



System Market Power Mitigation

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Market Design Policy

Draft Final Proposal
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New online stakeholder commenting tool coming soon

- Ability to view all comments with a single click.
- Ability to filter comments by question or by entity.
- Login, add your comments directly into the template and submit.
 - You can save and return to your entry anytime during the open comment period.

NOTE

Submitting comments in the new tool will require a one-time registration.

CAISO policy initiative stakeholder process



Agenda

Topic	Presenter
Welcome and stakeholder process	James Bishara
Background and design principles	Daniel Johnson
Stakeholder comments and changes to proposal	Daniel Johnson
Proposal	Danielle Tavel
EIM Classification and next steps	James Bishara

BACKGROUND & DESIGN PRINCIPLES

Background

- This initiative addresses the potential for suppliers in the CAISO balancing area to exercise system-level market power
 - System market power concerns recently arose based on internal analysis
 - This initiative is designed to initially address this concern in the real time market, assuring design changes can be implemented by summer 2021

STAKEHOLDER COMMENTS & CHANGES TO PROPOSAL

Made several changes to address stakeholder concerns that system market power mitigation would be triggered too frequently and could reduce prices below prevailing bilateral prices:

- Additional triggers for application of the three pivotal supplier test
 - Better reflect CAISO not have having access to external supply
- Execute only in HASP
- Modifications to competitive LMP calculation
- Modifications to the supply considered within the three pivotal supplier test
 - Only resources within the CAISO BAA considered potentially pivotal
- Clarification on bids eligible for mitigation

Revised Straw Proposal Stakeholder Comments

(1 of 5)

- Stakeholders expressed a concern regarding how EIM imports, bid in imports and affiliated non-CAISO BAA supply would be included as part of available supply in the three pivotal supplier test
 - The CAISO is proposing to only include supply from within the CAISO BAA

Revised Straw Proposal Stakeholder Comments

(2 of 5)

- Asked for additional information regarding how often the CAISO expects the three pivotal supplier test to fail
 - The CAISO is exploring how to perform this analysis
- Some stakeholders believe the CAISO should only test in HASP, while others believe the CAISO should test in FMM and HASP
 - The CAISO is proposing to test in HASP and mitigate HASP, FMM, and RTD
 - Bids for resources within the CAISO BAA also compete against hourly imports
 - Testing only in HASP avoids mitigation in FMM from introducing price differences between FMM and HASP

Revised Straw Proposal Stakeholder Comments

(3 of 5)

- Some stakeholders believe RA imports should be subject to system-level market power mitigation
 - Bilateral market in the western interconnection is competitive
 - Separate RA enhancements efforts are addressing RA import rules and bidding
- Stakeholders asked for additional information on potentially mitigating EIM entities within highest priced tier
 - This initiative is to address system market power concerns within the CAISO BAA
 - The CAISO is perusing more comprehensive EIM area system market power changes within the EDAM initiative

Revised Straw Proposal Stakeholder Comments

(4 of 5)

- Stakeholders asked that the CAISO consider an Conduct and Impact Framework
 - The current proposal is consistent with the CAISO local market power mitigation process allowing for timely implementation
 - The CAISO believes that applying the proposed triggers to the three pivotal supplier test will function similar to an impact test as they are designed to only be met when CAISO prices are above the prevailing western interconnection prices and a opportunity for the exercise of system market power exists

Revised Straw Proposal Stakeholder Comments

(5 of 5)

- Expressed concern regarding how SMPM will interact with scarcity pricing
 - CAISO recognizes stakeholder concerns and has added a scarcity pricing initiative to our stakeholder catalog

PROPOSAL

Summary

- Pivotal supplier test ensures trigger only when cut off from external supply:
 - CAISO in highest priced EIM region
 - CAISO prices greater than \$100/MWh and bilateral price index proxy peaker cost
- Competitive LMP will be calculated in a manner similar to the trigger thresholds to ensure prices are not mitigated below the competitive bilateral market
- Only supply within the CAISO BAA is considered potentially pivotal and only CAISO BAA resources are mitigated

PIVOTAL SUPPLIER TEST TRIGGER

Proposal includes several criteria to only trigger pivotal supplier test when there is a potential for system-level market power

