Purpose

In the event that data exchange and/or communication between the California ISO (CAISO) and an EIM Entity Balancing Authority Area (BA) are disrupted, this document provides guidelines for mitigating Energy Imbalance Market (EIM) disruptions test.

1. Responsibilities

| CAISO Real-Time Market Desk/Real-Time Market Operator (RTMO) | • Monitors EIM software for proper operations and solutions.  
|                                                           | • Takes action to resolve failures, notify affected EIM Entity Balancing Authorities and CAISO Balancing Authority.  

2. **Scope/Applicability**

2.1 **Background**

This document describes the steps that may be implemented for EIM failures and disruptions as defined in the Business Practice Manual for Energy Imbalance Market Section 11.5.

2.2 **Scope / Applicability**

This procedure includes EIM related activities that impact the entities involved in the EIM.

3. **Procedure Detail**

3.1 **Tier 1**

3.1.1 **Scenario 1-A: Market Failures – Advisory Results Sent**

**Description:** Market Failures for single interval or less than one hour – Advisory results sent.
If the market experiences a failure for one or more intervals, it is designed to send out the advisory dispatch solutions for both RTD and RTPD. These advisory dispatches will be sent to ADS on the same timeline as the normal dispatch instructions. While advisory results continue to get sent to ADS, the market however is not able include any additional input changes such as updated forecast, outage, manual dispatch, startups and shutdowns, and conformance information. Advisory information will only exist for around an hour. If advisory dispatches run out or are not being sent, see scenario 1-B below.

**Tariff reference:** 7.7.9 subsections (c) and (e).

**BPM reference:** 7.10.4.1 and 7.10.4.2.

**Pricing:** Advisory run pricing will be used for all intervals where advisory dispatchers were sent.

**RTMO Tools:**
- Everbridge messaging
- Market Software

**EIM Tools:**
- Market Software
- EMS

**Possible Communication Types:**
- Phone call between RTMO and EIM entities
- IT Bridges
- EIM Conference Call
- Everbridge messaging

**Actions During Event**

**CAISO Real-Time Market Desk (RTMO)**

1. If the EIM run fails or has prolonged failures, then the RTMO shall strive to **notify** all affected EIM Entity BAs via Everbridge and/or phone. During a series of market failures, notification may be limited to the initial or initiating event.

   Example message:

   **Attention EIM Entity BAs:**

   *The CAISO has experienced EIM (RTD and/or RTPD) run failures for HE xx, advisory results are being sent. The CAISO is investigating the cause of the market run failures and requests EIM Entity BAs to review their advisory market results to confirm that results are acceptable, or follow their local procedure as necessary. Refer to Operating Procedure 2720, Scenario 1-A for more information.*
2. Coordinate with EIM Operators to ensure that advisory results are adequate.

3. If results are not adequate then the RTMO has the following options:
   - Manually initiate an RTD previous solution for entire EIM dispatch for all EIM BAAs.
     
     **Note 1:** The RTD previous solution will be the last solution sent whether it is advisory or not.
     
     **Note 2:** Since RTPD sends out commitment instructions, previous solutions are no available to send, only advisory.
   - Use Market Disconnect feature for all EIM BAAs (This will ensure no dispatches are sent to ADS, advisory or not)
     
     **Note:** Blocking dispatches via the UI does not work for advisory solutions, as such the market disconnect feature must be utilized.

4. Coordinate with Market Engineering Support and/or Service Desk as needed to investigate the issue and log event details.

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**EIM Entity Balancing Authority**

1. Evaluate advisory market dispatch results.

If Advisory dispatch results are acceptable:

2. Then no further operator action is needed.

   **Note:** For situations where RTD is failing and advisories are being sent and RTPD is still solving, be aware that new RTPD commitments may not be incorporated in the RTD advisories, as those RTD results are based upon old RTPD run results. Consider blocking such commitments or transitions as necessary, or perform manual dispatches to align with new RTPD instructions.

If Advisory dispatch instructions are not acceptable:

3. If the Generator DOT/startup/shutdown, advisory dispatches are not acceptable, then consider the following options:
   - Request RTMO to use the market disconnect feature. [This feature will shut off broadcast to ADS for the entire EIM footprint.]
     
     **Note:** Blocking dispatches via the UI does not work for advisory solutions, which is why the market disconnect feature must be used.
   - Request the RTMO to initiate an RTD previous solution
     
     **Note:** The RTD previous solution will be the last solution sent whether it is advisory or not.
Market Disruption – EIM

EIM Entity Balancing Authority

- Perform out-of-market dispatches and take the generator(s) off market control.

  **Note:** Changes made out-of-market need to be entered into the market as manual dispatches as soon as possible, as the market may return at any time.

4. If ETSR dispatches are not adequate, consider the following options:

  **Note:** These options are not recommended for only one or two interval failures. Consider the actions below after 15-20 minutes of prolonged failures.

- Coordinate with the RTMO to have the ETSR dispatch blocked.

  **Note:** The RTMO cannot individually block ETSR dispatches, the only options are to send the previous RTD dispatch instructions for all EIM BAAs or use the Market Disconnect feature.

- Perform out-of-market ETSR adjustments.
  - This is performed at the BA level using each entities respective EMS.
  - Work with the adjacent ETSR BA to coordinate changing ETSR values in respective EMS systems.
  - Changes in EMS need to be done at the same time to keep NSI values accurate. This should be considered as a last-resort option.

  **Note:** ETSR changes made out-of-market need to be entered into the market as ETSR overrides or locks as soon as possible, as the market may return at any time.

5. Communicate and coordinate all actions with the CAISO Real-Time Market Desk as necessary.

Actions When Returning From Event

**CAISO Real-Time Market Desk (RTMO)**

1. RTMO shall strive to notify all affected EIM Entity BAs via Everbridge and/or phone that the market is returning and to analyze your dispatch instructions and coordinate with the RTMO as necessary.

   Example message:

   **Attention EIM Entity BAs:**

   The CAISO EIM (RTD and/or RTPD) run failures have stopped and the EIM is now solving again. CAISO requests EIM Entity BAs to review their new market results to confirm that results are acceptable. If results are not acceptable then contact the RTMO and follow local procedure(s) as necessary. Refer to Operating Procedure 2720, Scenario 1-A for more information.
CAISO Real-Time Market Desk (RTMO)

2. Coordinate with Market Engineering Support and EIM entities as follows:
   - Analyze the first and subsequent market dispatches in RTD and RTPD when market starts to successfully solve again.
   - Based on the results and comments received from Market Engineering Support and EIM entities, the RTMO may perform one of the following:
     - Let the new market dispatch results go to ADS (resume normal dispatch).
     - Send previous solution for entire EIM dispatch for all EIM BAAs.

   *Note: Previous solution sent will be the last solution regardless if that solution is advisory or not.*
   - Enable the Market Disconnect feature for all EIM BAAs (This will ensure no invalid dispatches are sent to ADS, advisory or not).

