

# Comments on System Market Power Mitigation Revised Draft Final Proposal

Department of Market Monitoring

October 7, 2020

## Summary

DMM appreciates the opportunity to comment on the ISO's *System Market Power Mitigation Revised Draft Final Proposal*.<sup>1</sup> Pending some clarifications of how imports will be treated in the RSI calculations, DMM supports the approach presented in the Revised Draft Final Proposal as an incremental improvement to existing market power mitigation features. The proposal is likely to offer significant protection from extreme and sustained exercise of system market power in the real-time market.

DMM supports many of the changes put forth in the Revised Draft Final Proposal. However, some elements of the proposal continue to warrant additional consideration. DMM requests that the ISO give additional consideration to these points in the current phase of the system market power mitigation initiative. DMM recommends that in the next phase of the initiative, the ISO commit to expanding system market power mitigation to the day-ahead market and to expanding real-time mitigation to more generally consider the competitiveness of groups of EIM area BAAs.

The Revised Draft Final Proposal includes several changes to the trigger for the system pivotal supplier test, as well as to the calculation of the system competitive LMP. DMM supports several of these changes, which align closely with recommendations and comments made by DMM in response to the Draft Final Proposal.

DMM supports:

- Eliminating the use of bilateral hub prices in both the trigger for conducting the pivotal supplier test, and in the calculation of the competitive LMP
- Removing from consideration EIM BAAs which have failed the upward flexible ramping sufficiency test when determining whether the CAISO BAA is in the highest priced area in EIM
- Eliminating the use of a static \$100/MWh threshold as a criteria in the trigger for conducting the pivotal supplier test, as well as in the calculation of competitive LMP

While DMM supports the changes noted above, other elements of the proposal continue to warrant additional consideration.

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<sup>1</sup> *System Market Power Mitigation Revised Draft Final Proposal*, California ISO, September 18, 2020:  
<http://www.caiso.com/InitiativeDocuments/RevisedDraftFinalProposal-SystemMarketPowerMitigation.pdf>

## ***Imports***

Imports — including imports from entities that have no CAISO internal generation — should be treated as potentially pivotal supply in the RSI test. Only imports that do not belong to a supplier deemed pivotal after considering all affiliated generation and import supply should count as fringe competitive supply, up to intertie scheduling limits.

The Revised Draft Final Proposal modifies earlier proposals by stating that import bids will be considered as potentially pivotal supply. DMM supports the ISO's intent in the Revised Draft Final Proposal to include import supply as potentially pivotal supply. However, the proposal remains unclear on precisely how the RSI will consider such supply, and whether this supply would be limited only to that offered by affiliates of CAISO internal generators. Additionally, portions of the proposal document continue to state that the pivotal supplier test will consider net import supply up to the intertie scheduling limit as non-pivotal supply. DMM recommends that the ISO more clearly outline the details of a pivotal supplier test that considers all import supply as potentially pivotal.

Considering import supply potentially pivotal is especially important when competitiveness assessments are limited to the HASP market. Because the potential for uncompetitive conditions in the CAISO BAA may align with times when regional supply is tight, this approach will help to ensure mitigation from HASP is applied in subsequent 15-minute and 5-minute intervals in periods when a potentially limited number of import suppliers and CAISO generators may be able to exercise system market power. However, even with this approach, some market power in the 15-minute and 5-minute markets may go unmitigated. Applying the test for potentially uncompetitive conditions directly in the 15-minute and 5-minute markets would further improve the mitigation of system market power in those markets.

## ***Gas prices***

DMM requests further detail and consideration of the gas prices to be used in the calculation of hypothetical peaker prices. The Revised Draft Final Proposal is not specific on which gas prices will be used for the internal hypothetical peaker price, and does not reconfirm the earlier proposed gas price to be used for the external hypothetical gas peaker price.

