Stakeholder Comments
System Market Power Mitigation – Revised Straw Proposal

Submitted by	Company	Date Submitted
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SCE appreciates the opportunity to provide comments on the CAISO System Market Power Mitigation Revised Straw Proposal (the Proposal).[1]

1. Overall Comments

SCE strongly supports the CAISO's effort to develop rules to address system market power issues identified by the Department of Market Monitoring (DMM) and CAISO studies based on recent years (e.g., 2017-2019). SCE also agrees with the CAISO that market and system conditions in the coming years will likely exacerbate system market power issues[2]. Therefore, it is important for the CAISO and stakeholders to develop robust rules to address system market power issues. While the Proposal is an improvement on several aspects (e.g. the triggering criteria), SCE continues to urge the CAISO to start designing the rules applicable to the day-ahead market (DAM) for the reasons described in its previous comments.[3] In particular, the Proposal will exclude a significant amount of supply from pivotal suppliers from being deemed as capable of being withheld due to the optimization horizon of the real-time market (RTM), while in fact a pivotal supplier could withhold a larger portion of their portfolio or the entire portfolio.[4] This is a shortcoming of the Proposal that can only be overcome by extending the system market power mitigation (SMPM) to the DAM.

During the stakeholder discussion on April 13, 2020, few stakeholders argued that there was no need for the CAISO to develop SMPM or felt that the SMPM feature would be novel to the CAISO market design. The view that SMPM is not needed ignores the fact of the structural non-competitiveness identified in the recent DMM and CAISO studies and the obligation for the CAISO to ensure just and reasonable rates throughout its markets. Further, the concept of SMPM is not entirely new to the CAISO markets because the existing market power mitigation applies at the EIM BAA level. The view that SMPM is not needed should be rejected.

Those stakeholders also claim that when SMPM results in a price lower than the cost of "competitive" supply external to the CAISO, the offer from the external supply will not be accepted and

[1] System Market Power Mitigation Revised Straw Proposal, April 7, 2020, available at http://www.caiso.com/InitiativeDocuments/RevisedStrawProposal-SystemMarketPowerMitigation.pdf.
[2] The Proposal, at 9-10.
[3] SCE Comments on Straw Proposal, Jan 10, 2020, available at: http://www.caiso.com/InitiativeDocuments/SCEComments-SystemMarketPowerMitigation-StrawProposal.pdf. The MSC also raised the concern that an RTM mitigation cannot fully mitigate day-ahead market power. When the DAM is not appropriately mitigated, there can be significant financial risks to consumers.
[4] The Proposal excludes a significant amount of the supply owned by the pivotal suppliers from the amount that can be deemed being capable of withholding, i.e., excluding the amount at the lower limit of a committed resource even if the resource is owned by one of the largest pivotal suppliers.

thus negatively impacted by the SMPM.[5] This claim is false, unsupported, and runs into several issues. First, the market design should always result in competitive outcomes. If the external resource clears the CAISO market based on a CAISO price absent of SMPM when indeed there is system market power, then this outcome does not necessarily represent a competitive situation given the system market power. If the external resource does not clear post-mitigation (i.e., mitigated internal bids represent competitive bids), then it simply implies that the external resource is not competitive. Second, the SMPM will not mitigate a bid below the competitive price, to be defined under this initiative, or its default energy bid (DEB). Third, the phenomenon that a resource may not clear the market post-mitigation, is not new. For example, under the existing local market power mitigation (LMPM) rules, a resource within a constrained area that clears prior to the mitigation may not clear the market post-mitigation when its cost/bid is above the mitigated marginal cost. In addition, technically speaking, the LMPM does not define a constrained area and, a resource does not have to be located within a constrained area to be mitigated.[6]

2. Pivotal Supplier Test Trigger

SCE supports the development of an alternative trigger to the previously proposed trigger of three largest interties simultaneously binding. It is very rare that the three largest interties bind simultaneously. When transmission capacity is available on interties, it does not mean there is adequate competitive supply available. Therefore, the previously proposed trigger is extremely unlikely to be successful in detecting system market power.