EIM Entity Balancing Authority

1. Evaluate new market dispatch results.

   **If new market dispatch results are acceptable:**

2. Confirm the following:
   - If any out-of-market generator instructions were given during the time the market was sending advisory dispatches, either:
     - End the manual dispatches and have the generator return to following market dispatch instructions or
     - Create/Modify the Manual Dispatch instructions in the market so the market is informed of the current and future conditions.
   - If any out of market ETSR changes were made,
     - Coordinate with the adjacent ETSR BA to perform one of the following options:
       - Both EIM entities must coordinate and update their ETSR values in EMS to return to following market dispatches.
     - Adjust manual ETSR entries in EMS accordingly over time to smoothly go back to following market dispatches.
     - Retain the manual ETSR entries in EMS but enter new out-of-market values into the market via the ETSR override UI to update the market of the current conditions.
       - Once market ETSR values match the values in EMS, both EIM entities must update ETSR values in EMS to go back to following market dispatches.
### EIM Entity Balancing Authority

If new market dispatch results are not acceptable:

3. If Generator DOT/startup/shutdown, dispatches are not adequate, then **review** the following options:
   - **Block** dispatch instructions via the market UI.
     
     **Note:** Keep in mind when blocking generator dispatch instructions that ETSR dispatch instructions cannot be blocked and will be sent to ADS. The only method to block ETSR dispatch instructions is to either use previous solution or the RTMO use of the market disconnect feature.
   
   - **Request** RTMO to use the market disconnect feature.
     
     - This feature will shut off broadcast to ADS for the entire EIM footprint.
   
   - **Request** the RTMO to use RTD previous solution.
     
     **Note:** The RTD previous solution will be the last solution sent whether it is advisory or not.
   
   - **Perform** out-of-market dispatches and **Take** the generator(s) off market control.
     
     **Note:** Changes made out-of-market need to be entered into the market as a manual dispatch as soon as possible so it can be accounted for in the next interval solution.

4. If ETSR dispatches are not adequate, **Review** the following options:

   **Note:** This option is not recommended for only one or two failures. Consider after 15-20 minutes.

   - **Coordinate** with the RTMO to block the ETSR dispatch.
     
     **Note:** The RTMO cannot individually block ETSR dispatches. The can to send the previous RTD dispatch instructions for all EIM BAAs or utilize the Market Disconnect feature.
   
   - **Utilize** the ETSR Limit Override function to adjust limits downward from previously submitted limits.
   
   - **Perform** out-of-market ETSR adjustments.
     
     - This is performed at the BA level using each entities respective EMS.
     
     - **Coordinate** with the adjacent ETSR BA to change ETSR values in respective EMS systems.
     
     - Changes in EMS need to be done at the same time to keep NSI values accurate. **This should be considered as a last-resort option.**

**Note:** ETSR changes made out-of-market need to be entered into the market as ETSR overrides or locks as soon as possible so it can be accounted for in the next interval solution.
3.1.2 Scenario 1-B: Market Failures – No Results Sent

**Description:** Market Failures for single interval or less than one hour – No results sent.

If the market experiences a failure for one or more intervals, it is designed to send out the advisory dispatch solutions for both RTD and RTPD but there may be situations, such as a broadcast failure, where results, including advisory, are **NOT** sent to ADS. In this situation it is common practice that if a resource does not receive any new DOTs that they will remain at the value of the last DOT they received just prior to the failure. As renewable resources and loads continue to change, this may lead to balancing issues if the generation and ETSRs continue to remain flat and manual intervention may be needed.

**Tariff reference:** 7.7.9 subsections (c) and (e).

**BPM reference:** 7.10.4.1 and 7.10.4.2.

**Pricing:** Price Fill will be used for all intervals that did not receive a broadcast. Price fill is based on the price of the run just prior to the failure.

**RTMO Tools:**
- Everbridge Messaging
- Market Software

**EIM Tools:**
- Market Software
- EMS

**Possible Communication Types:**
- Phone call between RTMO and EIM entities
- IT Bridges
- EIM Conference Call
- Everbridge messaging
Actions During Event

### CAISO Real-Time Market Desk (RTMO)

1. If the EIM run fails or has prolonged failures, then the RTMO shall strive to **notify** all affected EIM Entity BAs via Everbridge and/or phone. During a series of market failures, notification may be limited to the initial or initiating event.

   Example message:

   **Attention EIM Entity BAs:** The CAISO has experienced EIM (RTD and/or RTPD) run failures for HE xx and advisory results are not being sent. The CAISO is investigating the cause of the market run failures and requests EIM Entity BAs follow their local procedure(s) as necessary. Refer to Operating Procedure 2720, Scenario 1-B for more information.

2. **Coordinate** with EIM Operators to ensure they are advised of the situation.
   - With the market not solving and results not being sent to ADS, the RTMO has limited actions they can perform other than working with Market Engineering Support to get the market producing valid results again.

3. **Coordinate** with Market Engineering Support and/or Service Desk as needed to investigate the issue and log event details.

### EIM Entity Balancing Authority

1. **Evaluate** current and future system conditions.
   - If current and forecasted system conditions are expected to be relatively flat for approximately the next hour, then no action may be required. Resources may remain at their last known valid DOT while the issues get resolved.

2. If system conditions are particularly uncertain and sizable generator or ETSR movement will be required to maintain balance, **consider** the following:
   - Generator movement: **Perform** out-of-market dispatches and **take** the generator(s) off market control.
     
     **Note:** Changes made out-of-market need to be entered into the market as manual dispatches as soon as possible, as the market may return at any time.

   - ETSR movement: **Perform** out-of-market ETSR adjustments. (This is performed at the BA level using each entities respective EMS.)
     - **Coordinate** with the adjacent ETSR BA to **change** ETSR values in respective EMS systems.
       - Changes in EMS need to be done at the same time to keep NSI values accurate. (This should be considered as a last-resort option.)

     **Note:** ETSR changes made out-of-market need to be entered into the market as ETSR overrides or locks as soon as possible, as the market may return at any time.
Market Disruption – EIM

EIM Entity Balancing Authority

3. Communicate and coordinate all actions with the CAISO Real-Time Market Desk as necessary.

Actions When Returning From Event

CAISO Real-Time Market Desk (RTMO)

1. RTMO shall strive to notify all affected EIM Entity BAs via Everbridge and/or phone that the market is returning and to analyze your dispatch instructions and coordinate with the RTMO as necessary.

Example message:

Attention EIM Entity BAs:
The CAISO EIM (RTD and/or RTPD) run failures have stopped and the EIM is now solving again. CAISO requests EIM Entity BAs to review their new market results to confirm that results are acceptable. If results are not acceptable then contact the RTMO and follow local procedure(s) as necessary. Refer to Operating Procedure 2720, Scenario 1-B for more information.

2. Coordinate with Market Engineering Support and EIM entities as follows:
   - Analyze the first and subsequent market dispatches in RTD and RTPD when the market starts to successfully solve again.
   - Based on the results and comments received from Market Engineering Support and EIM entities, the RTMO may perform one of the following:
     - Let the new market dispatch results go to ADS (normal dispatch).
     - Enable the Market Disconnect feature for all EIM BAs. (This will ensure no invalid dispatches are sent to ADS, advisory or not.)

