



California ISO  
Your Link to Power

# **Market Disruption Report January 16, 2010 to February 15, 2010**

March 15, 2010

ISO Department of Market Services

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## I. Background

A Market Disruption is an action or event that causes a failure of a CAISO Market, related to system operation issues or System Emergencies.<sup>1</sup> Pursuant to Section 7.7.15 of the CAISO Tariff, the California Independent System Operator Corporation (ISO or CAISO) can take one or more of a number of specified actions in the event of a Market Disruption, to prevent a Market Disruption, or to minimize the extent of a Market Disruption. The ISO interprets this to mean that a Market Disruption occurs and the ISO is obligated to report its occurrence in any of the following circumstances:

- When any of the ISO market processes fail to publish, including the Integrated Forward Market (“IFM”), Residual Unit Commitment (“RUC”), Hour-Ahead Scheduling Process (“HASP”), Real-Time Unit Commitment (“RTUC”), or Real-Time Dispatch (“RTD”) processes;
- When the ISO manually overrides the closing of the Day-Ahead Market; or
- Any time that the ISO removes Bids from a CAISO Market to prevent a Market Disruption or to minimize the extent of a Market Disruption.

The Market Disruption report contains the following information:

- The frequency and types of actions taken by the ISO pursuant to Section 7.7.15;
- The nature of the Market Disruptions that caused the ISO to take action, or the Market Disruptions that were successfully prevented or minimized by the ISO as a result of taking action, and the ISO’s rationale for taking such actions pursuant to Section 7.7.15;
- Information about the Bids (including Self-Schedules) removed pursuant to Section 7.7.15 (*i.e.* megawatt quantity, point of interconnection, specification of the Day-Ahead versus Real-Time Bid, and Energy or Ancillary Services Bid); and
- The ISO’s rationale for its removal of Bids (including Self-Schedules) pursuant to Section 7.7.15.<sup>2</sup>

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<sup>1</sup> These system operation issues or System Emergencies are referred to in Sections 7.6 and 7.7, respectively, of the CAISO Tariff. CAISO Tariff, Appendix A, definition of Market Disruption. Capitalized terms not otherwise defined herein have the meanings set forth in the CAISO Tariff.

<sup>2</sup> *Id.* at P 29 & n.29.

## **II. Report on Market Disruptions Occurring from January 16, 2010 through February 15, 2010**

The ISO's report on Market Disruptions that occurred during the time period from January 16, 2010 through February 15, 2010, is provided in Table 1 and Attachment A below. Attachment A includes an entry for each reportable Market Disruption event and each entry also indicates:

- (1) The date of the Market Disruption;
- (2) The hour and Dispatch Interval when the Market Disruption ended;
- (3) The type of CAISO Market in which the Market Disruption occurred; and
- (4) A description of the nature of the Market Disruption, the nature of any actions taken by the ISO, the rationale for such actions, and the Market Disruption prevented or minimized as a result of taking such actions.

For each of the CAISO Markets, Table 1 lists the number of Market Disruptions and the number of times that the ISO removed Bids (including Self-Schedules) during the time period covered by this report. As shown in Table 1, there were a total of 136 Market Disruptions for the reporting period, all of which occurred in the Hour-Ahead Scheduling Process or Real-Time Market. The number of market disruptions increased by 67 compared with the February 2010 report. Table 1 also indicates that the ISO did not remove any Bids (including Self-Schedules) in any of its markets during the reporting period.

Table 1 and Attachment A indicate that there were 86 total instances of real-time unit commitment (RTUC) failures, including 9 hour-ahead scheduling process (HASP) failures. The count of RTUC failures increased by 49 and the count of HASP failures increased by 4 compared with the February 2010 Report. Most of the RTUC failures (including HASP failures) were due to databases and applications fallback or fall forward activity, bid transfer issue, failed broadcast of the results, software application timing out, or software application not running. The number of real-time dispatch (RTD) failures increased to 50 from 32 such instance reported in the February 2010 Report. Most of the RTD failures can be attributed to databases and applications fallback or fall forward activity, bid transfer issue, or software application not running. RTD failures accounted for approximately 37 percent of all of the Market Disruptions during this reporting period.

On January 23, seven RTUC failures (including two HASP failures) in hours ending 8-11 were due to database slowness, which was caused by work on the storage for databases and applications. There were five other market

disruptions in hours ending 8, 10, and 11, which were due to failed broadcast of the results or software application not running.

