HASP MARKET DISRUPTIONS

The ISO will take the following actions for HASP failure regardless of frequency.

Upon HASP failure, Market Interchange results default to DAM Market Interchange, Import TIE/Export TIE Awards. CAS continues to process Interchange (e-Tags) submitted by SC/PSEs for DAM awards. The ISO will continue to validate and approve such requests for interchange in real time; however, the CAISO may determine the balancing area is deficient in energy needed to balance demand as a result of the HASP Market failure, as no additional HASP tie bids or self-schedules are awarded when the HASP/RTM fails.

Additionally as a result of the HASP/RTM fail SC/PSEs adjustments to ETC rights as a result of changes to systems conditions would not be accounted for and in the event ETC rights have been derated etags and market reservations may be adjusted to ensure ETC rights are protected.

Upon failure of the HASP/RTM, the Real Time Generation Dispatcher takes the following actions to maintain load balancing requirements and reserve obligations as follows:

- **Real Time Generation Dispatcher**
    - Review needs for additional resources, load balancing requirements and reserve obligations.
    - **Notify support personnel of issue & communicate with market participants with a market message indicating general actions and response from market participants.**
    - Verify systems have reverted to IFM schedules and awards.
    - Review available dispatch and send instructions if dispatch will not reduce reliability.
        - If dispatch would hinder reliable operations, block dispatch instructions
        - Review MRTU Inc/Dec Tool with Real Time Scheduler to exceptionally dispatch ties establishing “best efforts” to identify, approve and implement any Interchange Schedules.
    - Evaluate internal resource needs and exceptional dispatch as required. Use exceptional dispatch for internal resources or RMR if a unit is needed for RTPD for commitment (startup or shutdown).
        - Consider if transmission events may require model update and use EMS manual event trigger every 15 minutes to ensure topology up-dates for RTD interval dispatches.
    - Identify reserve obligation requirements and commit as needed; log event in SLIC.

HASP MARKET DISRUPTIONS

Upon failure of the HASP/RTM, the Real Time Scheduler takes the following actions to process pending self-scheduled interchange tags and to implement requests for Interchange on the ties as follows:

- **Real Time Scheduler**
    - Utilize MRTU Inc/Dec for inter-tie resources that utilizes submitted bids to SIBR to produce Merit Order Dispatching Bids
        - Proceed to use "best efforts" to identify, approve and implement any Interchange Schedules (e-Tags) in CAS, submitted by SC/PSEs in anticipation of a HASP/RTM Self-Schedule or PSEs energy needed to balance demand. Scheduled award, including ETC, TOR and Market Self-Schedules. SC/PSE's may have already submitted e-Tags for these HASP/RTM Self-Scheduled Imports or Exports, in anticipation of a HASP/RTM Market award, as a price taker. **See Operating Procedure S-304 "Manual Dispatch and Interchange Scheduling of Real Time Energy"**
    - Verbally communicate with participant to address inter-tie energy requests based upon available market data (MRTU Inc/Dec Stack)
        - If needed for grid reliability, RT Scheduler next proceeds to implement Exceptional Dispatch on the ties to secure additional tie energy needed to balance Balancing Authority demand, as a result of the HASP failure. **See Operating Procedure S-318 "Exceptional Dispatch Transactions on the Interties"**
    - Enter exceptional dispatch instructions into CAS for energy procured or arranged verbally, adjust market reservations according to CAS tags and requested energy.
    - Enter exceptional dispatch instructions into CAS & SLIC for energy procured or arranged verbally.

The following actions are taken by ISO personnel to maintain system reliability and or stable operations:

- **Monitor STUC run for potential failure.**
    - Escalate issue with support personnel if STUC failure occurs.
- **Identify, trouble shoot and resolve**
    - If a specific resource is identified as the reason for MPM failure, set resource to non-participating for next interval.
    - If a specific constraint is identified as the reason, relax and monitor the constraint in real time, employ exceptional dispatch as needed, and consider setting resource to non-participating for next interval.
    - Log event in SLIC and coordinate with support personnel to restore system to normal.

- Verbally communicate with participant to address inter-tie energy requests based upon available market data. Communicate with participant about use of prior HASP or advisory pre-dispatch instruction with associated time.
- **If needed for Grid Reliability, RT Scheduler & Generation Dispatchers next proceeds to implement a Request for Emergency Assistance from adjacent Balancing Authorities (BAAS), on the ties to secure additional energy needed to balance Balancing Authority demand, as a result of the HASP failure. See Operating Procedure E-505 "Emergency Assistance"**
- Log event in SLIC and coordinate with support personnel to restore system to normal.