In the Draft Final Proposal, the ISO proposed to calculate the external hypothetical gas peaker price using the highest EIM area gas price outside of California. Use of this price can lead to an elevated hypothetical gas peaker price that may not accurately reflect available competitive supply outside of California. Because California gas prices tend to exceed those in EIM areas in the absence of extreme pricing events, a single hypothetical gas peaker price based on CAISO area gas prices may be a more appropriate alternative to considering both internal peaker prices, and external peaker prices that can be influenced by extreme gas pricing events outside of California.

## ***EIM supply***

The Revised Draft Final Proposal maintains that the supply of all EIM participating generators in CAISO's constrained region – including those operated by entities that also control generation in CAISO – will be treated as fringe competitive supply. DMM notes that the exclusion of

participating EIM generators grouped with CAISO from the calculation of potentially pivotal supply may limit the degree of market power mitigation in the CAISO and other EIM BAAs when market power exists in those areas. Given that some EIM areas regularly set their export limits to CAISO at levels well below the incremental capacity that they bid into EIM, the fringe competitive supply from an EIM BAA in CAISO's constrained region should at least be limited by the amount of export capacity that it makes available to CAISO.

### ***Competitive LMP***

Finally, the proposed competitive LMP calculation could be enhanced by using the maximum of the lowest EIM area price greater than \$0, and the highest cleared import offer on an intertie estimated to have competitive access as indicated by supplier offer concentration.

## **I. DMM supports several changes proposed since the Draft Final Proposal**

### ***Eliminating the use of bilateral trading hub prices***

DMM supports the ISO's proposed change to eliminate the use of bilateral trading hub prices in both the trigger for the system pivotal supplier test, and in the competitive LMP. As noted in DMM's comments on the Draft Final Proposal, bilateral trading hub prices have at least three potential issues when used in system market power mitigation.

First, the use of bilateral trading hub prices relies on the assumption that the broader WECC area is competitive and thus bilateral prices in this area must also be competitive. DMM notes that a primary purpose for developing system market power mitigation measures is to respond to anticipated changes to competitiveness in the coming years. Even in the case that the broader WECC is currently structurally competitive, there is no assurance that this will continue to be the case, or that there are not periods in the current environment where bilateral prices may be uncompetitive.

A second potential issue is that the exercise of real-time market power in the CAISO market may influence day-ahead bilateral prices in western markets. Virtual bids reflect expectations of real-time market prices in bids submitted to the CAISO day-ahead market. When real-time market power influences real-time price expectations, this can lead to the influence of real-time market power on day-ahead clearing prices. Additionally, mitigation only in real-time allows the potential for some market power to be exercised in the day-ahead market as well.

As stakeholders have noted, the majority of bilateral trading occurs before the opportunity to offer into the CAISO day-ahead market, and sellers must choose whether to make bilateral sales or hold power to sell in the CAISO day-ahead market. Because of this, bilateral prices can be reasonably expected to reflect expectations of the CAISO day-ahead prices. As described above, expectations of day-ahead market prices may be influenced by the exercise of system market power in both day-ahead and real-time markets. In this way, even if the broader bilateral

market is competitive, the exercise of market power in CAISO markets can influence bilateral market prices.

Finally, DMM notes that bilateral trading hub prices are published as multi-hour block prices. The ISO had proposed to shape these prices into hourly values using representative CAISO day-ahead prices. Application of this approach using day-ahead prices from a single day can result in an hourly price that may be very sensitive to ISO conditions – including potential market power -- on a given day, even if the bilateral prices were otherwise competitive and free of CAISO market influence.

