THE UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	**)** **)**	**Docket No. ER11- ____**

PETITION FOR TEMPORARY WAIVER OF TARIFF PROVISION

Pursuant to Rule 207 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.207, the California Independent System Operator Corporation (ISO) respectfully requests a temporary suspension of the effectiveness, or "waiver," of tariff sections that would require the ISO to increase the position limits for virtual bids[1] at the ISO intertie scheduling points as of October 1, 2011. On August 25, 2011, the ISO board of governors granted ISO management authority to file with the Commission a tariff amendment that would eliminate virtual bidding at the ISO interties.[2] Accordingly, the ISO will be filing a tariff amendment in the near future proposing to eliminate virtual bidding at the interties as of early November 2011.

After the ISO implemented virtual bidding on February 1, 2011, the ISO and stakeholders identified two adverse market impacts at the interties: 1) increasing amounts of the real-time imbalance energy offset; and 2) hour-ahead intertie prices that were inconsistent with submitted bid prices at the scheduled amounts. After evaluating these issues and alternative remedies, the ISO

---

[1] The terms "convergence" and "virtual" are used interchangeably in this pleading: "virtual" emphasizes the non-physical nature of the bids while "convergence" highlights one of the most significant expected benefits of this market feature – convergence of day-ahead and real-time prices.

[2] *See Decision on Eliminating Convergence Bidding on the Interties,* Memorandum by Keith Casey, Vice President, Market & Infrastructure Development to ISO Board of Governors, dated August 18, 2011, provided in the Attachment.

concluded that these two issues both arise out market design features adopted to manage hour-ahead schedules at the interties, which currently requires that the ISO maintain two separate settlements in the real-time for intertie schedules and internal resources.

Good cause exists for the waiver. Allowing the currently scheduled automatic increase in position limits for virtual bids at the interties to take place on October 1, 2011, increases the possibility that the adverse impacts of the market design will be further exacerbated issue and may possibly increase the associated uplift to the market in form of the real-time imbalance energy offset. The temporary waiver will produce no undesirable consequences and will benefit the market by eliminating the possibility that the market may be exposed to further inefficiencies as a result of the increase in virtual bids at the interties when the position limits increase.

Procedurally, in this filing the ISO is not asking the Commission to consider the merits of whether convergence bidding should be eliminated at the interties. That will be the subject of the ISO's upcoming tariff amendment. In this Petition, the ISO is only asking the Commission to waive the tariff provisions that would otherwise increase the position limits automatically. Because the ISO has found that convergence bidding at the interties is contributing to inefficient market outcomes, there is no reason to allow the limits to increase when the Commission may find just one month after they increase that convergence bidding at the interties under the current market design is not just and reasonable.

The ISO also respectfully requests a shortened comment period and a Commission order by September 29, 2011, to provide sufficient time to adjust the position limits in the ISO system consistent with the Commission's direction.

I. BACKGROUND

A. Overview of Convergence Bidding in the ISO Markets

Convergence or virtual bidding is an important market enhancement adopted by the ISO in February of 2011 that increases market efficiency by improving day ahead unit commitment and enables market participants to hedge their physical market positions and manage their exposure to the differences between day-ahead and real-time prices. Virtual bids are bids to buy or sell electricity in the day-ahead market without any obligation to provide or consume electricity.[3] If these bids are cleared in the day-ahead market, they are automatically liquidated with the opposite buy/sell positions either at hour-ahead scheduling process prices or the real-time prices, depending on whether the virtual bids are at intertie scheduling points or internal eligible locations. The extensive history of the development of the ISO's convergence bidding proposal is documented in the ISO's prior filings preceding implementation including in the ISO's Convergence Bidding Design Filing.[4]

The ISO market has a unique feature that makes it different from other ISO and RTO markets. After the ISO clears the day-ahead market, the ISO re-

[3] The terms "convergence" and "virtual" are used interchangeably in this pleading: "virtual" emphasizes the non-physical nature of the bids while "convergence" highlights one of the most significant expected benefits of this market feature – convergence of day-ahead and real-time prices.

[4] *See e.g.*, Docket No. ER10-300, *Convergence Bidding Design Policy*, filed November 20, 2009 and Docket No11-1559, *Tariff Amendment to Implement Convergence Bidding*, filed June 25, 2010.

optimizes imports and exports at the interties in an hour-ahead scheduling process. All changes to hourly intertie schedules for imports and exports are settled financially based on prices produced by this hour-ahead optimization process. This market clearing process is separate from the market clearing process for internal generation and load. The hour-ahead scheduling process is necessary to ensure that the ISO manages its interconnections with the rest of the Western grid that operates predominantly with hourly transmission schedules. Virtual import and export bids cleared at the interties in real-time are therefore settled based on the difference in prices from the day-ahead market and this hour-ahead process. Meanwhile, virtual bids cleared at internal locations dispatched in the 5-minute real-time market are settled based on prices from this 5-minute real-time dispatch.

