



Proposal for Price Performance Analysis

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Background

- Ongoing concerns expressed in different forums about price divergence and prices not reflecting system conditions
- More recent concerns about pricing arose during discussion in the intertie deviation settlements initiative
- The CAISO committed to start a more formal analysis effort with input from stakeholders and MSC.

CAISO Markets

Transmission-Right Markets

CRR allocation

CRR auction

Market Power Mitigation

Day Ahead Market

Integrated Forward Market

Reliability Unit Commitment

Real-Time (EIM) Market

Fifteen Minute Market

Real-Time Dispatch

Monthly, seasonal and TOU intervals

Congestion Revenue Rights (Obligations)

Hourly intervals

Energy

- a) physical
- b) virtual

Mileage

Capacity

- a) Reliability
- b) Ancillary services
 - Spinning
 - Non Spinning
 - Regulation

15- and 5-minute intervals

Energy

Flex Ramp

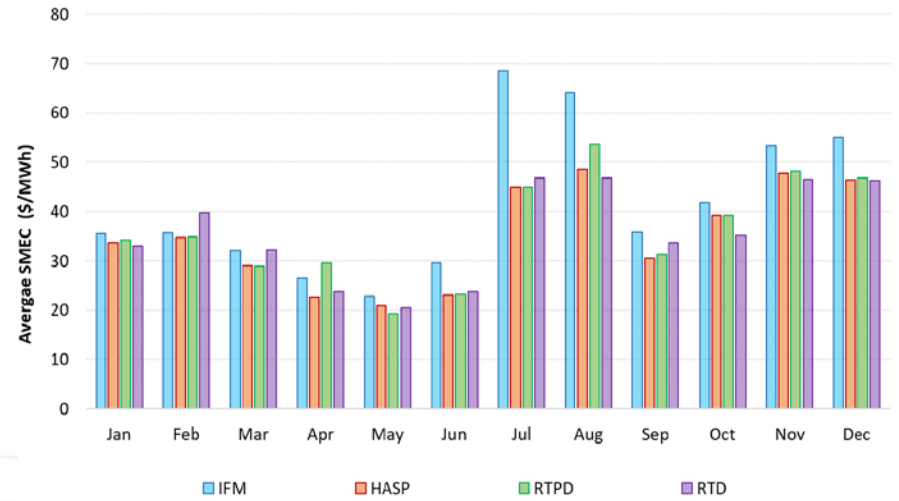
Mileage

Capacity

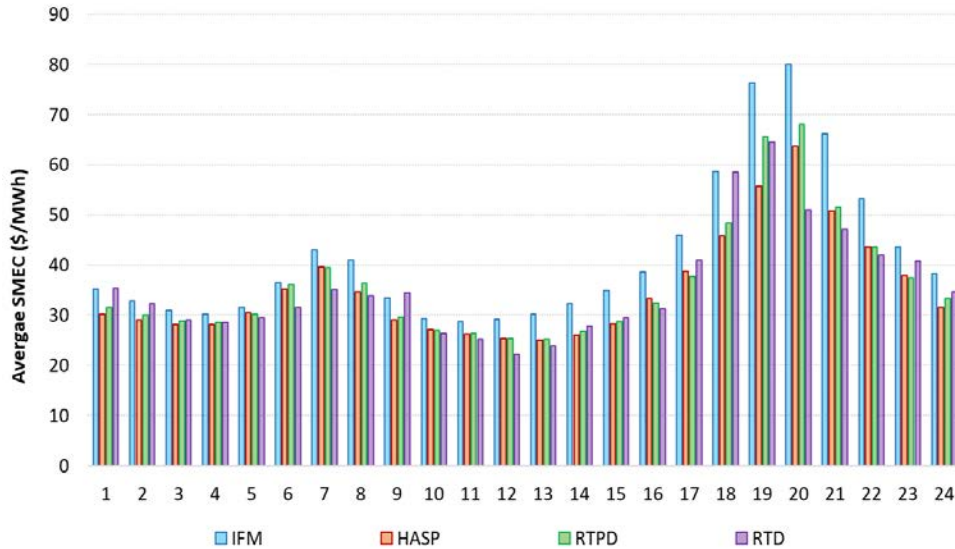
- Spinning
- Non Spinning
- Regulation

Price convergence across markets can serve as an indicator of price performance

Monthly simple average based on system energy price

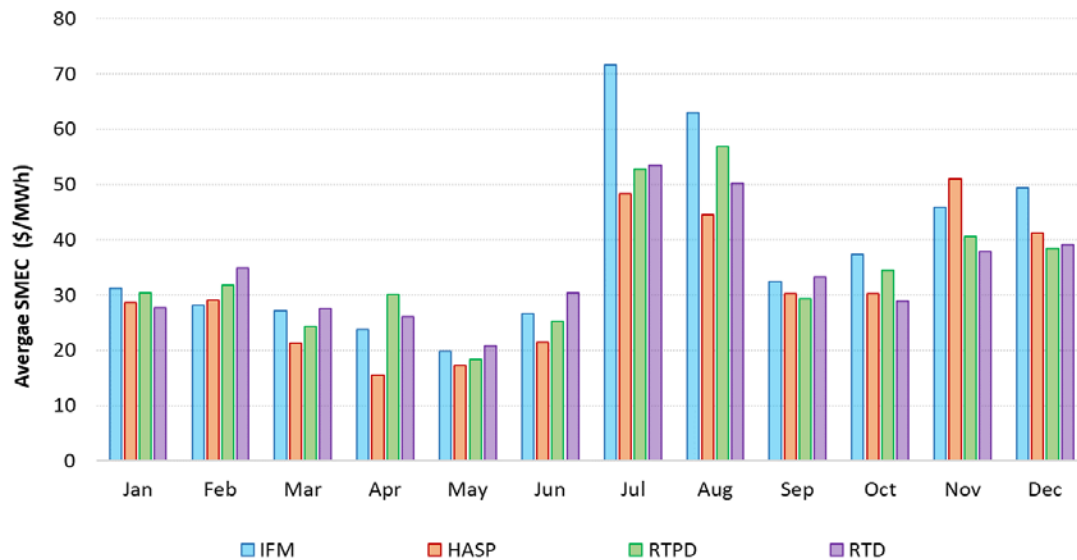
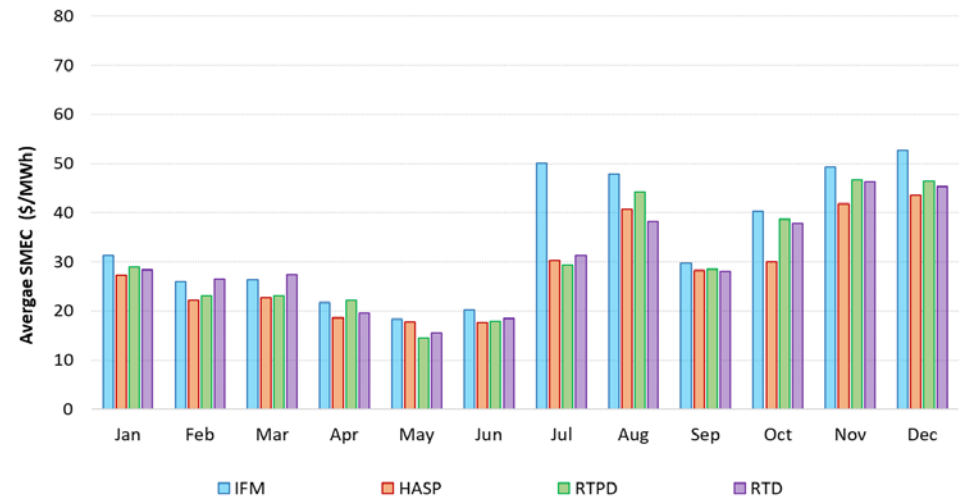


