
 <b>California ISO</b>	<b>Operating Procedure</b>	<b>Procedure No.</b>	2710
		<b>Version No.</b>	4.4
		<b>Effective Date</b>	5/23/2019
<b>Market Disruption - RTM Failure and Suspension</b>		<b>Distribution Restriction:</b> <b>None</b>	

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## Purpose

Provides guidelines for mitigating an Hour-Ahead Scheduling Process (HASP) failure, a Real-Time Dispatch (RTD) failure, a Real-Time Contingency Dispatch failure (RTCD), a Real-Time Pre-Dispatch (RTPD) failure, or a suspension of the Real-Time Market.

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## 1. Responsibilities

<b>ISO Generation Desk</b>	<ul style="list-style-type: none"> <li>• Reviews and allows instructions from RTM to be sent to Market Participants via ADS.</li> <li>• Communicates the need for any Intertie changes to the Transmission Dispatcher.</li> <li>• Dispatches resources with Exceptional Dispatch as required.</li> <li>• Sends ADS messages as required.</li> <li>• Sends market (MNS) messages as required.</li> </ul>
<b>ISO RTMO Desk</b>	<ul style="list-style-type: none"> <li>• Monitors Real-Time Market software for proper operations and solutions.</li> <li>• Takes action to resolve failures.</li> </ul>
<b>ISO Critical Systems Support (CSS)</b>	<ul style="list-style-type: none"> <li>• Resolve issues that prevent Bid processing.</li> </ul>
<b>ISO Director of System Operations ISO Shift Manager Desk</b>	<ul style="list-style-type: none"> <li>• Determines when to suspend the Real-Time Market.</li> <li>• Determines when to resume the Real-Time Market.</li> <li>• Instructs ISO Generation Desk to send out notifications to Market participants.</li> </ul>


## 2. Scope/Applicability

### 2.1. Background

The Real-Time Market may experience disruptions, which may result in HASP failure, RTD failure, RTCD failure or RTPD failure.

In the event of a Real-Time Market failure, Administrative Prices will be applied in accordance with Tariff Section 7.7.9(c) and 7.7.9.(e).

The ISO may suspend the Real-Time Market if it is determined that such suspension is necessary to prevent, contain, or correct a System Emergency. These interventions may occur on a Balancing Authority area-wide basis or with respect to islanded portions of the Balancing Authority Area.

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Prior to suspending the Real-Time Market, the ISO must, to the extent the ISO considers necessary to resolve the System Emergency:

1. Dispatch all supply and ancillary services bids.
2. Dispatch all interruptible loads.
3. Exceptionally Dispatch resources.
4. Dispatch all curtailable demand and exercise its rights with respect to any load curtailment contracts.
5. Perform involuntary load shedding.

In the event of a Real-Time Market suspension, Administrative Prices will be applied in accordance with Tariff Section 7.7.9(d) and 7.7.9(e).

## 2.2. Scope/ Applicability

This procedure is applicable when the Real-Time Market fails, or when the ISO suspends the Real-Time Market.

## 3. Procedure Detail


### 3.1. HASP Processing and Failure

The following provides information about HASP timelines and processing and guidance for HASP failures:

