Comments on FERC Order 764 Market Changes Revised Straw Proposal

Department of Market Monitoring
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I. Summary

The Department of Market Monitoring (DMM) appreciates the opportunity to provide comments on the FERC Order 764 Market Changes Revised Straw Proposal.

We generally support the ISO's proposal to settle all intertie and internal load and generation on a 15-minute market. We also support the ISO eliminating Transmission Reservations from its proposal. We expect the overall proposal to have a significant positive impact on reducing real-time imbalance offset charges and supporting renewable integration. Therefore, despite the concerns we raise below, we support the proposal (with some minor adjustments) moving forward on schedule towards implementation. Please refer to DMM's two sets of prior comments for more details on aspects of the proposal that we support.[1,2]

Our concerns about the proposal include the following:

- **Hourly Block Process Decline Charge** does not adequately incent intertie VERs to submit accurate hour-ahead forecasts. In addition to "reserv[ing] the right to cancel a variable energy resource's ability to use their forecast,"[3] we recommend the ISO commit to monitoring for any gaming and/or systematic errors in these forecasts. Moreover we recommend the ISO create a tariff provision that gives the ISO the authority to revoke a specific resource or entity's ability to submit its own forecasts should the ISO determine the resource has submitted inaccurate forecasts. We also recommend the ISO consider minor revisions to its incentive structure for preventing intertie VERs from inflating hour-ahead forecasts.

- **BCR for hourly block intertie schedules with single intra-hour curtailment** would use an administratively assigned uplift to incent day-ahead intertie schedules to submit economic bids (i.e. not self-schedule) in real-time. We recommend the ISO not provide BCR for hourly block interties schedules and instead rely on price signals in the 15-minute market to incent participant behavior.

- **Intertie virtual bids** could exacerbate Real-time Congestion Imbalance Offset costs if there continues to be constraint limit inconsistencies between day-ahead and real-

[1] See DMM's comments on the FERC Order 764 Straw Proposal at http://www.caiso.com/Documents/DMM-Comments-FERC_Order764MarketChangesStrawProposal.pdf.
[2] See DMM's comments on the FERC Order 764 Dec 18, 2012 Straw Proposal Technical Workshop at http://www.caiso.com/Documents/DMM-CommentsFERC_Order764MarketChangesStrawProposalTechnicalWorkshop.pdf
[3] See pg 19 of the ISO's FERC Order 764 Revised Straw Proposal at http://www.caiso.com/Documents/RevisedStrawProposal-FERCOrderNo764Compliance.pdf.

time. Prior to re-implementing intertie virtual bids DMM recommends the ISO reduce the biasing down of real-time limits of constraints for which intertie schedules have a strong impact on flows.

- **Starting the 15-minute market optimization at 37.5 minutes** prior to the time of flow (T-37.5) introduces improvements in accuracy compared to the current time gap between HASP and RTD. However, this will still be less efficient relative to starting the binding 15-minute optimization at T-22.5. Among other benefits, starting the 15-minute optimization closer to the time of flow will reduce real-time congestion imbalance offset charges. We recommend the ISO pursue working with other Balancing Authorities and WECC to move to 15-minute transmission reservations and shorter e-tag timelines so that the binding 15-minute market optimization can be moved forward to the T-22.5 run.

- **Price divergence between the 15-minute market and RTD** has the potential to increase relative to historical patterns after the implementation of the 15-minute market. This is because the type and degrees of operator intervention in the 15-minute market (such as load biasing, exceptional dispatch, and constraint limit biasing) may increase relative to the historical norm of operator intervention in RTPD due to the greater importance of RTPD process in terms of market dispatches and prices. This, in turn, creates the potential for market inefficiencies. We recommend that the ISO develop and test protocols on operator intervention in the 15-minute market prior to its implementation as a proactive measure for reducing the price divergence. We also recommend the ISO commit to monitoring for deviations intended to arbitrage the price divergence and prepare options for addressing the problems should they arise.

We provide more detail on these concerns below.

II. Hourly Block Process Decline Charge

The Hourly Block Process Decline Charge does not adequately incent intertie VERs to submit accurate hour-ahead forecasts. The charge is intended to prevent an intertie VER from using its own forecast to artificially inflate its hour-ahead forecast. An intertie VER may have the incentive to artificially inflate its hour-ahead forecast in order to prevent the hourly block schedule process from awarding advisory transmission reservations and hourly block schedules to other resources on a congested intertie. This would increase the price the VER would receive in the 15-minute market by reducing or eliminating congestion at its scheduling point.