Hourly simple average based on system energy price



Analysis of price performance on interties needs to be more targeted

Malin Intertie



Paloverde Intertie

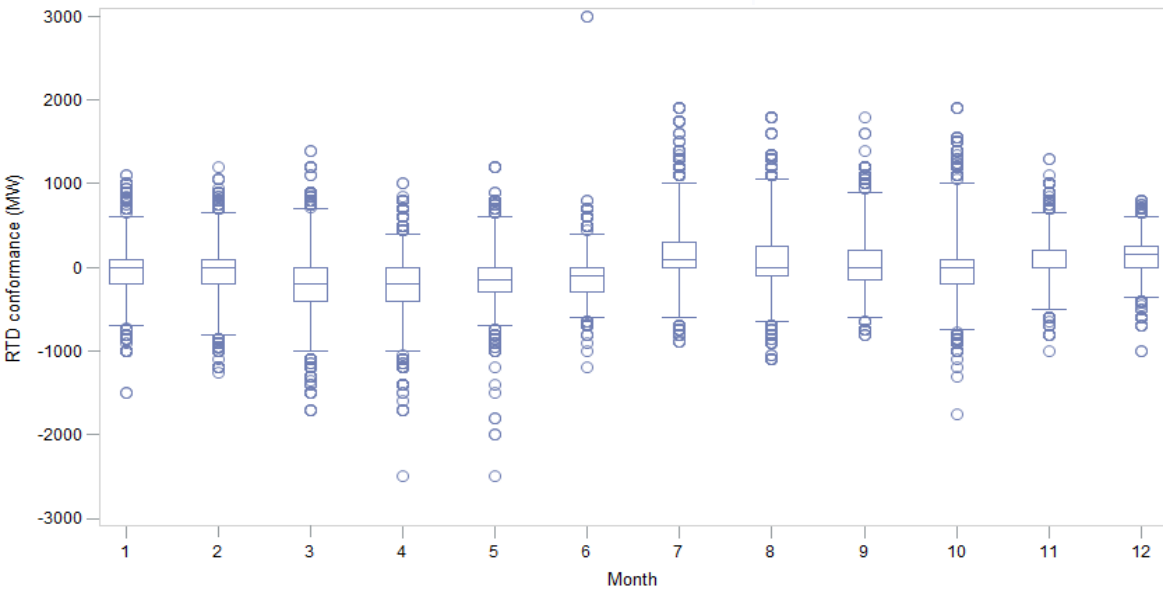
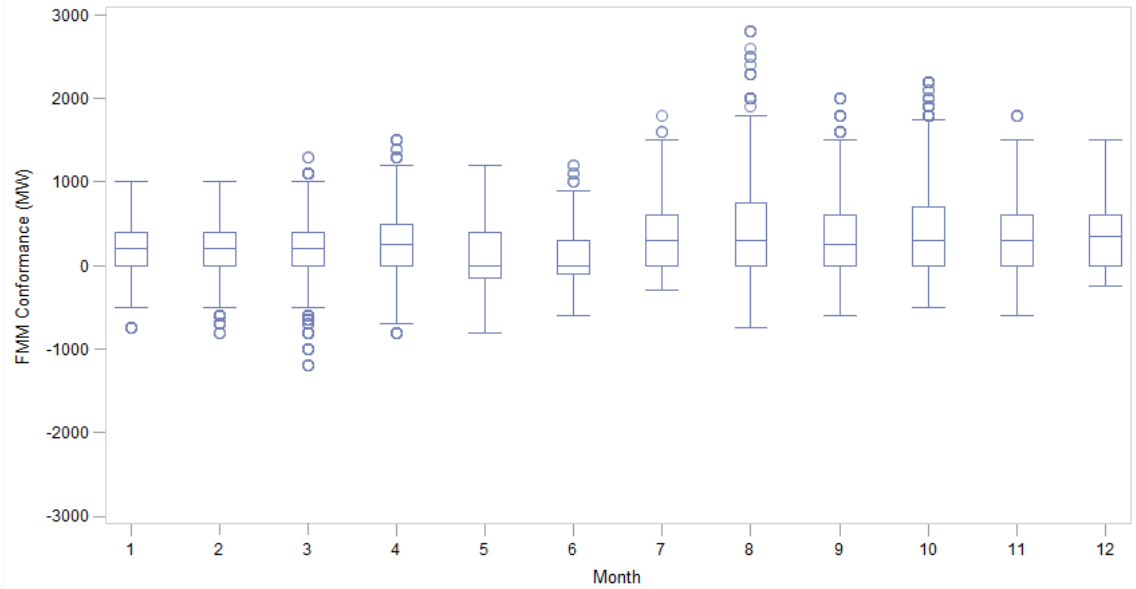
Basis for market clearing prices

- Both supply and demand are factors to set the market clearing prices
- The Demand side used to clear the markets includes
 - Load forecast (Bid-in demand in IFM)
 - Exports, pumps
 - Operators adjustments (not in IFM)
 - Convergence bids (only IFM)
 - System losses