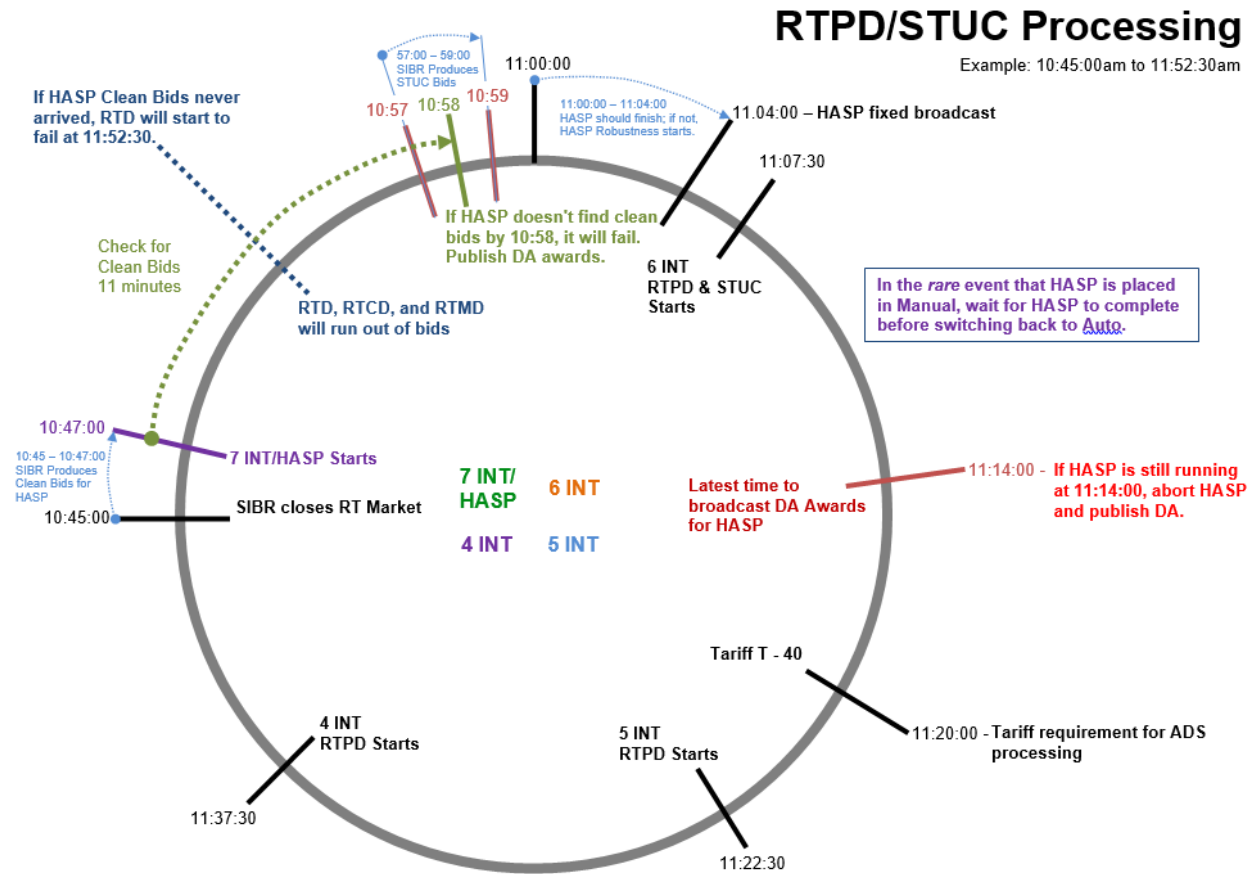
- HASP run starts at ~ XX:47:00.
- When HASP starts the, 'find updated inputs', process within RTPD workflow checks for Bids. If Bids are not there, this process keeps checking for up to 11 minutes for Bids to show up.
- This process will automatically continue to check for Bids up until XX:58:00.

Once Bids are detected, the RTPD (HASP) process will continue.

If Clean Bids are not received by XX:58:00, HASP will fail.