Note: The “send previous solution” feature is not recommended in this situation, as the last solution sent to ADS could be quite old. It is recommended that the “market disconnect” feature be used instead.

EIM Entity Balancing Authority

1. Evaluate new market dispatch results.

If new market dispatch results are acceptable:

2. Confirm the following:
   - If any out-of-market generator instructions were given during the time the market was not sending any dispatches, either:
     - End the manual dispatches and have the generator return to following market dispatch instructions or
     - Modify the Manual Dispatch instructions in the market so the market is informed of the current and future conditions.
EIM Entity Balancing Authority

- If any out of market ETSR changes were made,
  - Coordinate with the adjacent ETSR BA to perform one of the following options:
    - Both EIM entities must coordinate and update their ETSR values in EMS to return following market dispatches.
    - Adjust manual ETSR entries in EMS accordingly over time to smoothly go back to following market dispatches.
    - Retain the manual ETSR entries in EMS, but enter new out-of-market values into the market via the ETSR override UI to update the market of the current conditions.
      - Once market ETSR values match the values in EMS, both EIM entities must update ETSR values in EMS to go back to following market dispatches.

If new market dispatch results are not acceptable:

3. If Generator DOT/startup/shutdown, dispatches are not adequate, review the following options:
   - Block dispatch instructions via the market UI.
     Note: Keep in mind when blocking generator dispatch instructions that ETSR dispatch instructions cannot be blocked and will be sent to ADS. The only method to block ETSR dispatch instructions is to either use previous solution or the RTMO use of the market disconnect feature.
   - Request RTMO to use the market disconnect feature. (This feature will shut off broadcast to ADS for the entire EIM footprint.)
     Note: The “send previous solution” feature is not recommended in this situation, as the last solution sent to ADS could be quite old. It is recommended that the “market disconnect” feature be used instead.
   - Perform out-of-market dispatches and take the generator(s) off market control.
     Note: Changes made out-of-market need to be entered into the market as manual dispatches as soon as possible, as the market may return at any time.

4. If ETSR dispatches are not adequate, review the following options:
   - Coordinate with the RTMO to block the ETSR dispatch.
     Note: The RTMO cannot individually block ETSR dispatches. The can to send the previous RTD dispatch instructions for all EIM BAAs or utilize the Market Disconnect feature.
3.1.3 Scenario 1-C: Software System Maintenance

Description: Software System Maintenance (a.k.a. “Market Patch”) for single or multiple intervals less than one hour – No results sent.

During a market patch, the market is intentionally set in a manual mode where no results are created for RTD, or possibly both RTD and RTPD. When no results are sent to ADS, the actions and responsibilities are identical to those outlined in Scenario 1-B above.

However, there are some additional considerations described in this scenario. During a market patch, the RTMO has stronger confidence and control of when the market can be re-enabled in normal operation, which often precludes the need for EIM Operator manual intervention to balance their system. Additionally, as market patches are planned events, the notifications differ from unplanned events. Also outlined in this scenario are guidelines with regard to requesting a postponement of a planned market patch. Lastly, during market patches the RTMO has the ability to send a future RTPD advisory result. This unique functionality is also described in this scenario.

Actions During Event

<table>
<thead>
<tr>
<th>CAISO Real-Time Market Desk (RTMO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prior to a Market Patch, the RTMO shall <strong>notify</strong> all affected EIM Entity BAs via EverBridge and/or phone.</td>
</tr>
<tr>
<td>- With the exception of unplanned (emergency) patching, the RTMO shall <strong>strive to provide</strong> advance notification of approximately one (1) hour prior to installation.</td>
</tr>
</tbody>
</table>
CAISO Real-Time Market Desk (RTMO)

- The RTMO will also **strive to provide** a final notification immediately prior to market patching, approximately 10-15 minutes prior to the event start.

Example message:

**Attention EIM Entity BAs:**

The California ISO has scheduled maintenance in its IFM/RTN production environment today [MM/DD/YYYY @ XX:XX]. RTD 5-min and RTPD 15-min dispatches may be interrupted and your BAAOP UI will probably disconnect and require a new session login. The RTMO will send a follow-up message when the UI is available for login. Refer to Operating Procedure 2720, Scenario 1-C for more information.

The RTMO will use the “Trigger RTPD Advisory” feature for RTPD 5 at approximately XX:20

2. **Switch** the market modules RTD, RTPD, STUC and RTBS into Manual Mode in coordination with Market Engineering Support.

3. **Utilize** the Trigger RTPD Advisory solution function, if desired.

   **Note:** The RTMO has the ability to send a future RTPD advisory solution prior to market patching. This functionality is designed to reduce the number of lost RTPD intervals with no results during a market patch. The process works as follows:

   - For example, at approximately XX:13, RTPD 6 completes.
   - At approximately XX:20, the RTMO utilizes the Trigger Advisory function.

   **Note:** Waiting until approximately XX:20 allows EIM entities as much time as possible to see RTPD 6 results before RTPD 5 advisory results are received early.

   - In approximately 2-3 minutes, RTPD 5 results will be visible to all EIM entities in the UI appearing as if RTPD 5 was executed normally. However, these are the advisory results of the RTPD 6 run inserted for the binding interval RTPD 5.

   **Note:** During this process, the RTPD Dispatch Control UI will display the message “Operator Initiated Advisory Run.” Any changes made in RTPD 6 (such as a blocked dispatch) will not be incorporated into the RTPD 5 advisory results.

   - EIM entities will receive this RTPD 5 result as a binding RTPD run while technically it was an advisory solution as outlined in Scenario 1-A. However, since this was triggered from this recognized process during a market patch, a separate advisory EverBridge notification will not be sent.

4. During the actual market patching when the market is unavailable, the RTMO shall **remain apprised** of the patch progress and available to EIM Operators for questions or concerns.
CAISO Real-Time Market Desk (RTMO)

5. **Refer** back to Scenario 1-B for further RTMO actions.

### EIM Entity Balancing Authority

1. Upon receipt of the EverBridge notification of a market patch, **evaluate** current and projected future system conditions with regard to requesting a postponement of the market patch.

2. If a manual action is available to the EIM-entity, **perform** the manual action to avoid a postponement. Reasonable manual actions may include the EIM-entity having to:
   - Perform Load (Bias) Conformances
   - Create Manual Dispatches
   - Establish Limit Overrides on ETSRs or ITCs
   - Enter VER Forecast Overrides
   - Make Resources Unavailable

3. If such a manual action is required before a patch, **contact** the RTMO immediately, as the patch may be postponed one or two RTD intervals to ensure the market processes the action before the patch starts.

4. If such a manual action is **not** available, the EIM-entity may **request** a postponement of the patch.

5. However, as market patches require coordination from numerous CAISO teams, **postponing** a patch should be **considered** a last-resort option if no other reasonable manual actions exist. The following are guidelines on patch postponement:
   - If the EIM entity is currently in a Contingency or EEA (Energy Emergency Alert), a postponement of the market patch **may be granted**.
   - If the EIM entity is experiencing relatively high loads, has a current low ACE, in a BAAL exceedance or has experienced a resource unexpectedly shutdown or other facility become unavailable and has not declared a Contingency, a postponement request **will be considered**, but may or may not be granted.
   - If there is a possibly that a manual dispatch or other manual action may be required during the market patch, a postponement request will **likely not be granted**.

