

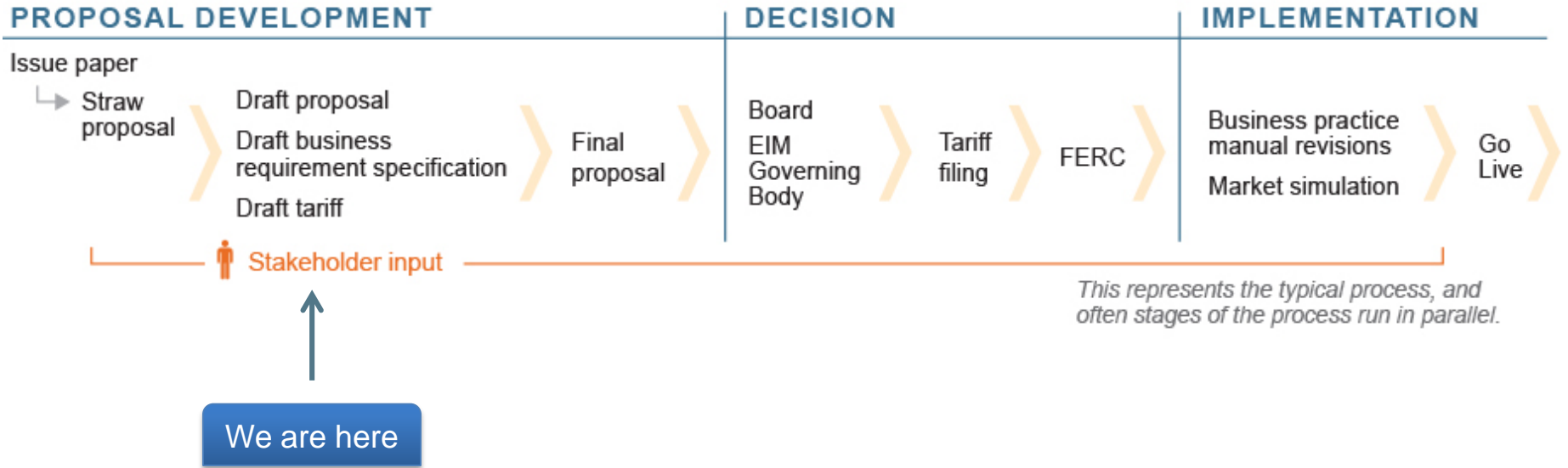


FERC Order 831- Import Bidding and Market Parameters

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Stakeholder Web Conference
July 29, 2020
9:00 a.m. – 12:00 p.m.

CAISO Policy Initiative Stakeholder Process



Agenda

- Introduction/Background
- Market Parameters
- Import Bidding
- EIM Classification
- Next Steps

INTRODUCTION/BACKGROUND

Background

- FERC Order 831 required ISO/RTOs make compliance filing to raise energy offer caps to \$2,000/MWh
 - Verify generator costs for bids above \$1,000/MWh before the market run to be eligible to set energy prices
 - Did not require verification rules for import or virtual bids above \$1,000/MWh
- ISO's compliance filing included a deferred implementation date to allow time to develop a verification methodology for import bids and penalty parameters to align with the \$2,000/MWh bid cap
 - The CAISO notified FERC it would extend the implementation to Fall 2021 to allow more time for policy development and implementation

This initiative addresses two topics related to the CAISO's compliance with FERC Order No. 831

1. Adjusting CAISO market constraint relaxation parameter prices “penalty prices” to align with the increased energy bid cap
2. Price screening methodology for import bids greater than \$1,000/MWh

MARKET PARAMETERS

Draft final proposal proposed to set market prices based on price of the highest-priced cleared bid for any amount of power balance constraint relaxation (infeasibility) when \$2,000/MWh power balance constraint penalty price is in place

- MSC was concerned about losing shortage pricing signal by setting prices based on the highest-priced cleared bid instead of \$2,000/MWh
- Many stakeholders have expressed concern throughout this initiative that small power balance constraint relaxations do not represent actual shortage conditions and consequently a \$2,000/MWh price is inappropriate
- Additional concern was raised that the proposed approach could have an anomalous outcome that prices could be set below \$1,000/MWh when power balance constraint penalty price is set at \$2,000/MWh