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### 3.1.1. RTPD/STUC Processing




**Note:** Market processing and publication timelines are approximate

### 3.1.2. HASP Processing and Failure Details and Actions

ISO Generation Desk
<p>1. <b>Check</b> 'Type' and 'Last Transfer Status' columns in the Pre-dispatch \ System displays \ Control transfer UI for subsystem 'SBR' in order to see if Bids have been received by the system.</p> <p><b>Note:</b> 'Type' column indicates the last time stamp when the Bids came to the system. 'Last Transfer Status' indicates if Bid status is 'Success' or 'Late'.</p> <p>2. If HASP fails or auto aborts at XX:14:</p> <ul style="list-style-type: none"> <li>RTPD AS Advisories and DA RUC Intertie schedules will be <b>sent</b> to ADS by default.</li> </ul>

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ISO Generation Desk
<p>3. If Advisory AS Awards are <b>not</b> sent,</p> <ul style="list-style-type: none"> <li>• <b>Send</b> the following message via MNS and ADS:  <i>"The ISO has had a market disruption of HASP for HE [HH], FMM interval ending [HH:45].</i>  <b>Ancillary Services Awards follow their advisory AS awards.</b>  <i>Hourly block and FMM Intertie resources are instructed to follow their HASP advisory market awards for energy. If no HASP advisory energy award is available, revert to the binding day-ahead market results including RUC awards. The ISO is investigating the cause of the disruption and will inform Market Participants when the issue is resolved."</i> </li> </ul> <p>4. If DA Awards are <b>not</b> sent for both AS and Interties,</p> <ul style="list-style-type: none"> <li>• <b>Send</b> the following message via MNS and ADS:  <i>"The ISO has had a market disruption of HASP for HE xx FMM interval ending [HH:45]. Ancillary Services Awards revert to Day-Ahead Market Awards.</i>  <i>Hourly block and FMM Intertie resources are instructed to follow their HASP advisory market awards for energy. If no HASP advisory energy award is available, revert to the binding day-ahead market results including RUC awards. The ISO is investigating the cause of the disruption and will inform Market Participants when the issue is resolved."</i> </li> </ul> <p>5. If Additional Intertie Resources are needed,</p> <ul style="list-style-type: none"> <li>• <b>Request</b> Transmission Dispatcher to utilize Manual Dispatch per ISO Operating Procedure <a href="#">2530 Manual Dispatch on Interties</a>.</li> </ul>

### 3.2. RTD Dependencies

Take the following actions as soon as HASP Bids and STUC Bids are available:

ISO Critical Systems Support (CSS)
<p>1. If clean Bids did not show up for the HASP run, for example HE13 (HASP run of 10:47:00), RTD will start to fail at 11:52:30 in the RTD run:</p> <ul style="list-style-type: none"> <li>• <b>Manually</b> push the clean Bids and STUC Bids (depending upon what is missing) after resolving the issues that prevented the Bid processing.</li> <li>• <b>Inform</b> the ISO Generation Desk and Market Ops Support that Bids are available for the missing hour.</li> </ul> <p><b>Note:</b> No action should be taken by Operations. (<b>Do not</b> put RTD in manual).</p>

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<b>ISO Service Desk</b>
1. <b>Investigate</b> cause and <u>and</u> <b>rectify</b> .

### 3.3. RTD Failure

Take the following actions as soon as HASP Bids and STUC Bids are available:

<b>ISO Generation Desk</b>
<p><b>Note:</b> Advisory results will be automatically sent to ADS by the RTM application.</p> <ol style="list-style-type: none"> <li>1. <b>Notify</b> service desk support personnel of the issue.</li> <li>2. The Market Participants are expected to follow the ADS advisory dispatches they receive when RTN fails.  There will only be ~ 1 hour of advisory dispatches, should RTD fail repeatedly. Be prepared to <b>inform</b> the Market participants of this potential issue.  RTPD <b>may</b> still be solving and issuing startups/shutdowns that will be sent to ADS, but resources will not receive the subsequent DOT if RTD continues to fail. <ol style="list-style-type: none"> <li>a. <b>When there are no advisory dispatches due to repeatedly failed RTD, perform Steps 2b or 2c.</b>  There may be instances where some resources may be instructed to remain at their last DOT (Step 2b), while other resources are instructed to follow their DA schedule (Step 2c).</li> <li>b. <b>Instruct</b> resources to follow their last ADS dispatch unless told otherwise.</li> <li>c. <b>Send</b> the following market message via MNS and ADS:  <i>“Attention Market Participants: The ISO Real-Time Market has experienced an RTD disruption; Unless manually dispatched otherwise by an ISO Real-Time Operator, all resources that respond to RTD are instructed to remain at their last DOT. Hourly block and FMM inertie resources are instructed to follow their HASP and FMM market awards.  The ISO is investigating the cause of the disruption and will inform Market Participants when the issue is resolved.</i> <ul style="list-style-type: none"> <li>• <b>Instruct</b> resources to follow DA schedules depending on system conditions unless told otherwise.</li> </ul> </li> </ol> </li> </ol>