6. Assuming the market patch is not postponed, **refer back** to Scenario 1-B for actions taken during the event when no market results are received.
Actions When Returning From Event

**CAISO Real-Time Market Desk (RTMO)**

1. RTMO shall **strive** to **notify** all affected EIM Entity BAs via Everbridge and/or phone that the market is returning and to analyze your dispatch instructions and coordinate with the RTMO as necessary.

   Example message:

   **Attention EIM Entity BAs:**

   The CAISO planned maintenance has completed. CAISO requests EIM Entity BAs to review their new market results to confirm that results are acceptable. If results are not acceptable then contact the RTMO and follow local procedure(s) as necessary. Refer to Operating Procedure 2720, Scenario 1-C for more information.

2. **Refer back** to Scenario 1-B for communication actions when the market resumes normal operations.

**EIM Entity Balancing Authority**

1. **Refer** to Scenario 1-B for details on actions to **consider** if the market results are valid or not.

3.1.4 **Scenario 1-D: DB Model Build**

**Description:** DB Model Build – No results sent.

During a DB Model build or other significant system installation, the market does not produce results. As such, the actions and responsibilities are also identical to the scenario outlined in Scenario 1-B.

However, DB Model builds require far more advanced notifications and coordination than described in Scenario 1-C, market patch. The advanced notifications from Customer Services and the RTMO are described below. EIM entities are also requested to limit their Dynamic and Static ETSRs to zero via their normal ETSR limit-setting processes. Lastly, DB Model builds also include the RTMO notification that ETSRs that are not limited to zero for the event timeframe will be locked in coordination with the EIM operator(s).
## Actions Prior to Event

### CAISO Customer Service

1. **Perform** advanced notifications per the following approximate schedule:

<table>
<thead>
<tr>
<th>Approx. Time</th>
<th>Action</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>~A week in Advance</td>
<td>Market Notice</td>
<td>A market notice will be included in the daily briefing identifying which days of the week the model will deployed on</td>
</tr>
<tr>
<td>Week of DB Model Build</td>
<td>Market Notice</td>
<td>A market notice will be included in the daily briefing specifying which day of the week the model will deployed on</td>
</tr>
<tr>
<td>(i.e., Strive for Monday delivery based upon DB Model build status)</td>
<td>Bronto message to BAAOP</td>
<td>A targeted communication to all BAAOP production users will be sent specifying which day of the week the model will be deployed on</td>
</tr>
</tbody>
</table>

### CAISO Real-Time Market Desk (RTMO)

1. **Perform** advanced notifications per the following approximate schedule:

<table>
<thead>
<tr>
<th>Approx. Time</th>
<th>Action</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>~24 Hours in Advance</td>
<td>EverBridge and MNS</td>
<td>This advanced notification is to ensure EIM entities are given enough time to limit their ETSR's via their normal processes.</td>
</tr>
<tr>
<td></td>
<td>Includes event details and request that all EIM Entities limit their Dynamic and Static ETSRs to zero (E.g., Starting at HE23)</td>
<td></td>
</tr>
<tr>
<td>~12 Hours in Advance</td>
<td></td>
<td>This notification is important for the shift operators coming in that evening.</td>
</tr>
<tr>
<td>~6 Hours in Advance (Start of Night Shift)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>~2-3 Hours in Advance</td>
<td>EverBridge and MNS</td>
<td>This EverBridge message provides final notification to lock ETSRs.</td>
</tr>
<tr>
<td></td>
<td>Notice of the approaching event and that ETSRs that are not limited to zero will be locked in coordination with the RTMO.</td>
<td></td>
</tr>
<tr>
<td>Prior to event start</td>
<td>EverBridge Conference Call invitation</td>
<td>The EverBridge Conference call eliminates the need for further EverBridge messages immediately prior to and during the event.</td>
</tr>
</tbody>
</table>

Example Message (Day of DB Model Build):

Please click here to acknowledge receipt of this message

** PLEASE ACKNOWLEDGE RECEIPE OF THIS MESSAGE by (1) clicking the acknowledge email link or (2) by pressing 1 on your after the voice recording **
**CAISO Real-Time Market Desk (RTMO)**

Please see the DB promotion plans below with specific requests to EIM entities to set ETSR limits to 0 MW for HE24 & HE1.

**NOTE1:** The RTMO will coordinate & execute the ETSR locks & unlocks in STUC, RTBS, RTPD & RTD prior to and after the db promotion.

**NOTE2:** The RTMO will send a notification message @ 22:00 PPT to all EIM entities to join a conference bridge with dial-in and passcode information. The bridge will be opened at 22:00 and all entities are requested to join the conference bridge. When communicating on bridge, please state your name and entity name each time prior to your question or comment. Please also keep your phone on mute when you are not speaking to reduce background noise on the bridge.

**ETSR Management Plan:**
In advance of tonight’s DB95 Full Network Model deployment, and in order to reduce market ETSR swings that can affect the reliable operation of EIM BAs, the RTMO desk is requesting that all EIM entities reduce their dynamic and Static ETSR limits to zero for HE24 and HE1 (2300 PPT – 0100 PPT). The objective is to have these zero limits in the market well in advance of 2300 PPT so that STUC/RTPD can see the zero limits in their advisory runs and ramp the ETSRs down to zero in a controlled manner prior to the locking of ETSRs.

**NOTE:** EIM entities are encouraged to gradually increase ETSR limits starting HE02

**ETSR Lock Schedules prior to DB promotion (performed by RTMO):**
- @ 20:00 STUC
- @ 22:10 RTPD
- @ 22:50 RTD

**ETSR Un-Lock Schedules after the DB promotion (performed by RTMO):**
- @ 00:25 - STUC
- @ 00:25 - RTPD
- @ 00:50 - RTD

Refer to Operating Procedure 2720, Scenario 1-D for more information. Please contact the RTMO if you have any questions between now and the start of the conference call @ 22:00.

2. **Prior to the start of the DB model build,**
   - **Determine** if any EIM entity’s ETSRs were NOT limited via their normal limit setting processes, and
   - **Coordinate** with the EIM Operator to **lock** such ETSRs.

**Note:** Use of the Trigger Advisory RTPD function is not recommended for DB Model builds and, as such, is not included in this scenario.
CAISO Real-Time Market Desk (RTMO)

3. During the DB Model Build when the market is unavailable, the RTMO shall remain apprised of the patch progress and will communicate to EIM Operators via the EverBridge Conference Bridge.

4. Refer back to Scenario 1-B for further RTMO actions.

EIM Entity Balancing Authority

1. Limit all ETSRs to zero per the advanced notification timeline details.

   Note: With ETSR limits established in the market prior to the DB Model build, the market will best optimize ETSR flow and generation dispatch throughout the DB Model build timeframe. Be advised that the market may utilize all available ETSR capacity up to the to the last possible moment before the limit changes to zero, based upon the sum of a given EIM entity’s generation fleet ramp rate capacity.