The IFM and RTN databases and applications fell forward to Folsom in hour ending 14 on January 28 and a total of 10 market disruptions occurred in hours ending 14 and 15, including seven consecutive RTD failures and three consecutive RTUC failures. There were also five other RTUC failures in that day, caused by either optimal solution infeasibility or software application not running.

On January 30, the bids were not transferred to real-time application due to a bid processing issue, resulting in six consecutive RTUC failures and 19 consecutive RTD failures in hours ending 9 and 10. This issue was resolved subsequently. There were two other market disruptions in the same day due to failed broadcast of the results.

As mentioned in February 2010 report, the ISO has experienced an increase of disruptions to the short-term unit commitment (STUC) process, namely RTUC interval 3 since January 1, 2010. The STUC failures were mainly due to the following contributing factors: 1) modifications to STUC bid replication rules as a result of changes and other associated STUC input data (this includes load pattern changes that contributed to longer STUC run-times to achieve optimal solutions within defined tolerances); 2) modifications made to allow HASP more time if necessary to complete, which has successfully increased the robustness of the HASP process; and 3) increased computing infrastructure maintenance including planned fallbacks and upgrades, which at times impacted the STUC performance. The ISO has been investigating the root causes for the issues observed since January 2010 and continues to reduce the STUC failures through process and software changes.

**Table 1: Summary of Market Disruption Report**

Type of CAISO Market	Market Disruption or Reportable Events	Removal of Bids (including Self-Schedules)
<b>Day-Ahead</b>		
IFM	0	0
RUC	0	0
<b>Real-Time</b>		
Real-Time Unit Commitment Interval 1	5	0
Real-Time Unit Commitment Interval 2	9	0
Real-Time Unit Commitment Interval 3	60	0
Real-Time Unit Commitment Interval 4	12	0
Real-Time Dispatch	50	0

## **ATTACHMENT A**

**California Independent System Operator Corporation  
Market Disruption Report  
March 15, 2010**

**Table 1: Market Disruptions, Nature of Actions Taken by the California ISO, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions**