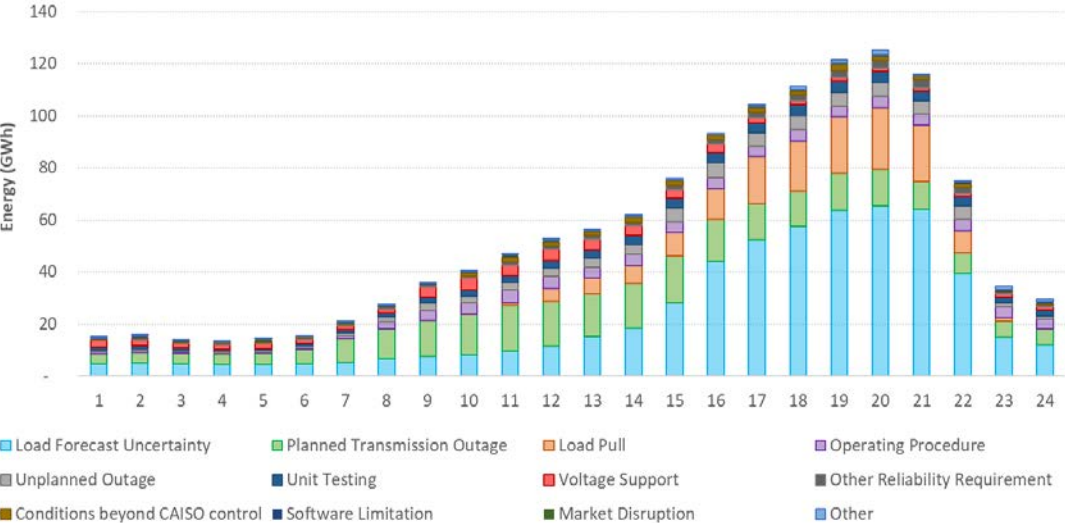
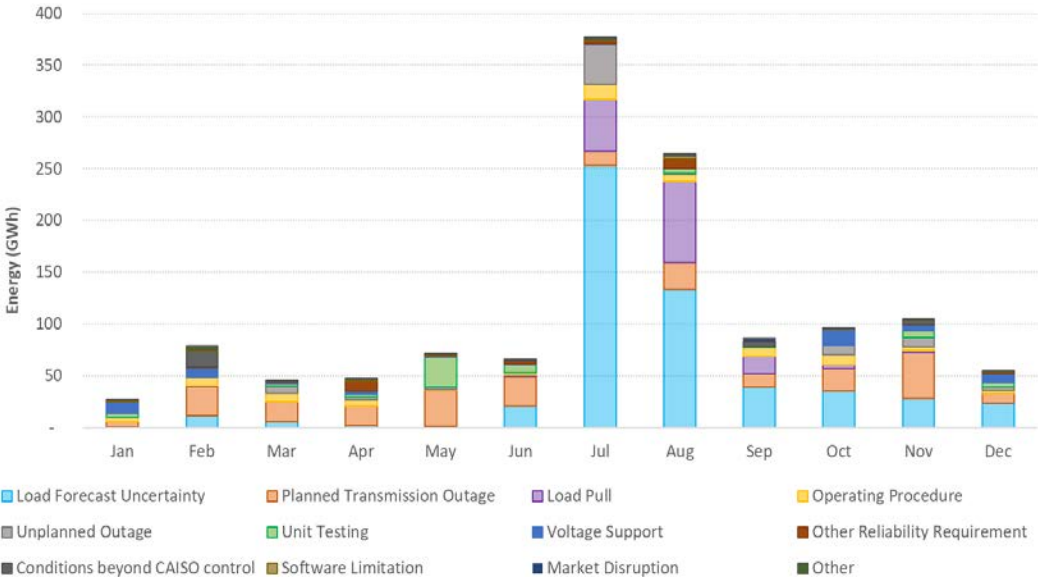
Operators may take actions to align the market with current and expected conditions

- Demand side
 - RUC net short
 - Load conformance imbalance
- Supply side
 - Exceptional Dispatches
 - Manual dispatch of interties
 - Blocking of instructions (commitments, transitions, ties, DOTs)