The following outlines three examples of limiting ETSRs prior to a DB Model Build:

Example 1 – Hourly Ramp Down via Net ITC Changes:

Manually update the Net ITC (hourly) values leading up to 2300 PPT.

For example, Reduce the Hourly ITC Limit 150 MW hourly downward leading up to 23:00:

<table>
<thead>
<tr>
<th>Operating Hour</th>
<th>Hourly ITC Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Conditions</td>
<td>600</td>
</tr>
<tr>
<td>20:00 (HE21)</td>
<td>450</td>
</tr>
<tr>
<td>21:00 (HE22)</td>
<td>300</td>
</tr>
<tr>
<td>22:00 (HE23)</td>
<td>150</td>
</tr>
<tr>
<td>23:00 (HE24)</td>
<td>0</td>
</tr>
</tbody>
</table>

Example 2 – Sub-Hourly Ramp using the Manual Override (in BAAOP):

Manually update the Override values on each individual ETSR in both RTD and RTPD. Note that this is a manually intensive task and would have to be re-performed frequently, as Manual Overrides are only available for the number of RTD and RTPD advisory solutions available in the UI.

Example 3 – Sub-Hourly Ramp via Dynamic Limit Interface:

In lieu of the manually intensive approach outlined in Option 2, update each ETSR limit via the Dynamic Limit Interface in same linear sub-hourly ramp fashion. This is typically performed via API interfaces.
EIM Entity Balancing Authority

2. If any EIM entity’s ETSRs were NOT limited via their normal limit setting processes, coordinate with the RTMO to lock or limit all such ETSRs.
   - If the current ETSR flow is sizable, consider stepping down the ETSR limits via the RTD and RTPD ETSR limit Override function in BAAOP.

3. Refer back to Scenario 1-B for further EIM Operator actions.

Actions When Returning From Event

CAISO Real-Time Market Desk (RTMO)

1. When the EIM Operator is comfortable with returning to normal market operations, unlock ETSR’s in a controlled fashion in coordination with EIM Operator.
2. Refer back to Scenario 1-B for further RTMO actions.

EIM Entity Balancing Authority

1. After the DB Model build is complete, evaluate new market dispatch results.
   - Refer to Scenario 1-B for details on actions to consider if the market results are good or not.
2. When comfortable with returning to normal market operations,
   - Unlock ETSR’s in a controlled fashion in coordination with the RTMO.

3.2 Tier 2

3.2.1 Scenario 2-A: Exhausted Advisory Runs - No Results Sent

Description: Market Failures longer than an hour – advisory solutions have been exhausted, no instructions being sent to ADS. Note that while the actions are the same as Scenario 1B where no market results are sent, the reason and generally the severity in this Scenario is different.

Specifically, if the market has been experiencing failures for longer than an hour then it is possible that no more advisory solutions exist and no instructions are being sent to ADS. In this situation, it is common practice that if a resource does not receive any new DOTs that it will remain at the value of the last advisory DOT it received. As renewable resources and loads continue to change, this may lead to balancing issues if the generation and ETSRs continue to remain flat and manual intervention may needed.

Tariff reference: 7.7.9 subsections (c) and (e).
BPM reference: 7.10.4.1 and 7.10.4.2.


RTMO Tools:
- Everbridge messaging
- Market Software

EIM Tools:
- Market Software
- EMS

Possible Communication Types:
- Phone call between RTMO and EIM entities
- IT Bridges
- EIM Conference Call
- Everbridge messaging

Actions During Event

**CAISO Real-Time Market Desk (RTMO)**

1. If the EIM run failures continue and advisory solutions have been exhausted, then the RTMO shall **notify** all affected EIM Entity BAs via Everbridge and/or phone. During a series of market failures, notification may be limited to the initial or initiating event.

   Example message:

   **Attention EIM Entity BAs:**

   *The CAISO has experienced EIM run failures for HE xx and advisory results have been exhausted and are no longer being sent. The CAISO is investigating the cause of the market run failures and requests EIM Entity BAs follow their local procedure(s) as necessary. Refer to Operating Procedure 2720, Scenario 2-A for more information.*

2. Refer to Scenario 1-B for the RTMO actions during no market results.

**EIM Entity Balancing Authority**

1. Refer to Scenario 1-B for EIM Operator actions during no market results.
Actions When Returning From Event

**CAISO Real-Time Market Desk (RTMO)**

1. RTMO shall **notify** all affected EIM Entity BAs via Everbridge and/or phone that the market is returning and to analyze your dispatch instructions and coordinate with the RTMO as necessary.

   Example message:

   **Attention EIM Entity BAs:** The CAISO EIM run failures have stopped and the EIM is now solving again. CAISO requests EIM Entity BAs to review their new market results to confirm that results are acceptable. If results are not acceptable then contact the RTMO and follow local procedure(s) as necessary.

2. **Refer** to Scenario 1-B for the RTMO actions when returning from no market results.

**EIM Entity Balancing Authority**

1. **Refer** to Scenario 1-B for EIM Operator actions returning from no market results.

### 3.3 Tier 3

**Market Isolation of a Market Disruption**

If an EIM Entity BA experiences issues and becomes isolated or needs to be isolated from the EIM (the affected EIM Entity will need to balance their BA outside of the market), the market applications will still produce market results for the remaining BAA's in EIM. This may affect more than one (1) EIM BA. Additionally, the remaining non-isolated BAs may be impacted by the loss of their imports or exports from, to, or through the isolated BA.

An EIM entity may request Market Isolation from EIM as either a planned outage, or real-time (unplanned) event for the following valid reasons:

<table>
<thead>
<tr>
<th>Type</th>
<th>Notice Requirements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scenario 3-A:</strong> Planned Market Isolation</td>
<td>Planned Market Isolation events must be requested at least five (5) business days in advance via CIDI ticket.</td>
<td>In support of a planned electricity line or facility outage, which splits or changes the EIM Network model in a manner, which is currently not supported by the EIM Market.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Notice Requirements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In support of a planned computer system or software outage or update in which the unavailability or risk of unavailability could impair the EIM entity’s ability to accurately</td>
<td></td>
</tr>
</tbody>
</table>
## Scenario 3-B: Unplanned Market Isolation

### Description
Real-time events are unplanned and are requested by the EIM Operator in real-time. Planned outages should not result in unplanned real-time events as a result of insufficient notification. When in real-time, events affecting an EIM entity's electrical system, computer systems, or physical location prevent or may likely prevent the entity from accurately allowing ETSR movement and following market dispatches.

### Type
- **Scenario 3-B:** Unplanned Market Isolation

<table>
<thead>
<tr>
<th>Notice Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>remain in the market, allow ETSR movement and follow market dispatches.</td>
</tr>
</tbody>
</table>

### Important Note: The General Steps Required to Isolate an EIM Entity BA from the EIM Market are the same, whether Planned or Unplanned which include:

- **Lock** all ETSRs for the affected EIM Entity BA in all appropriate market intervals (RTBS, RTD, RTPD, and STUC).
- **Remove** EIM bids either by:
  - Making the SC ID as non-participating in the MasterFile (Primarily for planned Market Disruptions greater than one day).
  - Manually removing the impacted EIM entity BAA bids.
- **Set** all Flexible ramping requirements to zero.
- **Un-enforce** all transmission constraints in the affected EIM Entity BA including:
  - Flowgates
  - Nomograms
  - Contingencies

### 3.3.1 Scenario 3-A: Planned Market Isolation Event

Planned Market Isolation events must be requested at least five (5) business days in advance via CIDI ticket.