***Omitting EIM areas that have failed the upward flexible ramping capacity test when determining highest priced EIM area***

The ISO’s proposal to only test for uncompetitive conditions when the CAISO BAA is in the highest priced group of BAAs may result in some unmitigated system level market power. DMM’s comments on the Draft Final Proposal present an example where CAISO is not in the highest priced EIM area, but is grouped with multiple other EIM areas at an elevated price that may still be uncompetitive.<sup>2</sup>

By forgoing consideration of EIM areas that have failed the upward flexible ramping sufficiency test when determining the highest priced EIM area, the approach in the Revised Draft Final Proposal will reduce instances of missed system market power mitigation where the CAISO may be uncompetitive. DMM recommended this simple modification for the current phase of the initiative, and DMM supports this change in the Revised Draft Final Proposal.

For phase 2 of the system market power mitigation initiative, DMM recommends that the ISO commit to considering the following enhancements to further reduce potential instances of unmitigated system market power:

- Expand system market power mitigation to consider the potential grouped competitiveness of other combinations of EIM BAAs that may not include CAISO; and
- Consider mitigation of potentially uncompetitive system conditions when CAISO may not be in the highest priced group of BAAs, as in Group 2 above.

***Elimination of static \$100/MWh price in competitive LMP and trigger for potentially pivotal supplier test***

In the Draft Final Proposal, the ISO has proposed that the test for uncompetitive system conditions would not be triggered unless marginal energy prices in the CAISO area are at least \$100/MWh. The ISO explained that this threshold was chosen because “... \$100/MWh seems to be a dividing line between somewhat typical day-to-day market prices and atypically much

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<sup>2</sup> System Market Power Mitigation Draft Final Proposal – Comments by Department of Market Monitoring, p. 4-5. July 14, 2020: <http://www.caiso.com/InitiativeDocuments/DMMComments-SystemMarketPowerMitigation-DraftFinalProposal.pdf>

higher market prices.” This price was also proposed to be used in the calculation of the system competitive LMP.

At times, prices well below \$100/MWh may be non-competitive, while at other times, prices above \$100/MWh may be competitive. In the absence of a clear link to underlying fuel costs, generation mix, and market conditions, the static \$100/MWh threshold may allow the continued exercise of system market power at times.

Although a static value of \$100/MWh would still offer a degree of protection against extreme and sustained exercise of system market power, DMM supports the proposed change to eliminate this threshold in favor of prices that are more clearly linked to gas prices and market conditions.

## **II. DMM recommends a pivotal supplier test that clearly considers all import supply as potentially pivotal supply**

DMM recommends that imports, including economic imports from entities that have no CAISO internal generation, should be treated as potentially pivotal supply in the RSI test. Only imports that do not belong to a supplier deemed pivotal after considering all affiliated generation and import supply should count as fringe competitive supply, up to intertie scheduling limits.

The Revised Draft Final Proposal modifies earlier proposals by stating that economic import offers will be considered as potentially pivotal supply. DMM supports the ISO’s intent to consider import supply as potentially pivotal. However, the proposal remains unclear on precisely how the residual supplier index will consider import supply, and whether this supply would be limited only to that offered by affiliates of CAISO internal generators.

DMM requests the ISO to confirm that import supply will not be counted as fringe competitive supply when making the initial determination of which entities may be pivotal suppliers. The ISO’s proposed approach should clearly specify whether all import supply, including that from suppliers that may only have imports and no CAISO generation, will be considered explicitly when determining which suppliers may be pivotal. In particular, when determining if a supplier is pivotal, none of the economic import bids from the top two pivotal suppliers and from the supplier under consideration should be included as fringe competitive supply.

Additionally, DMM requests clarification of the following statement in the Draft Final Proposal:

As described earlier, the CAISO proposes that the system-level pivotal supply test consider net import offers for the CAISO’s intertie scheduling points as non-pivotal supply. However, it will limit this quantity to the amount that the market could potentially schedule on each intertie based on the various intertie scheduling limits.<sup>3</sup>

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<sup>3</sup> *System Market Power Mitigation Revised Draft Final Proposal*, pg. 34, California ISO, September 18, 2020: <http://www.aiso.com/InitiativeDocuments/RevisedDraftFinalProposal-SystemMarketPowerMitigation.pdf>

The statement that net import offers will be considered non-pivotal supply appears contradictory to other descriptions of the proposal in the Revised Draft Final Proposal document, which state that economic import offers will be considered as potentially pivotal supply.

