



California ISO

Price Formation Enhancements

Enhancing BAA-Level MPM: Pivotal Suppliers and Impact Thresholds


Policy Development Working Group

November 20, 2024

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- Please keep comments professional and respectful.
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- If you are connected to audio through your computer or used the “call me” option, select the raise hand icon  located on the bottom of your screen.
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- You may also send your question via chat to either **Brenda Marquez** or to all panelists.
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CAISO Policy Initiative Stakeholder Process



We are here

Workshop Agenda

Topic	Presenter	Time
Welcome and Introductions	Brenda Corona	10 minutes
Recap of Previous Working Group Meeting	James Friedrich	20 minutes
Mitigating Only Pivotal Suppliers	James Friedrich	60 minutes
Implementing an Impact Test	James Friedrich	60 minutes
Q&A and Open Discussion	All	30 minutes

Workshop Objectives

1

Evaluate concepts for mitigating only pivotal suppliers rather than all suppliers in uncompetitive BAAs


2

Consider implementation of an "impact test" component to the BAA-level MPM framework

3

Discuss and compare different threshold approaches for impact testing, drawing from other market examples

Timeline of BAA-Level MPM Discussion Topics

November 6, 2024 


Exploring the Grouping Approach

Consider how to define the groups and sequence the assessments; walk-through detailed examples of how a grouping approach would work.

November 20, 2024 

Other BAA-Level Mitigation Modifications

Discuss modifications to the BAA-level mitigation approach, such as only mitigating pivotal suppliers rather than all suppliers and an "impact test" to only mitigate offers with LMP impacts above a defined threshold.

March 5, 2025 


CAISO BAA Structural Competitiveness Analysis

Present analysis on the structural competitiveness of the CAISO BAA. Discuss if the CAISO BAA should be included in the BAA-level market power tests and treated like any other BAA, rather than assuming it is always competitive.

March 19, 2025 

Mitigation Frequency Analysis

Present analysis on how new BAA-level MPM approaches affect the frequency of mitigation compared to the current method.

May 14, 2025 

Straw Proposal

Publish and present Straw Proposal for Scarcity Pricing/MPM

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RECAP OF PREVIOUS WORKING GROUP MEETING

BAA-Level MPM: Grouping Approach Overview

Key Concepts

- Test BAAs as groups rather than individually when they share same marginal energy costs
- Groups expand based on direct transfer connections and price levels
- Competitive LMP for mitigation set by lowest MEC in passing group

Expected Benefits

- More accurate competitiveness assessment by considering broader supply
- Reduces unnecessary mitigation
- Better reflects actual market conditions and dynamics

Major questions raised

- **Q: When both BAA-level and local MPM apply, would there be one or two competitive LMP reference prices?**

A: When both BAA-level and local MPM apply, there is a single competitive LMP threshold for each resource that combines both elements:

- BAA Component: Uses the MEC of the next BAA group that passes the DCPA
- Transmission Component: Adds competitive contributions from transmission constraints based on resource-specific shift factors
- The final competitive LMP threshold = sum of all competitive components

~~For resources in the same BAA with no uncompetitive transmission constraints, the competitive LMP threshold will be identical. With uncompetitive transmission constraints, each resource gets a unique competitive LMP threshold based on its specific shift factors.~~ **The BAA component of the competitive LMP threshold is identical for all resources in the same BAA. However, each resource has a unique competitive LMP threshold based on the contribution of competitive congestion at its location.**

Major questions raised

- **Q: Why are transfers considered competitive supply?**

A: Transfers are considered competitive supply because there is assumed to be sufficient competition from multiple suppliers at interties. The assumption is that any supplier could provide that transfer quantity, making it "SC agnostic". Even if a transfer comes from an affiliate of a pivotal supplier, it's still considered competitive because there are typically multiple competing bids at interties that could substitute for that supply.

Major questions raised

- **Q: How do transfer capability limitations affect the grouping methodology?**

A: There's no need to explicitly consider the transfer limit in the RSI calculation because:

- If that limit is relevant to market power, it will bind and create price separation, and those BAAs would not be grouped together.
- If it doesn't create price separation, then it's not actually constraining competitive supply in a way that enables market power.

Major questions raised

- **Q: When a BAA is marked uncompetitive, can suppliers outside the BAA boundary be considered pivotal and mitigated?**

A: No, under BAA-level MPM, imports from outside the BAA group count as competitive supply (transfers or net imports from outside the market footprint).

Major questions raised

- **Q: Is it possible for the competitive LMP to be negative?**

A: Yes.

