

Local Market Power Mitigation Enhancements Revised Straw Proposal

Comments by Department of Market Monitoring
December 10, 2018

Overview

DMM appreciates the opportunity to comment on the ISO's *Local Market Power Mitigation Enhancements Revised Straw Proposal*.¹

1. Changes to real-time market power mitigation process

Eliminating extension of mitigation to subsequent intervals

As stated in previous comments, given the current levels of accuracy in the local market power mitigation systems, DMM supports eliminating the extension of mitigation in one 15-minute interval to the rest of the 15-minute intervals in the hour. DMM also supports eliminating the extension of mitigation in one 5-minute interval to other 5-minute intervals.²

The ISO also proposes to eliminate the extension of mitigation in the 15-minute market to the corresponding three 5-minute market intervals. This change can lead to a situation in which a resource could end up running at its day-ahead schedule but forfeiting revenue to the ISO in real time.³ The relative advantages of the current policy versus the proposed policy may differ by market participant and by resource. DMM recommended in previous comments that the ISO solicit and consider stakeholder feedback on this issue.

Limiting EIM transfers based on mitigation run results

To avoid what the ISO has termed *economic displacement* among EIM entities, the ISO proposes to determine net EIM transfers in the mitigation run and allow BAAs the option to have those transfer amounts capped for the market run. DMM's understanding is that the transfers would be capped at the BAA level according to net interchange in the market power run. The ISO made some changes in response to DMM's comments in earlier drafts, but the changes may not be enough to avoid significant issues.

¹ *Local Market Power Mitigation Enhancements Revised Straw Proposal*, California ISO, November 2018, <http://www.caiso.com/Documents/RevisedStrawProposal-LocalMarketPowerMitigationEnhancements.pdf>

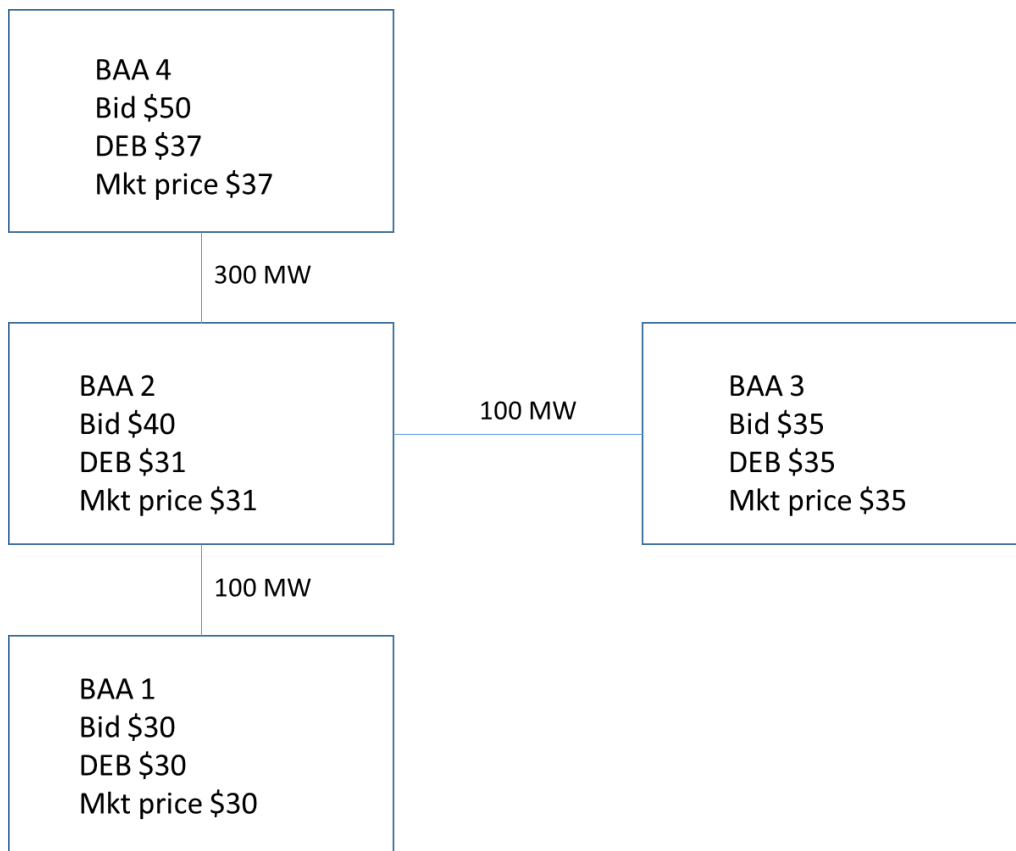
² A summary of LMPM congestion accuracy can be found on p.157: *Annual Report on Market Issues and Performance*, Department of Market Monitoring, June, 2018, <http://www.caiso.com/Documents/2017AnnualReportonMarketIssuesandPerformance.pdf>