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ISO Generation Desk
<ul style="list-style-type: none"> <li>• <b>Send</b> the following market message via ADS and MNS:  <i>“Attention Market Participants: The ISO Real-Time Market has experienced a disruption; all resources are instructed to follow their Day-Ahead schedules unless manually dispatched otherwise by the ISO Generation Desk. The ISO is investigating the cause of the disruption and requests Market Participants to review their IFM (Day-Ahead) schedules.”</i> </li> </ul> <ol style="list-style-type: none"> <li>3. <b>Coordinate</b> infeasible Schedules with participants via SLIC or Exceptional Dispatch.</li> <li>4. <b>Monitor</b> next interval for successful run.</li> <li>5. If the application has failed for &gt; forty-five (45) minutes (<i>Advisory dispatches will be unavailable</i>), <ul style="list-style-type: none"> <li>• <b>Advise</b> units to go to the non-binding advisory Dispatch from ADS that have not been updated from the last good interval; <b>or</b></li> <li>• <b>Hold</b> unit where it was last Dispatched via a Notice in the MNS and ADS.</li> <li>• <b>Place</b> RTD in <b>manual</b> <u>and</u></li> <li>• <b>Execute</b> process manually.</li> <li>• If failure of RTD while in manual is observed: <ul style="list-style-type: none"> <li>○ <b>Use</b> Exceptional Dispatch authority to control units and/or Contingency Dispatch, if available.</li> <li>○ <b>Utilize</b> FIT Inc/Dec for Intertie resources.</li> <li>○ <b>Issue</b> Exceptional Dispatch for internal resources or if a unit is needed for RTPD for commitment (Start-Up or shutdown).</li> </ul> </li> </ul> </li> <li>6. <b>Coordinate</b> with support personnel to restore system to normal.</li> <li>7. In the event that a Bid is removed (effectively makes the resource non-participating) from any market run to mitigate a Market Disruption, the ISO Market Operator will: <ul style="list-style-type: none"> <li>• <b>Notify</b> the Scheduling Coordinator via phone call immediately or as soon as practicable, but no later than three (3) Business Days, after the applicable Bid was removed <u>and</u></li> <li>• <b>Provide</b> information specifying when its Bid was removed and the nature of the disruption.</li> </ul> </li> </ol>

ISO Service Desk
<ol style="list-style-type: none"> <li>1. <b>Investigate</b> cause <u>and</u> <b>rectify</b>.</li> </ol>

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### 3.4. RTCD Failure

Take the following actions if RTCD fails:

ISO Generation Desk
<ol style="list-style-type: none"> <li>1. Do one of the following: <ul style="list-style-type: none"> <li>• <b>Click</b> “Reactivate” to reset the Contingency Dispatch Process.</li> <li>• <b>Attempt</b> to re-run the Contingency Dispatch; <u>or</u></li> <li>• <b>Determine</b> available Dispatching options via RTD interval Dispatch, or utilization of Exceptional Dispatch authority.</li> </ul> <p style="margin-left: 40px;"><i><b>Note:</b> Dispatch units manually/verbally over phone.</i></p> </li> <li>2. <b>Contact</b> MES.</li> </ol>


### 3.5. RTPD Failure

Take the following actions if RTPD fails:

ISO Generation Desk
<ol style="list-style-type: none"> <li>1. <b>Contact</b> Market Operations support personnel.</li> <li>2. <b>Send</b> the following messages if the RTPD fails and is unable to send advisory: <p style="margin-left: 40px;"><i>“The ISO has experienced a market disruption of RTUC for the binding interval [HH:MM] in HE [XX]. Ancillary Services Awards will revert to Day-Ahead Awards. Hourly block and FMM Intertie resources are instructed to follow their HASP advisory market awards for energy. If no HASP advisory energy award is available, revert to the binding day-ahead market results including RUC awards.</i></p> <p style="margin-left: 40px;"><i>The ISO is investigating the cause of the disruption and will inform Market Participants when the issue is resolved.”</i></p> </li> <li>3. <b>Post</b> the notice in MNS and ADS with participants about use of prior HASP or DA Dispatch Instructions <u>and</u> <ul style="list-style-type: none"> <li>• <b>Include</b> the associated time.</li> </ul> </li> <li>4. <b>Use</b> Exceptional Dispatch if a unit is needed for RTPD for commitment (Start-Up or shutdown).</li> <li>5. <b>Identify</b> reserve obligation requirements <u>and</u></li> <li>6. <b>Commit</b> as needed.</li> <li>7. <b>Log</b> event in SLIC.</li> <li>8. If RTPD Fails for multiple intervals: <ul style="list-style-type: none"> <li>• <b>Combine</b> <u>and</u> <b>follow</b> both HASP and pre-Dispatch failure process starting with applicable process failure.</li> <li>• <b>Consider</b> if transmission events may require model update <u>and</u></li> </ul> </li> </ol>

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ISO Generation Desk
<ul style="list-style-type: none"> <li>• <b>Use</b> manual event trigger to ensure topology updates for RTD interval Dispatches.</li> <li>• <b>Escalate</b> issue with support personnel.</li> </ul> <p>9. <b>Log</b> event in SLIC <u>and</u></p> <p>10. <b>Coordinate</b> with support personnel to restore system to normal.</p> <p>11. In the event that a Bid is removed from a market run as a result of market disruption, the ISO will:</p> <ul style="list-style-type: none"> <li>• <b>Notify</b> the Scheduling Coordinator as soon as practicable, but no later than three (3) Business Days, after the applicable Bid was removed <u>and</u></li> <li>• <b>Provide</b> information specifying when its Bid was removed and the nature of the disruption.</li> </ul>

### 3.6. HASP/RTPD/RTUC/RTD Disruptions: Hold Last DOT or Revert to DA Schedules

Send the following messages if there is a complete market disruption of HASP, RTPD, RTUC, and RTD and there is a need to either hold the last DOT or revert back to DA schedules.

ISO Generation Desk
<p>1. <b>Hold</b> the Last DOT.</p> <p>The ISO markets have experienced a disruption; unless manually dispatched otherwise by an ISO Real-Time Operator, all resources that respond to RTD dispatches are instructed to follow their last DOT.</p> <p>Ancillary Services without FMM Awards revert to Day-Ahead Market Awards.</p> <p>Hourly block and FMM Intertie resources are instructed to follow their HASP advisory and FMM market awards if available, if no HASP advisory or FMM market awards are available, revert to day-ahead market results including RUC awards.</p> <p>The ISO is investigating the cause of the disruption and will inform Market Participants when the issue is resolved.</p> <p>2. <b>Revert to DA Schedules.</b></p> <p>The ISO markets have experienced a disruption; unless manually dispatched otherwise by an ISO Real-Time Operator, all resources that respond to RTD dispatches are instructed to follow their Day-Ahead market results including RUC awards.</p> <p>Ancillary Services without FMM binding Awards revert to Day-Ahead Market Awards.</p>