Consequently, the CAISO has revised its power balance constraint relaxation pricing approach for when the \$2,000/MWh power balance constraint is in place

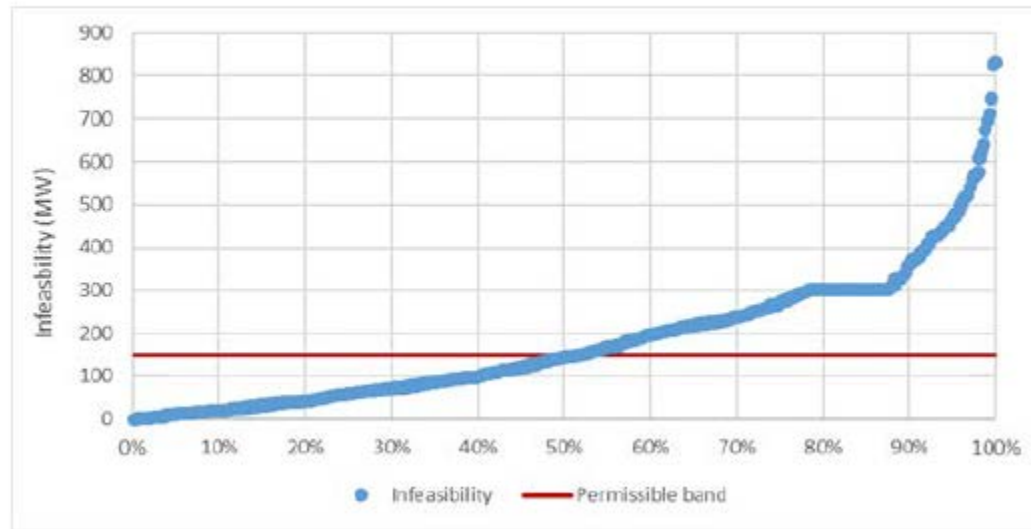
- Sets market prices based on the amount of shortfall in supply to meet demand when the power balance constraint is relaxed and cost-verified bids are greater than \$1,000/MWh
 - If infeasibility \leq threshold amount (i.e. 150 MW for CAISO BAA), prices would be set based on the highest-priced cleared bid, unless that bid is less than \$1,000/MWh
 - Else, if infeasibility $>$ threshold amount (i.e. 150 MW for CAISO BAA), prices would be set based on \$2,000/MWh

CAISO proposes threshold amounts for each BAA based on their operating practices

- Each BAA has an operating threshold for which supply and demand imbalances do not affect applicable reliability criteria and do not result in any action
- This threshold, i.e. “permissible band” is 150MW for the CAISO BAA
- Propose to set threshold amounts for the other BAAs in the EIM based on their specific documented operational practices
 - Based on good utility practice and not on economic or market considerations
- Proposal reflects logic that prices should not reflect small infeasibilities for which a BAA takes no action

CAISO 150 MW threshold amount accounts for about 50-55% of all observed infeasibilities

Figure 1: CAISO permissible band versus observed MW infeasibilities (July 2018-June 2020)



Examples

#1: Assume the following inputs in the real-time market:

- Highest-priced submitted bid from a resource-specific resource = \$1,200/MWh
- CAISO-calculated maximum import bid price = \$700/MWh
- CAISO permissible band = 150 MW

The power balance constraint penalty price would be set to \$2,000/MWh

- If there is a power balance constraint infeasibility:
 - If the scheduling run infeasibility ≤ 150 MW, energy prices would be set based on \$1,200/MWh
 - If the scheduling run infeasibility > 150 MW, energy prices would be set based on \$2,000/MWh

#2: Assume the following inputs in the real-time market:

- Highest-priced submitted bid from a resource-specific resource = \$900/MWh
- CAISO-calculated maximum import bid price = \$1,100/MWh
- CAISO permissible band = 150 MW