An important element of the ISO's convergence bidding market design is the existence of the initial position limits at scheduling and bidding locations. These limits are temporary and are scheduled to be phased out gradually. The purpose of the position limits is to reduce the total megawatts of convergence bids that a scheduling coordinator can place on behalf of a convergence bidding entity at any one internal pricing node or intertie scheduling point.[5] In the Convergence Bidding Design Policy filing, the ISO proposed position limits that would limit the amount of convergence bidding at internal nodes and interties, phasing out over two years and three years, respectively.[6]

---

[5] *See* ISO Tariff, Section 30.7.3.6.2.

[6] *See* Convergence Bidding Design Policy Filing, Transmittal Letter at p. 12-15 and 19.

The Commission rejected the ISO's first proposal in its Convergence Bidding Design Order[7] stating that the length of the proposed safety net type limits were not justified in the implementation of convergence bidding. Continuing to believe that the temporary position limits were necessary, the ISO again proposed position limits when it submitted its tariff amendment to implement convergence bidding, but for shorter periods over which the ISO would phase out the limits. The ISO maintained that the introduction of a major new market design feature such as convergence bidding frequently raises the possibility of unforeseen and unintended market outcomes. The position limits were therefore intended for the early stages of convergence bidding, to ensure that no single market participant can exercise market power at an individual node and to prevent distorted market outcomes, thus protecting customers from unjust and unreasonable rates.

The ISO proposed and the Commission ultimately accepted position limits:[8] 1) at internal nodes that will be automatically phased out over the course of one year;[9] and 2) at the interties that will be phased out over the course of

---

[7] *Cal. Indep. Sys. Operator Corp.*, 130 FERC ¶ 61,122 at P 51, 66 (2010) (Convergence Bidding Design Order).

[8] *Cal. Indep. Sys. Operator Corp.*, 133 FERC ¶ 61,039 (2010).

[9] The ISO's position limits at internal nodes are:

- Ten percent of the PMax of physical supply resources and forecasts of the maximum megawatt consumption of physical demand resources at the internal nodes for the first eight months;
- 50 percent of the PMax of physical supply resources and forecasts of the maximum megawatt consumption of physical demand resources at the internal nodes for the ninth month through the twelfth month; and
- No position limits will apply starting in the thirteenth month.

See ISO Tariff Section 30.7.3.6.3.1.

sixteen months.[10] The ISO explained that the proposed more stringent position limits and longer phase-out period for positions taken at the interties were necessary because convergence bidding at the interties has the potential to present certain problems that do not apply to convergence bidding at internal nodes.[11] Because the values of the interties' operating transfer capabilities, *i.e.*, the maximum capability of a transmission path to transmit power, are usually significantly larger than the values at the internal nodes, even with the smaller percentage position limits in place at the interties, a market participant can still take a sizeable position at many of the scheduling points due to the higher megawatt limit. The ISO thus observed that the smaller percentages and longer phase out is less onerous for market participants. The ISO also explained that applying more stringent position limits at the interties was justified because the interties present greater reliability concerns than internal nodes. In particular, the ISO explained that smaller position limits are necessary to prevent virtual imports from crowding out a significant amount of physical imports in the integrated forward market, thereby leaving the ISO short of normal import supplies. The ISO argued that smaller position limits would also allow the ISO to monitor the

---

[10] The ISO's position limits at the interties are:

- Five percent of the applicable operating transfer capability for the first eight month;
- 25 percent of the applicable operating transfer capability for the ninth month through the twelfth month;
- 50 percent of the applicable operating transfer capability for the thirteenth through the sixteenth month; and
- No position limits will apply starting in the seventeenth month.

See ISO Tariff Section 30.7.3.6.3.2.

[11] Docket No11-1559, *Tariff Amendment to Implement Convergence Bidding*, filed June 25, 2010, pp. 11-13.

volumes and effects of convergence bidding on the interties and to mitigate potential issues.

While certain parties opposed the adoption of any position limits, the Commission found the position limits proposed by the ISO to be just and reasonable.[12] The Commission recognized that the ISO had worked to design a convergence bidding feature that *should improve* the ISO market and provide for clearer pricing and help avoid noncompetitive market behavior. The Commission confirmed, however, that the ISO was being appropriately cautious by gradually implementing the proposal, in order to limit the magnitude of any problems that may develop to provide a period during which the ISO would be able study and address any issues that may develop.[13]

The Commission also accepted the ISO's explanation for the additional length of the time period for convergence bidding at the interties. The Commission noted that while it may be possible for ISO to use the hour-ahead scheduling process to replace physical imports that may be displaced by virtual bids in the day-ahead market, by pushing more activity into the hour-ahead scheduling process, there could be increased reliability concerns due to an increased reliance on resource adequacy resources and the transactions being closer in time to when the energy is required.[14]

---

12 133 FERC ¶ 61,039 at PP 121-129.

13 133 FERC ¶ 61,039 at P 124.

