587.34	43.86	-3453.72	0.00	0.00	0.00	0.00
235	RT	Ramping Capacity	SCE	LA Basin	7/28/2021	-10 - 240	No	DEC	8	14:15	22:00	-36.79	-118786.74	0.00	2967.79	-0.60	0.00	25.76	0.00	0.00	0.00
236	RT	Ramping Capacity	SCE	LA Basin	7/28/2021	190	No	INC	1	21:00	22:00	-22.69	0.00	0.00	1701.51	0.00	0.00	0.00	0.00	0.00	0.00
237	RT	Ramping Capacity	SCE	LA Basin	7/29/2021	147.1	No	DEC	6	15:15	21:00	33.88	-9390.86	0.00	-4750.18	0.00	0.00	0.00	0.00	0.00	0.00
238	RT	Ramping Capacity	SCE	LA Basin	7/29/2021	140 - 225	No	INC	6	15:00	21:00	15.13	0.00	0.00	-1663.20	17.69	-1886.30	0.00	0.00	0.00	0.00
239	RT	Ramping Capacity	SCE	LA Basin	7/30/2021	247.1	No	DEC	7	15:00	22:00	3.16	-50064.21	25578.02	-1748.74	0.00	0.00	0.00	0.00	0.00	0.00
240	RT	Ramping Capacity	SCE	LA Basin	7/30/2021	140 - 247.1	No	INC	7	15:00	22:00	6.91	0.00	31972.53	-395.84	0.00	0.00	0.00	0.00	0.00	0.00
241	RT	Ramping Capacity	SCE	NA	7/28/2021	-88	No	DEC	4	14:05	18:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
242	RT	Ramping Capacity	SCE	NA	7/29/2021	-79.94 - -8.37	No	DEC	2	12:35	13:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
243	RT	Reliability Assessment	PGAE	Fresno	7/2/2021	6 - 15	No	DEC	23	0:15	23:00	-22.76	0.00	0.00	1845.44	2.57	-269.72	0.00	0.00	0.00	0.00
244	RT	Reliability Assessment	PGAE	Fresno	7/2/2021	15	No	INC	1	23:00	0:00	2.44	0.15	0.00	-142.44	0.00	0.00	0.00	0.00	0.00	0.00
245	RT	Reliability Assessment	PGAE	Fresno	7/3/2021	300	No	DEC	1	21:00	21:30	-12.55	0.00	0.00	895.47	0.00	0.00	0.00	0.00	0.00	0.00

**California Independent System Operator Corporation  
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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
246	RT	Reliability Assessment	PGAE	Fresno	7/3/2021	300	No	INC	1	20:30	21:00	43.32	0.00	0.00	-3635.57	17.50	-1338.95	0.00	0.00	0.00	0.00
247	RT	Reliability Assessment	PGAE	Fresno	7/6/2021	5.6	No	DEC	3	21:55	0:00	0.36	0.00	0.00	-594.22	0.00	0.00	0.00	0.00	0.00	0.00
248	RT	Reliability Assessment	PGAE	Fresno	7/11/2021	6 - 20	No	DEC	6	18:15	0:00	27.09	0.00	0.00	-3042.63	7.16	-548.50	0.00	0.00	0.00	0.00
249	RT	Reliability Assessment	PGAE	Fresno	7/12/2021	6	No	DEC	7	0:00	7:00	-6.89	0.00	0.00	251.43	0.00	0.00	0.00	0.00	0.00	0.00
250	RT	Reliability Assessment	PGAE	Fresno	7/12/2021	6	No	INC	3	7:00	10:00	16.69	1418.88	0.00	-1573.49	0.00	0.00	0.00	0.00	0.00	0.00
251	RT	Reliability Assessment	PGAE	Fresno	7/13/2021	20	No	INC	2	2:05	4:00	18.55	810.48	0.00	-1776.66	3.60	-400.90	0.00	0.00	0.00	0.00
252	RT	Reliability Assessment	PGAE	Fresno	7/23/2021	69 - 80	No	INC	1	23:00	0:00	6.91	0.00	0.00	-504.99	5.14	-411.00	0.00	0.00	0.00	0.00
253	RT	Reliability Assessment	PGAE	Fresno	7/24/2021	69	No	INC	1	0:00	1:00	6.56	0.00	0.00	-1286.25	6.56	-1286.25	0.00	0.00	0.00	0.00
254	RT	Reliability Assessment	PGAE	Fresno	7/25/2021	83	No	INC	2	21:30	23:00	11.83	0.00	0.00	-1028.52	0.00	0.00	0.00	0.00	0.00	0.00
255	RT	Reliability Assessment	PGAE	Fresno	7/26/2021	6	No	DEC	7	1:00	8:00	-25.15	0.00	0.00	3358.36	0.00	0.00	0.00	0.00	0.00	0.00
256	RT	Reliability Assessment	PGAE	Fresno	7/28/2021	0 - 83	No	INC	14	10:45	0:00	200.26	386.05	0.00	-49740.09	16.33	-2569.25	-538.01	0.00	0.00	0.00
257	RT	Reliability Assessment	PGAE	Fresno	7/29/2021	65 - 68	No	INC	1	0:00	1:00	15.36	0.00	0.00	-3484.22	16.41	-3573.77	0.00	0.00	0.00	0.00
258	RT	Reliability Assessment	PGAE	Fresno	7/30/2021	5.6	No	DEC	5	17:15	22:00	-14.08	0.00	0.00	1358.81	0.00	0.00	0.00	0.00	0.00	0.00
259	RT	Reliability Assessment	PGAE	Fresno	7/31/2021	60	No	INC	1	0:30	1:00	15.40	0.00	0.00	-2850.39	15.40	-2850.39	0.00	0.00	0.00	0.00
260	RT	Reliability Assessment	PGAE	Humboldt	7/1/2021	30 - 60	No	DEC	2	22:55	0:00	2.71	-78.78	0.00	-53.55	0.00	0.00	0.00	0.00	0.00	0.00
261	RT	Reliability Assessment	PGAE	Humboldt	7/2/2021	15 - 45	No	DEC	11	13:00	0:00	-8.69	-15113.26	0.00	475.82	0.00	0.00	0.00	0.00	0.00	0.00
262	RT	Reliability Assessment	PGAE	Humboldt	7/2/2021	15 - 60	No	INC	24	0:00	0:00	-3.74	26404.29	0.00	127.93	0.00	0.00	0.00	0.00	0.00	0.00
263	RT	Reliability Assessment	PGAE	Humboldt	7/3/2021	15 - 30	No	DEC	24	0:00	0:00	-2.88	-4104.50	0.00	55.13	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
264	RT	Reliability Assessment	PGAE	Humboldt	7/3/2021	15	No	INC	3	21:00	0:00	-0.15	4150.12	0.00	6.46	0.00	0.00	0.00	0.00	0.00	0.00
265	RT	Reliability Assessment	PGAE	Humboldt	7/4/2021	15	No	DEC	24	0:00	0:00	-1.86	-11822.53	0.00	71.10	0.00	0.00	0.00	0.00	0.00	0.00
266	RT	Reliability Assessment	PGAE	Humboldt	7/4/2021	15	No	INC	3	0:00	2:45	-0.05	2075.07	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00
267	RT	Reliability Assessment	PGAE	Humboldt	7/5/2021	15	No	DEC	7	0:00	6:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
268	RT	Reliability Assessment	PGAE	Humboldt	7/6/2021	13	No	DEC	1	14:50	15:45	1.33	0.00	0.00	-77.07	0.00	0.00	0.00	0.00	0.00	0.00
269	RT	Reliability Assessment	PGAE	Humboldt	7/9/2021	45	No	DEC	5	13:55	18:00	-7.79	-3405.90	0.00	492.76	-3.81	0.00	58.26	0.00	0.00	0.00
270	RT	Reliability Assessment	PGAE	Humboldt	7/18/2021	30	No	DEC	2	9:00	11:00	0.56	0.00	0.00	-18.43	-0.79	0.00	41.25	0.00	-26.84	0.00
271	RT	Reliability Assessment	PGAE	Humboldt	7/18/2021	30	No	INC	7	4:35	11:00	0.48	10874.68	0.00	-21.28	0.00	0.00	0.00	0.00	0.00	0.00
272	RT	Reliability Assessment	PGAE	Humboldt	7/21/2021	30	No	DEC	1	22:00	23:00	-1.38	-984.58	0.00	117.61	0.00	0.00	0.00	0.00	0.00	0.00
273	RT	Reliability Assessment	PGAE	Humboldt	7/21/2021	15 - 30	No	INC	2	22:00	0:00	-0.09	3938.78	0.00	5.66	0.00	0.00	0.00	0.00	0.00	0.00
274	RT	Reliability Assessment	PGAE	Humboldt	7/22/2021	15 - 30	No	DEC	23	0:00	23:00	-5.42	-96605.53	0.00	335.51	0.00	0.00	0.00	0.00	0.00	0.00
275	RT	Reliability Assessment	PGAE	Humboldt	7/22/2021	15 - 30	No	INC	2	22:00	0:00	-0.68	2645.62	0.00	40.47	0.00	0.00	0.00	0.00	0.00	0.00
276	RT	Reliability Assessment	PGAE	Humboldt	7/23/2021	15 - 30	No	DEC	12	11:00	23:00	-4.07	-49866.88	0.00	240.22	0.00	0.00	0.00	0.00	0.00	0.00
277	RT	Reliability Assessment	PGAE	Humboldt	7/23/2021	15 - 30	No	INC	24	0:00	0:00	-0.68	18723.60	0.00	41.96	0.00	0.00	0.00	0.00	0.00	0.00
278	RT	Reliability Assessment	PGAE	Humboldt	7/24/2021	15	No	DEC	24	0:00	0:00	-25.98	6759.18	0.00	1413.62	0.00	0.00	0.00	0.00	0.00	0.00
279	RT	Reliability Assessment	PGAE	Humboldt	7/24/2021	15 - 30	No	INC	22	0:00	22:00	-0.07	2679.49	0.00	2.89	0.00	0.00	0.00	0.00	0.00	0.00
280	RT	Reliability Assessment	PGAE	Humboldt	7/25/2021	15 - 32	No	DEC	24	0:00	0:00	-3.78	-11919.00	0.00	77.00	-2.33	0.00	38.12	0.00	0.00	0.00
281	RT	Reliability Assessment	PGAE	Humboldt	7/25/2021	30	No	INC	3	8:35	11:00	9.40	1563.03	0.00	-296.00	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
282	RT	Reliability Assessment	PGAE	Humboldt	7/26/2021	15 - 32	No	DEC	24	0:00	0:00	4.22	-85214.00	0.00	-359.22	-1.19	0.00	19.51	0.00	0.00	0.00
283	RT	Reliability Assessment	PGAE	Humboldt	7/26/2021	30	No	INC	1	23:00	0:00	0.00	893.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	RT	Reliability Assessment	PGAE	Humboldt	7/27/2021	30	No	DEC	23	0:00	23:00	-69.14	-4413.36	0.00	4277.72	0.00	0.00	0.00	0.00	0.00	0.00
285	RT	Reliability Assessment	PGAE	Humboldt	7/27/2021	30 - 45	No	INC	24	0:00	0:00	-11.42	17421.34	0.00	734.45	-2.09	0.00	35.60	0.00	0.00	0.00
286	RT	Reliability Assessment	PGAE	Humboldt	7/28/2021	30 - 45	No	DEC	22	0:00	22:00	27.21	-8706.65	0.00	-3279.45	0.00	0.00	0.00	0.00	0.00	0.00
287	RT	Reliability Assessment	PGAE	Humboldt	7/28/2021	30 - 45	No	INC	11	0:00	11:00	-5.14	15580.21	0.00	220.69	-0.51	0.00	8.64	0.00	0.00	0.00
288	RT	Reliability Assessment	PGAE	Humboldt	7/29/2021	30 - 45	No	DEC	24	0:25	0:00	7.53	-45746.47	0.00	-752.72	0.00	0.00	0.00	0.00	0.00	0.00
289	RT	Reliability Assessment	PGAE	Humboldt	7/29/2021	30	No	INC	8	0:25	8:00	0.98	14736.31	0.00	-65.99	0.00	0.00	0.00	0.00	0.00	0.00
290	RT	Reliability Assessment	PGAE	Humboldt	7/30/2021	15 - 48	No	DEC	22	0:00	22:00	45.36	-7700.12	0.00	-3761.04	-1.61	0.00	26.48	0.00	0.00	0.00
291	RT	Reliability Assessment	PGAE	Humboldt	7/30/2021	32 - 45	No	INC	4	0:00	3:45	0.30	3747.16	0.00	-156.10	-2.20	0.00	36.36	0.00	0.00	0.00
292	RT	Reliability Assessment	PGAE	Humboldt	7/31/2021	15 - 42	No	DEC	20	4:30	0:00	21.75	-20398.09	0.00	-967.63	0.00	0.00	0.00	0.00	0.00	0.00
293	RT	Reliability Assessment	PGAE	Humboldt	7/31/2021	42 - 56	No	INC	21	3:30	0:00	0.00	3597.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
294	RT	Reliability Assessment	PGAE	Kern	7/1/2021	32	No	INC	9	15:00	23:30	-1.38	18221.96	6307.49	67.14	0.00	0.00	0.00	0.00	0.00	0.00
295	RT	Reliability Assessment	PGAE	Kern	7/2/2021	32	No	INC	10	14:20	0:00	-2.61	11174.50	6000.13	119.13	0.00	0.00	0.00	0.00	0.00	0.00
296	RT	Reliability Assessment	PGAE	Kern	7/6/2021	32 - 46	No	INC	7	16:00	23:00	0.10	13645.59	5810.70	-6.68	0.50	-24.79	0.00	0.00	0.00	0.00
297	RT	Reliability Assessment	PGAE	Kern	7/7/2021	32	No	INC	7	16:00	23:00	0.09	6039.27	6113.05	-2.91	0.00	0.00	0.00	0.00	0.00	0.00
298	RT	Reliability Assessment	PGAE	Kern	7/8/2021	32	No	DEC	7	15:20	22:00	-1.53	0.00	0.00	97.68	0.00	0.00	0.00	0.00	0.00	0.00
299	RT	Reliability Assessment	PGAE	Kern	7/11/2021	32	No	INC	2	13:30	15:00	0.09	4393.92	0.00	-5.14	0.00	0.00	0.00	0.00	0.00	0.00