SCE supports the CAISO and stakeholders exploration of the CAISO proposal to trigger the pivotal supplier test when there is price separation in the RTM and the CAISO balancing authority area (BAA) is in the highest priced constrained region.[7] The CAISO indicated that such a situation occurred in approximately 28% of all intervals in 2019, which seems reasonable considering that: 1) the tightness of the market and supply conditions can typically occur during the summer months (the six months from May-October); and, 2) price separation between the BAAs can occur in all months due to many other factors that cause constrained transfer conditions. Further, the value - 28% - only represents the instances of the test being triggered; it does not represent the instances any supply offer will be mitigated.

While the concept of the CAISO Proposal is reasonable, the issue that the CAISO BAA may be in a constrained region but not necessarily in the highest priced region should be addressed, as discussed during the April 13, 2020 stakeholder call. This outcome can occur, for example, if there is a BAA, not

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[5] An example was brought up that, when the SMPM mitigates the CAISO price from $100/MWh to $60/MWh, then an external supply at the cost of $80/MWh won't be accepted by the CAISO to serve the CAISO load. Those stakeholders believed this outcome represented an issue that must be addressed.
[6] The LMPM mitigates resources based on their contribution to the counterflow of a congested transmission path regardless of their location.
[7] I.e., when the power balance constraint shadow prices separate in the RTM, indicating constrained transfer conditions, and the CAISO BAA is in the highest priced region.

adjacent to the constrained group, that has a higher price than the constrained group. To address this issue, SCE suggests that the trigger should be augmented to the following:

> *The pivotal supplier test should be triggered when there is price separation in the RTM and the CAISO balancing authority area (BAA) is in the highest priced constrained region* *__among all BAAs adjacent to the constrained region. The test should also trigger if all BAAs clear at the same extreme price.__*

The proposed modification also addresses an issue that, for example, if all BAAs clear at $1,000/MWh, which indicates a tight market and supply condition for all regions including the CAISO BAA, the test should trigger.

3. Pivotal Supplier Test Design

While the proposed pivotal supplier test is intended to be aligned with the application of the LMPM in the RTM today, there are several issues with the Proposal that should be addressed in the next iteration of the Proposal. First, the Proposal limits the three largest pivotal suppliers to those located within the CAISO BAA. This limitation creates inconsistency with the conditions when the test is triggered. Since the test is triggered when the CAISO BAA is in a price constrained region, which includes the CAISO BAA and other EIM BAAs in the region, by artificially limiting the three largest pivotal suppliers to those located within the CAISO BAA, the test will likely fail to identify the true three largest pivotal suppliers in the region. When the three largest pivotal suppliers are not all located in the CAISO BAA, the test will not be effective in addressing the market power of the constrained region in which the CAISO is present. The CAISO should consider addressing this issue.

The second issue is that the proposed test will treat a significant amount of supply from the three largest pivotal suppliers as a part of fringe competitive supply. This is because, under the Proposal, the lower limit of the output of a resource owned by the pivotal suppliers is deemed as fringe.[8] The lower limit is calculated as the dispatching operating target (DOT) reduced by a ramp-able down range based on the resource's ramp rate during a 15-minute interval (or 5 minutes for real-time dispatch) and thus can be a significant portion of the total output of the resource. Such treatment contradicts the methodology used in the recent DMM and CAISO studies that was used to identify a substantial number of structurally non-competitive hours within the DAM. In those studies, the entire output (i.e., the day-ahead award plus the ramp capability for the next hour in MW, termed as "Output Bid") of a resource from a pivotal supplier is considered as pivotal.[9] By treating a significant amount of supply from the pivotal suppliers as fringe, it is unclear how effectively the Proposal addresses the structural non-competitiveness of the CAISO markets. While SCE understands that this treatment may arise from the RTM limitation in the market optimization horizon, these issues must be addressed. Specifically, the

[8] The Proposal, at 31-32, Step 5 of the RSI calculation.