14 133 FERC ¶ 61,039 at P 125.

Finally, the Commission noted that while the position limits, as proposed, are set to expire in 12 months and 16 months, the ISO committed to revise those periods if it learns during the process of implementing convergence bidding that there are any issues that require the limits be changed.[15]

II. REQUEST FOR WAIVER OF ISO TARIFF PROVISIONS

As the Commission previously noted, it has historically granted waiver requests where an emergency situation or an unintentional error was involved.[16] The Commission further noted that it has not limited waivers to such circumstances and has also granted waivers when good cause for a waiver of limited scope exists, there are no undesirable consequences, and the resultant benefits to customers are evident.[17]

A. Good Cause Exists for a Waiver of Limited Scope Because it will Avoid Potentially Exposing the Market to Further Adverse Impact.

In this case good cause exists for a waiver of limited scope because the waiver will avoid potentially exposing ISO market participants to additional market inefficiencies and the increased cost of the real-time offset. If the Commission does not grant the waiver, the position limits for the interties will increase automatically as of October 1 from 5 percent to 25 percent. This will automatically create an opportunity for market participants to increase their

---

15 133 FERC ¶ 61,039 at P 127.

16 *Cal. Indep. Sys. Operator Corp.,* 118 FERC ¶ 61,226 at P 24 (2007) (granting waiver to generator interconnection procedures to facilitate efficient and cost-effective treatment of 4,350 MW of wind-related interconnection requests), *citing ISO New England*, 117 FERC ¶ 61,171 at P 21(2006) (allowing a limited and temporary suspension of tariff provision to correct an error); *Great Lakes Gas Transmission Ltd. Partnership*, 102 FERC ¶ 61,331 at P 16 (2003) (granting emergency waiver involving force majeure event granted for good cause shown); and *TransColorado Gas Transmission Co.,* 102 FERC ¶ 61,330 at P 5 (2003) (granting waiver for good cause shown to address calculation in variance adjustment).

17 *Id., citing Cal. Ind. Sys. Operator Corp.*, 109 FERC ¶ 61,153 at P 28 (2003).

bidding strategy five-fold resulting in further market inefficiencies and the potential for the expansion of uplift associated with balanced virtual bids.

The whole goal of convergence bidding is to facilitate better price convergence between the day-ahead and real-time market and more efficient dispatch of physical resources. However, as described in the memorandum to the ISO board of governors provided in the Attachment, the experience with virtual bids at the interties in the ISO market has shown that, due to current real-time market structure issues, convergence bidding on the interties is not driving the intended market efficiencies.

Shortly after convergence bidding was implemented, market participants raised two concerns regarding its market impacts on the interties. First, market participants raised a concern over the increased cost of balancing the real-time market and arriving at revenue neutrality, referred to as the real-time imbalance energy offset. The concern is that differences in the hour ahead scheduling process and real-time dispatch prices incent virtual bidding strategies that do not serve to converge day-ahead and real-time prices but contribute to the real-time imbalance energy offset costs allocated to load serving entities and exports. Second, market participants raised concerns over occasional inconsistencies between the market clearing price and the bid price of resources scheduled to import or export at the interties resulting from the enforcement of different physical and virtual intertie constraints in the day-ahead market.

The ISO has determined that these issues are symptomatic of a fundamental current market design shortcoming which requires settlement of

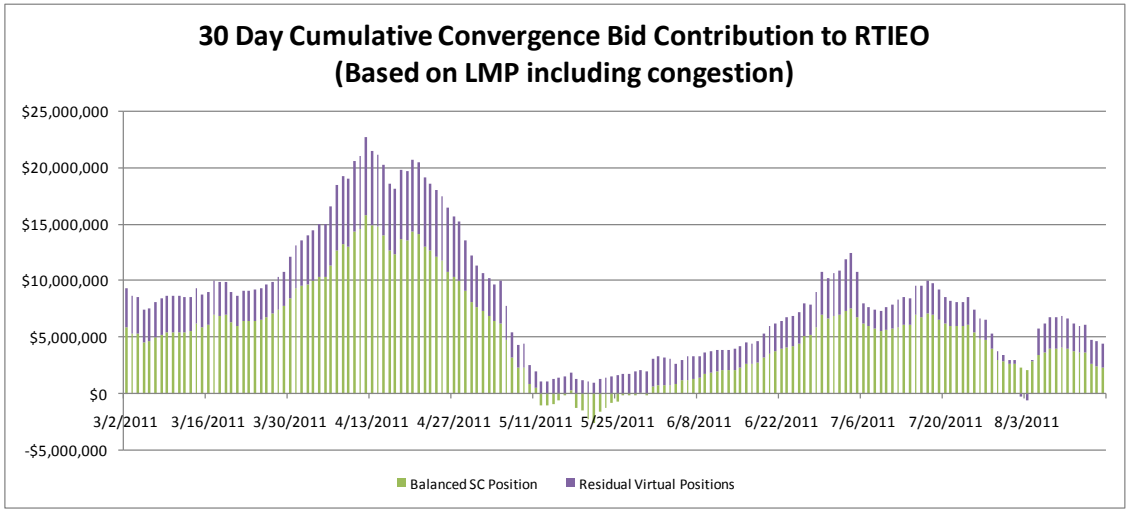
intertie transactions in the hour ahead scheduling process while internal supply and demand are settled later in the real-time dispatch. Stakeholders and the ISO have not been able to identify an alternative near term option that effectively addresses the identified issues without creating new market efficiency issues or reliability concerns. To address the issues identified the ISO will soon be submitting a filing with the Commission proposing to remove from its current market design the ability for parties to submit virtual bids at the interties.

