EPIC Merchant Energy appreciates the opportunity to provide comments on the CAISO Straw Proposal for Convergence Bidding Cost Allocation. The first section of these comments essentially addresses topics 1 and 3 in the Stakeholder Comments Template. EPIC includes a separate section that deals with the flat fee alternative, which is topic 2.

EPIC requests that the CAISO perform a full cost of service study to determine the cost responsibility of virtual market participants before proceeding with its cost allocation analysis. Both physical and virtual participants have the right to expect that cost allocations will be based on empirical data showing cost incurrence. Only after such an analysis is complete would the CAISO be in a position to allocate costs in a fair and reasonable manner.

Although the Straw Proposal claims to follow the principle "that virtual bids should be charged costs which they have caused" the actual cost allocations proposed by CAISO do not follow that principle. Rather, the focus of the Proposal is to simply allocate costs between virtual and physical transactions based on some largely unexplained notion of rough justice. For example, the Proposal makes several critical assumptions regarding the role of convergence bidding in causing costs to be incurred for which the Proposal provides no factual support:

- The Proposal assumes that convergence bidding causes additional uplift costs to the market, without any evidence to support such a conclusion. In fact, the evidence is that convergence bids play little or no role in increasing unit commitment costs.

- The Proposal assumes that convergence bids causes uplift costs to increase at the same rate as physical transactions, even though there is no factual or even theoretical support for such an assumption.

- The Proposal assumes that convergence bidding transactions always increase costs, without crediting market participants engaging in convergence bidding for the costs savings resulting from their transactions.
A. CAISO Must Conduct A Cost Causation Study Before Attempting To Allocate Uplift Costs To Virtual Transactions.

The CAISO must first demonstrate that convergence bidding transactions increase market uplift costs, and by how much, before proceeding to develop a formula to allocate these costs. The Straw Proposal, however, attempts to put the cart before the horse by suggesting a cost allocation methodology before it has conducted any empirically based cost causation analysis.

The Midwest ISO submitted a cost allocation proposal to FERC on the incurrence of Revenue Sufficiency Guarantee (RSG) costs and FERC rejected the filing, instructing the Midwest ISO to prepare and submit a cost causation analysis.\(^1\) The Federal Power Act would require that the CAISO demonstrate that its proposed assignment of uplift costs follows cost causation principles. As the D.C. Circuit has explained, "properly designed rates should produce revenues from each class of customers which match, as closely as practicable, the costs to serve each class or individual customer." In the Midwest ISO’s RSG proceeding, the FERC made it clear that a cost causation analysis must be conducted prior to any allocation of uplift costs to convergence bids:\(^2\)

In both circumstances, the Midwest ISO proposed a tariff revision that would either not allocate costs to virtual supply offers or that would allocate costs to virtual supply offers without considering cost causation in the design of the rate. The instant Proposal may result in unjust and unreasonable rates since it is not based on cost causation and therefore may be either over-allocating costs or under-allocating costs. We therefore must reject it.

Consistent with this requirement, the CAISO must provide an evidentiary record to

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\(^1\) See *Midwest Indep. Transmission Sys. Operator, Inc.*, 118 FERC ¶ 61,213 (2007) (“The Commission requested an analysis so that it could determine the impact of virtual supply offers on the incurrence of RSG costs, and thereby formulate a basis to allocate RSG costs to virtual supply offers according to the principle that cost responsibility should follow cost incurrence.”)

support any allocation of market uplift costs to convergence bidding transactions.\(^3\) Further, the CAISO must demonstrate that convergence bidding causes these costs to be incurred and then quantify the magnitude of these costs.

The type of conceptual approach to allocating costs advocated by the Proposal is not the equivalent of a cost causation study and should not be used as a substitute for actual cost causation analysis. The FERC provided guidance in the Midwest ISO proceedings on the development of acceptable cost causation evidence. The FERC directed that a cost causation analysis should consider the uplift costs in a hypothetical market that includes convergence bids against the uplift costs in a market that does not include convergence bids.\(^4\) Even without actual market data, the CAISO can run computer models that simulate the actual cost contribution of virtual transactions to markets’ total uplift and unit commitment costs. There is ample evidence from economic experts and other ISO systems, which the CAISO could consider in drafting cost causation. The results of such a simulation would provide the type of market comparison required by FERC.

