

Western Power Trading Forum Supplemental Comments on LMPM Enhancements 2018

October 10, 2018 Working Group

Carrie Bentley - Gridwell Consulting for WPTF - Cbentley@gridwell.com

The Western Power Trading Forum

The Western Power Trading Forum (WPTF) is a California nonprofit, public benefit corporation. It is a broad-based membership organization dedicated to enhancing competition in Western electric markets while maintaining the current high level of system reliability. WPTF supports uniform rules and transparency to facilitate transactions among market participants. The membership of WPTF and the WPTF CAISO Committee responsible for providing these comments include CAISO and EIM entities, load serving entities, energy service providers, scheduling coordinators, generators, power marketers, financial institutions, and public utilities that are active participants in the California market, other regions in the West, and across the country.

Summary

WPTF appreciates the opportunity to submit supplemental comments on the CAISO's Local Market Power Mitigation Enhancements 2018 Working Group held on October 10, 2018. WPTF believes the robust discussion at the working group was productive and provided useful insights that can be used to inform the final market design. As the CAISO looks toward extending the day-ahead to EIM, WPTF encourages the CAISO to develop a long-term plan that both fixes immediate issues and makes sense in the context of significantly expanded EIM participation in the day-ahead market. The question of what it means to have regional and local market power in a voluntary market, and at the seams between a voluntary and organized market, is not trivial. Multiple times during the Working Group, both CAISO and DMM noted they were not experts in market-based rate authority and there appeared to be differences in opinion between staff members on different design elements. WPTF believes this reflects the early stage of the initiative and looks forward to future Working Groups that demonstrate additional research and understanding of these key items.

The following comments are in addition to WPTF's comments submitted on October 3, 2018 in response to the LMPM Enhancements 2018 straw proposal. Our Detailed Comments support the following positions:

- WPTF is supportive of the CAISO's efforts to identify market changes that aim to improve application of mitigation and prevent flow reversal that results in EIM entities selling energy at a price below what they were willing.
- WPTF is supportive of eliminating the "mitigation-by-extension" rules and supports a phased approach where the CAISO first implement and then re-evaluate if additional modifications are needed; such as the nominal adder and limiting EIM transfers.
- WPTF is encouraged by Powerex's recent analysis that illustrates a reasonable method for the CAISO to determine an opportunity cost-based DEB for energy limited resources. It is important to keep in mind that the resulting DEBs need to be sufficiently high enough to minimize inefficient use of energy limited resources. WPTF, like many other stakeholders, ask for the DEB adder analysis to be extended to inform how best to categorize the energy limited resources by

limitation horizon. The additional analysis may indicate that another category, e.g. resources with limitations between one month and four months, would be beneficial.

Detailed Comments

Mitigation Framework Enhancements

WPTF appreciates the CAISO's efforts thus far to address the concern whereby EIM entities end up selling power at a price below what they are willing to sell due to the current application of mitigation and default energy bids. The CAISO proposes the following five elements to address this concern, the first three are collectively referred to as the "mitigation-by-extension" rules:

1. Eliminate the balance of the hour mitigation rules in the 15-minute market,
2. Eliminate the rule that if mitigated in FMM, mitigated in RTD,
3. Elimination the rule that if mitigated in one of the first two 5-minute intervals, mitigated in the remaining intervals within the 15-minute interval,
4. Implement a nominal adder to the competitive LMP component of the mitigated bid formulation, and
5. Limiting transfers between BAAs within an import constrained bubble to the greater of the flexible ramping upward requirement less the exporting BAA's imbalance or the exports from the market power mitigation run

Eliminating the mitigation-by-extension rules is intended to more accurately calculate and apply the competitive LMP that is used when determining a resource's mitigated bid; its important to recognize that these changes will also improve mitigation within the CAISO BAA. WPTF supports eliminating the mitigation-by-extension rules as they will ensure a resource's mitigated bid aligns with the competitive LMP for the interval in which it is being mitigated. As renewable penetration increases, and real-time prices become more volatile, the misalignment between a resource's mitigated bid based on previously being mitigated and the current interval's competitive LMP will continue to increase. WPTF appreciates the CAISO recognizing that these existing mitigation rules are resulting in misapplication of mitigation and proposing to eliminate the rules.

WPTF believes additional discussion around proposal elements four and five would be beneficial. Both proposal elements in practice do achieve the intended outcome from a market dispatch perspective. However, when thinking through market design changes, it's important for stakeholders and the CAISO to clearly understand the proposal not only from a market dispatch perspective but also a price signal perspective. WPTF asks the CAISO to further elaborate on the potential impact to prices, as discussed in more detail below.

Both the nominal adder to the competitive LMP and the limitation on transfers between EIM BAAs within an import constrained bubble do address the flow reversal and economic displacement concerns. The adder, while proposed to be of a nominal value, could impact the LMPs if a resource with the adder reflected in its bid becomes the marginal resource. Based on the CAISOs' examples at the working group, this would create price separation between the two BAAs and load that clears at the higher LMP is now exposed to a higher price resulting from the nominal adder. It could be that this is a small concern if the magnitude of the adder and the frequency of which it is reflected in the LMP is minimal, but still warrants discussion.