The ISO has found that since the start of the ISO locational marginal pricing-based market in 2009, the hour-ahead scheduling process prices have been consistently lower than the real-time dispatch prices. Once convergence bidding was adopted, the persistent average price differential has encouraged the virtual bidders that are not allocated the cost of the real-time imbalance energy offset (*i.e.*, market participants that engage in virtual bids but do not have load or exports) to use internal virtual demand bids and virtual intertie bids in manner that has contributed to the increase in the real-time imbalance energy offset. Through this strategy, a market participant is able to supply (sell) and clear virtual demand (buy) at the same energy price, excluding the impact of congestion and losses in the day-ahead market. In real-time, the market participant is then able to liquidate (sell) virtual demand at the real-time dispatch price, while the intertie supply is liquidated (bought) at the hour-ahead scheduling process price, excluding congestion and losses. This results in the ISO net payment for energy MWh quantity bought by the ISO market through the real-time dispatch multiplied by the difference between the hour-ahead scheduling

process price and the real-time dispatch price. While this appears to be a bidding strategy to arbitrage between two prices, the apparent arbitrage does nothing to converge the prices between the hour-ahead scheduling process price and the real-time dispatch price.

The significant adverse impact of this bidding strategy to the real-time imbalance energy offset has occurred since convergence bidding was implemented in February. Figure 2 below illustrates the relative impact of the balanced supply/demand position by the type of scheduling coordinator, the impact of offsetting virtual supply/demand positions remaining in the market, and other drivers. The columns in the graph represent the 30 day cumulative dollar impact for: 1) balanced virtual supply, and 2) virtual demand bids and the residual virtual positions.

Figure 2: Impact of Balanced Virtual Intertie Supply Bids and Internal Demand Bids



The ISO determined that the best immediate remedy to avoid continued negative impact from the identified market inefficiencies is to eliminate

convergence bidding at the interties as soon as possible. The ISO will soon be bringing to the Commission a proposed tariff amendment to eliminate convergence bidding at the interties.

B. The Waiver Would Permit Consideration of the Upcoming Proposed Solution, without Greater Financial Risk to the ISO Market.

As discussed above, when the ISO adopted convergence bidding, it adopted position limits as safeguard measures to give the ISO the ability to mitigate for adverse outcomes from transitioning to the new market. The ISO has now identified adverse market impacts resulting from market design challenges that it will be addressing through upcoming filings. As of October 1, 2011, the position limits on the interties will increase from 5 percent to 25 percent automatically. This will expose the market to potential increases in the adverse market outcomes already observed to date.

The position limits are intended to be phased out over time pursuant to the schedule reflected in Section 30.7.3.6.3.2 of the ISO tariff, which states:

> **30.7.3.6.3.2 Position Limits at Interties**
> For an Intertie, the locational limits will be equal to a percentage of the Operating Transfer Capability of the Intertie. The percentages used to calculate the position limits of each Convergence Bidding Entity at Interties will be the following percentages of the published locational limits:
> (a) Position limits of five (5) percent will apply during the time period beginning as of the effective date of this tariff provision through the last day of the eighth month following the effective date of this tariff provision.
> (b) Position limits of twenty-five (25) percent will apply during the time period beginning as of the first day of the ninth month following the effective date of this tariff provision through the last day of the twelfth month following the effective date of this tariff provision.
> (c) Position limits of fifty (50) percent will apply during the time period beginning on the first day of the month as of the first anniversary of the effective date of this tariff provision through the last day of the sixteenth month following the effective date of this tariff provision.

(d) Position limits will cease to apply beginning on the first day of the seventeenth month following the effective date of this tariff provision.

The CAISO will enforce the locational limits for Interties at Bid submission and at Market Close for Virtual Bids. The CAISO will utilize the 9:00 AM Operating Transfer Capability for Bids submitted after 9:00 AM until the close of the Day-Ahead Market for the next Trading Day.

Having identified adverse market outcomes that must be addressed, it is not appropriate to let the position limits increase on October 1, 2011. Therefore, the ISO seeks waiver of the requirements in this section 30.7.3.6.3.2 that would require the position limits at the interties to increase to levels above 5 percent.