It is clear that stakeholders in California will not be able to reach agreement on the allocation of uplift costs until a full and fair cost causation study has been completed. No stakeholder should agree to pay a significant share of a system's uplift costs until they are provided with cost of service evidence showing that the stakeholder's market activities contributed to those costs, and that their contribution to those system costs is consistent with the proposed allocation.

\(^3\) Midwest Independent Transmission System Operator, Inc., 117 FERC ¶ 61,113 at P 110; on reh’g, 118 FERC ¶ 61212 at PP 64-65.

\(^4\) FERC directed the Midwest ISO to "identify those costs caused by virtual supply offers, as determined by an analysis of the energy market with virtual supply offers compared to the energy market without virtual supply offers." Midwest Independent Transmission System Operator, Inc., 117 FERC ¶61,113 at p. 117 (2006)

Instead of analyzing the actual cost incurrence role of virtual transactions, the Proposal takes as its starting point three untested premises:

1. Integrated Forward Market (IFM) commitment costs increase when the sum of virtual demand and physical demand cleared in the IFM exceeds the CAISO forecasted demand.

2. Residual Unit Commitment (RUC) costs increase whenever virtual supply cleared in the IFM exceeds cleared virtual demand.

3. Unit commitment costs increase due to convergence bidding transactions at the same rate as they increase due to physical system factors.

In order to assess the validity of these assumptions, the CAISO should compare total market uplift costs in a simulated market with and without convergence bidding. Such a simulation would help demonstrate the total impact of convergence bidding on market uplift costs and prove – or more likely disprove – these three assumptions. However, even short of conducting this type of empirical factual analysis, there is ample evidence that the three assumptions are not correct.

Attached to these comments is a study prepared by Dr. William Hogan, regarding the assignment of RSG costs to virtual transactions in the Midwest ISO energy markets. The study concludes that virtual transactions cause only a small percentage, if any, of the unit commitment costs experienced by a two-day market. Dr. Hogan explains that the vast majority of unit commitment uplift costs are caused by physical, real-world factors that have no relation to virtual bidding activities. These physical factors, which were also identified by FERC during the Midwest ISO RSG proceeding, include intra-day changes in demand, loop flows, forecasting

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5 Professor William Hogan submitted comments in the Midwest ISO revenue sufficiency guarantee proceeding discussing theoretical contributions of virtual bids to unit commitment. The study by Dr. Hogan was submitted on May 25, 2006 in FERC Docket No. ER04-691, and is listed as FERC Accession No. 20060525-5052.
errors, changes in physical energy schedules between the day-ahead and real-time markets and other physical transmission system factors.  

Dr. Hogan found that while virtual transactions may shift unit commitment costs between the day-ahead and real-time commitment phases, they do not cause these costs to be incurred. Additionally, the study concluded that the consumer benefits of convergence bidding in lowering energy prices, increasing liquidity and enhancing competition far outweighs any minimal additional costs that may be associated with virtual bids. Taking all of these factors into account, Dr. Hogan found that “there may be little or no impact on total costs as a result of the use of virtual supply offers.”  

Dr. Hogan concluded that “in real systems, the increase in unit commitment costs caused by virtual transactions should be both small and small relative to the total RSG costs.”  

B. 1. Cost Allocation And Partial Unit Commitment

Dr. Hogan’s study also discusses several flaws in cost allocation assumptions that have similarly been made by the Straw Proposal. First, the Proposal assumes that virtual transactions have the same impact on major unit commitment cost drivers, such as generator no-load and start-up costs, as physical transactions. For example, the Proposal assumes that 1 MW of net virtual supply causes 1 MW of additional dispatch in the RUC process because the excess virtual supply theoretically displaces physical supply that the CAISO then has to acquire in the RUC. This assumption is overly simplistic and is directly contrary to Dr. Hogan’s findings and explanation of partial unit commitment.  

As Dr. Hogan’s analysis explains, net virtual supply rarely, if ever, results in the

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7 Dr. Hogan Study at p. 13.
8 Dr. Hogan Study at p. 8.
commitment or decommitment of an entire unit. Instead, the CAISO’s least-cost dispatch software will increase or decrease individual plant dispatch instructions based on the incremental costs of each generating facility. Thus, a megawatt of virtual supply that is removed prior to the RUC analysis is extremely unlikely to change the “stack” of generating units selected for dispatch.