The power balance constraint penalty price would be set to \$2,000/MWh

- If there is a power balance constraint infeasibility:
 - If the scheduling run infeasibility ≤ 150 MW, energy prices would be set based on \$1,000/MWh
 - If the scheduling run infeasibility > 150 MW, energy prices would be set based on \$2,000/MWh

#3: Assume the following inputs in the real-time market:

- Highest-priced submitted bid from a resource-specific resource w/n EIM BAA= \$1,200/MWh
 - EIM BAA is import constrained
- EIM BAA's permissible band = 100 MW
- EIM BAA's available balancing capacity supply = 20 MW @ \$100/MWh

The power balance constraint penalty price would be set to \$2,000/MWh for all individual EIM BAAs and overall market

- If there is a power balance constraint infeasibility within the import constrained EIM BAA:
 - Highest-priced cleared economic bid = \$1,200/MWh
 - If the scheduling run infeasibility ≤ 120 MW, energy prices would be set based on \$1,200/MWh
 - If the scheduling run infeasibility > 120 MW, energy prices would be set based on \$2,000/MWh

IMPORT BID SCREENING

Stakeholders suggested modifications to the maximum import bid price calculation

- Rather than calculating two separate maximum import bid prices for the north and south interties, calculate one maximum import bid price
- Modify hourly shaping factor ratio calculation to use day-ahead SMEC from a more recent day than use historical SMEC
- The CAISO agreed with stakeholders and modified its proposal to reflect these changes

Energy Price =

Electric Hub Price x Hourly Shaping Factor

Where, Hourly Shaping Factor is:

$$1 + \left[\frac{(\text{CAISO Hourly DA SMEC} - \text{CAISO Average DA SMEC of on/off peak hrs})}{\text{CAISO Average DA SMEC of on/off peak hrs}} \right]$$

- Index price is determined by the maximum of Mid-Columbia and Palo Verde Trading Hub Price
 - Maximum import bid price is also applicable to virtual bids for which the north and south intertie concept is not relevant
- Use previous day's SMEC in each hour to shape prices
 - Has a smaller average margin of error compared to the previous proposal of day-ahead SMEC from the same month from the previous year
 - No longer publish calculated ratios in advance

Example of CAISO's calculation for the hourly shaping factor used in the day-ahead market for trade-date July 22, Hour-Ending 10

- The CAISO must use the day-ahead SMEC calculated on July 21 for July 22 because the day-ahead market results for July 22 haven't occurred yet

Hourly Shaping Factor =

$$1 + \left[\frac{(DA\ SMEC\ of\ July\ 21,2020\ HR\ 10) - (Avg\ DA\ SMEC\ of\ ON\ peak\ hrs\ of\ July\ 21,2020)}{Avg\ DA\ SMEC\ of\ ON\ peak\ hrs\ of\ July\ 21,2020} \right]$$