[9] CAISO Analysis of Structural System-Level Competitiveness in the CAISO Balancing Authority Area, September 3, 2019, at 11-12, available at http://www.caiso.com/Documents/RevisedWhitePaper-SystemMarketPowerAnalysis.pdf.

CAISO should start developing a SMPM process for the DAM with a 24-hour optimization horizon that will address these issues.

The third issue is that import offers are treated as fringe competitive supply and the amount of import offers can exceed what is allowed based on grid capability, represented by the simultaneous import limit (SIL). When the amount of import offers exceed the SIL, the amount of import offers used in the pivotal supplier test should be capped at the SIL, to avoid an unrealistic amount of the quantity of import offers being included as fringe supply.

In addition, because imports are not subject to mitigation under the Proposal, it does not appear appropriate to include *all* import offers (even after being capped at the SIL) as fringe competitive supply in the pivotal supplier test. While reasonably priced imports of a limited quantity can be treated as fringe supply, there is no rule that would prevent a participant from submitting a large amount of import offers, potentially at a high or extreme price, to purposely skew the results of the pivotal supply test. This issue can become a fatal flaw and must be addressed in designing the pivotal supplier test. As a starting point, SCE suggests the following two approaches to address the issue:

- Only competitive import offers should be included as fringe supply in the pivotal supplier test and their competitiveness should be checked prior to this inclusion. The pivotal supplier test should apply to all interties to ensure competitiveness is restored ex post mitigation. Only the import offers on the interties deemed competitive should be included as fringe supply.
- Identify the three largest pivotal suppliers for the constrained region. The three largest pivotal suppliers can be external to the CAISO BAA. Perform the pivotal supplier test. If the test fails, mitigate all supply within the region and identify the final clearing price with mitigated bids.[10] Use this price as a threshold. Only import offers with a bid price at or below this threshold should be included as fringe supply in the CAISO proposed pivotal supplier test. Alternatively, there can be a consideration of whether the Competitive LMP proposed by the CAISO can serve as the threshold.

Last but not the least, regarding the calculation of the residual supply index (RSI), the CAISO should confirm in the next iteration of its proposal that the demand is the total demand for the constrained region consisting of the CAISO and whatever other BAAs in the constrained region. When the constrained region is net exporting, the demand is the total load of the constrained region plus the net export.

[10] For simplicity, the final clearing price could be approximated based on the mitigated bid curve and the intersection point of the curve and the demand for the constrained region.

4. Determining Competitive LMP

The CAISO proposes that bids will not be mitigated below the Competitive LMP that the CAISO calculates or the resource's Default Energy Bid (DEB). That is, if a bid is mitigated, then the bid is mitigated to the higher of the DEB or the Competitive LMP, which is proposed to be calculated as:[11]

Competitive LMP =
min(next constrained un-cleared economic import offer,
next non-CAISO grouped EIM area PBC shadow cost)

The formula above seems to indicate that "next non-CAISO grouped EIM area PBC shadow cost" refers to the next highest non-CAISO grouped EIM area price. The CAISO should clarify this condition as the Proposal also refers to it as the *lowest* power balance constraint shadow price outside the highest priced region.[12]

The conditions that may warrant use of the next highest non-CAISO grouped EIM area price should be specified in the Proposal. If supply inside the constrained region cannot access this price due to transmission limitation, then this price may not be relevant. For example, if the next highest non-CAISO grouped EIM area price occurs within an EIM BAA that itself is import-constrained, i.e., no transmission available to import additional supply, then this price is irrelevant. SCE suggests that the CAISO should instead use the next highest price that is supported by transmission availability.

During the April 13, 2020 stakeholder call, some stakeholders suggested that the CAISO should consider the use of bilateral price indices to determine the Competitive LMP. SCE does not support this suggestion at this time. Bilateral price indices can be irrelevant as mitigated prices for resources internal to the CAISO BAA if there is a lack of transmission capacity. In addition, bilateral price indices may not be appropriate as the Competitive LMP in situations when the hubs are illiquid such that only very few transactions are used to calculate the price. Converting bilateral price indices, which are block prices, to hourly prices can be complicated and could make the proposed SMPM inaccurate given the dynamic nature of the SMPM design.