- Trigger system-level pivotal supplier test when the CAISO BAA's marginal energy price is:
 - Greater than \$100/MWh
 - Greater than the highest day-ahead bilateral electrical trading hub index price plus 10 percent
 - Greater than a CAISO proxy cost calculation of a hypothetical gas-fired peaker based on current gas costs plus 10 percent
 - The highest marginal energy cost in the EIM

Mitigation test trigger criteria: When the CAISO BAA marginal energy cost is greater than \$100/MWh

- Intended to limit trigger system-level pivotal supplier test to when conditions indicate there is potentially market power
 - Potential for market power most likely only exists when supply is tight and corresponding prices are above \$100/MWh
 - Exertion of system market power would likely result in prices greater than \$100/MWh

Mitigation test trigger criteria: When the CAISO BAA marginal energy cost is greater than highest day-ahead bilateral trading hub index plus 10%

- Higher CAISO prices indicate the CAISO may be unable to access additional external supply, because one or more of the following conditions exist:
 - CAISO interties are at their scheduling limit
 - Market has exhausted available import bids
 - Insufficient external transmission to reach CAISO interties
- Representative bilateral electrical trading hub prices from Mid-C and Palo Verde will be shaped hourly multiplied by 110%
 - Shapes prices based on a recent day's hourly SMEC to average SMEC ratio
 - 10% adder accounts for differences in prices between published indices and individual transactions

Mitigation test trigger criteria: When the CAISO BAA marginal energy cost is greater than a CAISO proxy cost calculation of a hypothetical gas-fired peaker plus 10%

- Ensures mitigation is applied correctly if there is a sudden gas price increase after day-ahead electrical price indices are published
- Ensures mitigation is applied when gas peaker resources are the marginal resource
 - Captures when system is experiencing high loads and there is potential for suppliers to exercise market power during peak price periods
- Will use the highest gas price index for a gas price region defined in the EIM
 - Representative of highest priced supply available to be imported into the CAISO
 - 10% adder accounts for differences in prices between published indices and individual transactions

Mitigation test trigger criteria: When the CAISO BAA is in highest-priced region of EIM

- Limits application of SMPM process to intervals when the CAISO has limited access to additional EIM transfers

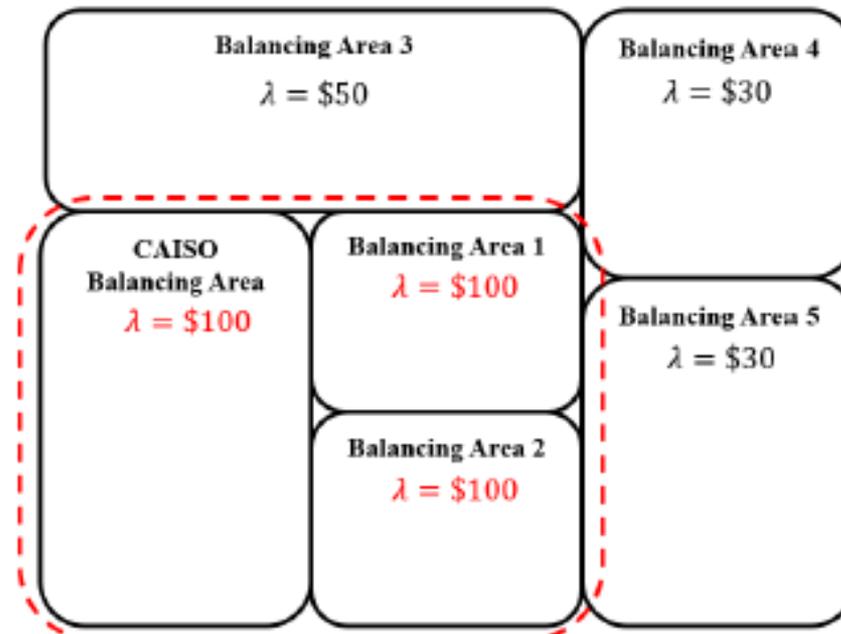


Figure 3: The CAISO's import constrained region in the EIM

Perform pivotal supplier test in hour-ahead scheduling process 15-minute intervals that meet criteria