The ISO's requested wavier would apply from October 1, 2011, until the effective date of the tariff provisions ultimately accepted in the ISO's upcoming tariff amendment eliminating the tariff provisions enabling convergence bidding at the interties. The ISO proposes that if the Commission does not ultimately accept the ISO's upcoming amendment, the waiver would expire and the position limit changes would be reinstated.

Wavier of the subject tariff provisions is necessary because this problem would not be reasonably addressed at this time through a tariff amendment. Because the ISO is about to submit a filing requesting for authority to eliminate convergence bidding at the interties, filing another tariff amendment to modify the position limits that would only apply for the time that the Commission considers the tariff amendment is not reasonable and is procedurally inefficient. On the other hand, letting the phase out schedule kick in can potentially expose the market to further inefficiencies and increase in the real-time imbalance energy offset while the Commission considers the merits of the ISO filing.

C. Granting the Waiver will not Unfairly Disadvantage any Market Participant.

Further, the proposed waiver will not unfairly disadvantage any market participant. Rather, load serving entities will benefit from not being subjected to the prospect of a substantial increase in balanced virtual supply and demand bids that undermine the convergence of prices between the day-ahead and real-time market as intended by convergence bidding and cause an unwarranted increase in the real-time imbalance energy offset.

The ISO's request for waiver is appropriately narrowly tailored to apply only to the position limits at the interties and not to internal pricing nodes. The ISO has not observed any adverse impacts to the market from convergence bidding at internal nodes. Based on an analysis of convergence bidding trends and pricing impacts since the ISO implemented convergence bidding, convergence bidding at internal nodes have aided in the convergence of day-ahead and real-time prices. Moreover, it appears as though convergence supply bids on the interties in the day-ahead have suppressed day-ahead prices, preventing the day-ahead prices to converge with the real-time time. Therefore, preventing the increase in position limits at internal node would potentially negate the benefits the ISO expects from having adopted convergence bidding.

Finally, the current position limits apply differently to internal and intertie locations because the two locations are not similarly situated. As discussed above, the ISO has previously explained and the Commission has agreed that the potential adverse impact of market issues related to convergence bidding at the interties is greater than internal locations. Accordingly, the Commission

previously approved the more prolonged schedule for phasing out position limits at the interties, as well as the more stringent limits for interties as compared to internal locations. Given that the ISO has not observed any adverse impacts from convergence bidding at the internal locations, the ISO does not intend to make any changes to its tariff to eliminate convergence bidding on internal locations. Therefore, allowing the position limits to be more relaxed as of October 1, 2011 for internal locations does not pose a threat to the market and can proceed as currently anticipated in the tariff.

Accordingly, the ISO believes that a waiver of the provisions in Section 30.7.3.6.3.2 of the ISO tariff that require the increase of position limits from 5 percent to 25 percent as of October 1, 2011, is necessary and appropriate under Commission precedent.

II. SERVICE

The ISO has serviced copies of this filing upon the California Public Utilities Commission, the California Energy Commission, and all parties with effective Scheduling Coordinator Service Agreements under the ISO tariff. In addition, the ISO has posted this filing on its website.

IV. CORRESPONDENCE

The ISO requests that all correspondence, pleadings and other communications concerning this filing be served upon the following:

Nancy Saracino
General Counsel
*Anna McKenna
Senior Counsel
*Burton Gross
The California Independent System Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 351-4400
Fax: (916) 351-4436
amckenna@caiso.com

*Individuals designated for service pursuant to 18 C.F.R. § 203(b)(3).

V. CONCLUSION

For the reasons discussed above, the ISO respectfully requests that the Commission grant the waiver.

/s/ Anna McKenna
Nancy Saracino
General Counsel
Anna A. McKenna
Senior Counsel
Burton Gross
Senior Counsel
The California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 351-4400
Fax: (916) 351-4436

amckenna@caiso.com

August 26, 2011

Attachment –
California ISO Board of Governors Memorandum and Motion

California Independent
System Operator Corporation

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President, Market & Infrastructure Development

Date: August 18, 2011

Re: **Decision on Eliminating Convergence Bidding on the Interties**

This memorandum requires Board action.

EXECUTIVE SUMMARY

The California Independent System Operator Corporation proposes to eliminate convergence bidding on the interties. The ISO implemented convergence bidding on February 1, 2011, which includes the ability to submit financial bids on the intertie scheduling points in the ISO market. Convergence bidding is an important market enhancement. It enables market participants to hedge their physical market positions and arbitrage differences between day-ahead and real-time prices. This ultimately leads to better price convergence between these markets and more efficient dispatch of physical resources. However, the ISO has observed that, due to current real-time market structure issues, convergence bidding on the interties is not driving the intended market efficiencies.