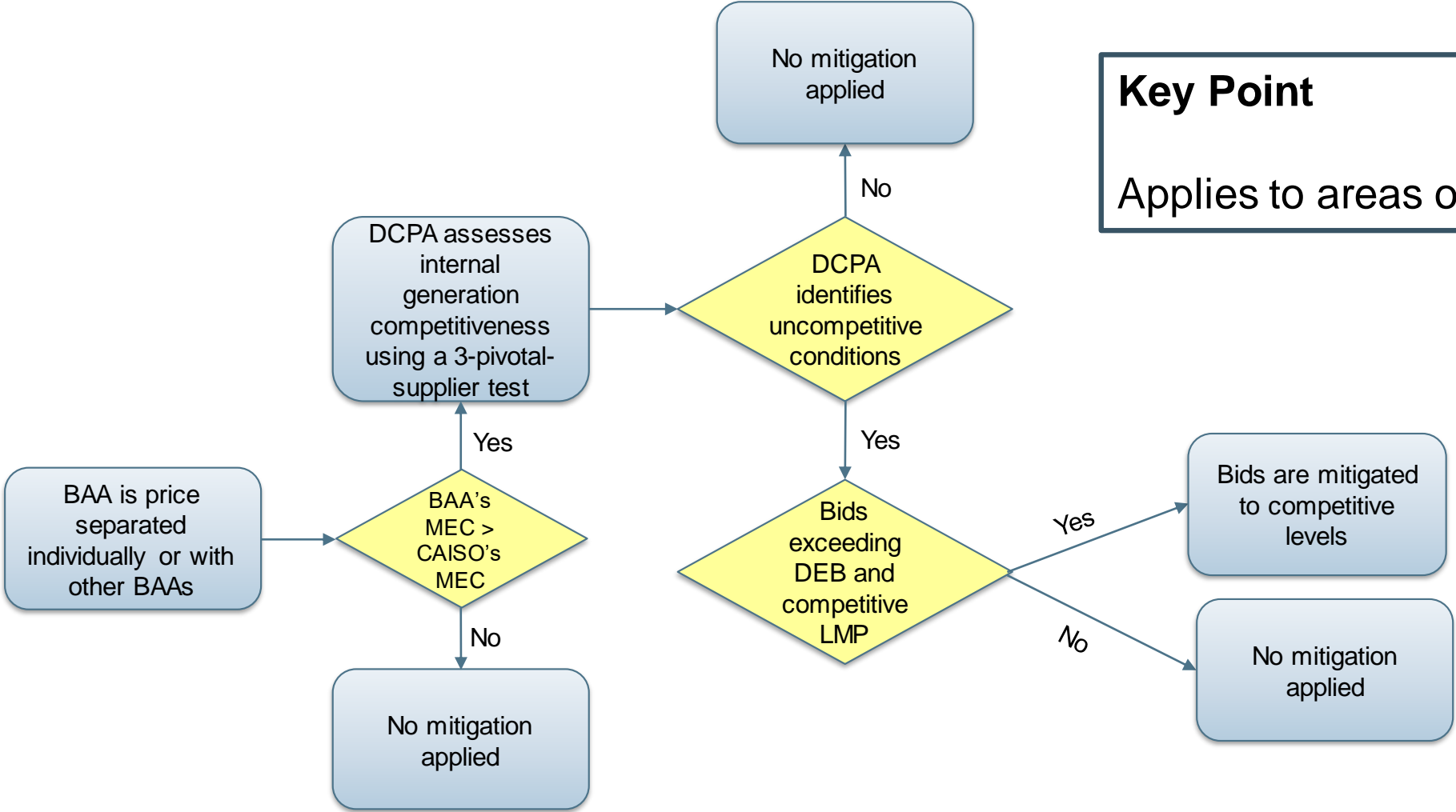
- **Questions about the mechanics of bid mitigation (segment-by-segment vs. entire bid curve)**

A: Mitigation is done segment by segment, not for the entire bid curve. Only segments above the competitive LMP are subject to mitigation. If multiple segments end up at the same mitigated price, they are combined into a single segment to maintain monotonically increasing bids.

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MITIGATING ONLY PIVOTAL SUPPLIERS

Dynamic Competitive Path Assessment (DCPA) Evaluates Competitive Conditions



Key Point
Applies to areas outside the CAISO BAA

Pivotal Suppliers

- A **pivotal supplier** is a market participant (or a group of affiliated participants acting as a single entity) whose actions can have a significant impact on market prices.
- **Potentially pivotal suppliers** mean the **three** portfolios of net sellers that control the largest quantity of counter-flow supply to an uncompetitive constraint.
- Each potentially pivotal supplier's influence is assessed based on their **portfolio**. This portfolio includes all the generation resources they control, whether directly owned or through affiliates, plus any virtual supply awards they hold.