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Exceptional Dispatch Report  
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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
300	RT	Reliability Assessment	PGAE	Kern	7/14/2021	32	No	INC	2	22:30	0:00	18.97	4158.90	0.00	-861.06	0.00	0.00	0.00	0.00	0.00	0.00
301	RT	Reliability Assessment	PGAE	Kern	7/15/2021	32	No	INC	3	15:45	18:45	0.02	8015.37	6547.62	8.26	0.00	0.00	0.00	0.00	0.00	0.00
302	RT	Reliability Assessment	PGAE	Kern	7/16/2021	32	No	INC	9	15:45	0:00	21.76	23123.33	7641.74	-1119.43	0.00	0.00	0.00	0.00	0.00	0.00
303	RT	Reliability Assessment	PGAE	Kern	7/20/2021	32	No	INC	6	14:30	20:00	-1.02	12909.33	4779.40	55.97	0.00	0.00	0.00	0.00	0.00	0.00
304	RT	Reliability Assessment	PGAE	Kern	7/21/2021	32	No	INC	3	15:00	18:00	-7.15	8267.46	2986.88	300.41	0.00	0.00	0.00	0.00	0.00	0.00
305	RT	Reliability Assessment	PGAE	Sierra	7/1/2021	20 - 47	Yes	INC	22	0:00	22:00	13.44	12608.89	0.00	-729.38	13.51	-896.76	0.00	0.00	0.00	0.00
306	RT	Reliability Assessment	PGAE	Sierra	7/2/2021	20	No	DEC	3	18:10	20:45	-26.51	0.00	0.00	1462.09	0.00	0.00	0.00	0.00	0.00	0.00
307	RT	Reliability Assessment	PGAE	Sierra	7/2/2021	5 - 40	No	INC	16	0:30	16:10	-5.77	11621.80	193.95	27.21	1.67	-176.67	0.00	0.00	-112.08	0.00
308	RT	Reliability Assessment	PGAE	Sierra	7/5/2021	9 - 29	No	INC	3	18:20	20:45	24.58	0.00	0.00	-2732.42	32.92	-3207.40	0.00	0.00	0.00	0.00
309	RT	Reliability Assessment	PGAE	Sierra	7/6/2021	20	No	DEC	3	18:05	21:00	10.25	0.00	0.00	-750.68	0.00	0.00	0.00	0.00	0.00	0.00
310	RT	Reliability Assessment	PGAE	Sierra	7/6/2021	20 - 46	No	INC	9	15:00	0:00	7.85	21874.82	663.27	-682.55	2.94	-177.28	0.00	0.00	0.00	0.00
311	RT	Reliability Assessment	PGAE	Sierra	7/7/2021	20	No	DEC	5	17:00	22:00	27.90	0.00	0.00	-2111.77	0.00	0.00	0.00	0.00	0.00	0.00
312	RT	Reliability Assessment	PGAE	Sierra	7/7/2021	8 - 42	No	INC	22	0:00	22:00	39.92	29903.70	0.00	-3607.27	19.14	-2010.67	0.00	0.00	0.00	0.00
313	RT	Reliability Assessment	PGAE	Sierra	7/8/2021	15 - 30	No	DEC	2	18:00	20:00	2.38	0.00	0.00	-328.08	0.00	0.00	0.00	0.00	0.00	0.00
314	RT	Reliability Assessment	PGAE	Sierra	7/8/2021	5 - 40	No	INC	9	15:40	0:00	32.47	5322.51	0.00	-3329.42	48.28	-5396.40	0.00	0.00	0.00	0.00
315	RT	Reliability Assessment	PGAE	Sierra	7/9/2021	20	No	INC	2	0:00	1:30	-1.21	1059.05	0.00	-179.36	0.00	0.00	0.00	0.00	0.00	0.00
316	RT	Reliability Assessment	PGAE	Sierra	7/11/2021	20	No	DEC	9	14:45	23:00	3.12	0.00	0.00	-289.49	0.00	0.00	0.00	0.00	0.00	0.00
317	RT	Reliability Assessment	PGAE	Sierra	7/11/2021	20	No	INC	1	23:00	0:00	0.00	1961.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



**California Independent System Operator Corporation  
Exceptional Dispatch Report  
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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
318	RT	Reliability Assessment	PGAE	Sierra	7/12/2021	20	No	DEC	12	11:00	23:00	-77.08	0.00	0.00	4061.29	0.00	0.00	0.00	0.00	0.00	0.00
319	RT	Reliability Assessment	PGAE	Sierra	7/12/2021	20	No	INC	24	0:00	0:00	6.00	27174.87	0.00	-416.47	0.00	0.00	0.00	0.00	0.00	0.00
320	RT	Reliability Assessment	PGAE	Sierra	7/13/2021	20 - 40	No	DEC	6	16:30	22:00	-34.03	0.00	0.00	1900.81	0.83	-53.53	0.00	0.00	0.00	0.00
321	RT	Reliability Assessment	PGAE	Sierra	7/14/2021	20	No	DEC	7	15:20	22:00	-18.43	0.00	0.00	979.17	0.00	0.00	0.00	0.00	0.00	0.00
322	RT	Reliability Assessment	PGAE	Sierra	7/14/2021	20 - 49	No	INC	19	5:05	0:00	9.23	7442.01	0.00	-685.06	3.00	-248.49	0.00	0.00	0.00	0.00
323	RT	Reliability Assessment	PGAE	Sierra	7/15/2021	20	No	DEC	3	19:00	22:00	-28.68	0.00	89.46	1133.21	0.00	0.00	0.00	0.00	0.00	0.00
324	RT	Reliability Assessment	PGAE	Sierra	7/15/2021	20	No	INC	24	0:00	0:00	-44.08	19184.50	145.37	1467.11	0.00	0.00	0.00	0.00	0.00	0.00
325	RT	Reliability Assessment	PGAE	Sierra	7/16/2021	20	No	DEC	2	19:00	21:00	-27.63	0.00	153.36	1652.87	0.00	0.00	0.00	0.00	0.00	0.00
326	RT	Reliability Assessment	PGAE	Sierra	7/16/2021	20	No	INC	22	0:00	22:00	-14.44	24095.64	230.04	873.21	0.00	0.00	0.00	0.00	0.00	0.00
327	RT	Reliability Assessment	PGAE	Sierra	7/17/2021	9 - 47	No	INC	9	15:10	0:00	43.37	12387.73	389.19	-4385.90	25.72	-2754.32	0.00	0.00	0.00	0.00
328	RT	Reliability Assessment	PGAE	Sierra	7/18/2021	20	No	DEC	3	18:00	21:00	-4.07	0.00	134.86	153.78	0.00	0.00	0.00	0.00	0.00	0.00
329	RT	Reliability Assessment	PGAE	Sierra	7/18/2021	5 - 38	No	INC	24	0:00	0:00	-33.48	13954.92	434.93	138.88	19.96	-2797.73	0.00	0.00	0.00	0.00
330	RT	Reliability Assessment	PGAE	Sierra	7/19/2021	20	No	DEC	7	15:00	22:00	-226.12	0.00	0.00	13305.79	0.00	0.00	0.00	0.00	0.00	0.00
331	RT	Reliability Assessment	PGAE	Sierra	7/19/2021	20	No	INC	15	9:55	0:00	-59.81	8769.84	0.00	3272.31	0.00	0.00	0.00	0.00	0.00	0.00
332	RT	Reliability Assessment	PGAE	Sierra	7/20/2021	20 - 45	No	DEC	7	15:55	22:00	9.09	0.00	0.00	-686.40	13.92	-919.90	0.00	0.00	0.00	0.00
333	RT	Reliability Assessment	PGAE	Sierra	7/20/2021	20	No	INC	1	16:10	17:00	-13.00	1840.08	0.00	712.62	0.00	0.00	0.00	0.00	0.00	0.00
334	RT	Reliability Assessment	PGAE	Sierra	7/21/2021	20	No	DEC	4	18:00	22:00	-64.24	0.00	344.85	4089.53	0.00	0.00	0.00	0.00	0.00	0.00
335	RT	Reliability Assessment	PGAE	Sierra	7/21/2021	20 - 42	No	INC	22	1:55	23:00	3.01	50232.05	921.59	-682.44	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
336	RT	Reliability Assessment	PGAE	Sierra	7/22/2021	10 - 40	No	DEC	5	17:00	22:00	-39.40	0.00	320.46	2531.96	0.00	0.00	0.00	0.00	0.00	0.00
337	RT	Reliability Assessment	PGAE	Sierra	7/22/2021	7 - 42	No	INC	11	10:45	21:00	15.08	19924.90	387.09	-3309.25	15.83	-3075.55	0.00	0.00	0.00	0.00
338	RT	Reliability Assessment	PGAE	Sierra	7/23/2021	20 - 40	No	DEC	4	18:05	22:00	-102.29	0.00	77.56	6038.91	10.00	-634.20	0.00	0.00	0.00	0.00
339	RT	Reliability Assessment	PGAE	Sierra	7/23/2021	10 - 42	No	INC	23	1:25	0:00	21.23	73503.57	1521.62	-3622.40	15.00	-3039.80	0.00	0.00	0.00	0.00
340	RT	Reliability Assessment	PGAE	Sierra	7/24/2021	20 - 40	No	DEC	3	18:00	21:00	4.52	0.00	59.46	-378.47	0.00	0.00	0.00	0.00	0.00	0.00
341	RT	Reliability Assessment	PGAE	Sierra	7/24/2021	20 - 42	No	INC	23	0:00	23:00	20.96	81794.42	1221.76	-1530.35	1.67	-117.00	0.00	0.00	0.00	0.00
342	RT	Reliability Assessment	PGAE	Sierra	7/25/2021	8 - 38	No	DEC	4	18:00	22:00	-12.83	0.00	29.56	239.98	0.00	0.00	0.00	0.00	0.00	0.00
343	RT	Reliability Assessment	PGAE	Sierra	7/25/2021	8 - 42	No	INC	10	13:55	23:30	68.44	27117.93	1330.50	-8281.00	28.28	-5583.68	0.00	0.00	0.00	0.00
344	RT	Reliability Assessment	PGAE	Sierra	7/26/2021	20	No	DEC	6	16:30	22:00	-56.89	0.00	59.12	3404.58	0.00	0.00	0.00	0.00	0.00	0.00
345	RT	Reliability Assessment	PGAE	Sierra	7/26/2021	20 - 42	Yes	INC	11	11:40	22:00	-18.30	26934.15	1524.97	482.22	0.00	0.00	0.00	0.00	0.00	0.00
346	RT	Reliability Assessment	PGAE	Sierra	7/27/2021	20	No	DEC	3	19:45	22:00	4.89	0.00	0.00	-350.85	0.00	0.00	0.00	0.00	0.00	0.00
347	RT	Reliability Assessment	PGAE	Sierra	7/27/2021	20	No	INC	1	22:00	23:00	1.62	2320.60	0.00	-118.16	0.00	0.00	0.00	0.00	0.00	0.00
348	RT	Reliability Assessment	PGAE	Sierra	7/28/2021	20	No	DEC	7	15:45	22:00	-9.34	-573.90	134.82	1500.49	0.00	0.00	0.00	0.00	0.00	0.00
349	RT	Reliability Assessment	PGAE	Sierra	7/28/2021	20 - 42	No	INC	21	3:00	0:00	39.29	15394.60	155.05	-3084.51	0.00	0.00	0.00	0.00	0.00	0.00
350	RT	Reliability Assessment	PGAE	Sierra	7/29/2021	10 - 47	No	DEC	11	13:00	0:00	81.45	0.00	0.00	-4164.43	64.11	-2775.82	0.00	0.00	0.00	0.00
351	RT	Reliability Assessment	PGAE	Sierra	7/29/2021	10 - 47	No	INC	24	0:00	0:00	95.88	105103.81	0.00	-6685.16	80.29	-5428.96	0.00	0.00	0.00	0.00
352	RT	Reliability Assessment	PGAE	Sierra	7/30/2021	20 - 46	No	DEC	7	15:00	22:00	95.84	0.00	0.00	-6500.72	88.58	-6155.44	0.00	0.00	0.00	0.00
353	RT	Reliability Assessment	PGAE	Sierra	7/30/2021	20 - 47	No	INC	24	0:00	0:00	-11.77	44831.48	302.40	370.45	0.00	0.00	0.00	0.00	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
354	RT	Reliability Assessment	PGAE	Sierra	7/31/2021	20 - 45	No	DEC	7	15:00	22:00	6.49	0.00	0.00	-713.56	14.48	-987.63	0.00	0.00	0.00	0.00
355	RT	Reliability Assessment	PGAE	Sierra	7/31/2021	20 - 40	No	INC	24	0:25	0:00	45.11	58267.95	2687.38	-4895.98	17.19	-2716.66	0.00	0.00	0.00	0.00
356	RT	Reliability Assessment	PGAE	Stockton	7/1/2021	20 - 35	No	INC	5	17:10	22:00	13.89	0.00	0.00	-3842.38	8.75	-1854.87	0.00	0.00	0.00	0.00
357	RT	Reliability Assessment	PGAE	Stockton	7/7/2021	40	No	INC	6	16:50	22:00	12.40	0.00	0.00	-1475.67	13.67	-1539.15	0.00	0.00	-966.94	0.00
358	RT	Reliability Assessment	PGAE	Stockton	7/9/2021	50	No	INC	5	15:30	20:00	-21.17	0.00	0.00	3874.96	0.00	0.00	0.00	0.00	0.00	0.00
359	RT	Reliability Assessment	PGAE	Stockton	7/10/2021	140 - 193	No	DEC	5	19:45	0:00	78.28	-29462.76	0.00	-23365.33	-4.51	0.00	203.81	0.00	0.00	0.00
360	RT	Reliability Assessment	PGAE	Stockton	7/12/2021	20 - 30	No	INC	5	16:55	21:00	-8.93	0.00	0.00	174.07	3.33	-541.08	0.00	0.00	0.00	0.00
361	RT	Reliability Assessment	PGAE	Stockton	7/14/2021	30	No	INC	6	17:05	23:00	12.37	0.00	0.00	-2042.92	13.08	-2109.87	0.00	0.00	0.00	0.00
362	RT	Reliability Assessment	PGAE	Stockton	7/18/2021	30	No	INC	3	18:25	21:00	7.25	0.00	0.00	-1388.35	6.38	-1023.80	0.00	0.00	0.00	0.00
363	RT	Reliability Assessment	PGAE	Stockton	7/25/2021	20	No	DEC	4	18:00	22:00	0.04	0.00	0.00	82.71	0.00	0.00	0.00	0.00	0.00	0.00
364	RT	Reliability Assessment	PGAE	Stockton	7/25/2021	20	No	INC	5	16:50	21:00	29.70	0.00	0.00	-11875.78	18.48	-11099.42	0.00	0.00	0.00	0.00
365	RT	Reliability Assessment	PGAE	Stockton	7/28/2021	20 - 50	No	INC	6	18:25	0:00	9.92	0.00	0.00	-6854.78	11.09	-1671.04	0.00	0.00	0.00	0.00
366	RT	Reliability Assessment	PGAE	Stockton	7/29/2021	25 - 50	No	INC	22	0:00	22:00	3.03	0.00	0.00	-4276.71	20.50	-4158.02	0.00	0.00	0.00	0.00
367	RT	Reliability Assessment	SCE	NA	7/16/2021	410	No	DEC	1	23:20	0:00	-56.22	-3895.71	0.00	2299.99	-5.33	0.00	0.00	0.00	0.00	0.00
368	RT	Reliability Assessment	SCE	NA	7/17/2021	410	No	DEC	5	0:00	5:00	-13.84	-31359.14	0.00	508.87	0.00	0.00	0.00	0.00	0.00	0.00
369	RT	Reliability Assessment	SCE	NA	7/17/2021	410	No	INC	1	3:00	4:00	-10.92	-1000.39	0.00	335.01	0.00	0.00	0.00	0.00	0.00	0.00
370	RT	Software Limitation	PGAE	Bay Area	7/10/2021	0	No	INC	2	5:45	6:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
371	RT	Software Limitation	PGAE	Fresno	7/9/2021	35 - 44.93	No	INC	1	15:55	16:45	26.67	2217.09	0.00	-10768.27	1.65	-136.88	0.00	-1.45	0.00	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
372	RT	Software Limitation	PGAE	Fresno	7/10/2021	0	No	INC	16	0:45	16:25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
373	RT	Software Limitation	PGAE	Fresno	7/28/2021	-303	No	DEC	1	5:25	6:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
374	RT	Software Limitation	PGAE	Fresno	7/28/2021	0 - 83	No	INC	1	0:20	1:15	-12.50	4934.68	0.00	-3482.87	-65.77	0.00	770.31	0.00	0.00	0.00
375	RT	Software Limitation	PGAE	NA	7/7/2021	48.95	No	DEC	1	17:00	17:30	16.33	0.00	0.00	-645.34	0.00	0.00	0.00	0.00	0.00	0.00
376	RT	Software Limitation	SCE	LA Basin	7/8/2021	70	No	INC	1	2:00	2:20	0.68	0.00	0.00	-35.14	0.00	0.00	0.00	0.00	0.00	0.00
377	RT	Software Limitation	SCE	LA Basin	7/9/2021	5 - 42.42	No	INC	1	15:55	16:45	36.12	4108.20	0.00	-12423.76	4.19	-347.64	0.00	-8.20	0.00	0.00
378	RT	Software Limitation	SCE	LA Basin	7/12/2021	5 - 90.58	No	INC	1	6:05	6:55	358.37	26859.35	175.40	-21443.45	51.39	-3073.42	0.00	-459.79	0.00	0.00
379	RT	Software Limitation	SCE	NA	7/7/2021	0	No	INC	1	1:30	2:00	1.01	0.00	0.00	-27.51	0.00	0.00	0.00	0.00	0.00	0.00
380	RT	Software Limitation	SDGE	San Diego-IV	7/22/2021	0	No	INC	1	19:00	20:00	-7.50	0.00	0.00	0.00	-7.50	0.00	0.00	0.00	0.00	0.00
381	RT	Software Limitation	SDGE	San Diego-IV	7/25/2021	0	No	INC	1	2:30	3:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
382	RT	Software Limitation	SDGE	San Diego-IV	7/27/2021	0	No	DEC	7	0:00	7:00	-129.66	0.00	0.00	3728.55	-60.60	0.00	0.00	0.00	0.00	0.00
383	RT	Unit Testing	PGAE	Fresno	7/13/2021	121.83	No	INC	1	16:20	16:50	8.21	6250.59	0.00	-683.51	0.00	0.00	0.00	0.00	0.00	0.00
384	RT	Unit Testing	PGAE	Fresno	7/16/2021	49	No	INC	1	1:10	2:00	-4.25	0.00	0.00	173.61	0.00	0.00	0.00	0.00	0.00	0.00
385	RT	Unit Testing	PGAE	Fresno	7/28/2021	49	No	INC	1	10:50	11:15	-3.61	2067.15	0.00	198.27	0.50	-36.83	0.00	0.00	0.00	0.00
386	RT	Unit Testing	PGAE	Fresno	7/31/2021	39	No	INC	1	1:20	2:00	5.20	2721.81	0.00	-1404.83	0.00	0.00	0.00	0.00	0.00	0.00
387	RT	Unit Testing	PGAE	NA	7/7/2021	48.95	No	INC	1	16:35	17:00	-5.11	0.00	0.00	265.85	0.00	0.00	0.00	0.00	0.00	0.00
388	RT	Unit Testing	PGAE	Stockton	7/9/2021	30 - 50	No	INC	3	21:20	0:00	5.34	0.00	0.00	-765.97	3.08	-272.84	0.00	0.00	-	10580.46
389	RT	Unit Testing	PGAE	Stockton	7/10/2021	30 - 40	No	INC	2	0:00	2:00	-12.72	0.00	0.00	1231.94	0.00	0.00	0.00	0.00	-5239.22	0.00