Convergence bidding involves placing purely financial bids, sometimes called virtual bids, at particular pricing nodes in the day-ahead market. If cleared in the day-ahead market, virtual supply and virtual demand bids settle first at day-ahead prices. They then automatically liquidate with the opposite sell or buy position at the applicable *hour ahead scheduling process* price for interties or *real-time dispatch* prices for internal nodes. The hour ahead scheduling process is where all intertie bids submitted in real-time are cleared and priced. This process runs prior to the 5-minute real-time dispatch for internal resources. Interties require a separate scheduling process in real-time because their schedules need to be finalized and cleared with adjacent balancing areas well in advance of the applicable operating hour. The real-time dispatch is the five minute real-time market in which the ISO establishes binding dispatch instructions and prices for internal resources.

Shortly after convergence bidding was implemented, market participants raised two concerns regarding its market impacts on the interties. First, market participants raised a concern over the increased cost of balancing the real-time market and arriving at revenue neutrality, referred to as the *real-time imbalance energy offset*. The concern is that differences in the hour ahead scheduling process and real-time dispatch prices incent virtual bidding strategies that do not serve to converge day-ahead and real-time prices but contribute to the real-time imbalance energy offset costs allocated to measured demand. Second, market participants

raised concerns over occasional inconsistencies between the market clearing price and the bid price of resources scheduled to import or export at the interties resulting from the enforcement of different physical and virtual intertie constraints in the day-ahead market.

Management has determined that these issues are symptomatic of a fundamental current market design shortcoming which requires settlement of intertie transactions in the hour ahead scheduling process while internal supply and demand are settled later in the real-time dispatch. Stakeholders and the ISO have not been able to identify an alternative near term option that effectively addresses the identified issues without creating new market efficiency issues or reliability concerns. Additionally, the ISO has commenced the renewable integration market and product review phase 2 stakeholder initiative to evaluate potential enhancements to the real-time market. Enhancements being considered include a single settlement timeframe for interties and internal supply and demand that would resolve the structural issues currently afflicting convergence bidding on the interties.

If the settlement timeframes of the real-time market are resolved so that there is a common clearing price for intertie schedules and internal resources, convergence bidding at the interties could be reinstated. In the meantime, Management believes it is inappropriate to continue to allow virtual bids that exacerbate current market design issues without improving market efficiency. This is particularly true in light of the fact that the costs created by this these issues are borne entirely by parties that do not cause and cannot control the issues. Therefore, Management proposes to remove from its current market design the ability for parties to submit virtual bids at the interties. The elimination of this market feature will eliminate the root cause of the two identified issues.

Management proposes the following motion:

> ***Moved, that the ISO Board of Governors approves the proposed tariff change regarding removing interties as eligible convergence bidding nodes, as described in the memorandum dated August 18, 2011; and***
>
> ***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.***

DISCUSSION AND ANALYSIS

Each of the two problems created by convergence bidding on the interties (market uplifts and occasional market prices that are not fully compensatory with awarded bids) is explained more fully below, along with the various options that have been considered to address them.

Convergence bidding on the interties has significantly increased market uplifts

Convergence bidding on the interties increases market uplifts through increasing the real-time imbalance energy offset. The real-time imbalance energy offset is a neutrality account used to reconcile the settlement dollar values for all real-time energy charge codes to ensure that, after all payments and charges have been calculated, there is neither a shortage nor surplus in revenue. Any offset surpluses or shortages are allocated to scheduling coordinators based on a pro rata share of their measured demand (real-time metered load and exports). Therefore, scheduling coordinators may receive a payment or a charge, depending on whether there is a surplus or deficit in the offset account. The ISO has experienced higher than expected real-time imbalance energy offset charges since the start of the new market in April 2009 and commenced a stakeholder process to address the issue in the fall of 2009. Through that process, the ISO identified price differences between the hour ahead scheduling process and real-time dispatch as the main driver of the offset costs. The price difference was often driven by market modeling and forecasting issues and the limited quantities of short-term ramping capability available to accommodate changes in imbalance conditions. Beginning in May 2009, the ISO undertook a number of enhancements to address these issues and improve hour ahead scheduling process and real-time dispatch price convergence. However, when convergence bidding was implemented in February 2011, the real-time imbalance energy offset costs increased significantly.

With the introduction of virtual bids, virtual positions at the interties are settled at the relevant hour ahead scheduling process LMP in the same way as any changes in physical intertie schedules in the hour ahead scheduling process are settled. However, virtual positions on eligible internal pricing locations are settled based on the relevant real-time dispatch LMP. As a result, when virtual bids on the interties clear against internal bids, and there is a significant difference between the respective settlement prices (hour ahead scheduling process and real-time dispatch), there is a corresponding increase in the real-time energy offset.

Additionally, the persistent average price differential between the hour ahead scheduling process and real-time dispatch has encouraged a strategy using internal virtual demand bids and external virtual or physical supply bids. This bidding strategy seeks to arbitrage the price differential, but when the bidding strategy is successful, there is an increase in the real-time imbalance energy offset costs. Market participants can combine an internal virtual demand bid and an intertie physical or virtual supply bid at the same price and quantity, which in essence allows the market participant to arbitrage the lower hour ahead scheduling process price relative to the real-time dispatch price. Since the bidding strategy requires a balanced intertie and internal position to be successful, the strategy does not lead to a change in day-ahead unit commitment or improved system wide market efficiency.