It is critical to future stakeholder discussions that the CAISO distinguish between the number of megawatts committed in the RUC process and the cost of committing those particular units. Comparing the actual dollar cost of unit commitment decisions due to virtual transactions with the dollar cost of unit commitment decisions due to other factors is essential to any cost-based analysis since generator no-load and start-up costs are a large portion of the total unit commitment costs that the CAISO is seeking to recover. Since generator no-load and start-up costs are far more likely to result from factors other than convergence bidding transactions, it is important that virtual transactions are not forced to subsidize the physical system. Once these costs are factored out, it can be seen that the contribution of virtual supply offers to total uplift costs is very small. Thus, the CAISO must revisit its assumption that virtual and physical transactions should pay the same per-MW uplift rate and instead charge convergence bidding participants an uplift rate that reflects their actual contribution to unit commitment costs.

Second, the Proposal claims it is necessary to allocate the same per-MW uplift charges to virtual and physical transactions in order to “gain the full benefit of convergence bidding.” The CAISO provides no explanation for the baseless assumption that imposing additional charges on convergence bidding transactions will enhance the functioning of its markets. In fact, the evidence shows that charging convergence bidding transactions an excessive share of uplift and

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9 Straw Proposal at p. 3.
unit commitment costs harms the market by reducing the ability of market participants to place economic convergence bids.\textsuperscript{10} For example, Dr. Hogan examined the price elasticity of virtual transaction and concludes it would be very harmful to the market to charge virtual transactions the same or higher unit commitment costs.\textsuperscript{11} The FERC has likewise held that charging virtual transactions the same supply acquisition costs as physical transactions may well prevent the market from receiving the full benefits of convergence bidding.\textsuperscript{12}

Finally, the statement in the Proposal that, because FERC has conceptually approved the assessment of uplift charges to virtual transactions in other markets, that FERC will likely accept a proposal from the CAISO that is not cost-based, seriously misreads this precedent. In the referenced Midwest ISO proceedings, the FERC established that the process of determining whether the allocation of costs to virtual bidding is just and reasonable "requires an empirical analysis of the impact of accepted virtual supply offers on market settlements."\textsuperscript{13} Specifically, the Commission ordered the Midwest ISO to identify these costs \textit{prior} to developing a proposed new RSG charge.\textsuperscript{14} When the Midwest ISO filed a rate proposal without performing this cost of service study, the Commission rejected the rate as unsupported.\textsuperscript{15}

\section*{C. The Straw Proposal Unlawfully Ignores The Reduction In Uplift Costs Attributable To Convergence Bidding Transactions.}

\textsuperscript{10} This was clearly seen in the Midwest ISO markets when virtual trading dropped over 40 percent when a FERC order, subsequently reheard, directed that virtual transactions pay RSG charges equivalent to physical transactions.
\textsuperscript{11} See Dr. Hogan Study at p. 9.
\textsuperscript{12} See, e.g., \textit{New England Independent System Operator, Inc.}, 111 FERC ¶ 61,442 at P 17 (2005) ("ISO New England") (Finding that imposing additional costs on virtual transactions "threatened to minimize, if not eliminate, the market benefits attributable to their trading activities."); \textit{see also California Independent System Operator Corp.}, 112 FERC ¶ 61,013 at P 175 (2005) (discussing the importance of virtual trading to the MRTU market).
\textsuperscript{15} \textit{Midwest Indep. Transmission Sys. Operator, Inc} 118 FERC ¶ 61,212 at PP 64-65 (2007).
The Straw Proposal also mistakenly focuses on the theoretical cost increases associated with convergence bidding transactions, while ignoring the beneficial effects of convergence bidding and their contribution to reducing unit commitment costs. As Dr. Hogan correctly pointed out, "the focus of cost causation should be on the total costs and benefits, not just the partial analysis of the direct effect on a particular settlement component."\textsuperscript{16} The CAISO, to the extent it proposes to charge virtual transactions uplift costs, must adopt a symmetrical cost allocation/crediting system that recognizes the cost reduction role of virtual transactions in the same manner that it charges virtual transactions when they increase unit commitment costs.

For example, the Proposal acknowledges that when physical demand plus virtual demand are less than the CAISO’s expected real-time needs, that virtual demand reduces unit commitment costs.\textsuperscript{17} This is because the additional virtual demand allows the CAISO to acquire more of its needed generation in the IFM market. As the Proposal notes, an “ideal” dispatch solution is to purchase as much of the CAISO’s necessary energy supplies in the IFM. In recognition of the role played by virtual demand, the Proposal does not assign any IFM unit commitment costs to virtual transactions when total demand, including virtual demand, is still below the next day’s forecasted demand. The Proposal, however, does not go far enough in recognizing this reduction in unit commitment costs. Cost causation principles require that virtual transactions receive credit for reducing unit commitment costs to the same extent as they are charged when they increase these costs.