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**Chart 2: Table of Exceptional Dispatches for Period 01/July/2021 - 31/July/2021**

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
390	RT	Unit Testing	SCE	LA Basin	7/7/2021	18.8	No	INC	1	20:45	21:15	2.98	0.00	0.00	-202.92	0.48	-51.07	0.00	0.00	0.00	0.00
391	RT	Unit Testing	SDGE	San Diego-IV	7/13/2021	32 - 54.88	No	INC	5	17:15	22:00	41.72	0.00	0.00	-3120.21	18.22	-1437.62	0.00	0.00	0.00	0.00
392	RT	Unit Testing	SDGE	San Diego-IV	7/14/2021	46 - 105	No	INC	5	18:15	23:00	-14.21	22020.75	0.00	437.25	2.74	-183.98	0.00	0.00	0.00	0.00
393	RT	Unit Testing	SDGE	San Diego-IV	7/20/2021	44 - 103	No	INC	6	16:25	22:00	17.64	0.00	0.00	-1086.91	11.02	-676.44	0.00	0.00	0.00	0.00
394	RT	Unplanned Outage	PGAE	Fresno	7/10/2021	0	No	INC	1	11:45	12:45	8.75	0.00	0.00	-541.77	0.00	0.00	0.00	0.00	0.00	0.00
395	RT	Voltage Support	PGAE	Fresno	7/19/2021	-303	No	DEC	3	4:50	7:00	-151.50	0.00	0.00	9092.41	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>8</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

<sup>8</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.

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 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 8,928 five-minute intervals in July, this resource was issued exceptional dispatch instructions in 2,997 five-minute intervals. This resource was eligible to set the LMP in 823 intervals. Out of the 823 intervals, resource calculated LMP was larger than the market LMP in 517 intervals. In the 517 intervals, the average increase in five minute LMP was \$56.09/MWh. Out of the 823 intervals, resource calculated LMP was less than the market LMP in 306 intervals. In the 306 intervals, the average decrease in five minute LMP was \$36.05/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 increase of \$21.83/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 8,928 five-minute intervals in July, this resource was issued exceptional dispatch instructions in 2,610 five-minute intervals. This resource was eligible to set the LMP in 260 intervals. Out of the 260 intervals, resource calculated LMP was larger than the market LMP in 249 intervals. In the 249 intervals, the average increase in five minute LMP was \$36.50/MWh. Out of the 260 intervals, resource calculated LMP was less than the market LMP in 11 intervals. In the 11 intervals, the average decrease in five minute LMP was \$64.38/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 increase of \$32.23/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	7/1/2021	16	11	42.94	Yes	66.36	23.42
2	7/1/2021	16	12	43.74	Yes	66.36	22.62
3	7/1/2021	17	1	40.58	Yes	66.36	25.78
4	7/1/2021	17	2	40.13	Yes	66.36	26.23
5	7/1/2021	17	3	39.34	Yes	66.36	27.02
6	7/1/2021	17	4	39.64	Yes	66.36	26.72
7	7/1/2021	17	5	39.92	Yes	66.36	26.44
8	7/1/2021	17	6	40.04	Yes	66.36	26.32
9	7/1/2021	17	7	38.99	Yes	66.36	27.37
10	7/1/2021	17	8	39.63	Yes	66.36	26.73
11	7/1/2021	17	9	38.65	Yes	66.36	27.71
12	7/1/2021	17	10	41.92	Yes	66.42	24.50
13	7/1/2021	17	11	41.94	Yes	66.42	24.48
14	7/1/2021	17	12	41.58	Yes	66.42	24.84
15	7/1/2021	18	1	40.59	Yes	67.49	26.90
16	7/1/2021	18	2	40.55	Yes	67.49	26.94
17	7/1/2021	18	3	39.67	Yes	67.49	27.82
18	7/1/2021	18	4	41.30	Yes	67.49	26.19
19	7/1/2021	18	5	41.54	Yes	67.49	25.95
20	7/1/2021	18	6	42.20	Yes	67.49	25.29
21	7/1/2021	18	7	41.61	Yes	67.49	25.88
22	7/1/2021	18	8	41.29	Yes	67.49	26.20
23	7/1/2021	18	9	41.86	Yes	67.49	25.63
24	7/1/2021	18	10	44.37	Yes	67.49	23.12
25	7/1/2021	18	11	44.40	Yes	67.49	23.09
26	7/1/2021	18	12	47.47	Yes	67.49	20.02
27	7/1/2021	19	1	41.58	Yes	67.4	25.82
28	7/1/2021	19	2	43.10	Yes	67.4	24.30
29	7/1/2021	19	3	44.41	Yes	67.4	22.99
30	7/1/2021	19	4	47.11	Yes	67.4	20.29
31	7/1/2021	19	5	49.58	Yes	67.4	17.82
32	7/1/2021	19	6	48.81	Yes	67.4	18.59
33	7/1/2021	19	7	47.01	Yes	67.4	20.39
34	7/1/2021	19	8	48.17	Yes	67.4	19.23

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
35	7/1/2021	19	9	52.86	Yes	67.4	14.54
36	7/1/2021	19	10	66.15	Yes	67.4	1.25
37	7/1/2021	19	11	93.06	Yes	67.4	-25.66
38	7/1/2021	19	12	120.98	Yes	67.4	-53.58
39	7/1/2021	20	1	60.60	Yes	67.25	6.65
40	7/1/2021	20	2	56.97	Yes	67.25	10.28
41	7/1/2021	20	3	53.09	Yes	67.25	14.16
42	7/1/2021	20	4	61.22	Yes	67.25	6.03
43	7/1/2021	20	5	62.42	Yes	67.25	4.83
44	7/1/2021	20	6	62.74	Yes	67.25	4.51
45	7/1/2021	20	7	71.39	Yes	67.25	-4.14
46	7/1/2021	20	8	65.68	Yes	67.25	1.57
47	7/1/2021	20	9	68.17	Yes	67.25	-0.92
48	7/1/2021	20	10	64.90	Yes	67.25	2.35
49	7/1/2021	20	11	63.31	Yes	67.25	3.94
50	7/1/2021	20	12	60.61	Yes	67.25	6.64
51	7/1/2021	21	1	70.95	Yes	67.23	-3.72
52	7/1/2021	21	2	71.13	Yes	67.23	-3.90
53	7/1/2021	21	3	64.65	Yes	67.23	2.58
54	7/1/2021	21	4	74.39	Yes	67.23	-7.16
55	7/1/2021	21	5	65.92	Yes	67.23	1.31
56	7/1/2021	21	6	58.58	Yes	67.23	8.65
57	7/1/2021	21	7	66.03	Yes	67.23	1.20
58	7/1/2021	21	8	59.70	Yes	67.23	7.53
59	7/1/2021	21	9	64.07	Yes	67.23	3.16
60	7/1/2021	21	10	43.99	Yes	67.23	23.24
61	7/1/2021	21	11	43.00	Yes	67.23	24.23
62	7/1/2021	21	12	50.89	Yes	67.23	16.34
63	7/1/2021	22	1	51.13	Yes	62.85	11.72
64	7/1/2021	22	2	52.04	Yes	62.85	10.81
65	7/1/2021	22	3	50.57	Yes	62.85	12.28
66	7/1/2021	22	4	54.30	Yes	62.85	8.55
67	7/1/2021	22	5	53.27	Yes	62.85	9.58
68	7/1/2021	22	6	53.75	Yes	62.85	9.10
69	7/1/2021	22	7	53.27	Yes	62.85	9.58
70	7/1/2021	22	8	52.35	Yes	62.85	10.50
71	7/1/2021	22	9	48.33	Yes	62.85	14.52
72	7/1/2021	22	10	45.21	Yes	62.85	17.64

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
73	7/1/2021	22	11	43.05	Yes	62.85	19.80
74	7/1/2021	22	12	46.71	Yes	62.85	16.14
75	7/3/2021	16	3	33.86	Yes	60.39	26.53
76	7/3/2021	16	4	33.02	Yes	60.39	27.37
77	7/3/2021	16	5	34.06	Yes	60.39	26.33
78	7/3/2021	16	6	36.15	Yes	60.39	24.24
79	7/3/2021	16	7	37.35	Yes	60.39	23.04
80	7/3/2021	16	8	38.48	Yes	60.39	21.91
81	7/3/2021	16	9	37.68	Yes	60.39	22.71
82	7/3/2021	16	10	41.35	Yes	60.39	19.04
83	7/3/2021	16	11	41.15	Yes	60.39	19.24
84	7/3/2021	16	12	38.41	Yes	60.39	21.98
85	7/3/2021	17	1	36.67	Yes	60.46	23.79
86	7/3/2021	17	2	36.06	Yes	60.46	24.40
87	7/3/2021	17	3	35.72	Yes	60.46	24.74
88	7/3/2021	17	4	35.76	Yes	60.46	24.70
89	7/3/2021	17	5	36.89	Yes	60.46	23.57
90	7/3/2021	17	6	35.51	Yes	60.46	24.95
91	7/3/2021	17	7	35.50	Yes	60.46	24.96
92	7/3/2021	17	8	37.52	Yes	60.46	22.94
93	7/3/2021	17	9	38.15	Yes	60.46	22.31
94	7/3/2021	17	10	45.85	Yes	60.46	14.61
95	7/3/2021	17	11	48.42	Yes	60.46	12.04
96	7/3/2021	17	12	45.85	Yes	60.46	14.61
97	7/3/2021	18	1	36.48	Yes	60.44	23.96
98	7/3/2021	18	2	34.24	Yes	60.44	26.20
99	7/3/2021	18	3	34.48	Yes	60.44	25.96
100	7/3/2021	18	4	34.66	Yes	60.44	25.78
101	7/3/2021	18	5	35.95	Yes	60.44	24.49
102	7/3/2021	18	6	36.92	Yes	60.44	23.52
103	7/3/2021	18	7	37.22	Yes	60.44	23.22
104	7/3/2021	18	8	37.29	Yes	60.44	23.15
105	7/3/2021	18	9	37.22	Yes	60.44	23.22
106	7/3/2021	18	10	44.32	Yes	60.44	16.12
107	7/3/2021	18	11	47.09	Yes	60.44	13.35
108	7/3/2021	18	12	60.44	Yes	60.44	0.00
109	7/3/2021	19	1	169.17	Yes	57.43	-111.74
110	7/3/2021	19	2	68.73	Yes	57.43	-11.30

