Real-Time Imbalance Energy Offset (RTIEO)

Submitted by	Company	Date Submitted
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SCE appreciates the opportunity to provide comments here and during the June 17th web conference. SCE also appreciates and supports the California Independent System Operator's (CAISO's) commitment in solving this serious problem. SCE also thanks the CAISO for its efforts to reduce the Hour Ahead Scheduling Process-Real Time (HASP-RT) price divergence, and in turn, the RTIEO. SCE also appreciates the productive ideas and discussion from other stakeholders. This debate has further convinced us of the serious nature of these issues.

However, SCE expresses concern with the time it is taking to resolve this issue. We strongly encourage the CAISO to expedite action. RTIEO continues to be costly and doing nothing or introducing unnecessary delay is not an option. Currently, balanced virtual positions are resulting in about $3 MM/month (or $36 MM/year) of uplift[1]. This uplift remains even with the CAISO's improvements to HASP-RT. This $36 MM/year is effectively a transfer from Load to Virtual Traders. Moreover, even though this subset of Virtual Trades provides no economic benefit to the market, the current market structure, coupled with the RTIEO allocation, obligates load to make these payments. The situation is neither just nor reasonable and must be remedied.

The CAISO has engaged stakeholders on this issue now for several months. It is time to take action. The solution to this problem was originally scheduled to go to the CAISO Board in June[2] and has now been delayed to August. We object to this delay. Every month of delay is currently resulting in millions of dollars of uplift being unjustly allocated to Load. Rather, this issue should be resolved in the July Board meeting at the latest. CAISO should then request

[1] Figure 2, http://www.caiso.com/2b99/2b99b8ae61150.pdf
[2] http://www.caiso.com/2b6d/2b6dbe2125320.pdf

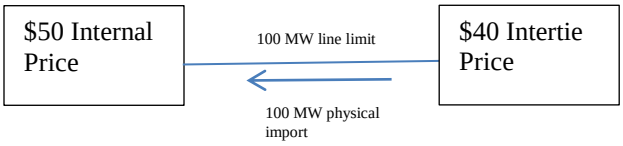
immediate relief from FERC as was done with the emergency filing on Tariff Amendment to Modify Market Settlement Rules in Docket No. ER11-3149.

Comments on CAISO Straw proposal

1. *Suspension of intertie virtual bidding:*
   SCE has tried to find a way to avoid this option but after much study, stakeholder debate, and particularly a study of the dual-constraint issue, SCE reluctantly concludes it must support this proposal. Of the many options discussed, we find this is the **only** option that solves the problem of uplift created by "overlapping" Virtual Bids and resolve issues related to the dual-constraint pricing on the interties.

   While we generally support eliminating the HASP settlement and moving all virtual transactions to day-ahead and real-time settlements, the current impact of the dual-constraint on the interties would have to be addressed in order for this approach to be effective. We have concluded that the current process will not allow "convergence bids to converge prices", on the interties as illustrated below, and thus the appropriate response is to suspend virtual bids on the ties.

   Consider a typical situation in California where there is inbound congestion due to physical imports. Assume day-ahead prices internal to the CAISO are $50, and the external price on the intertie is $40 due to congestion. Assume further there is a large amount of physical imports willing to sell (import) at the intertie at $41/MWh. Thus, any physical export bids cleared will result in an equal magnitude of counter-flowing imports clearing if the intertie LMP ≥ $41. Additional cleared Virtual Demand Bids (virtual exports) will not lead to incremental physical imports (since the line is at its full physical import limit). The analyses presented in these comments depend on the equations provided by the CAISO in its "Price Inconsistency Caused by Intertie Constrains, Draft Final proposal, May 18, 2011.[3]



   Starting with this base-case, consider the following sensitivities.

   Sensitivity 1 - 1 MW of Physical Export (Demand) bids at the tie at $41:
   The bid **will clear**, and will in effect create a counter flow of 1 MW of additional import capability. In turn, the final LMP at the intertie will be $41/MWh.[4]

[3] http://www.caiso.com/2b82/2b82a04d5b660.pdf
[4] Pp 5, http://www.caiso.com/2b82/2b82a04d5b660.pdf, Equation 1: 100 – 1 = 99, Equation 2: 100 – 1 = 99. ZI = 100. Neither constraint binds and Equation 9 becomes: LMP*V = $50. Subsequently, 1 MW of physical import

Sensitivity 2 - 1MW of Virtual Demand (Export) bids at the tie at $41:
Because of the current dual-constraint formulation, unlike the physical bid, the Virtual Demand **will not clear** the market, and since no additional bids clear beyond the base-case scenario, prices remain the same as the base-case, and the intertie price remains $40.[5]

We observe that in this case, if a Virtual bidder believes the appropriate clearing prices should be between $41 and $50, they are unable to cause price convergence by submitting a Virtual Bid in this price range, but rather the price will remain $40 on the intertie.