DCPA Process Flow

- For each transmission constraint, the DCPA calculates:
 - **Supply of counter-flow:** The amount of energy that potentially pivotal suppliers can withhold from the counter-flow.
 - **Fringe supply of counter-flow:** The amount of energy that other market participants (not considered potentially pivotal) can provide as counter-flow.
 - **Demand for counter-flow:** The total demand for energy that relies on the counter-flow across the constraint.
- If the fringe supply of counter-flow is less than the demand for counter-flow, it indicates that the potentially pivotal suppliers, by withholding their supply, could significantly restrict the electricity flow and potentially impact prices.

Which suppliers are mitigated?

- All suppliers providing counter-flow to an uncompetitive constraint are subject to mitigation, not just pivotal suppliers.
 - In the context of BAA MPM, this means all suppliers in the BAA

Reasons Supporting Mitigation of Non-Pivotal Suppliers

- “Non-pivotal” status does not mean a supplier cannot exert market power. Pivotal suppliers are just the top three net seller portfolios; there may be non-pivotal suppliers who could be part of a pivotal group.
 - E.g., replace the 3rd largest supplier with the 4th largest supplier
- The presence of pivotal suppliers indicates market structure issues; it does not indicate which suppliers can exert market power.
- Could create gaming opportunities around pivotal/non-pivotal thresholds
- It’s possible that 4+ suppliers could tacitly or explicitly coordinate to influence prices
- Is a consistent, conservative, protective approach

Arguments Against Mitigating Non-Pivotal Suppliers

- Non-pivotal suppliers, by definition, cannot unilaterally influence market outcomes.
 - Small suppliers are price takers ($P = MC$)
 - Coordination becomes significantly more difficult with 3+ suppliers
- Mitigation of non-pivotal suppliers could be seen as overly restrictive market intervention
 - May suppress legitimate price signals for efficient market operations
 - Discourage efficient market entry/investment

Concept for Discussion

- Focus mitigation measures only on suppliers that form a **pivotal group**.
- Specifically, instead of automatically mitigating all suppliers or using a fixed number like the top three suppliers, the idea is to:
 - Replace the third-largest supplier with the **n**th largest supplier.
 - If the group comprising the largest, second-largest, and nth largest suppliers is pivotal (i.e., their combined capacity is essential to meet demand), mitigation applies to them.
 - Suppliers with portfolios smaller than the nth largest supplier who forms a non-pivotal group would **not** be mitigated.
- This approach aims to refine the identification of suppliers who genuinely have the potential to exercise market power and to avoid unnecessary mitigation of smaller suppliers.

Tradeoffs

Potential Benefits

- Better reflects actual ability to exercise market power
- Could promote more efficient market prices and operational outcomes
- Could improve price signals for investment and reduce barriers to entry

Challenges

- Identifying the pivotal group dynamically may be computationally intensive
- There is potential for strategic behavior if suppliers can manipulate their portfolios to avoid mitigation
- Could increase Type II errors (false negatives)

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IMPLEMENTING AN IMPACT TEST

There exist two primary market power mitigation approaches in FERC-jurisdictional markets

Structural (CAISO, PJM)

1. Determine if a market participant, either with a single resource or a resource portfolio, possesses market power.
2. If yes, compare the resource's supply offer to a competitive reference level.
3. If higher, mitigate the offer to the reference level.