Including all import supply as potentially pivotal supply is especially important when assessing real-time system competitiveness based only on the HASP market. When supply of electricity is tight around the west, the number of suppliers offering and the volume of supply offered at the CAISO interties may be limited. This creates the potential for those that do have available supply to exercise market power on the CAISO market. These conditions may also align well with instances where market power is most likely to be exercised within CAISO.

If the system market power mitigation design considers that import supply may be pivotal at times, mitigation in HASP only could potentially address many of the same instances of uncompetitive conditions in the 15-minute and 5-minute markets that follow.

Conversely, if hourly import supply is always considered non-pivotal, mitigating based only on the HASP market may overstate the true competitiveness in the subsequent 15-minute and 5-minute markets on days with tight supply conditions, increasing the frequency with which potential system market power goes unmitigated.

### **III. Triggering mitigation based on tests in the 15-minute and 5-minute markets will improve real-time system market power mitigation**

The ISO proposes to trigger and test for system level market power in the HASP market only. The ISO states that this is appropriate since hourly block imports provide competitive pressure on internal suppliers, while subsequent 15-minute and 5-minute markets would undervalue this competitive pressure. Both the MSC and the ISO characterized the issue of market power in the 15-minute and 5-minute market as market power for ramp. DMM notes that these markets are still energy markets, but on a different time horizon.

As noted above, considering import supply as potentially pivotal in a HASP system market power test has potential to address some market power concerns in these markets. However, applying tests of competitiveness directly in the 15-minute and 5-minute markets would improve the system market power mitigation proposal, and avoid potential undermitigation.

The ISO states that when the supply available in the hour-ahead scheduling process passes the system market power mitigation test, it shows that there was a structurally competitive supply mix offered into the market in that hour. Additionally, the ISO notes that triggering and testing for system market power mitigation in HASP is appropriate because suppliers cannot change their bidding behavior in response to HASP, and that system conditions are not anticipated to change dramatically between HASP and the 15-minute and 5-minute markets. Changes in conditions need not always change dramatically between HASP and the subsequent real-time markets. At times, HASP and 15-minute market conditions can be quite different. This is sufficient for some generators to exercise market power in the 15-minute market as changes only need to occur in expectation, under certain conditions.

For example, consider peak net load hours on a day with high net load and an elevated degree of load and/or VER forecast uncertainty. If, in expectation, the 15-minute conditions will require more generation in a given interval than in HASP, there will be a potentially limited number of resources -- and almost no intertie imports-- available to meet that expected increase in 15-minute system conditions in the timeline of the 15-minute market run.

Resources that may be well positioned to meet this need, and recognize the expectation of differences in system conditions, may exercise market power in the 15-minute market. Such a resource would be expected to bid uneconomically such that it does not intend to be scheduled in HASP (i.e., the competitive pressures of hourly supply are not relevant), but rather the resource expects to be dispatched above HASP schedules in the 15-minute market on the uneconomic bids due to the change in system conditions.

Considering and addressing this potential source of market power can be important because of the potential for the resulting price impacts to pervade other ISO markets. Day-ahead prices are influenced by virtual bids which can be expected to reflect expectations of 15-minute real-time prices under given system conditions. To the extent that these expectations reflect real-time prices influenced by the exercise of real-time system market power, this real-time system market power can influence day ahead pricing outcomes, even in the absence of direct market power in the day-ahead market.

#### **IV. DMM requests clarification and further consideration of gas prices to be used in the calculation of hypothetical peaker prices**

The ISO proposes to consider both an internal CAISO and external hypothetical gas peaker price when triggering the system pivotal supplier test. Each of these hypothetical gas peaker prices depend on the use of gas prices. DMM requests additional detail and consideration on which prices the ISO intends to use to calculate the hypothetical gas peaker prices.