The proposal to limit transfers between EIM BAAs within an import constrained bubble could have similar pricing impacts as the nominal adder. In this case, limiting (i.e. capping) the transfers between EIM BAAs could result in congestion on the scheduling limit and will ultimately result in price separation between the two BAAs. WPTF wonders if by introducing the price separation under both proposals there could be unintended impacts to the market as well as bilateral contracts with congestion cost provisions. Additionally, WPTF is struggling with the idea of reducing a scheduling limit on a physical transmission system to address a market power concern, and if the resulting price signals are appropriate. Even if congestion occurs on the scheduling limit because the CAISO caps the transfers to address market power concerns, the cost will show up in the congestion component of the LMP (just as all other congestion costs do today) and result in price separation between two areas. Price separation today reflects congestion that occurs on constraints with limits that are set independent of if/when market power mitigation is triggered. Under this proposal, price separation may now reflect a difference in prices sellers are willing to transact in the EIM. WPTF is extremely concerned about the unintended consequences of losing the traditional LMP as equal to system marginal energy cost + losses + congestion paradigm. At a very minimum this design would directly impact market transparency, and signals on the need for transmission or transfer capability.

Lastly, WPTF is supportive of a phased approach whereby the CAISO first eliminates the mitigation-by-extension rules and implements the 4th DEB option. The CAISO can then evaluate the impact those changes have on mitigation and flow reversal concerns. It could be the case that, along with improving the DEBs, the mitigation-by-extension proposal elements sufficiently address the concerns. If the analysis finds that the concerns, while reduced are still prevalent, the CAISO can then at that point implement additional modifications.

4th DEB Option

WPTF appreciates the additional analysis conducted by both the CAISO and Powerex to evaluate the effectiveness of the proposed 4th DEB option. The analysis provided valuable insights that can be used to inform the market design process to create DEBs that will minimize inefficient use of the resources. WPTF believes further consideration of Powerex's recommendation to bucket the energy limited resources based on the limitation horizon (e.g. daily, intra-month, etc) and then set the adder for each bucket is warranted.

With perfect information and foresight, one could theoretically accurately determine the opportunity cost of an energy-limited resource. This would require knowing not only the future market prices but the maximum generation the resource can produce over a known time horizon. The opportunity cost would then be the value of the least profitable MWh sold over the time horizon assuming the resource sold energy only during the most profitable periods and at the most profitable locations. As highlighted by Powerex, this isn't feasible given the set of complex constraints the hydro resources face.

Powerex's proposal reasonably accounts for both the time horizon over which the resource is limited and the range of MWh limitations within that time horizon. This is accomplished by first bucketing the resources into groups by the limitation horizon, then setting the adder based on a percentage that would ensure efficient use of resources within that bucket with potentially a wide range of energy limitations. For example, the adder would ensure a resource with 500 MWhs of surplus energy within a month would also enable efficient use of a resource with 200 MWhs of surplus energy within a month. Additionally, setting the adder based on historical prices grounds the methodology to realized market conditions. Based on the examples provided, WPTF is assuming the N term in Powerex's proposed

formulation would equal the horizon of the “bucket” the resource falls into. As noted previously, how N is defined needs to be clarified in the proposal. Based on this assumption, the DEB formulation for a resource whereby the EIM entity estimates the surplus energy over a 3-month period includes the day-ahead index as well as the monthly indices for the next three months; the DEB formulation for a resource with surplus energy estimated daily would only have the day-ahead index included.

WPTF believes additional analysis that expands upon what was presented by Powerex would be informative. The results highlighted the need for an adder higher than the CAISO’s currently proposed 10%. With a ten percent adder, the resource will still be inefficiently dispatched half of the time; whereas the goal is to ensure the resource is almost always optimally dispatched, even when mitigated. Thus, setting the adder at a level where it ensures the DEB would rarely fall below what would have been the offer price to achieve optimal use of the resources within the within the same bucket is key. Conducting the same analysis but evaluating for a variety of time horizons would be valuable to determine how many “buckets” should be created. It could be the case that resources with a 12-month limitation needs a different adder than resources with a 6-month limitation, and thus a 6-month limitation bucket would be beneficial.

Lastly, a key input into the 4th DEB option is the amount of “storage” available, and thus should be clearly defined upfront. As discussed in comments above, Powerex proposes “storage” to be surplus energy after serving load based on normal operations over a time horizon, e.g., 500 MWhs surplus energy over a month. Surplus energy can drastically change for a resource seasonally, especially hydro resources, and storage in terms of storage capacity versus surplus energy are significantly different. Thus, WPTF asks the CAISO to clarify how it defines storage in the proposal so stakeholders can clearly understand what metric the opportunity cost is based upon.

WPTF thanks the CAISO for consideration of our comments.