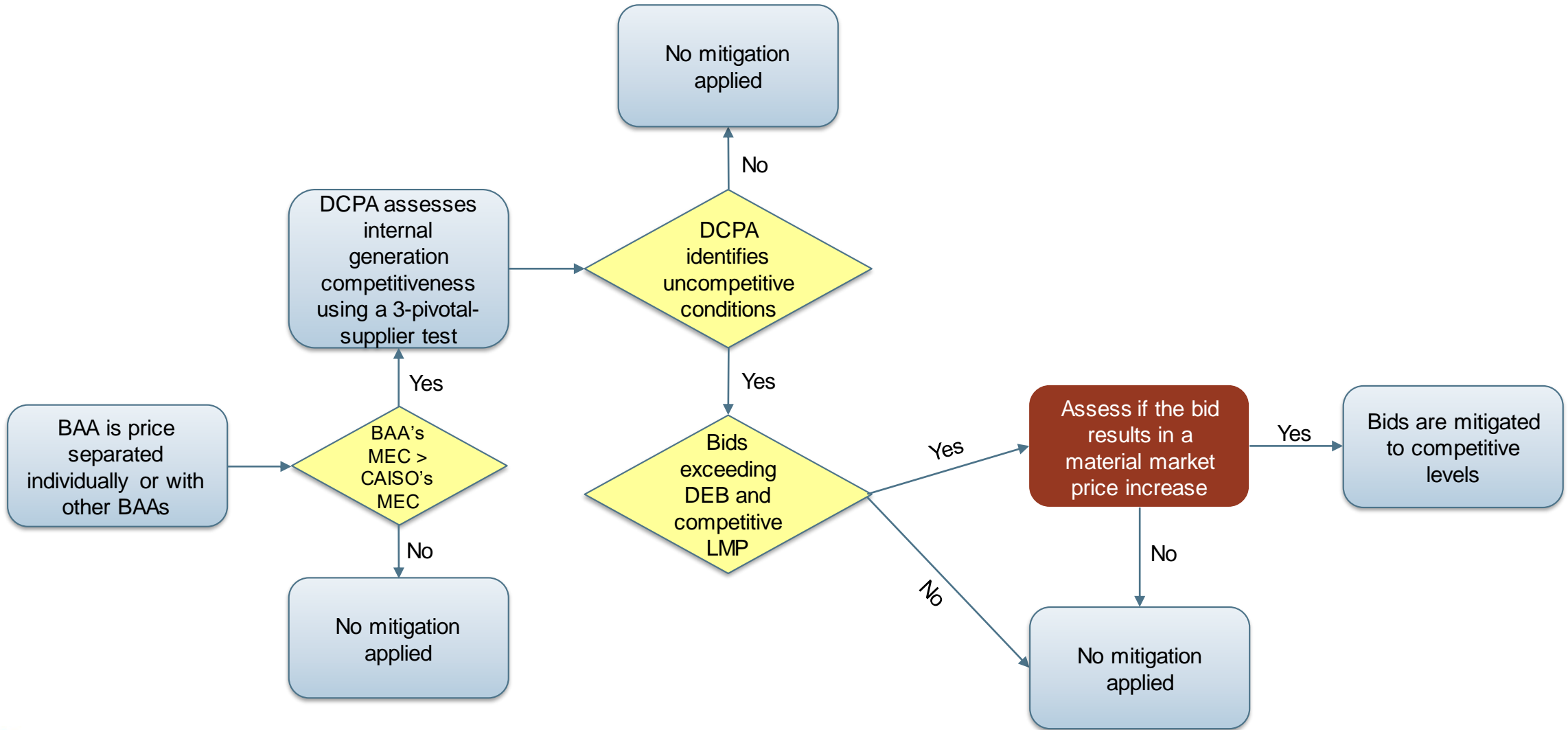
Conduct and Impact (ISO-NE, MISO, NYISO, SPP)

1. Determine if a market participant, either with a single resource or a resource portfolio, possesses market power.
2. If yes, compare the resource's supply offer to a competitive reference level.
3. If higher, evaluate whether the resource's offer impacts market clearing prices beyond a predefined threshold.
4. If yes, mitigate the offer to the reference level.

The working group wants to consider an “impact test” for BAA Level MPM

- An **impact test** evaluates whether a generator's bidding behavior both deviates from expected competitive levels and materially affects market prices.
- It helps prevent over-mitigation by only intervening when there are meaningful price effects.

Where an impact test would fit into the BAA Level DCPA



Impact thresholds from other markets

Market	Threshold
ISO-NE	200% or \$100/MWh (whichever is lower)
MISO	Broad Constrained Areas: 200% or \$100/MWh (whichever is lower) Narrow Constrained Areas: Net Annual Fixed Cost/ Constrained Hours
NYISO	200% or \$100/MWh (whichever is lower) Constrained areas: Threshold = 2% * Average Price * 8760/Constrained Hours
SPP	General market: \$25/MWh WEIS: \$5/MWh

Variations to Consider

- Potential variations:
 - For constrained/unconstrained areas
 - During system emergencies
 - Peak v off-peak
- The goal would be to design a threshold that is both **effective** in preventing market power abuse and **efficient** in allowing legitimate market operations to proceed unhindered through a reduction in false positives.

Tradeoffs

Potential Benefits

- Further reduction in mitigation frequency
- Targets only bids with a significant impact on market prices

Potential Drawbacks

- Complexity in determining an appropriate LMP impact threshold that effectively balances mitigation and market efficiency.
- Increased burden in monitoring and calculating LMP impacts

Next Steps

Next Steps

- Visit the Price Formation Enhancements - Working Group Phase 2 - Schedule 2024 -2025: <https://stakeholdercenter.caiso.com/InitiativeDocuments/Price-Formation-Enhancements-Working-Group-Phase-2-Schedule-2024-2025.pdf>
- Visit initiative webpage for more information:
- <https://stakeholdercenter.caiso.com/StakeholderInitiatives/Price-formation-enhancements>
- If you have any questions, please contact isostakeholderaffairs@caiso.com

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