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ISO Generation Desk
<p>Hourly block and FMM Intertie resources are instructed to follow their HASP advisory and FMM market awards if available, if no HASP advisory or FMM market awards are available, revert to day-ahead market results including RUC awards.</p> <p>The ISO is investigating the cause of the disruption and will inform Market Participants when the issue is resolved.</p>

### 3.7. Suspension of the Real-Time Market

Take the following actions when ISO decides to suspend the Real-Time Market:

ISO Director of System Operations / ISO Shift Manager Desk
<ol style="list-style-type: none"> <li>If the decision is made to <b>suspend</b> the Real-Time Market, <ul style="list-style-type: none"> <li><b>Instruct</b> the ISO Generation Desk to <b>notify</b> Market Participants that the Real-Time Market is suspended.</li> </ul> </li> </ol>


ISO Generation Desk
<ol style="list-style-type: none"> <li>If the ISO Director of System Operations or ISO Shift Manager has decided to suspend the Real-Time Market. <ul style="list-style-type: none"> <li><b>Notify</b> Market Participants, via MNS, that the Real-Time Market is suspended,</li> <li><b>Indicate</b> the start time XX;XX, and expected duration for the suspension of the Real-Time Market.</li> <li><b>Use</b> the MNS Notification Template in Section 3.8.</li> </ul> </li> </ol>

### 3.8. Resumption of the Real-Time Market

Take the following actions when the ISO decides to resume the Real-Time Market:

ISO Director of System Operations / ISO Shift Manager Desk
<ol style="list-style-type: none"> <li>If the decision is made to <b>resume</b> the Real-Time Market, <ul style="list-style-type: none"> <li><b>Instruct</b> the ISO Generation Desk to <b>notify</b> Market Participants that the Real-Time Market is no longer suspended, starting dispatches received after XX;XX.</li> </ul> </li> </ol>

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ISO Generation Desk
1. If the ISO Director of System Operations or ISO Shift Manager has decided to <b>resume</b> the Real-Time Market, <ul style="list-style-type: none"> <li>• <b>Notify</b> Market Participants, via MNS, that the Real-Time Market is no longer suspended <u>and</u></li> <li>• <b>Indicate</b> that the time the Real-Time Market will be resumed.</li> <li>• <b>Use</b> the MNS Notification Template in Section 3.8.</li> </ul>

### 3.9. MNS Notice Templates

#### Real-Time Market Suspension

The ISO has suspended the Real-Time Market. Please follow your Day-Ahead schedules, unless otherwise instructed by ISO **System Operator** through exceptional dispatches and/or Operating **Instructions**. The Real-Time Market is expected to be suspended through HH:MM.

#### Real-Time Market Resumption

The ISO plans to resume the Real-Time Market at HH:MM. Until this time, please continue to follow your Day-Ahead schedules, unless otherwise instructed by ISO **System Operator** through exceptional dispatches and/or Operating **Instructions**.

## 4. Supporting Information

### Operationally Affected Parties


Shared with Public and the RC.

### References

Resources studied in the development of this procedure and that may have an effect upon some steps taken herein include but are not limited to:

CAISO Tariff	
ISO Operating Procedure	<a href="#">2530 Manual Dispatch on Interties</a>
NERC Requirements	
WECC Criterion	
Other References	

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## Definitions

Unless the context otherwise indicates, any word or expression defined in the Master Definitions Supplement to the CAISO Tariff shall have that meaning when capitalized in this Operating Procedure.