Sensitivity 3 – 1 MW of Physical Export (Demand) bids at the tie at $51:
Here the result is exactly the same as Sensitivity 1, the final LMP at the tie is $41.

Sensitivity 4 – 1 MW of Virtual Demand (export) bids at the tie at $51:
Unlike Sensitivity 2, the Virtual Demand will clear the market[6]. However, the price at the intertie now clears at $50.

Collectively, we observe the following results:

Bid Type at Intertie	**Bid Price**	**Final LMP at the Intertie**
Physical Export (Demand)	$41	$41
Virtual Export (Virtual Demand)	$41	$40
Physical Export (Demand)	$51	$41
Virtual Export (Virtual Demand)	$51	$50

We observe the following abnormal results:

1) In the case where a Virtual bidder believes the day-ahead price on the inter-tie is too low at $40, but instead believes the price should be something greater than $40 and less than $50, they *are unable to achieve* this result by bidding Virtual Demand.

(given the large amount waiting to sell at $41) clears and then Equation 1 & 2 are binding. The shadow price, x*PVI = $50 –$41 = $9 ($41 is for the one incremental physical MW that cleared to bring the line back to full congestion). Now, the LMP is = $50 – $9 = $41.

[5] If the Virtual Bid were to clear, then Equation 1would be: 100 – 1 = 99 and would not bind (hence x*PVI=0) but Equation 2: 100 – 0 = 100 would bind. Then Equation 9 would produce: LMP*V = 50 – 0 = $50, producing an LMP price of $50 on the intertie. This result would imply the Virtual Export, bid at $41, cleared "out of the money" and thus the pricing for the Virtual Bid would be "Inconsistent". However, Table 1 of the same document indicates that pricing is always "Consistent" for cleared Virtual transactions. We therefore conclude the $41 Virtual bid would *not clear*. In the case where the Virtual Demand *does not* clear, Equation 1 and 2 are binding and thus the shadow price, x*PVI = 50 – 40(as in the original basecase) = $10. Equation 9 becomes LMP*V = $50 – $10 = $40. While SCE understands this to be mathematical consistent with the documentation provide by CAISO, if the CAISO concludes otherwise, we requests the CAISO provide an explanation of their calculation**.** We also conclude that any Virtual Demand bid at prices below $50 (the internal price) will not clear the market.

[6] The Virtual Bid clears and Equation 1: 100 – 1 = 99 and would not bind (hence x*PVI=0) but Equation 2: 100 – 0 = 100 would bind. Then Equation 9 would produce: LMP*V = 50 – 0 = $50, producing an LMP price of $50 on the intertie. Then Equation 9 produces: LMP*V = 50 – 0 = $50, thus the LMP at the inter-tie is $50. We note that since the Virtual Demand bid at $51, the bid clears at a "Consistent" price.

2) Virtual Demand bids greater than $40 but less than $50 **will not** clear the market, even though the final LPM ($40) indicates the Virtual Bids were in the money and should have cleared. Under an economically efficient design, Virtual Demand bid in this range would both clear and would increase the LMP on the tie. Put another way, anytime economic bids are not used to determine final prices (as is the case here), the final price will not be economically efficient.
3) The physical bids and Virtual bids, even if placed at the *same location* and at the *same price*, result in different final LMPs.
4) If the "correct" price on the inter-tie expected in real-time (or HASP) is $41, this price can *only* be achieved in the day-ahead process via the submission of physical bids. Virtual bids are ineffective in moving the price to $41, and instead leave the price unaltered or cause it to "jump" to $50.

Thus, we conclude Virtual Bids *are not* effective substitutes for physical bids on the inter-ties, and, in turn, this effectively prevents Virtual Bids from converging prices, particularly in the presence of physical congestion. If you will, physical bids are "apples", Virtual Bids are "oranges", and the dual-constraint prices are "fruit salad". For Convergence Bids to work, they must produce prices converging to "apples", the ultimate physical price.

At its core, Convergence bidding does not provide an effective tool to "converge" prices at the inter-ties. SCE does not support the continuation of "Convergence bids", which due to structural reasons such as the dual-constraint, will not efficiently converge prices.[7]

SCE now sees this mismatch between physical and Virtual bids as a core and fundamental structural problem which, based on the solutions proffered in this process, leaves suspension of Virtual Bidding at the interties as the only workable option. If this issue is resolved, focus should then turn to SCE's proposal submitted on June 2nd, 2011[8] to ensure that proper inter-tie convergence would result under any revised formulation.