Convergence bidding on the interties can produce prices that are not fully compensatory to awarded bids

Under the current convergence bidding design, the ISO enforces two constraints at intertie scheduling points: (1) net physical schedules across each scheduling point, ignoring the accepted virtual schedules to ensure that the physical schedules are within the established scheduling limit for that scheduling point; and (2) physical and virtual imports net of physical and virtual exports must also be within established scheduling limits for that scheduling point. Since convergence bidding was implemented, the ISO has observed cases where physical export bids are clearing the market at LMPs that are inconsistent (higher) than the submitted bid for the scheduled resource. Market participants adversely impacted by such settlement outcomes have raised concerns over this issue.

This issue was identified during the convergence bidding design process. However, since there were no easily implementable options to address it at the time, the ISO committed to monitoring the issue to determine if it was significant enough in operation to warrant a design modification. In addition, physical import bids are clearing at LMPs that are also inconsistent with their bids resulting in higher payments than would have otherwise been received. The impact to the market on the export side has been approximately $250,000 per month. However, stakeholders who have raised concerns about this issue do not believe the impact reaches a threshold that supports eliminating convergence bidding on the interties. They would prefer that uplift payments be provided to make them whole with respect to their bid costs. However, since removing convergence bidding at the interties is necessary to address the real-time imbalance energy offset concerns, the price inconsistency issue is also resolved.

POTENTIAL SOLUTIONS REVIEWED WITH STAKEHOLDERS

The ISO reviewed several proposed alternatives to eliminating convergence bidding on the interties with stakeholders to address the issues related to the increased real-time imbalance energy offset uplift costs and the price inconsistency on the interties. The proposed alternatives analyzed in the stakeholder process, and the reasons for not implementing them, are described below.

Proposed alternatives for addressing real-time imbalance energy offset uplift costs

Cost allocation of real-time imbalance energy offset

During the 2009 stakeholder process to address issues related to the real-time imbalance energy offset, the ISO worked with stakeholders to determine whether the current design of the allocation of the real-time imbalance energy offset was appropriate. At that time, no clear alternative could be identified because causal attribution to specific market activity was not clear. During the current stakeholder initiative, the allocation of the offset was reviewed again, but there still was no consensus on an alternative approach. Moreover, Management believes that this cost allocation issue is better addressed through a longer-term comprehensive review of a larger set of cost allocation issues being addressed in the renewable integration market and product review phase 2 stakeholder initiative.

Prohibit balanced internal and external virtual bids

Management considered implementing a rule that would prohibit scheduling coordinators from placing balanced internal and external virtual positions. This rule would be designed to address the impact of individual scheduling coordinators' balanced positions on the real-time imbalance energy offset costs. However, it was determined through the stakeholder process that the rule would be easily undermined by potential collusive transactions involving two or more scheduling coordinators that could effectively implement the same bidding strategy. As a result, the ISO concluded that this is not a viable option.

Implement a settlement rule that would neutralize the price arbitrage of the hour ahead scheduling process and real-time dispatch

Under this option, a new settlement rule would be invoked for each scheduling coordinator that would result in a charge or credit based upon the price difference between hour ahead scheduling process and real-time dispatch for the scheduling coordinator's balanced supply and demand position at the interties and internal to the ISO. Although this initially appeared to be a targeted and effective solution to the real-time uplift issues caused by convergence bidding, stakeholders raised significant concerns that the rule could be easily subverted through bilateral arrangements outside of the ISO markets.

Convergence bidding liquidation and settlement timing

Management also considered modifications to the timing of convergence bidding liquidation and settlement. Specifically, Management considered keeping day-ahead awarded internal virtual supply and demand positions in the hour ahead scheduling process, on the theory that doing so would lead to better convergence between the IFM, hour ahead scheduling process and real-time dispatch. However, this option poses potential reliability risks given the importance of imports to meeting ISO load. For example, in the case where there is net internal virtual supply, the ISO would not be able to secure additional physical imports in the hour ahead scheduling process to replace the net internal virtual supply.

Alternatives considered addressing intertie price inconsistency

Management evaluated three alternatives to address the issue where LMPs are not consistent with intertie bids. The alternatives were designed to address the hour ahead scheduling process settlement for intertie transactions and included: (1) pay as-bid; (2) pay as-bid or better; and (3) the New York ISO approach to settlement of interties. As explained below, significant problems were identified with each of the three proposed options.

Pay as-bid

Under this option, intertie schedules produced in the hour ahead scheduling process would be paid their submitted bid price as opposed to a market clearing price. This approach is problematic in that it could result in significant market inefficiencies as market participants would have incentives to submit intertie bids as close as possible to what they expected the expected clearing price to be instead of their marginal costs of providing the energy. This would preclude the ISO from selecting the most efficient mix of imported and exported energy supplies to meet its operational needs.

