

Comments on Real-Time Imbalance Energy Offset Draft Final Proposal

Department of Market Monitoring

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Summary

DMM supports the ISO's proposal to remove the opportunity to submit virtual bids at the interties as a short-term option to help reduce high real-time imbalance energy offset charges. DMM anticipates this change will significantly reduce these offset charges, without any decrease in overall market efficiency. However, unless the systematic price and dispatch discrepancy between the hour-ahead scheduling process (HASP) and 5-minute real-time dispatch (RTD) that has existed since the start of the ISO's new market can be significantly reduced, high offset charges may continue to accrue.

Even prior to implementation of convergence bidding, high real-time imbalance energy offset charges resulted from the tendency for net physical intertie schedules to be reduced in HASP at low prices, while additional incremental energy was purchased from resources within the ISO at much higher prices in the 5-minute market. DMM believes that even with the removal of virtual bidding at the interties, these offset charges may be significant enough to warrant further action prior to the implementation of the real-time market redesign as part of the Renewable Integration initiative. Therefore, DMM recommends that the ISO continue to consider a phased approach that would start with the proposed changes to convergence bidding and consider a second phase to address remaining issues with physical intertie schedules. One specific option DMM believes merits further consideration is the type of settlement rule for physical inter-tie transactions employed by the NYISO.

Eliminating virtual bids at the interties in the short-term

Impacts on Real-Time Imbalance Energy Offset charge

Convergence bidders continue to profitably exploit the predictable price differences between RTD and HASP by submitting virtual imports at interties offset by an equal quantity of virtual demand at internal nodes.¹ Each offsetting pair of virtual bids within a market participant's portfolio directly contributes to the Real-Time Imbalance Energy Offset charge whenever the RTD price exceeds the HASP price. Furthermore, intertie virtual schedules offset by the opposite internal virtual schedules from unaffiliated entities also continue to contribute to the Real-Time Imbalance Energy Offset charge.

Intertie virtual schedules settling in HASP profit from the position that tends to converge IFM and HASP prices. For instance, when the IFM price is higher than the HASP price,

¹ Given the tendency for RTD prices to be higher than HASP prices, the bulk of these offsetting bids have involved virtual imports combined with virtual demand at internal nodes. However, during some series of days, HASP prices have tended to be higher than RTD prices for some hours. When this trend has developed, some participants have profited from submitting virtual exports combined with an equal quantity of virtual supply at internal nodes.

virtual imports, which tend to bring the IFM price down, are profitable. Virtual exports, which move IFM prices away from HASP prices, are not profitable.

Meanwhile, internal virtual schedules profit from the position that tends to converge IFM and RTD prices. For instance, when the IFM price is lower than the RTD price, virtual demand, which tend to bring the IFM price up, is profitable. Virtual supply, which moves IFM prices further below RTD prices, is not profitable.

Thus, as long as predictable hourly average patterns of price separation exist between RTD and HASP, one virtual position will be profitable at the interties (e.g. virtual imports) while the opposite virtual position (e.g. virtual demand) will be profitable internally. Internal virtual demand pulls IFM prices up towards RTD, but offsetting virtual imports push IFM prices down towards HASP prices.

Therefore, the interaction between internal virtuals settling in RTD and intertie virtuals settling in HASP creates the following trends:

- IFM prices will not converge over the long-run to either RTD or HASP prices.
- Over the long run, net internal virtual positions and the opposite net intertie virtual positions will both be profitable.
- Together, the offsetting virtual positions will cause Real-Time Imbalance Energy Offset uplift in proportion to the average hourly price differences between RTD and HASP.

Predictable patterns of price divergence between RTD and HASP remain despite actions taken by the ISO to converge them. Between February 1 and July 31, offsetting virtual positions contributed around \$250,000 per day to the Real-Time Imbalance Energy Offset charge. Over the two most recent months of June and July, offsetting virtual positions still contributed about \$200,000 per day to the Real-Time Imbalance Energy Offset charge.²

Benefits of turning off virtual bidding at interties

Disabling virtual bids at the interties would create substantial benefits:

- First, this would eliminate a significant portion of the Real-Time Imbalance Energy Offset uplift charges, estimated to be near \$250,000 per day.³
- Eliminating virtual bids at the interties may also allow virtual bidding at internal nodes within the ISO to have more of an effect in terms of promoting convergence of

² These numbers do not include price corrections.

³ We do not expect the Real-Time Imbalance Energy Offset charge to decrease by the amount that can currently be attributed to virtual schedules at the interties. In the absence of virtual schedules at the interties, we expect the contributions to the Imbalance Energy Offset charge from other sources, in particular day-ahead physical imports reversed in HASP, to increase.

IFM and RTD prices. This, in turn, may improve unit commitment performed in the day-ahead market.⁴

Costs of turning off virtual bids at the interties

One potential benefit of virtual bids at the interties cited by stakeholders involves virtual demand. Virtual demand at an intertie allows an external physical generator to partially hedge against price risk if it incurs an outage and has to buy back its day-ahead schedule at a potentially high HASP price. However, DMM has found almost no evidence of this practice. While day-ahead physical imports average over 7,000 MW per hour, an average of only about 11 MWs per hour of virtual demand is scheduled by entities with cleared day-ahead physical imports at the same intertie. Even if all 11 MWs an hour were intended to hedge a potential outage, the total value of this hedge would be *de minimus* compared to the direct cost of virtual schedules on the Real-Time Imbalance Energy Offset charge discussed above.