³ For more discussion and an example see pp. 13-14 in *Local Market Power Mitigation Enhancements 2015 Draft Final Proposal*, Department of Market Monitoring, January, 2016, http://www.caiso.com/Documents/DraftFinalProposal_LocalMarketPowerMitigationEnhancements2015.pdf

The ISO’s proposal to cap net exports based on results from the mitigation run may help to address the issue of *economic displacement*. However, the proposal may create new problems that the ISO should carefully consider before proceeding with this aspect of the proposal. Market designs that establish schedules in a run that has one set of inputs and prices in another run that has a different set of inputs have the potential to create unintended and undesirable outcomes. Such market designs can lead to prices that are inconsistent with the ISO’s dispatch instructions and incentives for resources to deviate from dispatch or to not bid their true marginal costs. The following example illustrates three specific concerns that DMM identified in its initial review of the proposal.

In this example, there are four BAAs, each with a bid and a DEB for a marginal resource (see Figure 1). Given the bids, the MPM run will schedule 100 MWs flowing from each of BAA 1 (CAISO) and BAA 3 into BAA 2, and 300 MW flowing from BAA 2 into BAA 4. We assume load and base schedules in each area are such that with this dispatch, prices in each BAA will be at the marginal bid in that BAA. BAA 2 has chosen to have the ISO hold its net exports fixed for the market run. In this example, those net exports are 100MW (300 MW transfer out minus 200 MW transfer in).

Figure 1: Example with four BAAs



In the market run, BAAs 2, 3, and 4 are eligible to be mitigated. Prices in BAA 3 do not change, but prices in BAAs 2 and 4 do change due to mitigation. The 100 MWs still flow from BAA 1 to BAA 2. The relative price relationship between BAA 2 and BAA 3 has flipped as a result of mitigation and the export limit on BAA 2, with BAA 3 now the higher priced area. Since BAA 2 has its export limit fixed, transfers in from BAA 3 can only be dropped if corresponding transfers out are decreased. In order to cut that 100 MW transfer from BAA 3 to BAA 2 the market must also cut the transfers from BAA 2 to BAA 4. But that would be a more costly solution, as it would involve dispatching a \$35 resource down to dispatch a \$37 resource up.

Issue 1: Energy flows from high price area to low price area

After mitigation, net transfers out of BAA 2 are not permitted to be greater than 100 MW. This results in energy flowing from a high priced area (BAA 3) to a low priced area (BAA 2). In this scenario, 100 MW flows from BAA 3, which has a price of \$35, to BAA 2, which has a price of \$31. If the transfer from BAA 3 to BAA 2 would decrease, the net exports out of BAA 2 would increase. In this example, the \$6 savings from transfers from BAA 2 to BAA 4 exceed the \$4 losses from transfers from BAA 3 to BAA 2. In addition to efficiency issues, exporting energy from the higher cost area to the lower cost area creates incentive compatibility issues.

Issue 2: Proposal fails to meet objective- resource still sells below bid

DMM's understanding is that one objective of this proposal is to avoid forcing participants to sell energy at prices below their bid prices. However, in this example the supplier in BAA 2 sells power for \$31. This is below the participant's \$40 bid price. Even if the SC of resources in BAA 2 owns the congestion rent to BAA 4, the SC would only be compensated \$37 for each MWh transferred to BAA 4. This issue can arise in circumstances when the marginal bids and DEBs of a neighboring BAA are higher than marginal bids and debs, respectively, of the BAA with the less expensive resource.

Issue 3: How is congestion rent allocated?

DMM would appreciate if the ISO could clarify the intended treatment of congestion rent in this example. The exact mathematical formulation of the constraints may be important. If the export limit is enforced in BAA 2 as a limit on the net transfer, then none of the ETSRs will have positive shadow prices. Other formulations may have different implications. If the ISO can provide an explicit formulation for calculating and allocating congestion offset, this information may help participants more carefully evaluate the proposal.