**Tariff reference:** 7.7.6, 7.7.7.

**BPM reference:** 7.10.4.

**Pricing:** Admin Pricing

**RTMO Tools:**
- Everbridge messaging
- Market Software

**EIM Tools:**
- PCI
- Market Software
- EMS
**Operating Procedure**

**Procedure No.** 2720  
**Version No.** 4.3  
**Effective Date** 12/01/2021

**Market Disruption – EIM**

**Possible Communication Types:**
- Phone call between CAISO Customer Services / RTMO and EIM entities
- CIDI
- IT Bridges
- Everbridge messaging

**EIM Entity Balancing Authority**

Consider the following when requesting for a Market Isolation:

1. **Assess** if the EIM entity will be able to:
   - **Follow** market dispatches, startups/shutdowns and configuration transitions, and
   - **Support** ETSR Imports and Exports.

2. If locking ETSR’s alone cannot prevent a Market Isolation,
   - **Consider** any other reasonable, manual workarounds that are available to avoid a Market Isolation.

3. **Upon** confirmation no other solution is available, a Market Isolation must be requested:
   - **Submit** a CIDI ticket, at least 5 business days prior,
     - **Requesting** a “Market Isolation” with the following information:
       - Start Date / Time
       - End Date / Time
       - Reason, including any details that may impact the Start or End times.
       - Actions the EIM entity will be taking (e.g., Balancing the BA without the use of the market utilizing internal procedures).
       - Primary and Secondary Contacts

   **Note:** A Market Isolation must be coordinated with CAISO Customer Services and cannot be declared by the EIM entity unilaterally.

4. Upon the Start time and during the Market Isolation,
   - **Stop** submitting bids.
   - **Disable** any auto-bid submittal process, if applicable.
   - **Continue** all Base Schedule submittals for bilaterally-contracted energy across all Base and/or Dynamic ETSR’s.
     - EIM entities should have defined procedures to continue such submittals directly via BSAP or backup API-interfaces in the event of any disruption to their primary 3rd-party submittal software.

   **Note:** Market dispatches for base schedules will still be sent. LMPs will still be calculated for the affected BA but will NOT be used to settle Uninstructed Imbalance Energy.
CAISO Customer Services

1. **Receives** notification from an EIM entity via CIDI ticket of requested EIM isolation event.
   
   The request shall include:
   - Start Date / Time
   - End Date / Time
   - Reason, including any details that may impact the Start or End times.
   - Actions the EIM entity will be taking (e.g., Balancing the BA without the use of the market utilizing internal procedures).
   - Primary and Secondary Contacts

2. **Verifies** the request is complete and meets the requirements of a valid planned EIM Market Isolation per above.

3. **Notifies** the following distribution lists of a forthcoming EIM Market Isolation:
   
   - MES – Implement EIM Market Disruption plan
   - MES
   - CAISO RTMO
   - Power System Technology
   - Masterfile (rdt@caiso.com)

   **Implement post-process for Administrative prices**
   - Market Validation
   - Price Corrections & Settlement Disputes
   - Market Settlement Production
   - Customers Services

   **FYI**
   - Critical Systems
   - Shift Managers
   - CAISO Operations Directors Managers

---

**CAISO Real-Time Market Desk (RTMO)**

1. **Notifies** all EIM Entities via Everbridge/MNS and/or phone of forthcoming EIM isolation. Minimum advanced EverBridge notifications include:
   - One (1) Day Before
   - The morning of the event (this is to ensure the current Operators on-shift received notice).
   - One (1) Hour Before

   **Example EverBridge(s):**

   **Planned EIM Market Isolation (Prior Day Notification)**
   
   "XXXX is temporarily suspending their participation in the CAISO EIM Market tomorrow mm-dd-yyyy @ XX:XX to XX:XX while they are undergoing computer..."
CAISO Real-Time Market Desk (RTMO)

system upgrades. ETSRs associated with XXX will be locked during this planned work window. For the affected EIM entity and all adjacent EIM entities that share ETSR limit tagging responsibilities, please ensure your pre-hour tag MW values are equal to the Base Schedule values. Refer to Operating Procedure 2720, Scenario 3-A for more information.

Planned EIM Market Isolation (Same Day Notification)

Please acknowledge receipt of this message by clicking the hyperlink or pressing 1 on your phone.

Today mm-dd-yyyy at XX:XX PST XXX will be isolating from the CAISO Market due to a significant planned transmission outage. The outage return time is on mm-dd-yyyy at XX:XX PST. During XXX's market isolation - all ETSRs associated with XXX will be locked and base schedules across those same ETSRs will be zero. The RTMO will perform all ETSR locks associated with XXX. For the affected EIM entity and all adjacent EIM entities that share ETSR limit tagging responsibilities, please ensure your pre-hour tag MW values are equal to the Base Schedule values.

The RTMO will keep all EIM entities posted on any status changes associated with the XXX isolation. Expect to see a similar communication on mm-dd-yyyy for XXX re-integrating into the CAISO market. Refer to Operating Procedure 2720, Scenario 3-A for more information.

Additional Coordination Information:

In the event of a planned EIM Market Isolation, a detailed plan is created for the steps above and performed at specified times. MES will initiate a meeting with the internal business units to review the plan. The following is an illustration of such a plan for an event starting at 10:00 and ending at 14:00. Each step must be confirmed by MES before proceeding to the next step.

<table>
<thead>
<tr>
<th>Time</th>
<th>EIM Market Interruption Start Time = 10:00</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:30</td>
<td>Discuss the Deployment plan with Shift Manager, RTMO and other internal business units.</td>
<td>MES</td>
</tr>
<tr>
<td>5:30</td>
<td>Send EverBridge/MNS Message to EIM participants informing about XXXX Market Isolation and might see some interruptions in dispatches from MM/DD/YY XX:XX to XX:XX.</td>
<td>RTMO</td>
</tr>
<tr>
<td>5:30</td>
<td>Open Bridge EIM Market Isolation in Production.</td>
<td>MES or RTMO</td>
</tr>
<tr>
<td>5:50</td>
<td>Validate that EIM Entity does not submit any STUC bids during disruption time. Reject them (from SIBR UI) if found. This must be done before STUC bids are generated in SIBR at xx:57. Confirm ETSR limit = Base if base schedule is available. If not then ETSR limit = 0 MW.</td>
<td>PSTD/CSS</td>
</tr>
</tbody>
</table>
### Market Disruption – EIM