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
111	7/3/2021	19	3	68.85	Yes	57.43	-11.42
112	7/3/2021	19	4	69.35	Yes	57.43	-11.92
113	7/3/2021	19	5	69.52	Yes	57.43	-12.09
114	7/3/2021	19	6	69.97	Yes	57.43	-12.54
115	7/3/2021	19	7	69.93	Yes	57.43	-12.50
116	7/3/2021	19	8	70.12	Yes	57.43	-12.69
117	7/3/2021	19	9	70.42	Yes	57.43	-12.99
118	7/3/2021	19	10	78.25	Yes	57.43	-20.82
119	7/3/2021	19	11	94.46	Yes	57.43	-37.03
120	7/3/2021	19	12	183.82	Yes	57.43	-126.39
121	7/3/2021	20	1	58.46	Yes	57.25	-1.21
122	7/3/2021	20	2	57.25	Yes	57.25	0.00
123	7/3/2021	20	3	57.25	Yes	57.25	0.00
124	7/3/2021	20	4	58.85	Yes	57.25	-1.60
125	7/3/2021	20	5	58.85	Yes	57.25	-1.60
126	7/3/2021	20	6	58.94	Yes	57.25	-1.69
127	7/3/2021	20	7	57.25	Yes	57.25	0.00
128	7/3/2021	20	8	57.25	Yes	57.25	0.00
129	7/3/2021	20	9	57.25	Yes	57.25	0.00
130	7/3/2021	20	10	46.67	Yes	57.25	10.58
131	7/3/2021	20	11	46.07	Yes	57.25	11.18
132	7/3/2021	20	12	46.49	Yes	57.25	10.76
133	7/3/2021	21	1	71.46	Yes	57.07	-14.39
134	7/3/2021	21	2	70.75	Yes	57.07	-13.68
135	7/3/2021	21	3	70.44	Yes	57.07	-13.37
136	7/3/2021	21	4	69.68	Yes	57.07	-12.61
137	7/3/2021	21	5	70.18	Yes	57.07	-13.11
138	7/3/2021	21	6	70.21	Yes	57.07	-13.14
139	7/3/2021	21	7	58.26	Yes	57.07	-1.19
140	7/3/2021	21	8	58.30	Yes	57.07	-1.23
141	7/3/2021	21	9	58.25	Yes	57.07	-1.18
142	7/3/2021	21	10	58.26	Yes	57.07	-1.19
143	7/3/2021	21	11	58.11	Yes	57.07	-1.04
144	7/3/2021	21	12	58.05	Yes	57.07	-0.98
145	7/3/2021	22	1	70.26	Yes	56.78	-13.48
146	7/3/2021	22	2	70.24	Yes	56.78	-13.46
147	7/3/2021	22	3	70.16	Yes	56.78	-13.38
148	7/3/2021	22	4	70.44	Yes	56.78	-13.66

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149	7/3/2021	22	5	70.35	Yes	56.78	-13.57
150	7/3/2021	22	6	70.27	Yes	56.78	-13.49
151	7/3/2021	22	7	57.65	Yes	56.78	-0.87
152	7/3/2021	22	8	57.50	Yes	56.78	-0.72
153	7/3/2021	22	9	57.37	Yes	56.78	-0.59
154	7/3/2021	22	10	56.78	Yes	56.78	0.00
155	7/3/2021	22	11	56.78	Yes	56.78	0.00
156	7/3/2021	22	12	68.99	Yes	56.78	-12.21
157	7/3/2021	23	1	70.61	Yes	59.44	-11.17
158	7/3/2021	23	2	70.61	Yes	59.44	-11.17
159	7/3/2021	23	3	70.31	Yes	59.44	-10.87
160	7/3/2021	23	4	70.52	Yes	59.44	-11.08
161	7/3/2021	23	5	70.25	Yes	59.44	-10.81
162	7/3/2021	23	6	70.30	Yes	59.44	-10.86
163	7/3/2021	23	7	44.93	Yes	59.44	14.51
164	7/3/2021	23	8	45.57	Yes	59.44	13.87
165	7/3/2021	23	9	43.01	Yes	59.44	16.43
166	7/3/2021	23	10	38.50	Yes	59.44	20.94
167	7/3/2021	23	11	37.89	Yes	59.44	21.55
168	7/3/2021	23	12	36.31	Yes	59.44	23.13
169	7/3/2021	24	1	43.10	Yes	59.38	16.28
170	7/3/2021	24	2	45.63	Yes	59.38	13.75
171	7/3/2021	24	3	44.38	Yes	59.38	15.00
172	7/3/2021	24	4	41.19	Yes	59.38	18.19
173	7/3/2021	24	5	40.51	Yes	59.38	18.87
174	7/3/2021	24	6	41.19	Yes	59.38	18.19
175	7/3/2021	24	7	39.15	Yes	59.38	20.23
176	7/3/2021	24	8	38.41	Yes	59.38	20.97
177	7/3/2021	24	9	38.59	Yes	59.38	20.79
178	7/3/2021	24	10	38.12	Yes	59.38	21.26
179	7/3/2021	24	11	37.75	Yes	59.38	21.63
180	7/3/2021	24	12	38.20	Yes	59.38	21.18
181	7/4/2021	1	1	68.32	Yes	59.34	-8.98
182	7/4/2021	1	2	68.46	Yes	59.34	-9.12
183	7/4/2021	1	3	68.46	Yes	59.34	-9.12
184	7/4/2021	1	4	68.16	Yes	59.34	-8.82
185	7/4/2021	1	5	68.13	Yes	59.34	-8.79
186	7/4/2021	1	6	68.11	Yes	59.34	-8.77

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187	7/4/2021	1	7	68.20	Yes	59.34	-8.86
188	7/4/2021	1	8	68.17	Yes	59.34	-8.83
189	7/4/2021	1	9	68.17	Yes	59.34	-8.83
190	7/4/2021	1	10	68.13	Yes	59.34	-8.79
191	7/4/2021	1	11	68.10	Yes	59.34	-8.76
192	7/4/2021	1	12	68.07	Yes	59.34	-8.73
193	7/6/2021	18	2	60.30	Yes	60.33	0.03
194	7/6/2021	18	3	60.30	Yes	60.33	0.03
195	7/6/2021	18	4	60.30	Yes	60.33	0.03
196	7/6/2021	18	5	58.76	Yes	60.33	1.57
197	7/6/2021	18	6	58.79	Yes	60.33	1.54
198	7/13/2021	18	2	57.81	Yes	64.24	6.43
199	7/13/2021	18	3	64.24	Yes	64.24	0.00
200	7/13/2021	18	4	64.24	Yes	64.24	0.00
201	7/13/2021	18	5	67.11	Yes	64.24	-2.87
202	7/13/2021	18	6	69.83	Yes	64.24	-5.59
203	7/13/2021	18	7	69.50	Yes	64.24	-5.26
204	7/13/2021	18	8	69.50	Yes	64.24	-5.26
205	7/13/2021	18	9	69.73	Yes	64.24	-5.49
206	7/13/2021	18	10	64.24	Yes	64.24	0.00
207	7/13/2021	18	11	66.18	Yes	64.24	-1.94
208	7/13/2021	18	12	61.12	Yes	64.24	3.12
209	7/13/2021	19	1	59.43	Yes	64.13	4.70
210	7/13/2021	19	2	54.28	Yes	64.13	9.85
211	7/13/2021	19	3	56.34	Yes	64.13	7.79
212	7/13/2021	19	4	57.69	Yes	64.13	6.44
213	7/13/2021	19	5	58.25	Yes	64.13	5.88
214	7/13/2021	19	6	53.55	Yes	64.13	10.58
215	7/13/2021	19	7	69.55	Yes	64.13	-5.42
216	7/13/2021	19	8	70.24	Yes	64.13	-6.11
217	7/13/2021	19	9	81.27	Yes	64.13	-17.14
218	7/13/2021	19	10	96.97	Yes	64.13	-32.84
219	7/13/2021	19	11	129.87	Yes	64.13	-65.74
220	7/13/2021	19	12	106.17	Yes	64.13	-42.04
221	7/13/2021	20	1	65.22	Yes	66.9	1.68
222	7/13/2021	20	2	61.04	Yes	66.9	5.86
223	7/13/2021	20	3	58.22	Yes	66.9	8.68
224	7/13/2021	20	4	65.75	Yes	66.9	1.15



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225	7/13/2021	20	5	69.38	Yes	66.9	-2.48
226	7/13/2021	20	6	69.02	Yes	66.9	-2.12
227	7/13/2021	20	7	68.46	Yes	66.9	-1.56
228	7/13/2021	20	8	67.77	Yes	66.9	-0.87
229	7/13/2021	20	9	67.77	Yes	66.9	-0.87
230	7/13/2021	20	10	56.04	Yes	66.9	10.86
231	7/13/2021	20	11	59.36	Yes	66.9	7.54
232	7/13/2021	20	12	58.15	Yes	66.9	8.75
233	7/13/2021	21	1	119.14	Yes	66.58	-52.56
234	7/13/2021	21	2	119.07	Yes	66.58	-52.49
235	7/13/2021	21	3	119.04	Yes	66.58	-52.46
236	7/13/2021	21	4	118.33	Yes	66.58	-51.75
237	7/13/2021	21	5	118.32	Yes	66.58	-51.74
238	7/13/2021	21	6	118.19	Yes	66.58	-51.61
239	7/13/2021	21	7	57.89	Yes	66.58	8.69
240	7/13/2021	21	8	56.47	Yes	66.58	10.11
241	7/13/2021	21	9	52.62	Yes	66.58	13.96
242	7/13/2021	21	10	56.63	Yes	66.58	9.95
243	7/13/2021	21	11	62.20	Yes	66.58	4.38
244	7/13/2021	21	12	66.58	Yes	66.58	0.00
245	7/13/2021	22	1	80.62	Yes	66.27	-14.35
246	7/13/2021	22	2	119.35	Yes	66.27	-53.08
247	7/13/2021	22	3	119.28	Yes	66.27	-53.01
248	7/13/2021	22	4	80.38	Yes	66.27	-14.11
249	7/13/2021	22	5	81.47	Yes	66.27	-15.20
250	7/13/2021	22	6	81.61	Yes	66.27	-15.34
251	7/13/2021	22	7	66.63	Yes	66.27	-0.36
252	7/13/2021	22	8	67.00	Yes	66.27	-0.73
253	7/13/2021	22	9	49.62	Yes	66.27	16.65
254	7/13/2021	22	10	48.39	Yes	66.27	17.88
255	7/13/2021	22	11	52.13	Yes	66.27	14.14
256	7/13/2021	22	12	62.42	Yes	66.27	3.85
257	7/14/2021	17	3	47.40	Yes	66.35	18.95
258	7/14/2021	17	4	49.03	Yes	64.72	15.69
259	7/14/2021	17	5	48.55	Yes	64.72	16.17
260	7/14/2021	17	6	49.26	Yes	64.72	15.46
261	7/14/2021	17	7	49.77	Yes	64.72	14.95
262	7/14/2021	17	8	47.72	Yes	64.72	17.00

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263	7/14/2021	17	9	49.59	Yes	64.72	15.13
264	7/14/2021	17	10	54.89	Yes	64.72	9.83
265	7/14/2021	17	11	55.71	Yes	64.72	9.01
266	7/14/2021	17	12	56.44	Yes	64.72	8.28
267	7/14/2021	18	1	48.08	Yes	64.73	16.65
268	7/14/2021	18	2	51.12	Yes	64.73	13.61
269	7/14/2021	18	3	52.33	Yes	64.73	12.40
270	7/14/2021	18	4	53.67	Yes	64.73	11.06
271	7/14/2021	18	5	53.84	Yes	64.73	10.89
272	7/14/2021	18	6	55.29	Yes	64.73	9.44
273	7/14/2021	18	7	59.92	Yes	64.73	4.81
274	7/14/2021	18	8	62.06	Yes	64.73	2.67
275	7/14/2021	18	9	72.49	Yes	64.73	-7.76
276	7/20/2021	18	2	55.34	Yes	68.32	12.98
277	7/20/2021	18	3	56.37	Yes	68.32	11.95
278	7/20/2021	18	4	57.86	Yes	68.32	10.46
279	7/20/2021	18	5	58.74	Yes	68.32	9.58
280	7/20/2021	18	6	58.74	Yes	68.32	9.58
281	7/20/2021	18	7	58.88	Yes	68.32	9.44
282	7/20/2021	18	8	58.99	Yes	68.32	9.33
283	7/20/2021	18	9	59.40	Yes	68.32	8.92
284	7/20/2021	18	10	61.84	Yes	68.32	6.48
285	7/20/2021	18	11	64.46	Yes	68.32	3.86
286	7/20/2021	18	12	61.77	Yes	68.32	6.55
287	7/20/2021	19	1	57.88	Yes	68.28	10.40
288	7/20/2021	19	2	57.88	Yes	68.28	10.40
289	7/20/2021	19	3	58.37	Yes	68.28	9.91
290	7/20/2021	19	4	58.43	Yes	68.28	9.85
291	7/20/2021	19	5	61.43	Yes	68.28	6.85
292	7/20/2021	19	6	60.94	Yes	68.28	7.34
293	7/20/2021	19	7	62.14	Yes	68.28	6.14
294	7/20/2021	19	8	63.81	Yes	68.28	4.47
295	7/20/2021	19	9	66.37	Yes	68.28	1.91
296	7/20/2021	19	10	68.70	Yes	68.28	-0.42
297	7/20/2021	19	11	67.98	Yes	68.28	0.30
298	7/20/2021	19	12	67.99	Yes	68.28	0.29
299	7/20/2021	20	1	69.03	Yes	68.12	-0.91
300	7/20/2021	20	2	68.77	Yes	68.12	-0.65