Pay as-bid or better

Under this option, an import resource would receive either the market clearing price or its own bid, whichever was higher, and an export resource would pay either the market clearing price or its own bid, whichever was lower. In situations where the resource's bid, rather than the market clearing price, was the better price, the ISO would add an uplift payment to the market clearing price to enable that resource to receive its bid cost. This option is problematic because it creates an incentive for intertie resources to bid in a manner that increases uplift costs. This occurs because resources have an incentive to bid large quantities of offsetting import and export energy (which to a significant extent offset one another, in which case no energy is actually received by or provided to the system), so that load is being charged significant amounts for the ensuing uplift costs without receiving any concomitant benefits.

New York ISO approach

Like the California ISO, the New York ISO is a large net importer of power and has a similar hour ahead scheduling process. If there is no congestion on the interties during hour ahead scheduling process, the New York ISO will schedule imports and exports, and the price used for settlements will be computed as the time weighted average real-time price. Imports receive a bid production cost guarantee such that if the real-time price is lower than their offer price, the imports will be paid their offer price. There is no price assurance for exports. If there is congestion on the interties during hour ahead scheduling process, different settlement rules apply to the inter-tie transactions. Though the New York ISO does not allow virtual bids on their interties, Management considered whether the settlement rules that govern their hour ahead scheduling process would help address the price inconsistency issue the ISO periodically experiences. Management concluded that these rules would not help, as they still could lead to pricing inadequacies for exports.

POSITIONS OF THE PARTIES

The parties involved in the stakeholder process have been unable to reach resolution on a near term solution to the settlement timing issues in the hour ahead scheduling process and real-time dispatch. A summary of stakeholder comments and positions is provided as Attachment A. The varied positions of stakeholders have been a key driver in narrowing the proposal to remove convergence bidding on the interties under the current market design. In the ongoing renewable integration market and review phase 2 initiative, the ISO is working with stakeholders to review the changes necessary to the real-time market in order to meet renewable integration requirements. The changes necessary to address the market inefficiency issues currently with convergence bidding, such as eliminating hour ahead scheduling process, are more appropriately addressed within the context of this larger, more comprehensive initiative.

During the stakeholder process, several stakeholders highlighted an additional concern that deviations from physical hour ahead scheduling process import and export schedules were another large driver of the real-time imbalance energy offset, and that removing convergence bidding at the interties could result in an increase in implicit virtual bidding. Implicit virtual bidding is the use of physical import and export bids with no intention to physically deliver the power if the bid is awarded. Other stakeholders highlighted that additional measures to

address implicit virtual bidding may have negative unintended consequences that could result in reduced liquidity at the interties. As such, Management has concluded that no additional measures are needed at this time to mitigate against potential implicit virtual bidding. Furthermore, the treatment of schedule deviations is more appropriately addressed through the renewable integration market and product review phase 2 stakeholder initiative currently underway.

The Market Surveillance Committee and Department of Market Monitoring support the removal of convergence bidding at the interties; however, they state that further measures may still be necessary if the real-time imbalance energy offset charges continue at high levels. The Market Surveillance Committee notes that currently, the ISO's hour ahead scheduling process and real-time dispatch markets are not well integrated, and convergence bidding cannot resolve these integration problems. As a result, convergence bidding on interties has contributed to an unacceptably high real-time imbalance energy offset charge that is borne ultimately by California energy consumers. The final opinion of the Market Surveillance Committee is provided as Attachment B. The Department of Market Monitoring believes the short-term option of eliminating convergence bidding on the interties will help reduce high real-time imbalance energy offset charges without any decrease in overall market efficiency. A comprehensive re-design of the hour ahead scheduling process and real-time dispatch real-time markets that would more fully address this issue is expected to take several years. Therefore, the Department of Market Monitoring states that the ISO should consider additional modifications for settlement of physical inter-tie schedules that may be implemented on a relatively short time frame. The Department of Market Monitoring Report is included with the informational reports in the August board materials.

MANAGEMENT RECOMMENDATION

Management requests Board approval of its proposal to remove interties as eligible nodes for convergence bidding as described in this memorandum. The benefits of continuing convergence bidding on interties under the current real-time market design do not outweigh the market inefficiencies outlined in this memo.

Board of Governors **August 25-26, 2011** **Decision on Eliminating Convergence Bidding at the Interties**

Motion

Moved, that the ISO Board of Governors approves the proposed tariff change regarding removing interties as eligible convergence bidding nodes, as described in the memorandum dated August 18, 2011; and

Moved, that the ISO Board of Governors directs Management to update the Board on progress towards a solution to the underlying market design issues by February of 2012.

Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.

Moved: Bhagwat **Second: Galiteva**

Board Action: **Passed**	Vote Count: **4-0-0**
Bhagwat	Y
Foster	Y
Galiteva	Y
Maullin	Y

Motion Number: 2011-08-G3