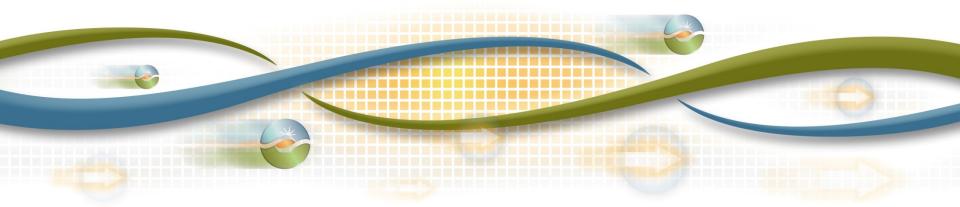


External Resource Participation in EIM

Mark Rothleder VP, Market Quality and Renewable Integration

EIM Governing Body Meeting General Session August 30, 2016



EIM improves reliability across the West by accurately modeling physical flows every 15- and 5-minutes

Resource Specific Modeling

Accurate modeling of Source resource and Sinks

- EIM demand
- EIM Internal resources
- Pseudo-ties
- Import dynamic schedules

Von-Resource Specific Modeling

Less accurate modeling of Source resource and/or Sink load

- Static 15-minute intertie
- Export dynamic schedules

What is intertie bidding in the CAISO real-time market?

- Economic clearing of intertie transactions through the ISO's market
- Hour ahead scheduling process determines MW quantity of hourly block transactions
 - Market results publish at T-52.5 (final base schedules due T-40)
 - Hourly schedules prices based on 15-minute market prices
- 15-minute import/export schedules and prices economically determined based on submitted bids
- Differences between 15-minute dispatch and ISO hourly day-ahead schedule or EIM base schedule are settled at the 15 minute prices
- ISO, EIM entity real-time energy imbalance and dynamic schedules dispatches settled at 5-minute prices



Stakeholders must come to common understanding on distinction between ...

- Intertie bidding IN CAISO
- External EIM resource participation

EIM should be compatible with the bilateral market, it does not conflict or replace bilateral market



Issues with extending current state ISO 15-minute economic intertie bidding to EIM

- Policy and compensation consideration needed regarding transmission required to facilitate EIM participation for external resources
- EIM intertie bids less accurately model impacts on flow than resource specific model that may have negative impact on system operations
- Intertie bids currently not subject to market power mitigation, but mitigation and default energy bids required for EIM
- Metering, GHG accounting, responsiveness monitoring and control in EIM based on physical resources



EIM external resource participation key principles

- A framework solely for voluntary EIM participation by resources located outside of EIM Entities
- BA and TSPs will retain existing roles, including physical dispatch of units, serving load, and balancing their footprint
- Compatible with bilateral trades
- Must address transmission required to facilitate EIM participation for external resources
- Physical resource and location bidding enables accurate modeling of MW flows and EIM congestion management
- Physical resource characteristics required for feasible dispatch and accurate flexibility assessment



EIM external resource participation key principles cont.

- Comparability to EIM participating resources
 - 15 min scheduling and 5 min dispatching comparable to EIM participating resource
 - Subject to EIM market power mitigation and resource sufficiency tests, similar to EIM Participating Resources
 - Interface, data exchange, settlements and metering requirements
- Respects existing operational and commercial agreements with non-EIM BAA(s) (for example BPA rate-of-change constraints)
- Avoid undue operational risks, administrative burden and implementation costs on source Proxy non-EIM BAA and sink EIM BAA(s) to which it interconnects