2. Settlement Rule:

SCE strongly urges that the position limits remain on the interties until such transactions are formally suspended or another workable solution is implemented.[9] Without action, Position limits on the interties increase on October 1, 2011. We note that going to the

[7] Offering two separate prices for physicals and Virtuals at the interties is not a valid solution to the dual constraint problem since such a proposal takes us further away from any price convergence goal. Again, if Convergence Bidding does not efficiently converge prices it should not be allowed.

[8] SCE's proposal included the following major points:

- moves all virtual settlements to DA and RT
- maintains the current HASP time-line and bidding process, but eliminates the HASP settlement
- instead of a HASP settlement, physical HASP transactions should be paid "as-bid", and self-schedules that would be pure price-takers to the real-time market price
- any resulting uplift/downlift should flow to the RT Imbalance Energy Offset. We note we would be open to modification to the allocation to the RTIEO to better reflect cost causation as part of the intermediate solution

[9] The CAISO stated that position limits are necessary and should be more stringent for interties than for internal nodes – ER10-1559 (pp 25), ER10-300, ER06-615 (pp 11)

Board in August as proposed, and following typical FERC timelines of 60+days before approval, will not address the problem prior to the limit increasing. We strongly object to such a possible outcome.

3. *As part of this immediate fix, the CAISO should expand cost allocation to physical transactions with changes in HASP:*
   The last three quarters of 2009 alone showed $100 MM in RTIEO, over $100 MM in 2010, and $50 MM in the first quarter alone of 2011[10]. Such a magnitude of costs will stay unless all incremental physical transactions are addressed. Paying HASP as-bid should help reduce the magnitude of this uplift and should be considered as part of the final proposal. The CAISO has also noted the NYISO approach as a possible option to uplift reduction. In addition, the CAISO must take actions to improve the allocation of these costs. HASP transactions are the main driver of these costs, and thus HASP transactions should be the main source of funding the cost of RTIEO. But instead, currently load pays the majority of the costs – we do not find this result reasonable.

4. *Changes to allocation of RTIEO:*
   SCE supports IFM imports reduced in HASP being included in RTIEO.

5. *"Pay as Bid":*
   While there may not have been consensus over the first choice of stakeholders, SCE believes that "Pay as Bid" represented a viable alternative to reduce physical RTIEO uplift.

6. *"Pay as Bid or Better":*
   There is no reason for the CAISO to continue to treat this as an option[11].

7. *Powerex proposal:*
   This is not a feasible option for economic as well as reliability reasons[12].

8. *HASP non-performers charged RTD price:*
   SCE supports this measure but proposes that non-performers be charged the "worse of the HASP or RTD price". This would eliminate any incentives to not deliver.

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[10] Figure E.3, Department of Market Monitoring (DMM), Quarterly Report on Market Issues and Performance, August 11, 2010 (http://www.caiso.com/27ef/27ef9dc058db0.pdf) and Figure 1, CAISO, Impact of Convergence Bidding on Real-Time Imbalance Energy Offset – Issue Paper & Straw Proposal, April 27, 2011 (http://www.caiso.com/2b6d/2b6dbe2125320.pdf).

[11] Apart from being a clear instrument of arbitrage as SCE and stakeholders outlined in prior comments, "Pay as Bid or Better" also only received support from one market participant during the last round of comments.

[12] SCE believes that not securing additional physical imports to replace internal virtual supply goes against economic and common sense and creates potential reliability issues. Cost-minimization helps assure just and reasonable rates to California ratepayers. To forego cheaper imports just to facilitate a structurally deficient virtual bidding system defies reason. Finally, as the CAISO has repeatedly mentioned, HASP-RT convergence may never occur. These are different processes and there is no reason to expect full convergence of their prices given their existing structural differences. The DMM does not believe that virtual bidding has significantly contributed to HASP-RT price convergence (http://www.caiso.com/2b88/2b888ac6a3a0.pdf). SCE does not believe that this will change given the existing structural differences of HASP and RT.

Price Inconsistency caused by Intertie Constraints (PIIC)

As the CAISO states, following through with suspension of Virtual Bidding at the interties will eliminate the PIIC problem. SCE understands that suspension of Virtual Bidding not only resolves the PIIC issue but also makes some contribution at alleviation of the RTIEO. In that regard, and given that no other workable alternative has been presented, SCE supports the CAISO's proposal and urges the CAISO to implement the suspension of Virtual Bidding on the interties effective until a structural change addresses the underlying problem of the dual-constraint, the disconnect between HASP and real-time settlements, as well as the RTIEO. SCE opposes any further delay in resolving these issues.