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301	7/20/2021	20	3	68.77	Yes	68.12	-0.65
302	7/20/2021	20	4	69.79	Yes	68.12	-1.67
303	7/20/2021	20	5	75.18	Yes	68.12	-7.06
304	7/20/2021	20	6	73.91	Yes	68.12	-5.79
305	7/20/2021	20	7	75.83	Yes	68.12	-7.71
306	7/20/2021	20	8	77.34	Yes	68.12	-9.22
307	7/20/2021	20	9	74.17	Yes	68.12	-6.05
308	7/20/2021	20	10	73.88	Yes	68.12	-5.76
309	7/20/2021	20	11	69.70	Yes	68.12	-1.58
310	7/20/2021	20	12	78.99	Yes	68.12	-10.87
311	7/20/2021	21	1	76.50	Yes	67.9	-8.60
312	7/20/2021	21	2	74.86	Yes	67.9	-6.96
313	7/20/2021	21	3	74.91	Yes	67.9	-7.01
314	7/20/2021	21	4	75.31	Yes	67.9	-7.41
315	7/20/2021	21	5	71.10	Yes	67.9	-3.20
316	7/20/2021	21	6	71.10	Yes	67.9	-3.20
317	7/20/2021	21	7	76.91	Yes	67.9	-9.01
318	7/20/2021	21	8	79.06	Yes	67.9	-11.16
319	7/20/2021	21	9	71.19	Yes	67.9	-3.29
320	7/20/2021	21	10	68.31	Yes	67.9	-0.41
321	7/20/2021	21	11	68.31	Yes	67.9	-0.41
322	7/20/2021	21	12	66.27	Yes	67.9	1.63
323	7/20/2021	22	1	89.81	Yes	67.49	-22.32
324	7/20/2021	22	2	98.64	Yes	67.49	-31.15
325	7/20/2021	22	3	89.81	Yes	67.49	-22.32
326	7/20/2021	22	4	81.49	Yes	67.49	-14.00
327	7/20/2021	22	5	76.79	Yes	67.49	-9.30
328	7/20/2021	22	6	72.92	Yes	67.49	-5.43
329	7/20/2021	22	7	98.58	Yes	67.49	-31.09
330	7/20/2021	22	8	91.21	Yes	67.49	-23.72
331	7/20/2021	22	9	109.12	Yes	67.49	-41.63
332	7/20/2021	22	10	88.66	Yes	67.49	-21.17
333	7/20/2021	22	11	66.25	Yes	67.49	1.24
334	7/20/2021	22	12	74.79	Yes	67.49	-7.30
335	7/24/2021	16	6	47.83	Yes	70.2	22.37
336	7/24/2021	16	7	70.20	Yes	70.2	0.00
337	7/24/2021	16	8	70.20	Yes	70.2	0.00
338	7/24/2021	16	9	70.20	Yes	70.2	0.00

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
339	7/24/2021	16	10	70.20	Yes	70.2	0.00
340	7/24/2021	16	11	70.20	Yes	70.2	0.00
341	7/24/2021	16	12	206.39	Yes	70.2	-136.19
342	7/24/2021	17	1	70.31	Yes	70.31	0.00
343	7/24/2021	17	2	70.31	Yes	70.31	0.00
344	7/24/2021	17	3	78.75	Yes	70.31	-8.44
345	7/24/2021	17	4	78.75	Yes	70.31	-8.44
346	7/24/2021	17	5	78.74	Yes	70.31	-8.43
347	7/24/2021	17	6	78.78	Yes	70.31	-8.47
348	7/24/2021	17	7	78.95	Yes	70.31	-8.64
349	7/24/2021	17	8	79.07	Yes	70.31	-8.76
350	7/24/2021	17	9	79.08	Yes	70.31	-8.77
351	7/24/2021	17	10	79.13	Yes	70.31	-8.82
352	7/24/2021	17	11	79.24	Yes	70.31	-8.93
353	7/24/2021	17	12	79.34	Yes	70.31	-9.03
354	7/24/2021	18	1	79.86	Yes	70.3	-9.56
355	7/24/2021	18	2	80.08	Yes	70.3	-9.78
356	7/24/2021	18	3	80.45	Yes	70.3	-10.15
357	7/24/2021	18	4	109.82	Yes	70.3	-39.52
358	7/24/2021	18	5	109.84	Yes	70.3	-39.54
359	7/24/2021	18	6	109.86	Yes	70.3	-39.56
360	7/24/2021	18	7	110.20	Yes	70.3	-39.90
361	7/24/2021	18	8	110.21	Yes	70.3	-39.91
362	7/24/2021	18	9	110.23	Yes	70.3	-39.93
363	7/24/2021	18	10	110.22	Yes	70.3	-39.92
364	7/24/2021	18	11	110.31	Yes	70.3	-40.01
365	7/24/2021	18	12	97.23	Yes	70.3	-26.93
366	7/24/2021	19	1	67.64	Yes	70.17	2.53
367	7/24/2021	19	2	67.74	Yes	70.17	2.43
368	7/24/2021	19	3	67.75	Yes	70.17	2.42
369	7/24/2021	19	4	68.12	Yes	70.17	2.05
370	7/24/2021	19	5	71.55	Yes	70.17	-1.38
371	7/24/2021	19	6	73.78	Yes	70.17	-3.61
372	7/24/2021	19	7	74.03	Yes	70.17	-3.86
373	7/24/2021	19	8	74.03	Yes	70.17	-3.86
374	7/24/2021	19	9	74.03	Yes	70.17	-3.86
375	7/24/2021	19	10	75.26	Yes	70.17	-5.09
376	7/24/2021	19	11	75.26	Yes	70.17	-5.09

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
377	7/24/2021	19	12	75.26	Yes	70.17	-5.09
378	7/24/2021	20	1	69.17	Yes	69.92	0.75
379	7/24/2021	20	2	69.17	Yes	69.92	0.75
380	7/24/2021	20	3	83.39	Yes	69.92	-13.47
381	7/24/2021	20	4	83.38	Yes	69.92	-13.46
382	7/24/2021	20	5	83.38	Yes	69.92	-13.46
383	7/24/2021	20	6	83.38	Yes	69.92	-13.46
384	7/24/2021	20	7	69.33	Yes	69.92	0.59
385	7/24/2021	20	8	69.33	Yes	69.92	0.59
386	7/24/2021	20	9	69.42	Yes	69.92	0.50
387	7/24/2021	20	10	67.79	Yes	69.92	2.13
388	7/24/2021	20	11	67.86	Yes	69.92	2.06
389	7/24/2021	20	12	67.88	Yes	69.92	2.04
390	7/24/2021	21	1	172.63	Yes	69.57	-103.06
391	7/24/2021	21	2	170.99	Yes	69.57	-101.42
392	7/24/2021	21	3	171.75	Yes	69.57	-102.18
393	7/24/2021	21	4	261.20	Yes	69.57	-191.63
394	7/24/2021	21	5	318.07	Yes	69.57	-248.50
395	7/24/2021	21	6	247.37	Yes	69.57	-177.80
396	7/24/2021	21	7	247.28	Yes	69.57	-177.71
397	7/24/2021	21	8	247.22	Yes	69.57	-177.65
398	7/24/2021	21	9	95.54	Yes	69.57	-25.97
399	7/24/2021	21	10	95.23	Yes	69.57	-25.66
400	7/24/2021	21	11	80.54	Yes	69.57	-10.97
401	7/24/2021	21	12	94.85	Yes	69.57	-25.28
402	7/24/2021	22	1	250.06	Yes	69.14	-180.92
403	7/24/2021	22	2	259.87	Yes	69.14	-190.73
404	7/24/2021	22	3	338.28	Yes	69.14	-269.14
405	7/24/2021	22	4	247.06	Yes	69.14	-177.92
406	7/24/2021	22	5	203.46	Yes	69.14	-134.32
407	7/24/2021	22	6	203.57	Yes	69.14	-134.43
408	7/24/2021	22	7	203.29	Yes	69.14	-134.15
409	7/24/2021	22	8	202.83	Yes	69.14	-133.69
410	7/24/2021	22	9	141.45	Yes	69.14	-72.31
411	7/24/2021	22	10	171.77	Yes	69.14	-102.63
412	7/24/2021	22	11	111.17	Yes	69.14	-42.03
413	7/24/2021	22	12	80.09	Yes	69.14	-10.95
414	7/24/2021	23	1	106.02	Yes	68.8	-37.22

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415	7/24/2021	23	2	81.41	Yes	68.8	-12.61
416	7/24/2021	23	3	83.67	Yes	68.8	-14.87
417	7/24/2021	23	4	81.02	Yes	68.8	-12.22
418	7/24/2021	23	5	81.11	Yes	68.8	-12.31
419	7/24/2021	23	6	80.85	Yes	68.8	-12.05
420	7/24/2021	23	7	80.70	Yes	68.8	-11.90
421	7/24/2021	23	8	80.49	Yes	68.8	-11.69
422	7/24/2021	23	9	80.43	Yes	68.8	-11.63
423	7/24/2021	23	10	80.41	Yes	68.8	-11.61
424	7/24/2021	23	11	80.31	Yes	68.8	-11.51
425	7/24/2021	23	12	66.48	Yes	68.8	2.32
426	7/28/2021	23	1	241.97	Yes	70.75	-171.22
427	7/28/2021	23	2	75.60	Yes	70.75	-4.85
428	7/28/2021	23	3	75.65	Yes	70.75	-4.90
429	7/28/2021	23	4	75.65	Yes	70.75	-4.90
430	7/28/2021	23	5	128.05	Yes	70.75	-57.30
431	7/28/2021	23	6	111.01	Yes	70.75	-40.26
432	7/28/2021	23	7	66.11	Yes	70.75	4.64
433	7/28/2021	23	8	64.78	Yes	70.75	5.97
434	7/28/2021	23	9	64.78	Yes	70.75	5.97
435	7/28/2021	23	10	67.04	Yes	70.75	3.71
436	7/28/2021	23	11	67.04	Yes	70.75	3.71
437	7/28/2021	23	12	66.97	Yes	70.75	3.78
438	7/28/2021	24	1	65.55	Yes	70.48	4.93
439	7/28/2021	24	2	65.55	Yes	70.48	4.93
440	7/28/2021	24	3	59.90	Yes	70.48	10.58
441	7/28/2021	24	4	61.76	Yes	70.48	8.72
442	7/28/2021	24	5	59.59	Yes	70.48	10.89
443	7/28/2021	24	6	59.62	Yes	70.48	10.86
444	7/28/2021	24	7	58.07	Yes	70.48	12.41
445	7/28/2021	24	8	56.61	Yes	70.48	13.87
446	7/28/2021	24	9	56.04	Yes	70.48	14.44
447	7/28/2021	24	10	56.82	Yes	70.48	13.66
448	7/28/2021	24	11	55.95	Yes	70.48	14.53
449	7/28/2021	24	12	51.48	Yes	70.48	19.00
450	7/29/2021	1	1	68.60	Yes	69.98	1.38
451	7/29/2021	1	2	72.17	Yes	69.98	-2.19
452	7/29/2021	1	3	72.17	Yes	69.98	-2.19

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453	7/29/2021	1	4	68.75	Yes	69.98	1.23
454	7/29/2021	1	5	69.89	Yes	69.98	0.09
455	7/29/2021	1	6	67.48	Yes	69.98	2.50
456	7/29/2021	1	7	67.61	Yes	69.98	2.37
457	7/29/2021	1	8	67.61	Yes	69.98	2.37
458	7/29/2021	1	9	67.52	Yes	69.98	2.46
459	7/29/2021	1	10	66.79	Yes	69.98	3.19
460	7/29/2021	1	11	66.78	Yes	69.98	3.20
461	7/29/2021	1	12	66.62	Yes	69.98	3.36
462	7/29/2021	2	1	73.26	Yes	69.73	-3.53
463	7/29/2021	2	2	71.85	Yes	69.73	-2.12
464	7/29/2021	2	3	68.86	Yes	69.73	0.87
465	7/29/2021	2	4	71.93	Yes	69.73	-2.20
466	7/29/2021	2	5	70.56	Yes	69.73	-0.83
467	7/29/2021	2	6	69.68	Yes	69.73	0.05
468	7/29/2021	2	7	67.89	Yes	69.73	1.84
469	7/29/2021	2	8	67.89	Yes	69.73	1.84
470	7/29/2021	2	9	66.32	Yes	69.73	3.41
471	7/29/2021	2	10	66.14	Yes	69.73	3.59
472	7/29/2021	2	11	64.78	Yes	69.73	4.95
473	7/29/2021	2	12	63.72	Yes	69.73	6.01
474	7/29/2021	3	1	67.78	Yes	69.67	1.89
475	7/29/2021	3	2	66.99	Yes	69.67	2.68
476	7/29/2021	3	3	66.10	Yes	69.67	3.57
477	7/29/2021	3	4	62.80	Yes	69.67	6.87
478	7/29/2021	3	5	64.66	Yes	69.67	5.01
479	7/29/2021	3	6	62.15	Yes	69.67	7.52
480	7/29/2021	3	7	62.71	Yes	69.67	6.96
481	7/29/2021	3	8	62.71	Yes	69.67	6.96
482	7/29/2021	3	9	65.31	Yes	69.67	4.36
483	7/29/2021	3	10	61.69	Yes	69.67	7.98
484	7/29/2021	3	11	64.87	Yes	69.67	4.80
485	7/29/2021	3	12	64.09	Yes	69.67	5.58
486	7/29/2021	4	1	64.83	Yes	69.58	4.75
487	7/29/2021	4	2	64.83	Yes	69.58	4.75
488	7/29/2021	4	3	65.70	Yes	69.58	3.88
489	7/29/2021	4	4	62.08	Yes	69.58	7.50
490	7/29/2021	4	5	62.08	Yes	69.58	7.50