<table>
<thead>
<tr>
<th>Time</th>
<th>EIM Market Interruption Start Time = 10:00</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:55</td>
<td>Repeat Validation of STUC bids. Confirm ETSR limit = Base if base schedule is available. If not then ETSR limit = 0 MW.</td>
<td>PSTD/CSS</td>
</tr>
<tr>
<td>7:55</td>
<td>Repeat Validation of STUC bids. Confirm ETSR limit = Base if base schedule is available. If not then ETSR limit = 0 MW.</td>
<td>PSTD/CSS</td>
</tr>
<tr>
<td>8:43</td>
<td>Validate that EIM Entity does not submit any RT Clean bids during isolation time and if they do be ready to reject them (from SIBR UI).</td>
<td>PSTD/CSS</td>
</tr>
<tr>
<td>8:45</td>
<td>Confirm all XXXX SIBR bids are rejected.</td>
<td>PSTD/CSS</td>
</tr>
<tr>
<td>8:45</td>
<td>Set the Flex ramp requirements to 0 from EIM disruption time duration.</td>
<td>MES</td>
</tr>
<tr>
<td>8:45</td>
<td>Validate that Base Schedules received successfully and contains XXXX Base Schedules.</td>
<td>MES</td>
</tr>
<tr>
<td>8:45</td>
<td>Validate that RT Clean bid received successfully and does not contain bids for XXXX.</td>
<td>MES</td>
</tr>
<tr>
<td>8:45</td>
<td>Validate that RTBS ran successfully and all 4 tests for other BAA’s except XXXX are reasonable.</td>
<td>MES</td>
</tr>
<tr>
<td>8:50</td>
<td>Ensure RTMO and EIM Operator coordinate to Lock ETSR’s for XXXX for STUC run. Step-down ETSR limits if large flows are occurring.</td>
<td>RTMO</td>
</tr>
<tr>
<td>9:22</td>
<td>UnEnforce all Nomogram, flowgates and contingencies for XXXX in all schemas.</td>
<td>MES</td>
</tr>
<tr>
<td>9:22</td>
<td>Lock ETSR’s for XXXX starting from RTPD 4 run.</td>
<td>RTMO</td>
</tr>
<tr>
<td>9:45</td>
<td>Monitor RTPD, RTD, RTBS and STUC runs (RTMO to alert EIM Entity if non-zero non-base schedule internal dispatches are being received).</td>
<td>MES/RTMO</td>
</tr>
<tr>
<td>9:45</td>
<td>If the disruption is for multiple days, coordinate with the Master File team to update the EIM Entity participation flag.</td>
<td>MES/MCI</td>
</tr>
<tr>
<td>9:52</td>
<td>Lock ETSR’s for XXXX before next RTD run (This is to account the ramping).</td>
<td>RTMO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>EIM Market Interruption End Time = 14:00</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45</td>
<td>Verify the flex ramp requirements for flex ramp are non-zero after XXXX comes back to market.</td>
<td>MES</td>
</tr>
<tr>
<td>11:45</td>
<td>Verify that XXXX start submitting economic bids.</td>
<td>PSTD/CSS</td>
</tr>
<tr>
<td>11:45</td>
<td>Verify that we got the economic bids and Flex ramp for XXXX to the market.</td>
<td>MES</td>
</tr>
<tr>
<td>13:23</td>
<td>RTMO coordinate with XXXX to unlock ETSR’s. Unlock in increments to prevent issues.</td>
<td>RTMO</td>
</tr>
<tr>
<td>13:23</td>
<td>Enforce all Nomogram, flowgates and contingencies for XXXX in all schemas.</td>
<td>MES</td>
</tr>
<tr>
<td>13:37</td>
<td>Verify with RTMO that RTD, RTPD, STUC and RTBS are successful and no other issues.</td>
<td>MES</td>
</tr>
</tbody>
</table>

*This document is controlled when viewed electronically. When downloaded or printed, this document becomes UNCONTROLLED.*

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### 3.3.2 Scenario 3-B: Unplanned Market Isolation Event

Real-time events are unplanned and are requested by the EIM Operator in real-time. Planned outages should not result in unplanned real-time events as a result of insufficient notification.

**Tariff reference:** 7.7.6, 7.7.7.

**BPM reference:**

**Pricing:** Admin Pricing

**RTMO Tools:**
- Everbridge messaging
- Market Software

**EIM Tools:**
- PCI
- Market Software
- EMS

**Possible Communication Types:**
- Phone call between RTMO and EIM entities
- IT Bridges
- Everbridge messaging

### EIM Entity Balancing Authority

After an immediate and severe event in normal operations as a result of either system conditions, technology failure, resource (people) shortage, facility unavailability or other such severe event:

1. **Assess** if the EIM entity can:
   - **Follow** market dispatches, startups/shutdowns and configuration transitions, and
   - **Support** ETSR Imports and Exports

2. If locking ETSR’s alone allows the EIM entity to continue following market dispatches:
   - **Coordinate** with the RTMO locking ETSR’s to avoid a Market Disruption

3. Else
   - **Consider** any other reasonable, manual workarounds that are available to avoid a Market Disruption
**EIM Entity Balancing Authority**

4. Upon confirmation no other solution is available, a Market Isolation must be requested:
   - **Call** the RTMO and **request** a Market Disruption

   **Note:** A Market Disruption must be coordinated with the RTMO and cannot be declared by the EIM entity unilaterally.

5. Upon direction from the RTMO,
   - **Stop** submitting bids as soon as possible.
   - **Disable** any auto-bid submittal process, if applicable.
   - **Continue** all Base Schedule submittals for bilaterally-contracted energy across all Base and/or Dynamic ETSR’s.
     - EIM entities should have defined procedures to continue such submittals directly via BSAP or backup API-interfaces in the event of any disruption to their primary 3rd-party submittal software.

6. Upon the Start time and during the Market Isolation,
   - Market dispatches for base schedules will still be sent.
   - LMPs will still be calculated for the affected BA, but will NOT be used to settle Uninstructed Imbalance Energy.

7. Additionally, the EIM Operator must **Communicate** to their upper management and Settlements teams when the real-time Market Disruption was declared so that an administrative price may be submitted for Settlement purposes.

---

**CAISO Real-Time Market Desk (RTMO)**

1. **Receives** a phone call from an EIM entity requesting EIM Market Isolation based upon the following criteria:

   Where an immediate disruption in normal operations as a result of either system conditions, technology failure, resource (people) shortage, facility unavailability or other such severe event resulted in where:

   The EIM entity cannot:
   - Follow market dispatches, startups/shutdowns and configuration transitions, and
   - Support ETSR Imports and Exports.

2. **Verifies** with the EIM entity that the requirements are met for a Market Isolation and that no other reasonable, manual workaround is acceptable.

3. **Acknowledges** the exact time that the Market Isolation is effective.

4. **Locks** ETSR’s in all markets (RTBS/STUC/RTPD/RTD) in a step-down, coordinated fashion with the EIM entity and all other adjacent and affected entities;

5. **Requests** the EIM entity to stop submitting bids.
CAISO Real-Time Market Desk (RTMO)

6. **Contact** MES and PSTD/CSS to immediately perform the isolation steps in real-time, equal to those described in detail for the planned isolation event including:
   - In coordination with RTMO and EIM Operator,
     - **Lock** all ETSRs if not already done so) for the affected EIM Entity BA (RTD, RTPD, and STUC).
   - **Remove** EIM Entity BA bids.
   - **Set** all EIM Entity BA Flexible ramping requirements to zero.
   - **Un-enforce** all transmission constraints in the affected EIM Entity BA.