Moreover, the Proposal should also consider the reduction in unit commitment and other costs caused by the increased market competition created by convergence bidding when

\textsuperscript{16} \textit{Id.} at p. 13.

\textsuperscript{17} The Straw Proposal acknowledges this concern and even agrees that the “revised proposal does not include credits for virtual transactions for benefits provided to the market.” Straw Proposal at p. 4.
assigning costs. In the IFM, both virtual and physical supply offers compete to be part of the stack of generation selected to meet the next day's forecasted load. The CAISO’s Proposal ignores the fact that this virtual supply will be less expensive than the physical supply selected in the IFM because of the increased competition provided by convergence bids. Even assuming the claimed premise that convergence bidding requires the acquisition of nominally more generation in the RAC process than would be required without convergence bidding, the critical fact is that the total uplift cost to the system in many, if not all cases, will decrease.

The lowest price supply offers, whether physical or virtual, will be selected and each increment of virtual supply that clears in the day-ahead market will replace the offer of a more expensive physical supply offer. The additional price competition added by convergence bidding lowers both the cost of any additional energy procured in the RUC process, as well as converging prices between the IFM and real-time markets. The pro-competitive market benefits of virtual transactions are well documented, both by the Commission and outside parties. For example, Dr. Hogan articulated the benefits of virtual trading on the Midwest ISO market, finding that:

Virtual bidding provides a number of significant benefits. Importantly, virtual bidding improves the flexibility that supports price convergence between the day-ahead and real-time energy markets. Price convergence improves the efficiency of the day-ahead commitment and energy schedules, reduces the cost of hedging, allows for efficient settlement of FTRs, and makes it advantageous for parties to utilize the liquidity provided in the market.

Any rate developed according to cost causation principles must consider and assess the value of these benefits to the market, including the effect of convergence bidding transactions on overall supply costs and unit commitment costs. Convergence bidding increases liquidity and trading


19 Dr. Hogan Study at p. 14.
volume, particularly at thinly traded nodes where increased competition is most needed. It also acts to reduce price divergence between the IFM and Real-Time markets.\textsuperscript{20}

D. The CAISO Must Modify Its Convergence Bidding Timetable In Response To The Recently Announced Delay Of MRTU Market Start.

The Straw Proposal proposes to use the first five months of actual MRTU market data in order to aide the CAISO in determining the ultimate allocation of system uplift costs to virtual market participants. Insisting on actual market data prior to making key decisions on the implementation of convergence bidding in Release 1A will almost certainly cause additional delays in starting this critical market. Because the MRTU market is almost certain to be delayed into the Fall of 2008, the CAISO will have ample opportunity to implement convergence bidding in a timely manner. To meet this goal the CAISO must act immediately to settle the outstanding market design issues associated with convergence bidding.

Issues such as the granularity of convergence bidding can be decided now, based on the experiences of other RTO and ISO markets. The longer the convergence bidding market is delayed, the longer the imperfect Interim Measures designed to protect against underscheduling of load in the IFM will remain in effect, which all parties acknowledge is not a desirable outcome.

The CAISO should not be in the position of collecting empirical cost causation evidence \textit{after} it has already established a cost allocation of uplift costs. This leads to an absurd result, where CAISO would be determining the cost allocation outcome before even considering the

The CAISO must conduct a cost of service analysis and use the results of that study to develop a new unit commitment and uplift rate, not the other way around.

III. CONCLUSION

In order to comply with the directives of the Federal Power Act and Commission precedent, the CAISO should perform a cost of service analysis prior to developing a cost allocation proposal. The Straw Proposal was developed without the aid of cost based evidence, thus any rate based on this Proposal will be fundamentally flawed and risks being rejected by the Commission. The CAISO should develop its next proposal based on the results of a cost of service study and reflecting cost causation principles.

EPIC Merchant Energy
February 29, 2008

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21 Lewis Carroll described a similarly surreal outcome in Wonderland during a trial conducted by the King and Queen of Hearts:

“Let the jury consider their verdict,” the King said, for about the twentieth time that day.
“No, no!” said the Queen. “Sentence first--verdict afterwards.”
“Stuff and nonsense!” said Alice loudly. “The idea of having the sentence first!”