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491	7/29/2021	4	6	62.08	Yes	69.58	7.50
492	7/29/2021	4	7	62.17	Yes	69.58	7.41
493	7/29/2021	4	8	61.62	Yes	69.58	7.96
494	7/29/2021	4	9	61.10	Yes	69.58	8.48
495	7/29/2021	4	10	61.06	Yes	69.58	8.52
496	7/29/2021	4	11	61.06	Yes	69.58	8.52
497	7/29/2021	4	12	61.11	Yes	69.58	8.47
498	7/29/2021	5	1	61.41	Yes	69.44	8.03
499	7/29/2021	5	2	60.69	Yes	69.44	8.75
500	7/29/2021	5	3	60.69	Yes	69.44	8.75
501	7/29/2021	5	4	59.35	Yes	69.44	10.09
502	7/29/2021	5	5	60.95	Yes	69.44	8.49
503	7/29/2021	5	6	60.95	Yes	69.44	8.49
504	7/29/2021	5	7	61.67	Yes	69.44	7.77
505	7/29/2021	5	8	62.72	Yes	69.44	6.72
506	7/29/2021	5	9	62.72	Yes	69.44	6.72
507	7/29/2021	5	10	63.99	Yes	69.44	5.45
508	7/29/2021	5	11	63.49	Yes	69.44	5.95
509	7/29/2021	5	12	64.87	Yes	69.44	4.57
510	7/29/2021	6	1	62.65	Yes	69.34	6.69
511	7/29/2021	6	2	63.75	Yes	69.34	5.59
512	7/29/2021	6	3	64.90	Yes	69.34	4.44
513	7/29/2021	9	7	65.14	Yes	69.66	4.52
514	7/29/2021	9	8	65.13	Yes	69.66	4.53
515	7/29/2021	9	9	65.08	Yes	69.66	4.58
516	7/29/2021	9	10	65.73	Yes	69.66	3.93
517	7/29/2021	9	11	65.73	Yes	69.66	3.93
518	7/29/2021	9	12	65.79	Yes	69.66	3.87
519	7/29/2021	10	1	65.67	Yes	69.8	4.13
520	7/29/2021	10	2	65.71	Yes	69.8	4.09
521	7/29/2021	10	3	65.70	Yes	69.8	4.10
522	7/29/2021	10	4	65.66	Yes	69.8	4.14
523	7/29/2021	10	5	65.73	Yes	69.8	4.07
524	7/29/2021	10	6	65.73	Yes	69.8	4.07
525	7/29/2021	10	7	65.77	Yes	69.8	4.03
526	7/29/2021	10	8	65.85	Yes	69.8	3.95
527	7/29/2021	10	9	65.88	Yes	69.8	3.92
528	7/29/2021	10	10	65.93	Yes	69.8	3.87



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529	7/29/2021	10	11	65.94	Yes	69.8	3.86
530	7/29/2021	10	12	66.03	Yes	69.8	3.77
531	7/29/2021	11	1	67.26	Yes	70.11	2.85
532	7/29/2021	11	2	73.75	Yes	70.11	-3.64
533	7/29/2021	11	3	69.43	Yes	70.11	0.68
534	7/29/2021	11	4	69.80	Yes	70.11	0.31
535	7/29/2021	11	5	69.91	Yes	70.11	0.20
536	7/29/2021	11	6	67.11	Yes	70.11	3.00
537	7/29/2021	11	7	70.11	Yes	70.11	0.00
538	7/29/2021	11	8	70.11	Yes	70.11	0.00
539	7/29/2021	11	9	70.11	Yes	70.11	0.00
540	7/29/2021	11	10	70.11	Yes	70.11	0.00
541	7/29/2021	11	11	70.11	Yes	70.11	0.00
542	7/29/2021	11	12	70.11	Yes	70.11	0.00
543	7/29/2021	12	1	71.88	Yes	70.35	-1.53
544	7/29/2021	12	2	69.35	Yes	70.35	1.00
545	7/29/2021	12	3	70.35	Yes	70.35	0.00
546	7/29/2021	12	4	69.90	Yes	70.35	0.45
547	7/29/2021	12	5	71.31	Yes	70.35	-0.96
548	7/29/2021	12	6	74.23	Yes	70.35	-3.88
549	7/29/2021	12	7	84.71	Yes	70.35	-14.36
550	7/29/2021	12	8	81.15	Yes	70.35	-10.80
551	7/29/2021	12	9	81.29	Yes	70.35	-10.94
552	7/29/2021	12	10	87.23	Yes	70.35	-16.88
553	7/29/2021	12	11	91.05	Yes	70.35	-20.70
554	7/29/2021	12	12	91.57	Yes	70.35	-21.22
555	7/29/2021	13	1	74.13	Yes	70.72	-3.41
556	7/29/2021	13	2	70.72	Yes	70.72	0.00
557	7/29/2021	13	3	70.72	Yes	70.72	0.00
558	7/29/2021	13	4	75.15	Yes	70.72	-4.43
559	7/29/2021	13	5	84.40	Yes	70.72	-13.68
560	7/29/2021	13	6	79.75	Yes	70.72	-9.03
561	7/29/2021	13	7	97.03	Yes	70.72	-26.31
562	7/29/2021	13	8	98.78	Yes	70.72	-28.06
563	7/29/2021	13	9	96.86	Yes	70.72	-26.14
564	7/29/2021	13	10	90.06	Yes	70.72	-19.34
565	7/29/2021	13	11	89.93	Yes	70.72	-19.21
566	7/29/2021	13	12	86.72	Yes	70.72	-16.00

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567	7/29/2021	14	1	70.63	Yes	70.89	0.26
568	7/29/2021	14	2	73.15	Yes	70.89	-2.26
569	7/29/2021	14	3	76.72	Yes	70.89	-5.83
570	7/29/2021	14	4	75.18	Yes	70.89	-4.29
571	7/29/2021	14	5	76.45	Yes	70.89	-5.56
572	7/29/2021	14	6	83.20	Yes	70.89	-12.31
573	7/29/2021	14	7	84.22	Yes	70.89	-13.33
574	7/29/2021	14	8	85.89	Yes	70.89	-15.00
575	7/29/2021	14	9	96.52	Yes	70.89	-25.63
576	7/29/2021	14	10	131.43	Yes	70.89	-60.54
577	7/29/2021	14	11	145.05	Yes	70.89	-74.16
578	7/29/2021	14	12	141.17	Yes	70.89	-70.28
579	7/29/2021	15	1	113.64	Yes	71.2	-42.44
580	7/29/2021	15	2	103.55	Yes	71.2	-32.35
581	7/29/2021	15	3	101.93	Yes	71.2	-30.73
582	7/29/2021	15	4	114.52	Yes	71.2	-43.32
583	7/29/2021	15	5	122.20	Yes	71.2	-51.00
584	7/29/2021	15	6	143.33	Yes	71.2	-72.13
585	7/29/2021	15	7	233.11	Yes	71.2	-161.91
586	7/29/2021	15	8	233.92	Yes	71.2	-162.72
587	7/29/2021	15	9	240.28	Yes	71.2	-169.08
588	7/29/2021	15	10	248.31	Yes	71.2	-177.11
589	7/29/2021	15	11	247.21	Yes	71.2	-176.01
590	7/29/2021	15	12	260.44	Yes	71.2	-189.24
591	7/29/2021	16	1	71.45	Yes	71.45	0.00
592	7/29/2021	16	2	71.45	Yes	71.45	0.00
593	7/29/2021	16	3	71.45	Yes	71.45	0.00
594	7/29/2021	16	4	71.45	Yes	71.45	0.00
595	7/29/2021	16	5	71.45	Yes	71.45	0.00
596	7/29/2021	16	6	71.45	Yes	71.45	0.00
597	7/29/2021	16	7	71.45	Yes	71.45	0.00
598	7/29/2021	16	8	71.45	Yes	71.45	0.00
599	7/29/2021	16	9	71.45	Yes	71.45	0.00
600	7/29/2021	16	10	71.45	Yes	71.45	0.00
601	7/29/2021	16	11	71.45	Yes	71.45	0.00
602	7/29/2021	16	12	71.45	Yes	71.45	0.00
603	7/29/2021	17	1	-111.29	Yes	71.43	182.72
604	7/29/2021	17	2	-116.34	Yes	71.43	187.77

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605	7/29/2021	17	3	-116.34	Yes	71.43	187.77
606	7/29/2021	17	4	-120.77	Yes	71.43	192.20
607	7/29/2021	17	5	-132.20	Yes	71.43	203.63
608	7/29/2021	17	6	-203.23	Yes	71.43	274.66
609	7/29/2021	17	7	-203.21	Yes	71.43	274.64
610	7/29/2021	17	8	-204.51	Yes	71.43	275.94
611	7/29/2021	17	9	-204.79	Yes	71.43	276.22
612	7/29/2021	17	10	-203.50	Yes	71.43	274.93
613	7/29/2021	17	11	-204.81	Yes	71.43	276.24
614	7/29/2021	17	12	-206.37	Yes	71.43	277.80
615	7/29/2021	18	1	-130.40	Yes	71.46	201.86
616	7/29/2021	18	2	-127.04	Yes	71.46	198.50
617	7/29/2021	18	3	-119.65	Yes	71.46	191.11
618	7/29/2021	18	4	-204.17	Yes	71.46	275.63
619	7/29/2021	18	5	-205.18	Yes	71.46	276.64
620	7/29/2021	18	6	-204.63	Yes	71.46	276.09
621	7/29/2021	18	7	-137.16	Yes	71.46	208.62
622	7/29/2021	18	8	-141.96	Yes	71.46	213.42
623	7/29/2021	18	9	-133.06	Yes	71.46	204.52
624	7/29/2021	18	10	243.46	Yes	71.46	-172.00
625	7/29/2021	18	11	243.47	Yes	71.46	-172.01
626	7/29/2021	18	12	158.13	Yes	71.46	-86.67
627	7/29/2021	19	1	-202.12	Yes	71.41	273.53
628	7/29/2021	19	2	-201.81	Yes	71.41	273.22
629	7/29/2021	19	3	-201.78	Yes	71.41	273.19
630	7/29/2021	19	4	-211.63	Yes	71.41	283.04
631	7/29/2021	19	5	-215.34	Yes	71.41	286.75
632	7/29/2021	19	6	-215.43	Yes	71.41	286.84
633	7/29/2021	19	7	-218.11	Yes	71.41	289.52
634	7/29/2021	19	8	-217.77	Yes	71.41	289.18
635	7/29/2021	19	9	-227.80	Yes	71.41	299.21
636	7/29/2021	19	10	-206.90	Yes	71.41	278.31
637	7/29/2021	19	11	-208.29	Yes	71.41	279.70
638	7/29/2021	19	12	-212.87	Yes	71.41	284.28
639	7/29/2021	20	1	-140.58	Yes	71.29	211.87
640	7/29/2021	20	2	-134.05	Yes	71.29	205.34
641	7/29/2021	20	3	-142.46	Yes	71.29	213.75
642	7/29/2021	20	4	-142.79	Yes	71.29	214.08

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643	7/29/2021	20	5	-149.03	Yes	71.29	220.32
644	7/29/2021	20	6	-149.03	Yes	71.29	220.32
645	7/29/2021	20	7	-149.87	Yes	71.29	221.16
646	7/29/2021	20	8	-147.06	Yes	71.29	218.35
647	7/29/2021	20	9	-147.06	Yes	71.29	218.35
648	7/29/2021	20	10	-140.63	Yes	71.29	211.92
649	7/29/2021	20	11	-146.50	Yes	71.29	217.79
650	7/29/2021	20	12	-140.24	Yes	71.29	211.53
651	7/29/2021	21	1	153.61	Yes	71.09	-82.52
652	7/29/2021	21	2	195.44	Yes	71.09	-124.35
653	7/29/2021	21	3	179.82	Yes	71.09	-108.73
654	7/29/2021	21	4	126.12	Yes	71.09	-55.03
655	7/29/2021	21	5	123.42	Yes	71.09	-52.33
656	7/29/2021	21	6	128.95	Yes	71.09	-57.86
657	7/29/2021	21	7	121.12	Yes	71.09	-50.03
658	7/29/2021	21	8	-95.13	Yes	71.09	166.22
659	7/29/2021	21	9	-95.14	Yes	71.09	166.23
660	7/29/2021	21	10	-93.93	Yes	71.09	165.02
661	7/29/2021	21	11	-99.02	Yes	71.09	170.11
662	7/29/2021	21	12	-96.57	Yes	71.09	167.66
663	7/29/2021	22	1	-130.55	Yes	70.57	201.12
664	7/29/2021	22	2	-152.30	Yes	70.57	222.87
665	7/29/2021	22	3	-148.87	Yes	70.57	219.44
666	7/29/2021	22	4	-152.68	Yes	70.57	223.25
667	7/29/2021	22	5	-143.99	Yes	70.57	214.56
668	7/29/2021	22	6	-143.43	Yes	70.57	214.00
669	7/29/2021	22	7	-105.06	Yes	70.57	175.63
670	7/29/2021	22	8	-107.63	Yes	70.57	178.20
671	7/29/2021	22	9	-96.13	Yes	70.57	166.70
672	7/29/2021	22	10	-127.00	Yes	70.57	197.57
673	7/29/2021	22	11	-119.49	Yes	70.57	190.06
674	7/29/2021	22	12	-139.84	Yes	70.57	210.41
675	7/29/2021	23	1	112.60	Yes	70.18	-42.42
676	7/29/2021	23	2	54.08	Yes	70.18	16.10
677	7/29/2021	23	3	90.89	Yes	70.18	-20.71
678	7/29/2021	23	4	102.95	Yes	70.18	-32.77
679	7/29/2021	23	5	90.21	Yes	70.18	-20.03
680	7/29/2021	23	6	85.68	Yes	70.18	-15.50