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
1	1/18/2010	6	3	RTUC	RTUC did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
2	1/18/2010	6	4	RTUC	RTUC failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
3	1/19/2010	6	8	RTD	RTD failed. Loss clearing payload and LMP filled from last good interval.
4	1/19/2010	7	3	RTUC	RTUC timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
5	1/20/2010	5	3	RTUC	RTUC failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
6	1/21/2010	11	3	RTUC	RTUC timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
7	1/21/2010	19	12	RTD	Broadcast of RTD results failed. Loss clearing payload and LMP filled from last good interval.
8	1/22/2010	11	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
9	1/22/2010	12	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
10	1/22/2010	13	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
11	1/22/2010	21	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
12	1/23/2010	8	2	HASP	HASP did not run due to database slowness. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
13	1/23/2010	8	3	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
14	1/23/2010	9	3	RTUC	RTUC did not run due to database slowness. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
15	1/23/2010	10	2	HASP	HASP did not run due to database slowness. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
16	1/23/2010	10	3	RTUC	RTUC did not run due to database slowness. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
17	1/23/2010	10	4	RTUC	RTUC did not run due to database slowness. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
18	1/23/2010	10	11	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
19	1/23/2010	10	12	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
20	1/23/2010	11	1	RTD	RTD did not run. Loss clearing payload and LMP filled from next good interval.
21	1/23/2010	11	1	RTUC	RTUC did not run due to database slowness. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
22	1/23/2010	11	3	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
23	1/23/2010	11	3	RTUC	RTUC did not run due to database slowness. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
24	1/24/2010	17	3	RTUC	RTUC did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
25	1/24/2010	18	3	RTUC	RTUC failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
26	1/26/2010	5	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
27	1/26/2010	7	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
28	1/26/2010	9	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
29	1/26/2010	11	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
30	1/26/2010	12	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
31	1/26/2010	12	6	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
32	1/26/2010	12	7	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
33	1/26/2010	19	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
34	1/26/2010	22	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
35	1/27/2010	13	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
36	1/27/2010	14	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
37	1/27/2010	18	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
38	1/27/2010	19	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
39	1/28/2010	5	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
40	1/28/2010	14	3	RTUC	RTUC did not run due to databases and applications falling forward to Folsom. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
41	1/28/2010	14	4	RTUC	RTUC did not run due to databases and applications falling forward to Folsom. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
42	1/28/2010	14	5	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.
43	1/28/2010	14	6	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.
44	1/28/2010	14	7	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.
45	1/28/2010	14	8	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.
46	1/28/2010	14	9	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.
47	1/28/2010	14	10	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.
48	1/28/2010	14	11	RTD	RTD did not run because databases and applications fell forward to Folsom. Loss clearing payload and LMP filled from last good interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
49	1/28/2010	15	1	RTUC	RTUC did not run due to databases and applications falling forward to Folsom. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
50	1/28/2010	18	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
51	1/28/2010	19	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
52	1/28/2010	21	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
53	1/28/2010	23	2	HASP	HASP timed out. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
54	1/28/2010	23	3	RTUC	RTUC did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
55	1/29/2010	10	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
56	1/29/2010	11	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
57	1/30/2010	9	2	RTD	Broadcast of RTD results failed. Loss clearing payload and LMP filled from last good interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
58	1/30/2010	9	2	HASP	Broadcast of HASP results failed. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
59	1/30/2010	9	3	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
60	1/30/2010	9	3	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
61	1/30/2010	9	4	RTD	RTD did not run due to lack of bids. Loss clearing payload and LMP filled from last good interval.
62	1/30/2010	9	4	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
63	1/30/2010	9	5	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
64	1/30/2010	9	6	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
65	1/30/2010	9	7	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
66	1/30/2010	9	8	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
67	1/30/2010	9	9	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
68	1/30/2010	9	10	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
69	1/30/2010	9	11	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
70	1/30/2010	9	12	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
71	1/30/2010	10	1	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
72	1/30/2010	10	1	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
73	1/30/2010	10	2	RTD	RTD did not run due to lack of bids. Loss clearing payload and LMP filled from last good interval.
74	1/30/2010	10	2	HASP	HASP did not run due to bid transfer failure. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
75	1/30/2010	10	3	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
76	1/30/2010	10	3	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
77	1/30/2010	10	4	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
78	1/30/2010	10	4	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
79	1/30/2010	10	5	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
80	1/30/2010	10	6	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
81	1/30/2010	10	7	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
82	1/30/2010	10	9	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
83	1/30/2010	10	11	RTD	RTD did not run due to bid transfer failure. Loss clearing payload and LMP filled from last good interval.
84	1/31/2010	15	3	RTUC	RTUC did not run due to databases and applications falling back to Alhambra. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
85	1/31/2010	15	5	RTD	RTD did not run due to databases and applications falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
86	1/31/2010	15	6	RTD	RTD did not run due to databases and applications falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
87	1/31/2010	15	7	RTD	RTD did not run due to databases and applications falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
88	1/31/2010	15	8	RTD	RTD did not run due to databases and applications falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
89	1/31/2010	22	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
90	2/1/2010	13	3	RTUC	RTUC did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
91	2/1/2010	13	4	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
92	2/1/2010	13	4	RTUC	RTUC failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
93	2/1/2010	13	5	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
94	2/1/2010	13	8	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
95	2/1/2010	13	9	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
96	2/1/2010	13	12	RTD	RTD failed. Loss clearing payload and LMP filled from last good interval.
97	2/1/2010	22	3	RTUC	RTUC failed due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
98	2/2/2010	21	3	RTUC	RTUC failed due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
99	2/3/2010	22	3	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
100	2/4/2010	5	3	RTUC	RTUC failed due to delay in HASP. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
101	2/4/2010	6	3	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
102	2/5/2010	20	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
103	2/6/2010	4	3	RTUC	RTUC failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
104	2/6/2010	6	2	HASP	HASP did not run due to bid transfer failure. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
105	2/6/2010	6	4	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
106	2/6/2010	7	1	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
107	2/6/2010	7	2	HASP	Broadcast of HASP results failed. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
108	2/6/2010	7	3	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
109	2/6/2010	7	4	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
110	2/9/2010	14	8	RTD	RTD failed. Loss clearing payload and LMP filled from last good interval.
111	2/10/2010	8	3	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
112	2/10/2010	21	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
113	2/11/2010	7	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
114	2/11/2010	15	4	RTUC	RTUC did not run due to Automated Dispatch System (ADS) falling back to Alhambra. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
115	2/11/2010	15	6	RTD	RTD did not run due to Automated Dispatch System (ADS) database and application falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
116	2/11/2010	15	7	RTD	RTD did not run due to Automated Dispatch System (ADS) falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
117	2/11/2010	15	8	RTD	RTD did not run due to Automated Dispatch System (ADS) falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
118	2/11/2010	15	10	RTD	RTD did not run due to Automated Dispatch System (ADS) falling back to Alhambra. Loss clearing payload and LMP filled from last good interval.
119	2/12/2010	3	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
120	2/12/2010	6	3	RTUC	RTUC timed out due to slowness in the HASP run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
121	2/12/2010	6	4	RTUC	RTUC failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
122	2/12/2010	21	3	RTUC	RTUC failed due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
123	2/13/2010	11	3	RTUC	RTUC failed due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
124	2/14/2010	10	3	RTUC	RTUC failed due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
125	2/14/2010	11	3	RTUC	RTUC failed due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
126	2/14/2010	12	2	HASP	HASP failed. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.