The following additional terms are capitalized in this Operating Procedure when used as defined below:

**None.**

## Version History


Version	Change	Date
1.0	Reformatted for new prototype	2/11/2011
1.1	On 5/1/11, 2710 version 1.0 (M-403C) This Attachment became a full operating procedure with the addition of Scope/Applicability, Periodic Review Criteria; All procedure detail was added in new section 3.0. Removed legal tagline, added signature internally, new minor version and effective date.	5/24/2011
2.0	Major revision. Section 3.1, steps 2, 3, and notes deleted. New steps 3 & 4 added. Section 3.2 HASP Failure deleted. Section 3.3 changed to 3.2. Section 3.4 changed to 3.3. Section 3.5 changed to 3.4 and steps 4, 5, and 6 removed. Step 1 moved to 3 and step 2 edited. Section 3.6 changed to 3.5, step 7 deleted, step 8 moved to 3.	3/5/2012
3.0	Major revision: Updated HASP/STUC/RTPD Timeline clock. Changed Step 2 and 3. 3.3 RTD Failure. Deleted lines for accuracy. Added Step 3. Deleted Step 6. Changes to Step 7. 3.4 RTCD Failure. Changes to all Steps. 3.5 RTPD Failure. Changed Steps 3, 4, 5, 6.	5/1/2014
3.1	<ul style="list-style-type: none"> <li>• Minor format changes throughout.</li> <li>• Changed all references of CAISO to ISO.</li> <li>• Position title/role updates.</li> </ul>	9/23/2016

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Version	Change	Date
4.0	<ul style="list-style-type: none"> <li>• Updated Sections 3.3 (added Step 7) and 3.5 (added Step 10) to include language about bid removal and proper notification tool the affected scheduling coordinator.</li> <li>• Major revision: Updated due to Administrative Pricing Tariff Changes.</li> <li>• Added Responsibilities</li> <li>• Updated Purpose, Scope/Applicability, and Background</li> <li>• Added Sections 3.6, 3.7 and 3.8.</li> <li>• Removed language in 3.1.2 (Step 2) and 3.5 (Step 3)</li> <li>• Renamed the Operating Procedure Title from Market Disruption - RTM Failure <u>to</u> Market Disruption - RTM Failure <u>and Suspension</u></li> <li>• Updated Section 3.5 - adding a new Step #2 and renumbering the steps within the section (3/15/17)</li> <li>• Procedure metadata for Affected Parties was changed from Security (CAISO and Peak RC) to "None" (Public) effective this version 4.0.</li> </ul>	5/2/2017
4.1	Roles/Titles updated; minor language changes (highlighted).	6/6/2017
4.2	Section 3.3, Step 2: Revised, adding additional information. Step 5: Updated advisory reference. Section 3.7: Updated #1, bullet. Replaced A/S with AS. Replaced Peak RC with the RC. Minor formatting and grammar updates throughout. Removed version history prior to 3-years.	7/01/2018
4.3	Sections 1 & 3.1.2: Changed all instances of Interchange Scheduler to Transmission Dispatcher. Section 3.1.1: Added back RTPD/STUC Processing image, as it was inadvertently left off with previous update. Sections 3.1.2, 3.3, 3.5: Updated to include new and revised market messages. Added Section 3.6 for message relevant to a complete market failure. Minor format and grammar updates.	4/29/2019

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 <b>California ISO</b>	<b>Operating Procedure</b>	<b>Procedure No.</b>	2710
		<b>Version No.</b>	4.4
		<b>Effective Date</b>	5/23/2019
<b>Market Disruption - RTM Failure and Suspension</b>		<b>Distribution Restriction:</b> <b>None</b>	

Version	Change	Date
4.4	Section 3.1.1: Added note below RTPD/STUC Processing example. Section 3.1.2, Step 4: Updated to "If DA Awards are <u>not</u> sent..." Section 3.5, Step 3: Minor update for clarification. Sections 3.7 & 3.8: Updated to reflect that Generation Desk sends messages to market participants using MNS during suspension and resumption of Real-Time Market. Section 3.9: Replaced ISO Generation Desk with ISO System Operator and replaced operating orders with Operating Instructions. Other Minor format and grammar updates.	5/23/19

## 5. Periodic Review Procedure

### Review Criteria & Incorporation of Changes

There are no specific criteria for reviewing or changing this document, follow instructions in Procedure 5510.

### Frequency

Annual.

## Appendix

No references at this time.

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