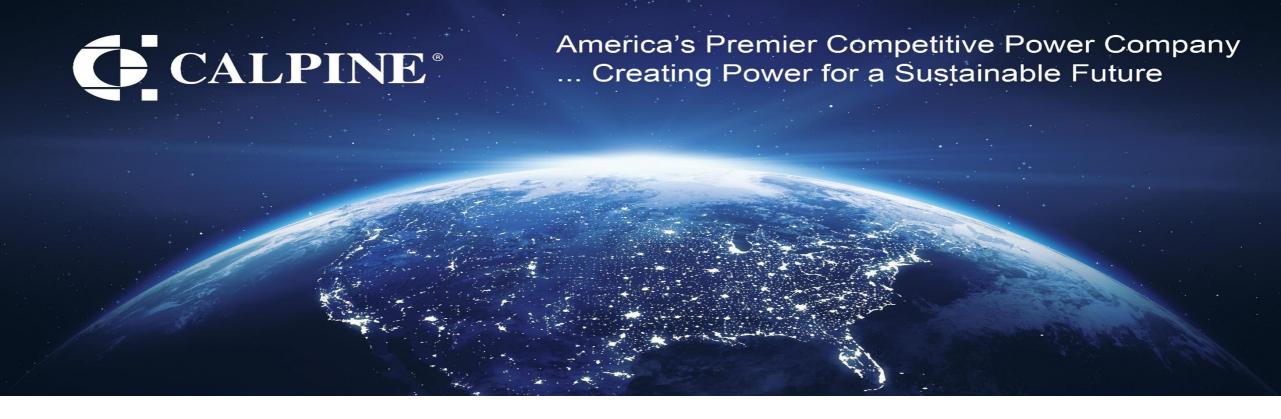


Price Formation Enhancements

Stakeholder Workshop June 9, 2022



Efficient Market Prices During Tight Supply Conditions

Scarcity Pricing Recommendations

6/9/2022

Efficient Market Prices During Tight Supply Conditions

- RT Prices During Shortages Lead to Inefficient Outcomes
 - Operator intervention
 - Unclear operational signals to storage
 - Incentives to under-schedule load in DA
 - Ineffective supply performance incentives
 - Muted participation of Demand Response
 - Discourage imports and support exports

Scarcity Pricing Background Discussion (caiso.com)

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Efficient Market Prices During Tight Supply Conditions

Proposed principles for RT Scarcity Pricing

- Consider a "soft-touch" to the optimization
- Allow prices to rise before shortage, but when operators would normally begin to act
- RT energy AND A/S prices should have a known potential to rise
- RT prices should drive storage operations, rather than out-of-market actions
- RT prices should encourage load to be bid DA
- RT prices should reflect demand curtailment
- RT prices should encourage availability of internal and import resources

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Initial Considerations and Recommendations

- Allow prices to rise as the CAISO approaches a reserve shortage (enhanced ORDC)
 - Current market design only allow prices to rise after a shortage occurs
- Price reserve shortages equal to the price of maintaining power balance
 - Current reserve pricing does not recognize that when reserves are short, the CAISO will curtail load to maintain minimum reserves.
- During compulsory demand curtailment, ensure system marginal energy price remains at the power balance constraint violation price
 - The current market sees the demand reduction and clears at a lower price not reflecting the value of lost load
- When DA market clears at or near the bid cap, allow the RT market penalty prices to rise higher than those used in the DA market
 - Current market sets DA and RT penalty prices the same
- Re-optimize and re-settle energy and ancillary services in real-time
 - Current market only procures incremental ancillary services in the FMM

Efficient Market Prices During Tight Supply Conditions: Scarcity Pricing Market Design

Issues and Recommendations

A collaborative effort by GDS Associates and Calpine

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Next Steps

- All related information for the Price Formation Enhancements initiative is available at: https://stakeholdercenter.caiso.com/StakeholderInitiatives/Price-formation-enhancements
- Post Issue Paper: 6/30





- The ISO is pleased to be hosting the Stakeholder Symposium in-person at the Safe Credit Union Convention Center in downtown Sacramento on Nov. 9 – 10, 2022
- Registration will be open in June
 - Public notice will be issued once the site is available
- Additional information is available on the Stakeholder Symposium page on ISO's website at:
 - http://www.caiso.com/informed/Pages/MeetingsEvents/StakeholderSymposium/ Default.aspx
- Please direct questions to <u>symposiumreg@caiso.com</u>