For the internal CAISO hypothetical gas peaker, the Revised Draft Final Proposal states that “the gas price used will be the same gas price used for other applications in the CAISO market”.<sup>4</sup> DMM requests additional clarification of the specific gas price that will be used as there are many different gas prices that may be used in CAISO market applications. For example, while it may be reasonably assumed that the price will be one within California, it is unclear how the specific price among different regions of California would be chosen.

Regarding the external hypothetical gas peaker price, the Draft Final Proposal states that the highest EIM area gas price will be used. The Revised Draft Final Proposal does not specifically restate this, but implies that this element of the proposal may be unchanged.

The Revised Draft Final Proposal states that:

The CAISO recognizes there is a potential for anomalous isolated gas events to influence this calculation, which may prevent the pivotal supplier test from being applied, however we

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<sup>4</sup> *System Market Power Mitigation Revised Draft Final Proposal*, California ISO, p. 31. September 18, 2020: <http://www.caiso.com/InitiativeDocuments/RevisedDraftFinalProposal-SystemMarketPowerMitigation.pdf>

believe these events are infrequent and unlikely to correspond to periods when there exists a likelihood for the exercise of system market power in the CAISO.<sup>5</sup>

DMM questions how the ISO is able to conclude going forward that any extreme gas pricing event outside of California is unlikely to correspond to periods when there exists a likelihood for the exercise of system market power in the CAISO.

In comments on the Draft Final Proposal, DMM provided extensive analysis illustrating the potential impacts of extreme gas pricing events on hypothetical peaker prices. This analysis also shows that in the absence of these extreme gas pricing events, prices within California (SoCal Citygate and PG&E Citygate) are typically the highest among CAISO and all EIM area gas prices, resulting in hypothetical gas peaker prices approximately \$10-\$40 higher than those derived from EIM area gas prices.<sup>6</sup>

The Revised Draft Final Proposal requires that CAISO prices exceed both internal and external hypothetical gas peaker prices before testing for potentially uncompetitive system conditions. Although the external hypothetical peaker price is proposed to reflect commitment costs, because the CAISO area gas prices are typically higher, the external hypothetical gas price as proposed may only have an impact during periods of extreme, localized gas pricing events outside of California. These are the times when such prices are least likely to result in a hypothetical peaker price that represents competitive outside supply that could reach CAISO.

DMM suggests that the use of CAISO area gas prices at PG&E and SoCal Citygate to construct a single hypothetical gas peaker price may be more appropriate than considering the highest priced EIM gas price.

### **III. The ISO should reconsider treating generators in EIM areas grouped with CAISO differently than internal CAISO generation in the RSI calculation**

The ISO proposes treating supply from EIM participating resources in an EIM BAA grouped with CAISO as fringe competitive supply by default in the RSI calculation. This treatment may allow EIM entities to circumvent the pivotal supplier test to the benefit of the entities' non-EIM CAISO imports. Additionally, because this treatment is different for EIM generators that are similarly situated to CAISO generators in the real-time market, the approach may pose regulatory risk to the ISO's proposal. Finally, this treatment departs from the notion of considering all supply in an affiliate's portfolio when determining potentially pivotal suppliers.

#### ***EIM entities could circumvent the pivotal supplier test to benefit non-EIM CAISO imports***

Considering all participating EIM supply in the area grouped with CAISO as the highest priced area can allow an EIM entity to circumvent the pivotal supplier test. This can result in avoided mitigation, which would benefit any real-time imports to CAISO outside of EIM. An EIM entity

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<sup>5</sup> Ibid, p. 27.

<sup>6</sup> *System Market Power Mitigation Draft Final Proposal – Comments by Department of Market Monitoring*, p 6-7. July 14, 2020: <http://www.caiso.com/InitiativeDocuments/DMMComments-SystemMarketPowerMitigation-DraftFinalProposal.pdf>

could achieve this outcome by offering large amounts of supply on participating resources above the entity's base schedules at a high bid price, but restricting EIM export transfer capacity to CAISO.

