



California ISO
Your Link to Power

Market Disruption Report June 16 to July 15, 2009

August 17, 2009

ISO 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.¹ Pursuant to Section 7.7.15 of the CAISO Tariff, the ISO 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. A Market Disruption is defined as an action or event that causes a failure of a CAISO Market related to system operations issues or System Emergencies. 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 Pre-Dispatch (“RTPD”), 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

¹ 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.

- The ISO's rationale for its removal of Bids (including Self-Schedules) pursuant to Section 7.7.15.²

II. Report on Market Disruptions Occurring from June 16 through July 15, 2009

The ISO's report on Market Disruptions that occurred during the time period from June 16 through July 15, 2009, is provided in Table 1 and Attachment A, below. As required by the March 9 Order and Section 7.7.15.4 of the CAISO Tariff, the report details the frequency of the Market Disruptions as well as the types of actions taken by the ISO pursuant to Section 7.7.15 of the CAISO Tariff. In addition, the report catalogs the nature of the Market Disruptions and the rationale for any actions taken. The report also includes information about any Bids (including Self-Schedules) removed as a result of a Market Disruption pursuant to Section 7.7.15, and the rationale for their removal.

Attachment A includes an entry for each reportable Market Disruption event that occurred from June 16 through July 15, 2009. 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.

Table 1 lists, for each type of CAISO Market, 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 35 Market Disruptions for the reporting period, significantly lower than the 65 Market Disruptions listed in the July 2009 Report. Table 1 also indicates that the ISO did not remove any Bids (including Self-Schedules) during the reporting period.

Table 1 and Attachment A indicate that there were 28 total instances of RTPD failure, including 3 HASP failures. The count of RTPD failures decreased by nine and the count of HASP failures decreased by eleven compared with the July 2009 Report. Most of the RTPD failures were due to the software application

² *Id.* at P 29 & n.29.

not running or the software application timing out. The RTPD failures (including HASP failures) accounted for approximately 82 percent of all of the Market Disruptions during this reporting period.

The number of RTD failures also dropped significantly to 6 from the 28 such instances listed in the July 2009 Report. On average there was approximately one RTD failure every five days. Three out of the six RTD failures occurred in the same hour on June 22nd because RTD did not run.

On June 21, the Market Power Mitigation (MPM) run of the Day-Ahead Market failed repeatedly. Operators were able to identify two specific units that were causing the problem due to improperly modeled ramping constraints. The ramping constraints flag was not enforced for all units in MPM. In addition, in the IFM and RUC, the IFM and RUC resource pool market setting was modified from MPM Only to ALL thereby expanding the pool of resources to beyond resources mitigated through the MPM. The ramping constraints flag was enforced for IFM and RUC. By taking these actions the ISO was able to avert a total failure of the IFM. The problem with the ramping constraints of these two units has since been corrected and the problem has not reoccurred.

Table 1: Summary of Market Disruption Report

Type of CAISO Market	Market Disruption or Reportable Events	Removal of Bids (including Self-Schedules)
Day-Ahead		
IFM	1	0
RUC	0	0
Real-Time		
Real-Time Pre-Dispatch Interval 1	5	0
Real-Time Pre-Dispatch Interval 2	3	0
Real-Time Pre-Dispatch Interval 3	14	0
Real-Time Pre-Dispatch Interval 4	6	0
Real-Time Dispatch	6	0

ATTACHMENT A

**California Independent System Operator Corporation
Market Disruption Report
August 17, 2009**

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	6/16/2009	1	3	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
2	6/17/2009	11	9	RTD	RTD application timed out. Loss clearing payload and LMP filled in with last good interval.
3	6/18/2009	7	2	HASP	HASP failed due to missing bids. Market Disruption was limited to one interval. 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.
4	6/18/2009	7	3	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
5	6/18/2009	7	4	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
6	6/18/2009	8	1	RTPD	RTPD did not run. 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
7	6/18/2009	8	3	RTPD	RTPD failed due to missing bids. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
8	6/22/2009			DAM	One June 21, the Market Power Mitigation (MPM) run of the Day-Ahead Market failed repeatedly. Operators were able to identify two specific units that were causing the problem due to improperly modeled ramping constraints. The ramping constraints flag was not enforced for all units in MPM. In addition, in the IFM and RUC, the IFM and RUC resource pool market setting was modified from MPM Only to ALL thereby expanding the pool of resources to beyond resources mitigated through the MPM. The ramping constraints flag was enforced for IFM and RUC. By taking these actions the ISO was able to avert a total failure of the IFM. The problem with the ramping constraints of these two units has since been corrected and the problem has not reoccurred.
9	6/22/2009	24	9	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
10	6/22/2009	24	10	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
11	6/22/2009	24	11	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
12	6/24/2009	24	4	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
13	6/25/2009	1	1	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
14	6/25/2009	1	1	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
15	6/25/2009	1	2	HASP	HASP did not run. Market Disruption was limited to one interval. 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	6/25/2009	23	3	RTPD	RTPD failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
17	6/26/2009	16	3	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
18	6/26/2009	19	3	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
19	6/27/2009	16	3	RTPD	RTPD failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
20	6/30/2009	16	8	RTD	RTD did not run. Loss clearing payload and LMP filled from last good interval.
21	6/30/2009	19	3	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
22	7/3/2009	14	4	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
23	7/3/2009	15	1	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
24	7/6/2009	13	4	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
25	7/6/2009	17	3	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
26	7/7/2009	1	4	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
27	7/7/2009	13	3	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
28	7/7/2009	16	1	RTPD	RTPD failed due to database permission issue. 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
29	7/7/2009	16	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.
30	7/7/2009	16	3	RTPD	RTPD did not run. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
31	7/7/2009	16	4	RTPD	RTPD application did not run due to timing issue in workflows. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
32	7/7/2009	17	1	RTPD	RTPD timed out due to timing issue in workflows. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
33	7/8/2009	7	3	RTPD	RTPD timed out. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
34	7/12/2009	17	3	RTPD	RTPD timed out due to solution infeasibility. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
35	7/15/2009	17	3	RTPD	RTPD failed. This interval was filled either automatically or interactively. MQS published PNode clearing and resource awards for this interval.
Notes:					
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 Pre-Dispatch (RTPD) 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.					

<p>Real-Time Pre-Dispatch (RTPD) 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.</p>
<p>Real-Time Pre-Dispatch (RTPD) 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.</p>
<p>Real-Time Pre-Dispatch (RTPD) 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.</p>
<p>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.</p>