If the ISO decides to continue to consider this policy in its next proposal, DMM recommends that the ISO provide more specific details on the proposed design. The relationship between transfers that are fixed from the mitigation run of a 15-minute interval and the transfer capability that the ISO proposes to use in the corresponding 5-minute interval is unclear. Would the net export constraint be limited in the 5-minute market as a result of the 15-minute mitigation run results? What if there is no market power detected in the 5-minute market? If the transfers are not capped in the 5-minute market, does this introduce incentive issues for deviations or other strategic behavior that depends on the differences between those two markets?

2. DEB option for EIM use-limited resources

The general approach that the ISO has proposed for its new hydro resource default energy bid option is very similar to the approaches that have been used for some time in negotiated DEBs for similar resources. Therefore, DMM is supportive of the overall approach. However, DMM opposes the ISO's proposal for using trading hubs that are significantly different (geographically and pricewise) from the geographically closest hub in the formulation of opportunity costs. DMM also has some questions about other details of the proposal.

Use of alternate pricing hubs

The ISO has proposed that some resources may be able to use an alternate pricing hub for calculation of opportunity costs besides the hub that is closest to the resource. The details of this aspect of the ISO's proposal are provided in footnote 16 (p. 29) of the revised straw proposal:

Resources with transmission to multiple locations have a default energy bid calculated based on the weighted average price of each hub. Resources with less firm transmission rights than resource capacity will only be eligible for a weighted blend of bilateral prices between the hub with transmission rights and the default bilateral hub. Annual firm transmission rights need to be demonstrated by the resource owner, or demonstration of monthly purchases of the rights during the prior year.

DMM has several concerns about this aspect of the proposal. First, this approach inappropriately assigns the *value of transmission* between two regions to the *value of energy* in the lower priced region. The value of the transmission should be equal to the difference in prices between the source and delivery point of the transmission. Using the value of this transmission as the value of energy at the lower priced point does not appear appropriate.

For example, suppose a resource has three months of storage and the highest prices in its range of opportunities are the three month out futures prices. Assume that real time prices on a given day rise to the level of that futures price, and the resource runs. If the resource owner has transmission in the third month to an alternate hub that it cannot use after selling power today, the resource may still purchase power in the lower priced hub (closest to the resource) and then utilize the transmission and sell the purchased energy at the higher priced hub. Alternatively, the resource owner could sell the transmission, which should be valued at the difference in prices between the two points.

DMM's second concern with this aspect of the ISO's proposal involves the criteria that the ISO will use to determine if an entity controls transmission to a higher priced hub or region. Under the ISO's proposal, "annual firm transmission rights need to be demonstrated by the resource owner, or demonstration of monthly purchases of the rights during the prior year." This approach in no way ensures that transmission which may have been controlled the prior year or at the start of a year is actually available in the EIM by the time the 15-minute and 5-minute markets are run. In many cases, such transmission would presumably be used to schedule sales or may be sold prior to real time

This aspect of the ISO's proposal can allow prices in lower cost areas to be set or raised based on prices in the higher cost area. DMM opposes this aspect of the alternate DEB proposal. The theoretical justifications do not seem to be economically reasonable or realistic.

35% adder

The ISO has proposed to allow 35% headroom above calculated opportunity costs for short term storage resources. In the proposal, they show data suggesting that this number was arrived at by examining the frequency with which a few specific representative resources would be dispatched beyond its capacity under very particular circumstances. It is unclear why these particular resources were chosen for modeling. All of the characteristics of the resources -- including storage, daily availability, electricity pricing hub, gas region, and EIM price region -- can play an important role in the model. Currently, the ISO has presented data from limited examples. More examples and data may help justify the proposed numbers, or may suggest alternate proposals.

Maximum storage horizon

DMM continues to have the same concerns about verification of inputs such as maximum storage horizon for the hydro DEB, as discussed in previous comments.⁴ Given these issues, DMM recommends that the ISO provide additional guidelines or details of how the ISO envisions reviewing and approving requests under this new DEB.

3. Reference level adjustment process

Updating gas prices for real time bid caps

The ISO appears to largely adopt DMM's earlier proposals for updating reasonableness thresholds for resources in the CAISO footprint. In the revised straw proposal, however, there is limited discussion of how to handle similar updating procedures for EIM areas. Many of these areas have less liquid trading hubs, and those published prices may not reflect actual trading conditions.