Load conformance increases/decreases market requirement cleared in the market



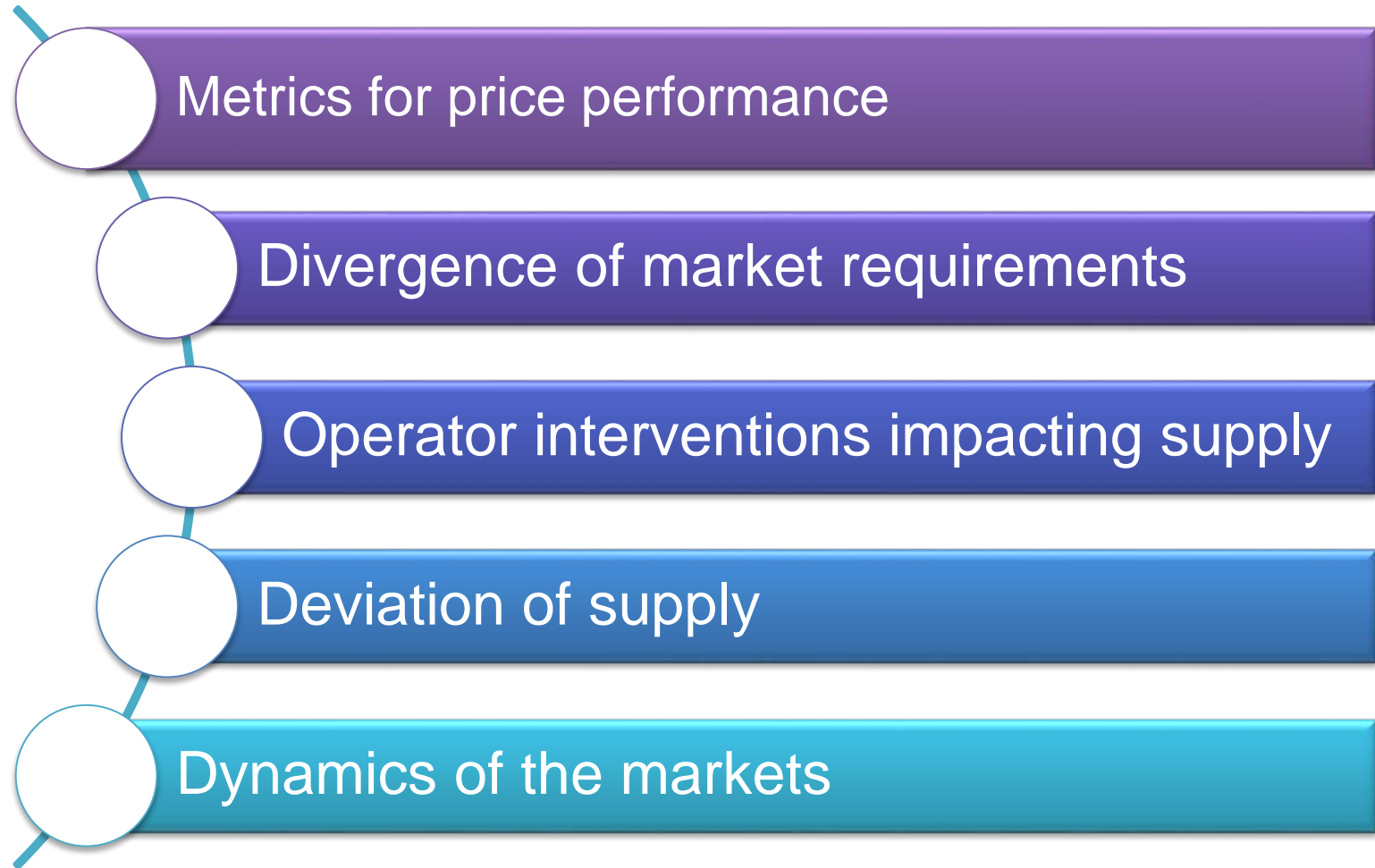
Exceptional dispatches and manual dispatch of interties add supply to the real-time market



Certain market dynamics and features can impact the supply available in the markets and create a vicious cycle of market interventions

- Variable Energy resources treatment and forecasting
- Resource deviations
 - internal resources
 - Interties
 - VERs
- Energy imbalance transfers
- Convergence bids
- Non-market changes
- Load forecast accuracy

Items proposed for analysis



Proposed timeline for stakeholder engagement and analysis

Task	Schedule
Draft proposal for analysis	Wednesday, April 3, 2019
Discussion at MSC meeting	Friday, April 5, 2019
Stakeholder call	Wednesday, April 10, 2019
Stakeholder comments	Thursday, April 18, 2019
Posting of first report	Thursday, June 14, 2019
Stakeholder call	Wednesday, June 19, 2019
Final report	Wednesday, July 31, 2019
Stakeholder call	Wednesday, August 7, 2019

Please submit comments to initiativecomments@caiso.com