When EIM export limits from an EIM area to CAISO are limited to 0 MW, it is possible to have an outcome with no congestion between CAISO and the EIM area. If the CAISO is in the highest priced EIM area group at this time, this can result in the EIM area with restricted export transfer capacity also being grouped with CAISO in the highest priced area.

Under the Revised Draft Final Proposal, participating EIM supply in EIM areas grouped with CAISO when CAISO is the highest priced area is considered non-pivotal supply. Considering this non-pivotal supply in the RSI calculation can result in the pivotal supplier test indicating competitive conditions that do not trigger mitigation. However, because the EIM export transfer limits out of the EIM area grouped with CAISO are restricted, this supply is not accessible to CAISO. In this scenario, the inclusion of EIM participating supply from the EIM BAA grouped with CAISO in the highest prices EIM area as non-pivotal supply will overstate the competitiveness of the real-time market conditions for the area grouped with CAISO.

Influencing the pivotal supplier test as described above to avoid potential system market power mitigation can benefit an EIM entity which, in addition to EIM, also schedules significant volumes of non-EIM imports into CAISO. For this reason, DMM recommends that if the ISO proceeds with the proposal to consider EIM supply in the CAISO constrained area as non-pivotal, the ISO should try to design a reasonable method for limiting that supply based on the export transfer capacity that can ultimately get from each BAA in the CAISO constrained region to CAISO either directly or via other BAAs in the CAISO constrained area. Given the potential difficulty of such a design, DMM notes that this gap in the current proposal is another important reason for the ISO to continue immediately with Phase 2 of this initiative.

***Different treatment of similarly situated real-time resources may pose regulatory risk***

EIM participating resources within the constrained area are similarly situated in the real-time market to CAISO internal generators. The proposal justifies the different mitigation treatment for these resources by stating:

Supply offers for resources participating in the EIM that are in balancing authority areas included with the CAISO in the highest priced region should also not be mitigated because they are likely non-pivotal supply. EIM suppliers that control generation outside California generally also have load-serving obligations. These entities have a limited ability to withhold supply from the market in order to sell power at inflated prices because withholding supply from the market could raise the costs of meeting their own obligations or very slightly raise prices with large proportionate reductions in small net sales.

If the reason for treating EIM participating resources differently than similarly situated CAISO generators is because of assumed large load serving obligations, the need for separate treatment for EIM participating resources is unclear. The proposal has already outlined an approach to explicitly address the case of entities with large load serving obligations.

If the reason for treating EIM participating resources differently than similarly situated CAISO generators is the lack of an estimate of load serving obligation, DMM encourages the ISO to further explore whether or not there might be a workable approach to collecting the necessary data. The ISO has not presented or discussed any potential approach in the stakeholder process before concluding that any estimate of an EIM supplier's load serving obligation would likely be unreasonably inaccurate.

For EIM entities with significant load serving obligations, the outcome of either approach would likely be similar. When an EIM entity has a large load serving obligation, it is not likely that it would have enough remaining withheld capacity to be deemed a potentially pivotal supplier over the area including the EIM BAA and the CAISO BAA. However, for an EIM entity that controls large amounts of generation in excess of its load serving obligation, the outcome may be significantly different.

The current proposal ensures an EIM supplier with significant generation and small or non-existent load serving obligation could never be deemed potentially pivotal, regardless of the quantity of capacity this entity could withhold from the real-time market. As such, this entity could never be mitigated for system market power or have its combination of EIM supply and intertie imports counted as pivotal supply in the determination of whether or not to mitigate other potentially pivotal suppliers. Applying the same load serving obligation adjustment as applied to CAISO generators would allow this supplier to be deemed potentially pivotal and subject to mitigation when appropriate. This would also reduce regulatory risk by creating the same treatment for generators in the EIM and CAISO that are similarly situated in the CAISO real-time market.