The following actions represent general operations and anticipated actions a market participant should accomplish as part of their interactions with the ISO and their business practices:

- **Market Participants**
    - Review Market Messages for Impacts and General Instructions
        - Verify ETC rights and tags are with in ETC rights
    - Evaluate impacts and differences between IFM (Day Ahead awards and schedules) and anticipated schedules and awards that are tagged which would have resulted if HASP did not fail.
        - Self Schedules and Price taker obligations, verify and ensure obligations are tagged and with in ETC rights
        - Tag or adjust tags for self scheduled energy or price taker quantities appropriately
    - Respond and confirm verbal exceptional dispatch instructions from Real Time Scheduler.
        - Tag energy and provide energy request from Real Time Scheduler. **See Operating Procedure S-304 "Manual Dispatch and Interchange Scheduling of Real Time Energy"**
        - Report any deviations or changes to schedules directly to RT Scheduler for those transactions that require adjustments to IFM (Day Ahead Awards or Schedules) or Self Schedules that would to SC/PSE's may have already submitted e-Tags for these HASP/RTM Self-Scheduled Imports or Exports, in anticipation of a HASP/RTM Market award, as a price taker.
    - **All binding start-up and shut-down instructions issued by the latest successful RTUC remain in force. Furthermore, any advisory start-up instructions in the second interval of the latest successful RTUC will become binding and sent through ADS when that interval becomes binding. All other advisory start-up and shut-down instructions will be coordinated by real time operations**

- Continue to follow RTD interval dispatch instructions.
- Note Interchange RPMS instruction during 5 min interval are the result of IFM schedules or available market data prior to the HASP failure; the instructions are for information only.
- Approved tags and verbally dispatched or requested energy will be ramped at the standard WECC standard ramp for 20 Minutes unless requested, required or confirmed by the Real Time Scheduler.

- **Review Market Messages for Updates and anticipated resolution**
  - If needed for Grid Reliability, the ISO requests for Emergency Assistance from adjacent Balancing Authorities (BAAS), on the ties to secure additional energy needed to balance Balancing Authority demand, as a result of the HASP failure.
    - Contact RT Scheduler with any additional energy available that was bid into the market.
    - Contact RT Scheduler to address any Out of Market energy available for ISO Balancing Area & Generation Dispatchers next proceeds to implement a **See Operating Procedure E-505 "Emergency Assistance"**

The following information has been provided as a general high level view of internal operations and implications for the failure of HASP. For detail information contact your client representative and settlement analyst for clarification and implications:

- **After-the-Fact Perspective**
  - **MQS T+1 post market process will do the following**
    - Detection of a failed RTUC run assumes if there is no RTUC 4 records for energy for the trade hour and all hourly pre dispatch (HPD) resources, then there is a HASP failure;
    - For a failed RTUC run, the MQS solution for the failed HASP run will copy all the DA results into the next binding hour for all pre dispatch (HDP) resources, not the given interval as that interval has records from the HASP run in the previous hour.
    - Note, also, that a HASP run usually means a failed RTPD run. In THIS case all the A/S is copied from the DAM into the exact interval.
  - **HASP Inter-Tie Handling**
    - All inter-tie schedules and AS imports will fall back to DA amount. This is also consistent with the NERC rules.
    - Generate the HASP schedules and LMP prices (including the three components) for energy by copying over the DA results into the HASP results for inter-tie resources and that particular HASP hour;

- Copy over the DA Pnode/Apnode LMP prices (including the three components) into the 15-minute interval for all Pnodes/Apnodes for that particular interval;
- Any supporting data that MQS has to copy to support the appropriate EE/EEA/Commitment calculation. In that case, the ISO will copy the corresponding results from the DA tables.
- MQS will then publish the results to all down-stream systems. So we will have the RTPD and HASP results at T+1 for that trade interval or hour.
- All real-time energy beyond DA will be eventually treated as Operational Adjustment Tier 2 in SaMc and this settled as the RT LMP prices.
- Interchange energy beyond DA may be settled based upon Tariff authority to set an Administrative Price based upon the last successful HASP price.

- **SIBR Rules for Inter-SC Trades for HASP failure**
  - HASP awards not being available at xx:15, SIBR application will continue to broadcast final trade to SaMc in the exact same manner as it is in a normal run. This is to avoid an impact to SaMc.