Count	Date	Hour	Interval	Market	Nature of Actions, Nature of Market Disruption, Rationale and/or Market Disruption Prevented or Minimized as a Result of such Actions
127	2/14/2010	12	3	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
128	2/14/2010	12	4	RTUC	RTUC did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
129	2/14/2010	13	1	RTD	Broadcast of RTD results failed. Loss clearing payload and LMP filled from last good interval.
130	2/14/2010	13	1	RTUC	RTUC did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
131	2/14/2010	13	2	HASP	HASP did not run. ISO issued a notice through the Market Notification System instructing resources to follow Day-Ahead Schedules and Awards for interties. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval. Any incremental or decremental Real-Time Energy at the interties beyond the Day-Ahead Schedules that was not dispatched by the ISO is treated as an Operational Adjustment (Tier 2) for Settlement purposes.
132	2/14/2010	13	3	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
133	2/14/2010	13	4	RTUC	Broadcast of RTUC results failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
134	2/15/2010	3	3	RTUC	RTUC timed out due to optimal solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
135	2/15/2010	13	3	RTUC	RTUC failed due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
136	2/15/2010	15	3	RTUC	RTUC did not run due to bid transfer failure. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
<b>Notes:</b>					
Integrated Forward Market (IFM): The Day-Ahead Market run in which the ISO conducts the market for purchases and sales of Energy for all hours of the next Trading Day based on submitted supply and demand bids, and performs the procurement of Ancillary Services.					

Residual Unit Commitment (RUC): The Day-Ahead Market run in which the ISO conducts unit commitment of additional resources based on submitted availability bids and the forecast of demand for every hour of the next Trading Day.
Real-Time Unit commitment (RTUC) Interval 1: The first of a series of four market runs conducted every Trading Hour in advance of the Operating Hour. In this run the ISO conducts the Market Power Mitigation and Reliability Requirement Determination for submitted Bids, which applies to all of the Real-Time Market processes for the given Trading Hour. In this interval the ISO also conducts the procurement of incremental Ancillary Services from internal resources and dynamic external resources.
Real-Time Unit commitment (RTUC) Interval 2: The second of a series of four market runs conducted every Trading Hour in advance of the Operating Hour during which the ISO conducts the HASP. In the HASP, the ISO conducts the procurement and sale of Energy and Ancillary services from non-dynamic System Resources based on submitted Bids and the CAISO Forecast of CAISO Demand. In this interval the ISO also conducts the advisory procurement of incremental Ancillary Services from internal resources and dynamic external resources from T to T+60 minutes and procurement for the given Trading Hour.
Real-Time Unit commitment (RTUC) Interval 3: The third of a series of four market runs conducted every Trading Hour. During this interval the ISO conducts the commitment of internal Short-Start and Fast Start Units for the Time Horizon of T-30 minutes to T+240 minutes. In this interval the ISO also conducts the procurement of incremental Ancillary Services from internal resources and dynamic external resources for the given Trading Hour.
Real-Time Unit commitment (RTUC) Interval 4: The fourth of a series of four market runs conducted every Trading Hour. This interval is for the Real-time Unit Commitment for the T-105 minutes to T+60 minutes time horizon. In this interval the ISO also conducts 15-minute Ancillary Service Awards for non-Hourly System Resources, internal resources and dynamic external resources for the given Trading Hour.
Real-Time Dispatch (RTD): The five minute interval of any given Operating Hour during which the ISO conducts the market for Energy based on submitted bids and the CAISO Forecast of CAISO Demand.