***EIM supply controlled by CAISO generator affiliates should be considered capacity that may be withheld from entities' generation portfolios***

The ISO proposes to consider supply in an EIM area that may be grouped with CAISO in the highest priced EIM area when calculating the RSI. However, this source of supply would be considered in the RSI as fringe competitive supply by default.

The Revised Draft Final Proposal states EIM area resources likely lack incentive to exercise market power due to contractual or load serving obligations. DMM suggests that this assumption may not always be appropriate, particularly when import supply or EIM area supply is offered by entities which also have large CAISO generation portfolios.

To maintain consistency with the concept of considering the full portfolio of an affiliate group for purposes of mitigation, the ISO should include affiliate EIM area supply that could be withheld when identifying potentially pivotal suppliers.

#### **IV. Additional considerations for competitive LMP (CLMP)**

The existing approach to calculating the competitive LMP (CLMP) would not be appropriate in situations when the proposed system market power mitigation design would deem the CAISO BAA uncompetitive. Because of this, the December 11, 2019 Straw Proposal had proposed to use only default energy bids when applying system market power mitigation.

In comments on that Straw Proposal, DMM suggested that the ISO consider whether there is a workable alternative approach to calculating a CLMP that would be appropriate when the CAISO BAA is uncompetitive. The ISO has developed such an approach in the subsequent proposals. DMM supports the ISO's efforts to develop an alternative CLMP for use in system market power mitigation.

The system competitive LMP proposed in the Revised Draft Final Proposal is calculated as the greater of:

1. The second highest BAA marginal energy cost in EIM for the interval, or
2. The highest import offer cleared on a constrained CAISO intertie

The competitive LMP should be a representation of a competitive price that would result in the absence of market power. While it is possible at times that the values proposed by the ISO may be good estimates of competitive system prices, at other times the proposed values may overstate the external competitive price.

As noted in an earlier section of these comments, the price of the second highest EIM area may be quite elevated and potentially uncompetitive. Use of an elevated EIM area price that cannot be determined to be competitive may not be appropriate in the construction of a system competitive LMP. The use of the second highest price may be more appropriate when the grouping of EIM BAAs with the second highest price can be tested for competitiveness, as proposed earlier in this document as an enhancement for the next phase of the system market power mitigation initiative.

One potential modification to the proposed competitive LMP could be to use the maximum of the highest cleared intertie values and the lowest EIM price outside of CAISO that is greater than or equal to \$0, rather than the highest EIM price outside of the CAISO area. Eliminating the consideration of negative prices would avoid reflecting penalty prices and considering export constrained regions while approximating the cost in the most competitive source of supply outside of CAISO.

Use of the highest cleared import bid on a constrained CAISO intertie may be a reasonable approximation of a competitive price, under the assumption that outside supply has competitive access to reach the CAISO intertie. Earlier analysis by DMM suggests that this assumption may hold at times, but should not always be assumed valid.<sup>7</sup>

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<sup>7</sup> *System Market Power Mitigation Draft Final Proposal – Supplemental Comments by Department of Market Monitoring*, February 27, 2020: <http://www.caiso.com/InitiativeDocuments/DMMComments-Supplemental-SystemMarketPowerMitigation.pdf>

The volume of import offers in relation to an intertie import limit, as well as the offer concentration by supplier at a given intertie may be indications of the level of competitive outside transmission access to that intertie.

A potential modification to the competitive LMP approach in the Revised Draft Final Proposal could be to use the highest cleared import bid at an intertie that is estimated to have competitive access by assessment of import offer concentration at the intertie. A binding intertie that has sufficient offer volume remaining to bind the import constraint when the top three import suppliers are excluded may be more likely to have competitive outside access than one that can only bind by clearing a high concentration of offer volume from a few large suppliers.