



Day-Ahead Market Enhancements discussion

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Market Surveillance Committee Meeting
General Session
November 19, 2021

Purpose of discussion

- Some stakeholders assert ISO has not sufficiently justified the need for imbalance reserves or estimated its market impacts
- Rather than getting into DAME design details, want to refresh discussion about the benefits and quantifying them
- ISO performing related analyses to quantify or substantiate impacts
 - Estimating imbalance reserve requirement
 - Imbalance trends
 - Comparison of historical RUC adjustments to estimated imbalance reserve requirement
 - Estimating incremental cost of imbalance reserves
 - Incidence of RUC commitments/schedules across resource types and load serving entities

In the present CAISO IFM, imbalance reserves would provide benefits over out-of-market actions to account for net load uncertainty and ramping needs (1 of 2)

- Co-optimizing flexible reserves with energy in IFM rather than sequentially in RUC would lead to:
 - More optimal unit commitment decisions
 - More optimal allocation of system ramping capability
- Imbalance reserves better ensure system has sufficient ramping capability because
 - RUC schedules meet energy needs not changes in energy needs
 - RUC may not provide additional ramp if it schedules on committed units
- Scheduling imbalance reserves in the IFM better ensure IFM export schedules are feasible
- Deliverability of imbalance reserves is more sophisticated than the use of load adjustments in RUC. Achieving this performance in RUC would require redesigning RUC

In the present CAISO IFM, imbalance reserves would provide benefits over out-of-market actions to account for net load uncertainty and ramping needs (2 of 2)

- Would allocate flexible reserves based on costs represented by imbalance reserve bids rather than \$0 RUC availability
 - Properly compensates resources for their variable availability costs
 - Costs of procurement/scheduling of natural gas, setting up a hydro system, demand response availability
 - Market software considers these costs in making awards and unit commitment decisions, leading to more economic solutions
 - ISO market imbalance reserve payment should reduce the RA capacity revenue requirements of flexible resources that provide RUC capacity used to meet imbalance needs, lowering overall RA costs
 - Market pricing reveals system/local cost of flexibility that can inform short-term upgrades and long-term investments
 - Imbalance reserves will receive financially binding schedules in the IFM that will provide better performance incentives

Looking forward, imbalance reserves have an important role in EDAM

- Optimizes scheduling of reserve capacity across the EDAM footprint to meet net load uncertainty and real-time ramping needs
- Optimizes EDAM transfers and reserve capacity
 - IFM can consider needed reserves to efficiently schedule transfer quantities
- Consistent treatment of uncertainty improves reliability of EDAM transfers
 - Establish each BAA's resource sufficiency evaluation requirements