Another potential benefit of virtual bids at the interties cited by stakeholders involves virtual supply. An external resource with variable output or availability (such as renewable wind resources) can bid its day-ahead forecast as virtual supply. The resource can then wait until shortly before HASP to purchase and E-tag transmission according to its more accurate hour-ahead forecast. The resource can thereby avoid purchasing excess transmission in the event its day-ahead forecast exceeds its hour-ahead forecast. However, the resource can achieve the exact same ‘hedge’ through scheduling its day-ahead forecast as a physical import in the IFM, and then waiting until shortly before HASP to purchase and tag transmission according to the resource’s hour-ahead forecast.

For such resources, there are two differences between scheduling as a virtual import rather than a physical import in the day-ahead market.

- First, if the resource uses virtual supply to schedule its day-ahead forecast, the resource can profit from the amount the day-ahead price exceeds the HASP price for each MWh of that schedule it backs down in HASP. If instead the resource schedules its day-ahead forecast as a physical import in the IFM, the HASP Reversal Rule would prevent the resource from earning profits on its undelivered day-ahead schedule. Therefore, the purported benefit of allowing virtual supply at the interties is simply that it will allow cuts in day-ahead schedules to profit from the IFM price exceeding the HASP price. This benefit is unrelated to whether or not virtual bids should be allowed at the interties. If stakeholders feel the HASP Reversal Rule should include an exemption for intermittent renewable resources, they should directly request a revision of that rule.
- The second difference between using virtual imports rather than physical imports to represent non-firm generation in the day-ahead market is the impact on the residual

⁴ Virtual bids at the interties have the effect of pushing the IFM system marginal energy price toward the HASP price and away from the RTD price. This hinders the efficiency of the day-ahead unit commitment.

unit commitment (RUC) process. RUC will not consider any of the virtual supply as being available. On the other hand, RUC may view the entire day-ahead physical import schedule as available.⁵ Since the day-ahead physical import schedule should represent the best estimate of what a resource will deliver in real-time, this should provide RUC with better information for making efficient commitment decisions than a virtual supply bid that is replaced with a physical schedule in the HASP.

Alternative Intertie Settlement Rules

Turning off virtual bidding at the interties will significantly reduce the Real-Time Imbalance Energy Offset charge relative to what it would be with virtuals left on at the interties. The long-term solution for minimizing these offset charges is to redesign the real-time market so that all external and internal resources are scheduled and settled in the same market. However, the implementation of such a redesign is likely several years away. In the meantime, even with virtuals turned off at the interties, the uplift may still be significant, as it was prior to the implementation of convergence bidding. DMM therefore recommends that the ISO continue to pursue other interim solutions for reducing the Real-Time Imbalance Energy Offset charge.

In particular, the ISO should continue to consider the merits of the NYISO's real-time method for settling intertie schedules. If the ISO turns off virtual bidding at the interties, we expect that "buy-backs" of physical imports and increased exports in HASP at relatively low prices may increase. Settling intertie schedules in RTD when the associated ITC has no HASP congestion would substantially reduce the impact of HASP deviations on the Real-Time Imbalance Energy Offset charge.

Aside from significantly reducing the Real-Time Imbalance Energy Offset charge, the NYISO's real-time method for settling intertie schedules has the following merits:

- It creates incentives for physical intertie schedules to adjust its scheduling practices so as to converge IFM energy prices to RTD prices instead of to HASP prices.
- It may allow the reintroduction of virtual bidding at the interties.⁶

Providing physical imports a bid-cost guarantee if the HASP price exceeds the RTD price would create a potential gaming opportunity for balanced HASP export and import schedules to profit from the RTD LMP settling below an entity's cleared HASP import bid price. For example, in HASP an entity would bid 100 MW of price-taking exports. It would bid the same quantity of imports at the highest bid price that it would expect to clear. If the RTD price exceeded the entity's import bid price, the entity would buy the

⁵ In practice, the ISO may adjust the degree to which it assumes day-ahead imports will be available in real-time when determining RUC requirements.

⁶ The NYISO does not allow virtual bidding at the interties. However, virtual bidding at the interties would be far less problematic with NYISO's real-time intertie settlement method than with CAIOS's current method. Virtual bids at the interties would be less problematic in terms of contributing to the Real-Time Imbalance Energy Offset charge and creating divergence between IFM and RTD system marginal energy prices.

exports and sell an equal quantity of imports at the same price, breaking even.⁷ However, if the RTD price settled below the entity's import bid price, the entity would buy the exports at the RTD price and sell the imports at its import bid price. The entity's per MW profits would be the amount its HASP import bid price exceeded the RTD price.

DMM believes the profitability of this gaming opportunity can be assessed to determine if it is a legitimate concern relative to the costs of continuing to settle intertie schedules on HASP. In addition, DMM believes that concerns about such gaming may be addressed through special settlement rules targeted at such scheduling patterns.

⁷ The entity would lose the administrative costs of clearing the exports each hour. The expected size of this loss should be compared to the expected gaming revenues to assess the overall profitability of the gaming opportunity.