The ISO's proposal to allow positive deviations to offset negative deviations in the monthly threshold calculations for the charge creates opportunity for an intertie VER to systematically benefit from over-procuring intertie capacity while avoiding exposure to the charge. The intertie VER can submit an hour-ahead forecast that is much higher than the resource's anticipated metered output during hours when the intertie may be expected

to be congested. The intertie VER would have negative deviations during these hours. Note that these hours of expected intertie congestion are precisely the hours when the intertie VER would benefit from overstating its hour-ahead forecast, as explained above. During hours when the intertie VER did not expect congestion on its intertie, the VER could submit an hour-ahead forecast that is much lower than the resource's anticipated metered output. The intertie VER would have positive deviations during these hours. Note that the VER would not be adversely affected by an hour-ahead forecast below its actual output during hours when the intertie is not congested. Due to the proposal to allow these positive deviations to offset the negative deviations, an intertie VER can systematically evade exceeding the 10% threshold that triggers the charge while benefiting from over-procuring intertie transmission capacity during times of intertie transmission capacity scarcity.

Such over-procurement of intertie capacity by VERs would have a detrimental effect on market efficiency by unnecessarily excluding potentially economic intertie resources from receiving hourly block schedules or participating in the 15-minute market. As a backstop against this type of manipulation, the ISO does mention in the Revised Straw Proposal "reserv[ing] the right to cancel a variable energy resource's ability to use their forecast."[4] We recommend the ISO create a tariff provision that gives the ISO the authority to revoke a specific resource or entity's ability to submit its own forecast should the ISO determine the resource has submitted inaccurate forecasts. Furthermore, we recommend the ISO commit to monitoring for forecast inaccuracy, and adequately prepare to take quick action in the event of systematic or significant inaccuracies. However, monitoring should not be used as a replacement for good market design that incents appropriate market participant behaviors. Therefore, we recommend the ISO consider minor revisions to its incentive structure for preventing intertie VERs from inflating hour-ahead forecasts.

III. BCR for hourly block intertie schedules with single intra-hour curtailment

The ISO proposes to offer BCR to hourly block schedules with single intra-hour curtailment if the schedule is decremented from its day-ahead schedule. The ISO is likely proposing this BCR out of concern that without such BCR, day-ahead schedules that could not bid in the 15-minute market would self-schedule their day-ahead award in real-time in order to avoid the risk of having to buy back their curtailed schedules at 15-minute prices that exceeded their day-ahead sale price.

DMM does not support BCR in this circumstance, or for any hourly block schedule. First, offering out-of-market uplift to create incentives for resources to provide decremental bids is inconsistent with the ISO's guiding principle of relying on price signals to incent participant behavior. Market participants in the situation described above do not need bid cost recovery in order to create incentives for submitting economic

[4] See pg 19 of the ISO's FERC Order 764 Revised Straw Proposal at http://www.caiso.com/Documents/RevisedStrawProposal-FERCOrderNo764Compliance.pdf.

decremental bids. The market participant can adjust its real-time curtailment bid down in order to account for the risk of prices rising above its day-ahead sale price in the few intervals following economic curtailment. For market participants that lack the sophistication to hedge their own risk by lowering their real-time bid price, we expect that more innovative financial entities will be able to structure a mutually beneficial financial product that eliminates risk-averse market participant's risk entirely.

Moreover, if the ISO has concerns about receiving a sufficient quantity of real-time decremental bids, the ISO should adjust other policies before resorting to undermining its markets with additional uplifts. For example, the ISO could adjust its policy for handling day-ahead schedules that do not submit real-time bids. Rather than automatically rolling over such day-ahead schedules as self-schedules in real-time, the ISO could default to resubmitting the day-ahead bids of the resource in real-time.

IV. Intertie virtual bids

The predominant cause of real-time Congestion Imbalance Offset (RTCIO) charges is decreasing the limits of constraints in real-time below the constraints' day-ahead limits. When a constraint with a limit that has been lowered in real-time binds in real-time, a re-dispatch of day-ahead schedules in real-time is necessary to decrease the flow over the constraint from its day-ahead flow levels down to its new lower real-time limit. This re-dispatch necessarily increments resources with a higher real-time locational price relative to the constraint and decrements resources with a lower real-time locational price relative to the constraint. Therefore, RTCIO attributable to a particular constraint is directly proportional to the amount that the day-ahead flow over a constraint exceeds the real-time binding limit of that constraint.

Intertie virtual bids will therefore exacerbate RTCIO charges to the extent that intertie virtual bids may increase the day-ahead flow on constraints that subsequently have their limits cut and bind in real-time. Note that if intertie virtual schedules primarily displace physical intertie schedules in the day-ahead then increased RTCIO cannot be directly attributed to intertie virtual schedules. However, if intertie virtual schedules cause net increases in the day-ahead flow over constraints that the ISO subsequently biases down in real-time, then the introduction of intertie virtual bids will exacerbate RTCIO charges.

The constraints that have historically contributed the most to RTCIO have been constraints on which intertie schedules are very effective at impacting flows. If the ISO continues its historical pattern of biasing such constraints down in real-time, increases in the level of net day-ahead imports will materially increase RTCIO charges. The introduction of intertie virtual bids should be expected to increase net day-ahead imports at the relevant scheduling points.

The reintroduction of intertie virtual bids is therefore likely to exacerbate RTCIO costs if the ISO fails to adequately address constraint limit inconsistencies between day-ahead and real-time. Prior to re-implementing intertie virtual bids DMM recommends the ISO

reduce the biasing down of real-time limits of constraints for which intertie schedules have a strong impact on flows.