- Testing in HASP considers full quantity of import supply available during the hour
 - Supplier incentive to exert market power is based on competition in HASP
 - Suppliers are unable to change bids after HASP is run
- Hourly imports are scheduled in HASP but are paid 15 minute prices
 - Avoids increasing frequency of suppliers potentially getting paid below their import bids
- Testing in FMM and RTD would address ramping market power, however that is not the objective of this initiative

ENERGY OFFER MITIGATION

Pivotal supplier test application

- Pivotal supplier test will only test supply within the CAISO BAA
- Non-pivotal supply includes:
 - Import offers submitted for the CAISO intertie scheduling points
 - Supply offers from EIM participating resources in other BAAs that are in a constrained region with the CAISO
 - Net EIM transfers into the constrained region in the EIM
 - Limited by intertie scheduling limits

Pivotal supplier test application

- Test two largest suppliers with every additional potentially jointly-pivotal supplier
 - Identifies all potentially pivotal suppliers that will fail the three pivotal supplier test
- Process should only mitigate offers from pivotal suppliers with an incentive to raise offer prices
 - Beneficial to first identify which suppliers could actually be pivotal at a system-level before mitigating resource offers

Pivotal supplier test application

- Proposal to adjust each suppliers pivotal supply quantities to account for their load-serving obligations
 - Suppliers that also have load-serving obligations do not have an incentive to exercise market power for the amount of supply needed to serve their load
 - Adjustment based on three month average of ratio supplier's hourly load to its daily average load
 - Scaled to CAISO real-time market demand forecast
 - Allows the mitigation process to recognize individual load-serving entities have different daily load patterns

Energy bid mitigation

- Mitigate energy offers for jointly-pivotal supplier resources within the CAISO BAA to greater of resource's DEB or system-level competitive LMP
 - No mitigation of import offers
 - Broader western bilateral market is presumed to be competitive
 - Imports compete for limited inertia capacity

Energy bid mitigation

- No mitigation for participating resources in adjoined EIM BAAs
 - Resources are likely non-pivotal supply
 - Objective of initiative is to address CAISO system level market power
- No mitigation of RA import offers
 - Import offers should already be competitively offered to the CAISO
 - Other initiatives focused on rule changes for RA import offers

COMPETITIVE LOCATIONAL MARGINAL PRICE (LMP)

Mitigate energy offers to higher of resource's DEB or system-level competitive LMP

- Using competitive LMP is consistent with CAISO existing market power mitigation process
- Competitive LMP used for system-level market power mitigation is intended to be at least as high as prevailing bilateral electrical prices in broader western interconnection
- Ensures system-level market power mitigation does not depress prices below those outside of the CAISO

Proposal to mitigate energy offers to higher of resource's DEB or system-level competitive LMP

- Competitive LMP based on max of:
 - \$100/MWh
 - Highest day-ahead bilateral electrical trading hub index price plus 10% shaped hourly
 - CAISO proxy cost calculation of the costs of a hypothetical gas-fired peaker based on current gas costs plus 10%
 - Next highest marginal energy cost in the same market interval of a balancing authority area in the EIM (the CAISO has the highest cost when mitigation is triggered)
- When other BAAs fail existing BAA system-level market power mitigation test
 - Market will continue to use the CAISO's system marginal energy price as the competitive LMP

EIM GOVERNING BODY CLASSIFICATION AND NEXT STEPS

EIM Governing Body to have an advisory role

- The proposal falls within the EIM Governing Body's advisory role
 - Proposed changes would not change any market rules that are EIM-specific
- Stakeholders are encouraged to submit a written response if they have concerns or questions

Proposed Initiative Schedule



Date	Milestone
6/15/20	Publish Draft Final Proposal
6/24/20	Stakeholder call
7/14/20	Stakeholder written comments due
June - July 2020	Development of Draft Business Rules Specifications and Draft Tariff Language
August 2020	Publish Final Proposal
August 2020	Stakeholder written comments due
September 2020	EIM Governing Body
September 2020	Board of Governor's meetings
Implementation	Prior to Summer 2021

Next Steps

- Please submit written stakeholder comments on today's discussion by end of day July 14 to:
InitiativeComments@caiso.com
- Comments template available on the initiative webpage at:
<http://www.caiso.com/StakeholderProcesses/System-market-power-mitigation>