The manual process described in the Straw Proposal seems to be consistent with DMM's recommendation that "for units outside of these major gas areas, the ISO could use less accurate thresholds such as the static thresholds proposed by the ISO or utilize more manual processes or other gas information."⁵

⁴ See *Local Market Power Mitigation Enhancements Issue Paper/Straw Proposal Comments by Department of Market Monitoring*, Department of Market Monitoring, October 2018, <http://www.caiso.com/Documents/DMMComments-LocalMarketPowerMitigationEnhancements-IssuePaper-StrawProposal.pdf>

⁵ *Memorandum to ISO Board of Governors, Re: Department of Market Monitoring Comments on CCDEBE*, Department of Market Monitoring, March 14, 2018, p. 8. http://www.caiso.com/Documents/Decision_CCDEBEProposalDepartment_MarketMonitoringMemo-Mar2018.pdf

4. Three pivotal supplier test in EIM areas

DMM received several questions at the November 28th Regional Issues Forum meeting and via emails on how the ISO applies the three pivotal supplier test in EIM areas. In this section we try to clarify answers to those questions and discuss some implications for market power mitigation design.⁶

The ISO conducts the three pivotal supplier test for all constraints that it tests for competitiveness. The ISO does not conduct a different kind of test for determining if an EIM BAA is competitive than the ISO does for determining if a flow based constraint within a BAA is competitive. To determine if an EIM BAA is competitive, the ISO applies the same three-pivotal supplier test to the EIM BAA-specific power balance constraint.

The ISO software conducts the three pivotal supplier test on the BAA-specific power balance constraint. It does not conduct the test on individual transfer constraints that may be binding between BAAs. This is because individual transfer constraints into a BAA are not included in the formulation of locational prices in a BAA. This reflects the fact that one binding transfer constraint into an area does not create price separation between that area and a neighboring area if there is another transfer constraint between the two areas that is not binding.

During the initial EIM design, the ISO decided that the competitiveness test for all types of constraints would only consider the supply from within the EIM BAA in which the constraint is located. This was done to be consistent with the policy decision that was made to not mitigate the bids of resources in one BAA because of congestion on non-competitive constraints in another BAA.

The BAA-specific power balance constraint for each BAA is a constraint within that BAA. Therefore, when the three pivotal supplier test is applied to an EIM BAA-specific power balance constraint the resources that can provide counterflow to this constraint is defined as the set of generators within the BAA. Therefore, if there are four or more suppliers within an EIM BAA offering sufficient capacity to make up for the loss of the supply that could be withheld by the three largest suppliers, an EIM BAA could be deemed competitive under the current design.

The current design for testing the competitiveness of an EIM BAA and incorporating the results of that test into mitigation procedures has been useful in the early phases of EIM design and expansion because it could be implemented in the exact same way as other constraints. However, the design has one potential drawback: there is not an obvious way to simply extend the design to test whether or not the combined supply offers in multiple EIM BAAs separated by congestion from the CAISO would be sufficient to deem the supply in that group of EIM BAAs competitive.

To date, the lack of a three pivotal supplier test for groups of EIM BAAs has not had a practical impact on mitigation because the supply of unaffiliated entities participating in combinations of EIM BAAs was not sufficient to allow combinations of EIM BAAs to pass a three-pivotal supplier

⁶ DMM may not have responded correctly to a question from BPA about this scenario at the November 28th Regional Issues Forum, and is therefore providing this clarification.

test. However, with the addition of more EIM entities it could become feasible for suppliers in groups of EIM BAAs to pass a three pivotal supplier test.

This is not a new theoretical issue. The lack of a three pivotal supplier test for groups of BAAs collectively is consistent with the policy described above (i.e. to not mitigate the bids of resources in one BAA because of congestion on non-competitive constraints in another BAA). DMM has been discussing the issue, and potential remedies, with the ISO and stakeholders since 2016. However, there does not seem to have been much public understanding and discussion of this issue. The ISO did raise this topic publicly at the December 1, 2017 Market Surveillance Committee meeting as a potential issue during the Commitment Costs and Default Energy Bid Enhancements discussion.⁷ We look forward to continuing to work with the ISO and stakeholders on developing a competitiveness test for groups of EIM BAAs whenever this issue becomes a practical concern.

⁷ *Commitment cost and default energy bid enhancements discussion*, CAISO, December 1, 2017, pp. 17-18:
http://www.caiso.com/Documents/Discussion-CommitmentCost_DefaultEnergyBidEnhancements-Dec1_2017.pdf