V. Starting the 15-minute market optimization at T-37.5 minutes

In order to align its market timeline with WECC's 20 minute e-tag submission deadline, the ISO must push the start of the 15-minute market optimization back to T-37.5 minutes from T-22.5 minutes. This increase in the time lag between the start of the optimization and the actual power flow will cause proportionately larger errors in the forecasts (load and VER) used in the 15-minute market optimization. Forecast errors in the 15-minute market optimization create several sources of market inefficiency.

Moreover, as discussed in the section on intertie virtual bids above, the constraints that have historically contributed the most to RTCIO have been constraints on which intertie schedules are very effective at impacting flows. Therefore, biasing the limits of such constraints down after the start of the 15-minute market run eliminates the possibility of the optimization re-dispatching some of the most effective resources at reducing the constraint's flow. As a result, biasing the limits of constraints down after the start of the 15-minute market run results in significant increases in the magnitude of the congestion price of these constraints in the 5-minute market. The magnitude of this congestion price on constraints biased down in real-time directly impacts the real-time congestion imbalance offset charge. This is because when the ISO reduces the amount of power that can flow over a constraint between day-ahead and real-time, the ISO must buy back, out-of-market, this extra day-ahead flow at the biased constraint's real-time congestion price. Moving the start of the optimization that re-dispatches tie resources closer to the time of flow will decrease the need to bias constraint limits down between the start of that optimization and the 5-minute market. This will significantly decrease the real-time congestion imbalance offset charge.

We therefore strongly support this policy initiative's move to start the optimization that dispatches tie resources from T-75 to T-37.5. However, we recommend the ISO continue to invest in working with WECC to move to 15-minute transmission reservations and shorter e-tag timelines so that the ISO can move the start of its 15-minute market optimization to T-22.5 as soon as possible.

VI. Price divergence between the 15-minute market and RTD

Operator interventions such as load biasing, exceptional dispatch, and constraint limit biasing currently play a significant role in creating price divergence between RTD and HASP. The 15-minute market will play an increasingly significant role in procuring intertie capacity and flexible ramping capacity. These changes may substantially impact the types and degrees of operator intervention in the 15-minute market relative to the historical norm of operator intervention in RTPD. Therefore, the absence of a historical pattern of price divergence between RTPD and RTD is not an indication that actionable patterns will not emerge upon the implementation of the 15-minute market.

Currently, our main concern over price divergence between the 15-minute and 5-minute markets is that this price divergence will create incentives for VERs to submit inaccurate forecasts. Internal VERs will settle their metered output at the RTD price. This settlement will be adjusted by the amount the 15-minute market price exceeds the RTD price for each MW of the VER's 15-minute forecast. Therefore, if a VER expects the 15-minute market price to exceed the RTD price, it has the incentive to artificially bias its 15-minute forecast upward in order to increase its exposure to the 15-minute market. Conversely, if the VER expects the RTD price to exceed the 15-minute market price, it has the incentive to artificially bias its 15-minute forecast downward in order to minimize its exposure to the 15-minute market.

As a backstop against this type of manipulation, the ISO does mention in the Revised Straw Proposal "reserv[ing] the right to cancel a variable energy resource's ability to use their forecast."[5] We recommend the ISO create a tariff provision that gives the ISO the authority to revoke a specific resource or entity's ability to submit its own forecast should the ISO determine the resource has submitted inaccurate forecasts. Furthermore, we recommend the ISO commit to monitoring for forecast manipulation and adequately prepare to take quick action against violators.

We also have some concerns about price divergence creating incentives to deviate for resources whose operating costs exceed expected market prices over a portion of their commitment period. Price divergence will also create some incentives for intertie resources to not tag their 15 minute schedules. These concerns should not delay this policy from going forward, as these incentives to deviate should be mitigated by flexible ramping cost allocation to deviations. Furthermore, the profitability of such strategies would likely require systematic deviation for which the ISO can monitor.

We look forward to helping the ISO better understand the adverse incentives the price divergence could create for following instructions and submitting accurate forecasts. We recommend the ISO commit to monitoring for deviations intended to arbitrage the price divergence and prepare options for addressing the problems. We also recommend that the ISO develop and test protocols on operator intervention in the 15-minute market prior to its implementation as a proactive measure for reducing the price divergence.

VII. PIRP

DMM appreciates elements of the ISO proposal that further integrate variable energy resources into the wholesale spot market. Moving the scheduling basis where forecasts are incorporated from prior to the HASP market execution to the 15-minute market run provides a schedule basis derived from a significantly more accurate forecast and reduces the amount of VER energy exposed to 5-minute market prices. We support the improvement in use of forecast as well as the accompanying elimination of monthly netting of uninstructed energy for settlement.

[5] See pg 19 of the ISO's FERC Order 764 Revised Straw Proposal at http://www.caiso.com/Documents/RevisedStrawProposal-FERCOrderNo764Compliance.pdf.