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
681	7/29/2021	23	7	54.33	Yes	70.18	15.85
682	7/29/2021	23	8	33.10	Yes	70.18	37.08
683	7/29/2021	23	9	-34.67	Yes	70.18	104.85
684	7/29/2021	23	10	-27.63	Yes	70.18	97.81
685	7/29/2021	23	11	-78.57	Yes	70.18	148.75
686	7/29/2021	23	12	-93.17	Yes	70.18	163.35
687	7/30/2021	16	2	-104.25	Yes	70.92	175.17
688	7/30/2021	16	3	-111.87	Yes	70.92	182.79
689	7/30/2021	16	4	-146.19	Yes	70.92	217.11
690	7/30/2021	16	5	-148.31	Yes	70.92	219.23
691	7/30/2021	16	6	-149.43	Yes	70.92	220.35
692	7/30/2021	16	7	-50.67	Yes	70.92	121.59
693	7/30/2021	16	8	-121.91	Yes	70.92	192.83
694	7/30/2021	16	9	-52.44	Yes	70.92	123.36
695	7/30/2021	16	10	131.66	Yes	70.92	-60.74
696	7/30/2021	16	11	-185.32	Yes	70.92	256.24
697	7/30/2021	16	12	-156.17	Yes	70.92	227.09
698	7/30/2021	17	1	-204.78	Yes	71.09	275.87
699	7/30/2021	17	2	-212.20	Yes	71.09	283.29
700	7/30/2021	17	3	-203.57	Yes	71.09	274.66
701	7/30/2021	17	4	-192.83	Yes	71.09	263.92
702	7/30/2021	17	5	-194.17	Yes	71.09	265.26
703	7/30/2021	17	6	-193.98	Yes	71.09	265.07
704	7/30/2021	17	7	-193.07	Yes	71.09	264.16
705	7/30/2021	17	8	-194.64	Yes	71.09	265.73
706	7/30/2021	17	9	-148.22	Yes	71.09	219.31
707	7/30/2021	17	10	-148.22	Yes	71.09	219.31
708	7/30/2021	17	11	-244.46	Yes	71.09	315.55
709	7/30/2021	17	12	-197.41	Yes	71.09	268.50
710	7/30/2021	18	1	-56.41	Yes	70.99	127.40
711	7/30/2021	18	2	-104.01	Yes	70.99	175.00
712	7/30/2021	18	3	-104.10	Yes	70.99	175.09
713	7/30/2021	18	4	-100.53	Yes	70.99	171.52
714	7/30/2021	18	5	-100.65	Yes	70.99	171.64
715	7/30/2021	18	6	-101.00	Yes	70.99	171.99
716	7/30/2021	18	7	-139.81	Yes	70.99	210.80
717	7/30/2021	18	8	-152.96	Yes	70.99	223.95
718	7/30/2021	18	9	-140.08	Yes	70.99	211.07

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
719	7/30/2021	18	10	-140.42	Yes	70.99	211.41
720	7/30/2021	18	11	-141.83	Yes	70.99	212.82
721	7/30/2021	18	12	-144.29	Yes	70.99	215.28
722	7/30/2021	19	1	-157.49	Yes	71.05	228.54
723	7/30/2021	19	2	-136.51	Yes	71.05	207.56
724	7/30/2021	19	3	-133.25	Yes	71.05	204.30
725	7/30/2021	19	4	-147.22	Yes	71.05	218.27
726	7/30/2021	19	5	-117.14	Yes	71.05	188.19
727	7/30/2021	19	6	-119.56	Yes	71.05	190.61
728	7/30/2021	19	7	-114.68	Yes	71.05	185.73
729	7/30/2021	19	8	-111.59	Yes	71.05	182.64
730	7/30/2021	19	9	-114.10	Yes	71.05	185.15
731	7/30/2021	19	10	-109.67	Yes	71.05	180.72
732	7/30/2021	19	11	-99.47	Yes	71.05	170.52
733	7/30/2021	19	12	-83.88	Yes	71.05	154.93
734	7/30/2021	20	1	117.38	Yes	70.79	-46.59
735	7/30/2021	20	2	109.98	Yes	70.79	-39.19
736	7/30/2021	20	3	114.61	Yes	70.79	-43.82
737	7/30/2021	20	4	95.38	Yes	70.79	-24.59
738	7/30/2021	20	5	95.32	Yes	70.79	-24.53
739	7/30/2021	20	6	92.89	Yes	70.79	-22.10
740	7/30/2021	20	7	82.34	Yes	70.79	-11.55
741	7/30/2021	20	8	80.35	Yes	70.79	-9.56
742	7/30/2021	20	9	81.66	Yes	70.79	-10.87
743	7/30/2021	20	10	82.11	Yes	70.79	-11.32
744	7/30/2021	20	11	90.38	Yes	70.79	-19.59
745	7/30/2021	20	12	95.70	Yes	70.79	-24.91
746	7/30/2021	21	1	121.30	Yes	70.47	-50.83
747	7/30/2021	21	2	99.20	Yes	70.47	-28.73
748	7/30/2021	21	3	100.09	Yes	70.47	-29.62
749	7/30/2021	21	4	280.83	Yes	70.47	-210.36
750	7/30/2021	21	5	323.45	Yes	70.47	-252.98
751	7/30/2021	21	6	218.32	Yes	70.47	-147.85
752	7/30/2021	21	7	162.28	Yes	70.47	-91.81
753	7/30/2021	21	8	159.79	Yes	70.47	-89.32
754	7/30/2021	21	9	138.12	Yes	70.47	-67.65
755	7/30/2021	21	10	115.43	Yes	70.47	-44.96
756	7/30/2021	21	11	100.54	Yes	70.47	-30.07

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
757	7/30/2021	21	12	105.47	Yes	70.47	-35.00
758	7/30/2021	22	1	239.45	Yes	70.1	-169.35
759	7/30/2021	22	2	258.09	Yes	70.1	-187.99
760	7/30/2021	22	3	248.21	Yes	70.1	-178.11
761	7/30/2021	22	4	107.85	Yes	70.1	-37.75
762	7/30/2021	22	5	118.65	Yes	70.1	-48.55
763	7/30/2021	22	6	83.05	Yes	70.1	-12.95
764	7/30/2021	22	7	80.42	Yes	70.1	-10.32
765	7/30/2021	22	8	76.53	Yes	70.1	-6.43
766	7/30/2021	22	9	75.11	Yes	70.1	-5.01
767	7/30/2021	22	10	72.93	Yes	70.1	-2.83
768	7/30/2021	22	11	69.09	Yes	70.1	1.01
769	7/30/2021	22	12	70.64	Yes	70.1	-0.54
770	7/31/2021	16	7	54.84	Yes	70.58	15.74
771	7/31/2021	16	8	56.76	Yes	70.58	13.82
772	7/31/2021	16	9	56.08	Yes	70.58	14.50
773	7/31/2021	16	10	54.86	Yes	70.58	15.72
774	7/31/2021	16	11	57.12	Yes	70.58	13.46
775	7/31/2021	16	12	57.81	Yes	70.58	12.77
776	7/31/2021	17	1	49.66	Yes	70.73	21.07
777	7/31/2021	17	2	51.31	Yes	70.73	19.42
778	7/31/2021	17	3	52.81	Yes	70.73	17.92
779	7/31/2021	17	4	53.12	Yes	70.73	17.61
780	7/31/2021	17	5	53.12	Yes	70.73	17.61
781	7/31/2021	17	6	55.44	Yes	70.73	15.29
782	7/31/2021	17	7	55.34	Yes	70.73	15.39
783	7/31/2021	17	8	56.99	Yes	70.73	13.74
784	7/31/2021	17	9	56.57	Yes	70.73	14.16
785	7/31/2021	17	10	56.63	Yes	70.73	14.10
786	7/31/2021	17	11	55.89	Yes	70.73	14.84
787	7/31/2021	17	12	42.88	Yes	70.73	27.85
788	7/31/2021	18	1	41.38	Yes	70.78	29.40
789	7/31/2021	18	2	50.15	Yes	70.78	20.63
790	7/31/2021	18	3	51.59	Yes	70.78	19.19
791	7/31/2021	18	4	51.69	Yes	70.78	19.09
792	7/31/2021	18	5	52.60	Yes	70.78	18.18
793	7/31/2021	18	6	36.97	Yes	70.78	33.81
794	7/31/2021	18	7	42.13	Yes	70.78	28.65

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
795	7/31/2021	18	8	42.32	Yes	70.78	28.46
796	7/31/2021	18	9	42.15	Yes	70.78	28.63
797	7/31/2021	18	10	43.10	Yes	70.78	27.68
798	7/31/2021	18	11	42.96	Yes	70.78	27.82
799	7/31/2021	18	12	44.32	Yes	70.78	26.46
800	7/31/2021	19	1	33.36	Yes	70.73	37.37
801	7/31/2021	19	2	33.61	Yes	70.73	37.12
802	7/31/2021	19	3	36.85	Yes	70.73	33.88
803	7/31/2021	19	4	40.94	Yes	70.73	29.79
804	7/31/2021	19	5	40.19	Yes	70.73	30.54
805	7/31/2021	19	6	40.79	Yes	70.73	29.94
806	7/31/2021	19	7	41.67	Yes	70.73	29.06
807	7/31/2021	19	8	41.85	Yes	70.73	28.88
808	7/31/2021	19	9	42.16	Yes	70.73	28.57
809	7/31/2021	19	10	43.83	Yes	70.73	26.90
810	7/31/2021	19	11	46.22	Yes	70.73	24.51
811	7/31/2021	19	12	47.17	Yes	70.73	23.56
812	7/31/2021	20	1	53.92	Yes	70.51	16.59
813	7/31/2021	20	2	52.24	Yes	70.51	18.27
814	7/31/2021	20	3	55.12	Yes	70.51	15.39
815	7/31/2021	20	4	62.87	Yes	70.51	7.64
816	7/31/2021	20	5	62.35	Yes	70.51	8.16
817	7/31/2021	20	6	65.21	Yes	70.51	5.30
818	7/31/2021	20	7	57.65	Yes	70.51	12.86
819	7/31/2021	20	8	57.27	Yes	70.51	13.24
820	7/31/2021	20	9	56.93	Yes	70.51	13.58
821	7/31/2021	20	10	55.44	Yes	70.51	15.07
822	7/31/2021	20	11	54.91	Yes	70.51	15.60
823	7/31/2021	20	12	54.09	Yes	70.51	16.42



**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	7/10/2021	17	10	66.54	Yes	87.77	21.23
2	7/10/2021	17	11	62.57	Yes	87.77	25.20
3	7/10/2021	17	12	66.52	Yes	87.77	21.25
4	7/10/2021	18	1	66.12	Yes	87.77	21.65
5	7/10/2021	18	2	67.07	Yes	87.77	20.70
6	7/10/2021	18	3	66.20	Yes	87.77	21.57
7	7/10/2021	18	4	65.28	Yes	87.77	22.49
8	7/10/2021	18	5	67.81	Yes	87.77	19.96
9	7/10/2021	18	6	68.36	Yes	117.61	49.25
10	7/10/2021	18	7	68.99	Yes	117.61	48.62
11	7/10/2021	18	8	70.58	Yes	117.61	47.03
12	7/10/2021	18	9	91.35	Yes	117.61	26.26
13	7/10/2021	18	10	93.00	Yes	117.61	24.61
14	7/10/2021	18	11	94.91	Yes	117.61	22.70
15	7/10/2021	18	12	96.47	Yes	87.77	-8.70
16	7/10/2021	19	1	72.47	Yes	87.77	15.30
17	7/10/2021	19	2	72.02	Yes	87.77	15.75
18	7/10/2021	19	3	74.36	Yes	117.61	43.25
19	7/10/2021	19	4	87.43	Yes	117.61	30.18
20	7/10/2021	19	5	87.49	Yes	117.61	30.12
21	7/10/2021	19	6	85.22	Yes	117.61	32.39
22	7/10/2021	19	7	84.99	Yes	117.61	32.62
23	7/10/2021	19	8	90.63	Yes	117.61	26.98
24	7/10/2021	19	9	102.56	Yes	117.61	15.05
25	7/10/2021	19	10	94.21	Yes	117.61	23.40
26	7/10/2021	19	11	92.31	Yes	117.61	25.30
27	7/10/2021	19	12	92.31	Yes	117.61	25.30
28	7/10/2021	20	1	92.31	Yes	117.61	25.30
29	7/10/2021	20	2	92.31	Yes	117.61	25.30
30	7/10/2021	20	3	155.60	Yes	117.61	-37.99
31	7/10/2021	20	4	177.86	Yes	117.61	-60.25
32	7/10/2021	20	5	166.69	Yes	117.61	-49.08
33	7/10/2021	20	6	101.73	Yes	117.61	15.88
34	7/10/2021	20	7	157.61	Yes	117.61	-40.00

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
35	7/10/2021	20	8	158.07	Yes	117.61	-40.46
36	7/10/2021	20	9	133.67	Yes	111.42	-22.25
37	7/10/2021	20	10	513.61	Yes	87.77	-425.84
38	7/10/2021	20	11	94.44	Yes	87.77	-6.67
39	7/10/2021	20	12	87.12	Yes	87.77	0.65
40	7/10/2021	21	1	60.22	Yes	87.77	27.55
41	7/10/2021	21	2	60.19	Yes	87.77	27.58
42	7/10/2021	21	3	57.90	Yes	87.77	29.87
43	7/10/2021	21	4	90.49	Yes	87.77	-2.72
44	7/10/2021	21	5	102.04	Yes	87.77	-14.27
45	7/10/2021	21	6	55.78	Yes	87.77	31.99
46	7/10/2021	21	7	53.12	Yes	87.77	34.65
47	7/10/2021	21	8	50.06	Yes	87.77	37.71
48	7/10/2021	21	9	58.58	Yes	87.77	29.19
49	7/10/2021	21	10	50.87	Yes	87.77	36.90
50	7/10/2021	21	11	51.85	Yes	87.77	35.92
51	7/10/2021	21	12	53.24	Yes	87.77	34.53
52	7/10/2021	22	1	58.97	Yes	117.61	58.64
53	7/10/2021	22	2	58.99	Yes	117.61	58.62
54	7/10/2021	22	3	57.52	Yes	117.61	60.09
55	7/10/2021	22	4	60.42	Yes	87.77	27.35
56	7/10/2021	22	5	59.10	Yes	87.77	28.67
57	7/10/2021	22	6	58.78	Yes	117.61	58.83
58	7/10/2021	22	7	59.81	Yes	117.61	57.80
59	7/10/2021	22	8	58.86	Yes	117.61	58.75
60	7/10/2021	22	9	57.45	Yes	117.61	60.16
61	7/10/2021	22	10	58.06	Yes	117.61	59.55
62	7/10/2021	22	11	57.10	Yes	117.61	60.51
63	7/10/2021	22	12	57.56	Yes	87.77	30.21
64	7/11/2021	18	4	53.74	Yes	87.77	34.03
65	7/11/2021	18	5	54.85	Yes	87.77	32.92
66	7/11/2021	18	6	55.16	Yes	87.77	32.61
67	7/11/2021	18	7	54.18	Yes	117.61	63.43
68	7/11/2021	18	8	55.16	Yes	87.77	32.61
69	7/11/2021	18	9	58.18	Yes	87.77	29.59
70	7/11/2021	18	10	62.20	Yes	87.77	25.57
71	7/11/2021	18	11	64.52	Yes	87.77	23.25
72	7/11/2021	18	12	64.68	Yes	87.77	23.09