7. **Notify** all EIM Entity BAA via Everbridge/MNS and/or phone.

   **Example message:**

   **Attention EIM Entity BAs:**
   Today mm-dd-yyyy at XX:XX PST XXX will be isolating from the CAISO Market due to a significant event. During XXX's market isolation - all ETSRs associated with XXX will be locked and base schedules across those same ETSRs will be zero. The RTMO will perform all ETSR locks associated with XXX. For the affected EIM entity and all adjacent EIM entities that share ETSR limit tagging responsibilities, please ensure your pre-hour tag MW values are equal to the Base Schedule values.

   The RTMO will keep all EIM entities posted on any status changes associated with the XXX isolation. Expect to see a similar communication on mm-dd-yyyy for XXX re-integrating into the CAISO market. Refer to Operating Procedure 2720, Scenario 3-B for more information.

8. **Monitor** the remaining EIM BAs to ensure that the market continues to function as expected.

9. **Log** the event details including:
   - Start time of the market disruption agreed upon and/or communicated to market participants via MNS and EverBridge.
   - Timings of any previous, advisory, no runs or ADS dispatches instructions to ignore.
   - EIM entity name(s)
   - Copies of all MNS messages
   - Any other pertinent information

   **Note:** It is very important for proper Settlement to clearly identify the exact start time of the market Isolation.
## CAISO Market Engineering Support (MES)

1. **Perform** the following as soon as possible:
   - **Set** all Flexible ramping requirements to zero.
   - **Remove** the impacted EIM entity bids.
   - **Un-enforce** all transmission constraints in the affected EIM Entity BA including:
     - Flowgates
     - Nomograms
     - Contingencies

Once the EIM Entity BA is no longer in a Market Isolation:

### CAISO Market Engineering Support (MES) / PSTD / CSS

1. **Allow** SIBR to accept all bids from the affected EIM Entity BA.
2. **Un-lock** ETSR for the Affected EIM Entity BA with the neighboring BA.
3. **Re-enforce** all transmission constraints in the affected BA back to pre-disruption condition.
4. **Ensure** BA Flexible ramping requirements are non-zero.

### CAISO Real-Time Market Desk (RTMO)

1. **Coordinate** with EIM Operator to unlock ETSR's in a managed fashion to avoid large ETSR swings.
2. **Notify** all EIM Entity BAA via Everbridge and/or phone.

   **Example message:**

   **Attention EIM Entity BAs:**
   
   *EIM Entity XXXX is no longer isolated from the EIM. Normal market operations have resumed.*

3. **Log** the event details including:
   - End time of the market disruption agreed upon and/or communicated to market participants via MNS and EverBridge
   - Timings of any previous, advisory, no runs or ADS dispatches instructions to ignore
   - EIM entity name(s)
   - Copies of all MNS messages
   - Any other pertinent information

   **Note:** *It is very important for proper Settlement to clearly identify the exact end time of the market Isolation.*
4. Supporting Information

Operationally Affected Parties

Shared with the Public.

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:

<table>
<thead>
<tr>
<th>Resource</th>
<th>Section/Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAISO Tariff</td>
<td>Section 29.7(j)</td>
</tr>
<tr>
<td>CAISO BPM</td>
<td>[BPM for Energy Imbalance Market] – Section 10.4.1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Version</th>
<th>Change</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Initiated new procedure</td>
<td>11/01/14</td>
</tr>
<tr>
<td>1.1</td>
<td>Added APS, NEVP and PSE as Operationally Affected Parties.</td>
<td>7/14/16</td>
</tr>
<tr>
<td>1.2</td>
<td>Updated roles/titles throughout. Minor formatting and grammar changes throughout.</td>
<td>9/23/16</td>
</tr>
<tr>
<td>2.0</td>
<td>Changes to Section 3.1, 3.2, 3.3, removal of 3.4, 3.5.; Section 2.1; updated roles and responsibilities.</td>
<td>5/01/17</td>
</tr>
<tr>
<td>2.1</td>
<td>Updated language in Section 3.3 (highlighted).</td>
<td>5/25/17</td>
</tr>
<tr>
<td>2.2</td>
<td>Added PGE (Portland General) to Operationally Affected Parties.</td>
<td>2/22/18</td>
</tr>
</tbody>
</table>
# Operating Procedure

**Procedure No.** 2720  
**Version No.** 4.3  
**Effective Date** 12/01/2021

## Market Disruption – EIM

### Distribution Restriction:

- None

<table>
<thead>
<tr>
<th>Version</th>
<th>Change</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>Added definitions of planned and unplanned market separations; Added steps on planned separation including notification to Client Services; Clarified that the same steps for a planned separation must be performed to a real-time unplanned event. Updated Distribution Restriction to “None” and updated Operationally Affected Parties as “Shared with the Public.” Minor format and grammar updates.</td>
<td>10/31/19</td>
</tr>
<tr>
<td>3.1</td>
<td>Section 3.3 Updates: Pulled &quot;Planned Event&quot; out of the task table for visibility. Updated ISO Client Services, Step 3. Added &quot;Unplanned Event&quot; and Task tables for EIM Entity Balancing Authority, ISO Real-Time Market Desk and ISO Market Engineering Support (MES). Added section and steps for a real-time Market Disruption Added note regarding MES confirmation. Minor updates to EIM Market Interruption Tables. Update to ISO Real-Time Market Desk, Step 2, Bullet 1. Minor format and grammar updates.</td>
<td>3/16/20</td>
</tr>
<tr>
<td>4.0</td>
<td>Periodic Review - Major Update: Updated with items developed in coordination with EIM Entities in the Market Disruption Workshop. Major rewrite to entire Section 3: Added detailed Scenarios to each Tier with the actions of the RTMO and options of the EIM Operator. Added Tariff/BPM, Pricing, RTMO/EIM Tools and Communication Types details (Highlighted only section headings). Updated ISO References to CAISO. Minor format and grammar updates.</td>
<td>1/06/21</td>
</tr>
<tr>
<td>4.1</td>
<td>Purpose Section: Corrected typo. Section 3.1.3, Actions During Event, EIM Entity Balancing Authority, Step 1, bullet 2: updated from expectedly to unexpectedly. Section 3.3.1, EIM Entity Balancing Authority, Step 4: added bullet 3 and sub bullet. Section 3.3.2, EIM Entity Balancing Authority, Step 5: added bullet 3 and sub bullet. Section 5: Minor edit for consistency. Minor punctuation and format edits throughout.</td>
<td>4/22/21</td>
</tr>
<tr>
<td>4.2</td>
<td>Added manual actions to avoid postponing a patch in Scenario 1-C.</td>
<td>6/11/21</td>
</tr>
</tbody>
</table>

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5. Periodic Review Procedure

Review Criteria & Incorporation of Changes

There are no specific review criteria identified for this procedure, follow instructions in CAISO Operating Procedure 5510.

Frequency

Every three (3) Years.

Appendix

No references at this time.