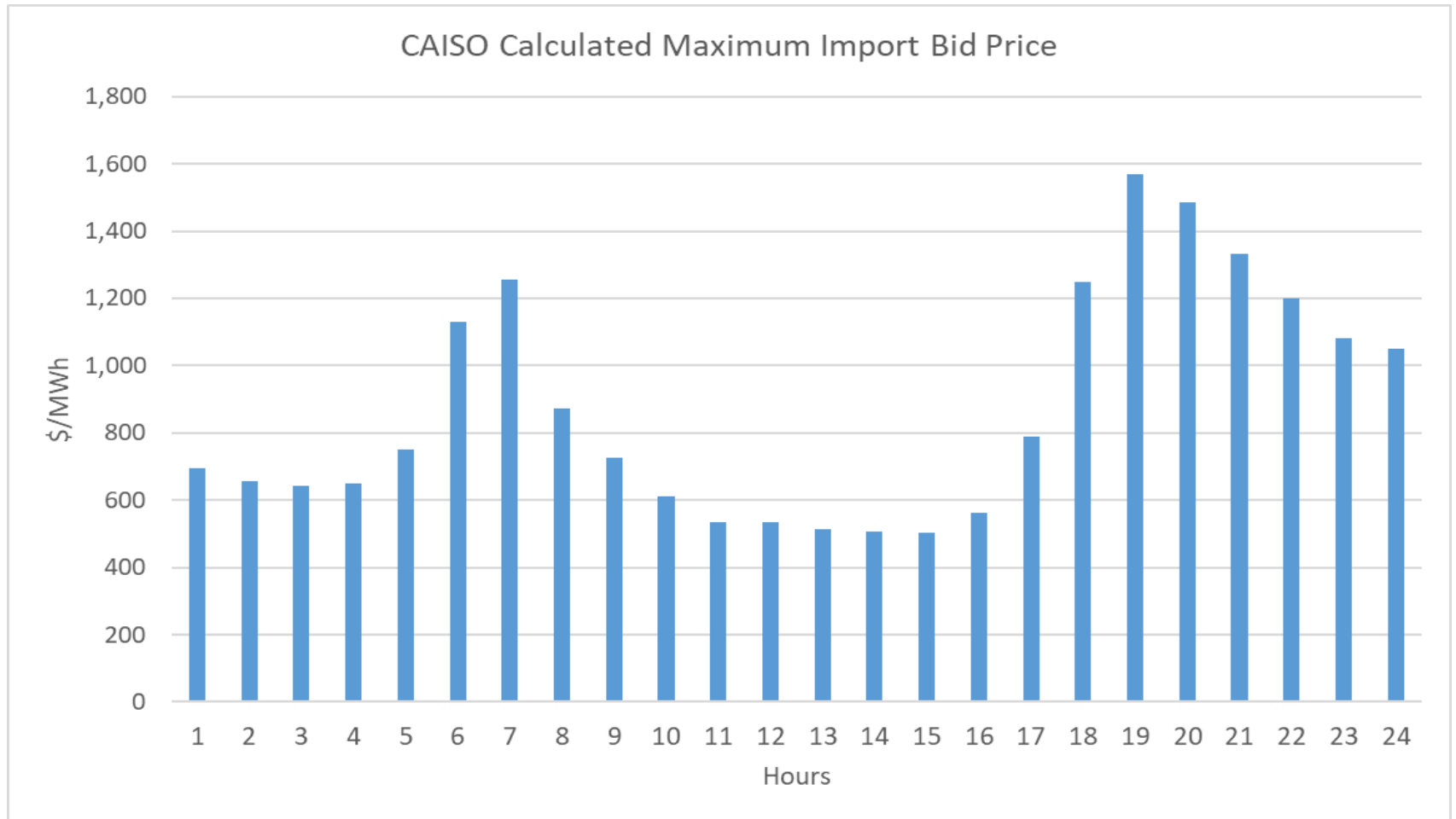
Example of CAISO's calculation for the hourly shaping factor used in the real-time market for trade-date July 22, Hour-Ending 10

- The CAISO may use the day-ahead SMEC of trade-date July 22 because the day-ahead market results for trade-date July 22 were published at 1 pm on July 21. The CAISO calculates real-time prices for trade-date July 22 at 9 pm on July 21

Hourly Shaping Factor =

$$1 + \left[\frac{(\text{DA SMEC of July 22,2020 HR 10}) - (\text{Avg DA SMEC of ON peak hrs of July 22,2020})}{\text{Avg DA SMEC of ON peak hrs of July 22,2020}} \right]$$

Illustration of hourly shaping factor



EIM GOVERNING BODY CLASSIFICATION AND NEXT STEPS

Some EIM entities objected to the CAISO's proposed classification for penalty prices in the draft final proposal

- They stated that if not for the EIM Entities, who filed the primary protest of the CAISO's initial compliance filing at FERC, CAISO would not have asked FERC for time to pursue this initiative
 - CAISO continues to maintain that EIM Governing Body Classification is not contingent on which entity or set of entities complained

EIM Governing Body Classification

- 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
7/22/20	Publish Draft Final Proposal
7/29/20	Stakeholder call
7/30/20	Market Surveillance Committee Meeting
8/12/20	Stakeholder written comments due
July – Aug 2020	Development of Draft Business Requirements Specifications and Draft Tariff Language
Sept 16, 2020	EIM Governing Body
Sept 30 – Oct 01, 2020	Board of Governor's meetings
Implementation	Fall 2021, concurrent with FERC 831 implementation