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
73	7/11/2021	19	1	57.39	Yes	87.77	30.38
74	7/11/2021	19	2	58.27	Yes	87.77	29.50
75	7/11/2021	19	3	57.21	Yes	87.77	30.56
76	7/11/2021	19	4	58.79	Yes	87.77	28.98
77	7/11/2021	19	5	64.11	Yes	87.77	23.66
78	7/11/2021	19	6	66.48	Yes	87.77	21.29
79	7/11/2021	19	7	64.27	Yes	87.77	23.50
80	7/11/2021	19	8	74.68	Yes	87.77	13.09
81	7/11/2021	19	9	77.68	Yes	87.77	10.09
82	7/11/2021	19	10	70.75	Yes	87.77	17.02
83	7/11/2021	19	11	70.63	Yes	87.77	17.14
84	7/11/2021	19	12	76.91	Yes	87.77	10.86
85	7/11/2021	20	1	69.42	Yes	87.77	18.35
86	7/11/2021	20	2	70.61	Yes	87.77	17.16
87	7/11/2021	20	3	70.58	Yes	87.77	17.19
88	7/11/2021	20	4	71.23	Yes	87.77	16.54
89	7/11/2021	20	5	73.77	Yes	87.77	14.00
90	7/11/2021	20	6	78.10	Yes	87.77	9.67
91	7/11/2021	20	7	77.97	Yes	87.77	9.80
92	7/11/2021	20	8	79.85	Yes	87.77	7.92
93	7/11/2021	20	9	81.56	Yes	87.77	6.21
94	7/11/2021	20	10	74.23	Yes	87.77	13.54
95	7/11/2021	20	11	70.72	Yes	87.77	17.05
96	7/11/2021	20	12	71.37	Yes	87.77	16.40
97	7/11/2021	21	1	67.66	Yes	87.77	20.11
98	7/11/2021	21	2	66.24	Yes	87.77	21.53
99	7/11/2021	21	3	64.03	Yes	87.77	23.74
100	7/11/2021	21	4	64.61	Yes	87.77	23.16
101	7/11/2021	21	5	64.16	Yes	87.77	23.61
102	7/11/2021	21	6	63.62	Yes	87.77	24.15
103	7/11/2021	21	7	63.90	Yes	87.77	23.87
104	7/11/2021	21	8	63.96	Yes	87.77	23.81
105	7/11/2021	21	9	64.11	Yes	87.77	23.66
106	7/11/2021	21	10	64.25	Yes	87.77	23.52
107	7/11/2021	21	11	64.87	Yes	87.77	22.90
108	7/11/2021	21	12	64.15	Yes	87.77	23.62
109	7/11/2021	22	1	64.89	Yes	87.77	22.88
110	7/11/2021	22	2	65.69	Yes	87.77	22.08

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
111	7/11/2021	22	3	63.84	Yes	87.77	23.93
112	7/11/2021	22	4	63.69	Yes	87.77	24.08
113	7/11/2021	22	5	60.75	Yes	87.77	27.02
114	7/11/2021	22	6	59.41	Yes	87.77	28.36
115	7/11/2021	22	7	59.98	Yes	87.77	27.79
116	7/11/2021	22	8	59.98	Yes	87.77	27.79
117	7/11/2021	22	9	59.96	Yes	87.77	27.81
118	7/11/2021	22	10	57.03	Yes	87.77	30.74
119	7/11/2021	22	11	55.97	Yes	87.77	31.80
120	7/11/2021	22	12	57.65	Yes	87.77	30.12
121	7/18/2021	18	1	45.92	Yes	114.38	68.46
122	7/18/2021	19	1	55.68	Yes	114.38	58.70
123	7/18/2021	20	1	77.98	Yes	114.38	36.40
124	7/18/2021	21	1	71.48	Yes	114.38	42.90
125	7/18/2021	22	1	71.18	Yes	114.38	43.20
126	7/26/2021	17	10	82.83	Yes	123.03	40.20
127	7/26/2021	17	11	87.16	Yes	123.03	35.87
128	7/26/2021	17	12	85.80	Yes	123.03	37.23
129	7/26/2021	18	1	66.05	Yes	123.03	56.98
130	7/26/2021	18	2	64.64	Yes	123.03	58.39
131	7/26/2021	18	3	64.57	Yes	123.03	58.46
132	7/26/2021	18	4	65.60	Yes	123.03	57.43
133	7/26/2021	18	5	65.92	Yes	123.03	57.11
134	7/26/2021	18	6	71.83	Yes	123.03	51.20
135	7/26/2021	18	7	71.87	Yes	123.03	51.16
136	7/26/2021	18	8	80.25	Yes	123.03	42.78
137	7/26/2021	18	9	89.32	Yes	123.03	33.71
138	7/26/2021	18	10	101.65	Yes	123.03	21.38
139	7/26/2021	18	11	100.00	Yes	123.03	23.03
140	7/26/2021	18	12	96.26	Yes	123.03	26.77
141	7/26/2021	19	1	63.44	Yes	123.03	59.59
142	7/26/2021	19	2	61.00	Yes	123.03	62.03
143	7/26/2021	19	3	63.44	Yes	123.03	59.59
144	7/26/2021	19	4	63.44	Yes	123.03	59.59
145	7/26/2021	19	5	63.45	Yes	123.03	59.58
146	7/26/2021	19	6	68.07	Yes	123.03	54.96
147	7/26/2021	19	7	69.54	Yes	123.03	53.49
148	7/26/2021	19	8	70.55	Yes	123.03	52.48

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
149	7/26/2021	19	9	70.55	Yes	123.03	52.48
150	7/26/2021	19	10	72.39	Yes	123.03	50.64
151	7/26/2021	19	11	71.04	Yes	123.03	51.99
152	7/26/2021	19	12	70.28	Yes	123.03	52.75
153	7/26/2021	20	1	63.51	Yes	123.03	59.52
154	7/26/2021	20	2	63.26	Yes	123.03	59.77
155	7/26/2021	20	3	61.00	Yes	123.03	62.03
156	7/26/2021	20	4	62.78	Yes	123.03	60.25
157	7/26/2021	20	5	63.44	Yes	123.03	59.59
158	7/26/2021	20	6	63.72	Yes	123.03	59.31
159	7/26/2021	20	7	66.63	Yes	123.03	56.40
160	7/26/2021	20	8	68.20	Yes	123.03	54.83
161	7/26/2021	20	9	68.20	Yes	123.03	54.83
162	7/26/2021	20	10	67.29	Yes	123.03	55.74
163	7/26/2021	20	11	65.59	Yes	123.03	57.44
164	7/26/2021	20	12	65.16	Yes	123.03	57.87
165	7/26/2021	21	1	80.40	Yes	123.03	42.63
166	7/26/2021	21	2	73.39	Yes	123.03	49.64
167	7/26/2021	21	3	71.48	Yes	123.03	51.55
168	7/26/2021	21	4	76.68	Yes	123.03	46.35
169	7/26/2021	21	5	74.49	Yes	123.03	48.54
170	7/26/2021	21	6	74.49	Yes	123.03	48.54
171	7/26/2021	21	7	72.98	Yes	123.03	50.05
172	7/26/2021	21	8	73.26	Yes	123.03	49.77
173	7/26/2021	21	9	69.96	Yes	123.03	53.07
174	7/26/2021	21	10	69.48	Yes	123.03	53.55
175	7/26/2021	21	11	68.48	Yes	123.03	54.55
176	7/26/2021	21	12	69.07	Yes	123.03	53.96
177	7/26/2021	22	1	80.05	Yes	123.03	42.98
178	7/26/2021	22	2	79.93	Yes	123.03	43.10
179	7/26/2021	22	3	69.38	Yes	123.03	53.65
180	7/26/2021	22	4	69.08	Yes	123.03	53.95
181	7/26/2021	22	5	66.41	Yes	123.03	56.62
182	7/26/2021	22	6	66.41	Yes	123.03	56.62
183	7/26/2021	22	7	64.17	Yes	123.03	58.86
184	7/26/2021	22	8	64.10	Yes	123.03	58.93
185	7/26/2021	22	9	63.17	Yes	123.03	59.86
186	7/26/2021	22	10	61.44	Yes	123.03	61.59

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
187	7/26/2021	22	11	60.53	Yes	123.03	62.50
188	7/26/2021	22	12	62.42	Yes	123.03	60.61
189	7/28/2021	17	1	76.89	Yes	118.57	41.68
190	7/28/2021	17	2	79.28	Yes	118.57	39.29
191	7/28/2021	17	3	82.45	Yes	118.57	36.12
192	7/28/2021	17	4	85.20	Yes	118.57	33.37
193	7/28/2021	17	5	94.69	Yes	118.57	23.88
194	7/28/2021	17	6	94.69	Yes	118.57	23.88
195	7/28/2021	17	7	97.38	Yes	118.57	21.19
196	7/28/2021	17	8	97.38	Yes	118.57	21.19
197	7/28/2021	17	9	97.38	Yes	118.57	21.19
198	7/28/2021	17	10	112.07	Yes	118.57	6.50
199	7/28/2021	17	11	118.16	Yes	118.57	0.41
200	7/28/2021	17	12	109.34	Yes	118.57	9.23
201	7/28/2021	18	1	76.22	Yes	118.57	42.35
202	7/28/2021	18	2	76.22	Yes	118.57	42.35
203	7/28/2021	18	3	73.15	Yes	118.57	45.42
204	7/28/2021	18	4	73.68	Yes	118.57	44.89
205	7/28/2021	18	5	73.09	Yes	118.57	45.48
206	7/28/2021	18	6	76.15	Yes	118.57	42.42
207	7/28/2021	18	7	82.77	Yes	118.57	35.80
208	7/28/2021	18	8	75.82	Yes	118.57	42.75
209	7/28/2021	18	9	85.00	Yes	118.57	33.57
210	7/28/2021	18	10	95.22	Yes	118.57	23.35
211	7/28/2021	18	11	89.06	Yes	118.57	29.51
212	7/28/2021	18	12	75.58	Yes	118.57	42.99
213	7/28/2021	19	1	75.63	Yes	118.57	42.94
214	7/28/2021	19	2	72.58	Yes	118.57	45.99
215	7/28/2021	19	3	73.53	Yes	118.57	45.05
216	7/28/2021	19	4	75.55	Yes	118.57	43.02
217	7/28/2021	19	5	78.66	Yes	118.57	39.91
218	7/28/2021	19	6	94.23	Yes	118.57	24.34
219	7/28/2021	19	7	86.88	Yes	118.57	31.69
220	7/28/2021	19	8	91.08	Yes	118.57	27.49
221	7/28/2021	19	9	93.84	Yes	118.57	24.73
222	7/28/2021	19	10	93.12	Yes	118.57	25.45
223	7/28/2021	19	11	96.28	Yes	118.57	22.29
224	7/28/2021	19	12	97.02	Yes	118.57	21.55

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Number	Trade Date	Trade Hour	Interval	Market LMP	Eligible Flag	Calculated LMP	Change in LMP
225	7/28/2021	20	1	95.42	Yes	118.57	23.15
226	7/28/2021	20	2	94.30	Yes	118.57	24.27
227	7/28/2021	20	3	94.54	Yes	118.57	24.03
228	7/28/2021	20	4	96.26	Yes	118.57	22.31
229	7/28/2021	20	5	96.26	Yes	118.57	22.31
230	7/28/2021	20	6	96.26	Yes	118.57	22.31
231	7/28/2021	20	7	96.20	Yes	118.57	22.37
232	7/28/2021	20	8	96.14	Yes	118.57	22.43
233	7/28/2021	20	9	94.24	Yes	118.57	24.33
234	7/28/2021	20	10	94.43	Yes	118.57	24.14
235	7/28/2021	20	11	91.82	Yes	118.57	26.75
236	7/28/2021	20	12	89.26	Yes	118.57	29.31
237	7/28/2021	21	1	75.03	Yes	118.57	43.54
238	7/28/2021	21	2	73.93	Yes	118.57	44.64
239	7/28/2021	21	3	72.01	Yes	118.57	46.56
240	7/28/2021	21	4	73.28	Yes	118.57	45.29
241	7/28/2021	21	5	72.47	Yes	118.57	46.10
242	7/28/2021	21	6	72.16	Yes	118.57	46.41
243	7/28/2021	21	7	73.12	Yes	118.57	45.45
244	7/28/2021	21	8	72.05	Yes	118.57	46.52
245	7/28/2021	21	9	71.31	Yes	118.57	47.26
246	7/28/2021	21	10	70.17	Yes	118.57	48.40
247	7/28/2021	21	11	70.45	Yes	118.57	48.12
248	7/28/2021	21	12	71.80	Yes	118.57	46.77
249	7/28/2021	22	1	87.71	Yes	118.57	30.86
250	7/28/2021	22	2	87.71	Yes	118.57	30.86
251	7/28/2021	22	3	83.58	Yes	118.57	34.99
252	7/28/2021	22	4	75.94	Yes	118.57	42.63
253	7/28/2021	22	5	75.72	Yes	118.57	42.85
254	7/28/2021	22	6	72.69	Yes	118.57	45.88
255	7/28/2021	22	7	74.40	Yes	118.57	44.17
256	7/28/2021	22	8	71.95	Yes	118.57	46.62
257	7/28/2021	22	9	68.82	Yes	118.57	49.75
258	7/28/2021	22	10	68.58	Yes	118.57	49.99
259	7/28/2021	22	11	66.18	Yes	118.57	52.39
260	7/28/2021	22	12	65.23	Yes	118.57	53.34

## Appendix C: Exceptional Dispatch Bid Mitigation Analysis

In July 2021, the ISO applied the exceptional dispatch bid mitigation to the exceptional dispatches. Table 10 shows the costs by instruction type in July. With exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches were \$ 82,156. Without the exceptional dispatch bid mitigation, the costs for these types of exceptional dispatches would be \$ 263,373. The cost saving from the exceptional dispatch bid mitigation was \$ 181,217.

**Table 10: Bid Mitigation Analysis for July 2021**

Type	Number of Resources	Costs without Bid Mitigation	Costs with Bid Mitigation	Cost Saving
NONTMOD	11	\$ 243,313	\$ 66,033	\$ 177,280
TMODEL5	1	\$ 19,760	\$ 16,093	\$ 3,667
TMODEL7	1	\$ 300	\$ 30	\$ 270
Total	13	\$ 263,373	\$ 82,156	\$ 181,217