5. Applying Mitigation to Internal Supply Offers

5.1 The CAISO should confirm that, under the Proposal, the amount of mitigated supply will not be lower than the amount of total demand consisting of CAISO BAA and EIM BAAs in the constrained area.

During the April 13, 2020 stakeholder call, the CAISO staff stated that when the RSI fails, the SMPM will mitigate resource offers from any supplier when in combination with the two largest suppliers are required to meet demand. This implies that the amount of supply internal to the CAISO that is being

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[11] CAISO Presentation, at 14, available at http://www.caiso.com/InitiativeDocuments/Presentation-SystemMarketPowerMitigation-RevisedStrawProposal.pdf.

[12] The Proposal, at 33.

mitigated will *not be lower than* the amount of demand in the constrained area (plus the net export if there is a net export) for the interval where mitigation applies. This is a critical element of the Proposal and the CAISO should clarify this understanding in the next iteration of the Proposal.

To identify those suppliers whose resources will be mitigated, presumably this will be done by ranking all suppliers by the size of their portfolio, i.e., potentially beyond the three largest pivotal suppliers. The Proposal would check whether the supply from the two largest suppliers can meet the demand; if they can, then under the Proposal, all resources of the two largest suppliers will be mitigated. If all supply from the two largest suppliers cannot meet the demand, then the Proposal would check whether the total supply from the three largest suppliers can meet the demand; if they can, then all resources of the three largest suppliers will be mitigated. This would continue for the fourth and fifth largest suppliers as well. SCE requests that the CAISO confirm this understanding in the next iteration of the Proposal.

If the understanding of the process described above is correct, then there are two observations: 1) the amount of mitigated supply will be equal to, or slightly above, the amount of the demand in the constrained area, and 2) there will be resources whose bids will not be mitigated. The first observation implies that there will be a pool of supply with mitigated bids that is enough to serve the demand, and those mitigated bids will likely limit how high the clearing price could be. The second observation implies that there will be unmitigated bids, and when those unmitigated bids set the market clearing price, then the clearing price will represent an outcome that is not fully competitive. The CAISO should address the issue of unmitigated bids setting the market price when those unmitigated bids could raise their bid price, for example, to the level of the highest mitigated bid price of those mitigated resources. The CAISO should address how the market power of those unmitigated resources would be mitigated under the Proposal.

In addition, the CAISO should clarify, in the process of identifying which suppliers should be mitigated, how suppliers of same size will be treated. The CAISO should also clarify how the Proposal would work when the demand in the constrained area cannot be met without EIM resources (i.e., all supply from the suppliers located in the CAISO BAA cannot meet the demand in the area) given that EIM resources are not mitigated under the Proposal.

5.2 Other issues of not mitigating all supply in the constrained area that should be addressed under the Proposal.

The CAISO should also consider the effectiveness of the Proposal, with the proposed objective to mitigate only the supply from suppliers in an amount that is required to serve the demand. In other words, the Proposal does not mitigate *all* supply internal to the CAISO. The CAISO should evaluate under the Proposal, whether it is possible that the marginal resource would not be among the pool of supply being mitigated. If this occurs, then the SMPM would have no real impact on the market and the final clearing price will not be mitigated. The CAISO should also consider the effectiveness of the Proposal by not mitigating EIM resources in the constrained region. As commented above, by artificially limiting the three largest pivotal suppliers to those located within the CAISO BAA, the test is likely to fail to identify the true three largest pivotal suppliers in the region and fail to mitigate those resources that may possess market power within the constrained region.

6. Additional Comments

Beside the finding that the proposed pivotal supplier test would trigger in approximately 28% of all intervals in 2019, the CAISO should consider providing an estimate of how often actual bid mitigation would likely occur in 2019 using the 2019 bids and market conditions. This information can be obtained by evaluating how often the proposed pivotal supplier test would fail within those 28% intervals (without simulating price impact of the mitigation). This information can be critical for stakeholders to assess the overall effectiveness of the Proposal.