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To: California Independent System Operator

From: California Public Utilities Commission
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Re: CPUC comments on Convergence Bidding

The CPUC appreciates the opportunity to provide further comments in the stakeholder process on Convergence Bidding (also known as virtual bidding). The CAISO plans, pursuant to FERC’s direction, to initiate implementation of convergence bidding a year after the start-up of the Market Redesign and Technology Upgrade (MRTU) market. While the CPUC remains concerned about the potential for gaming and confusion arising from unexpected market effects arising from a rushed implementation of convergence bidding, the CPUC generally supports the CAISO’s design proposals for convergence bidding functionality for the following reasons:

1) The CPUC Generally Objects To A Rushed Implementation Of Convergence or Virtual Bidding.
As discussed in the its Notice Of Intervention, Limited Protest, And Comments Of The California Public Utilities Commission On The California ISO’s MRTU Tariff, the CPUC has been concerned about the FERC’s direction that the CAISO implement convergence bidding within a specific deadline after MRTU startup. The CPUC believes that implementation of virtual bidding should be reserved for a time when all other MRTU features are in place and properly running. Further, the CPUC, like the CAISO’s Department of Market Monitoring (DMM), is concerned about the potential for market manipulation arising from this element of the MRTU market design. The CPUC recognizes that virtual bidding is already in place in other markets, with some indication of improved market efficiencies. The CPUC observes, however, that virtual bidding was not implemented in PJM or New York until there was assurance that those markets were properly functioning. California deserves the same opportunity to reach a stable state in the new market before additional design elements are put in place.

2) The CPUC Supports CAISO’s Proposal To Permit Convergence Supply And Demand Bids At Load Aggregation Points Rather Than At All Nodes.
The CPUC agrees with the CAISO that allowing virtual supply and demand bids at the Load Aggregation Points (LAPs) level is a more appropriate initial design than a permitting greater spatial granularity. In a recent white paper CAISO provided an informative review of convergence bidding features in three RTO/ISO markets (New York, PJM, and New England). As discussed there, convergence bidding at the LAP level is expected to produce several market benefits while avoiding some undesirable market outcomes. The CPUC believes that permitting convergence bidding at the LAP level would help prevent underscheduling in the Day Ahead market, supplier market power, implicit virtual bids and gaming of congestion revenue rights. In addition will

increase the number of market bids and participants and will provide hedge mechanisms for suppliers facing outage risks.

The CPUC agrees with the DMM that allowing any more granular convergence bidding will require significant additional market mitigation, monitoring and/or safeguards. MRTU’s nodal pricing will expose market participants to new congestion management and pricing systems. There are many uncertainties associated with such new market elements that are currently being examined via simulation studies. Given the untested nature of the MRTU market in the real world, however, introducing convergence bidding at any more granular level than that proposed by the CAISO has the potential to create additional market confusion, especially if there are initially anomalous prices. It would be impossible to determine whether suspicious outcomes resulted from exploitation of the LMP system, virtual bidding, or other overlapping market design elements. For example, PJM and ISO-NE, which both use nodal convergence bidding, have implemented settlement programs in an attempt to limit market participants’ power to manipulate Day Ahead market prices to increase the value of their congestion revenue rights (CRRs). It is unclear to the CPUC, however, whether the success of such measures can truly be determined, as it would seem impossible to distinguish a market participant’s legitimate attempt to hedge risk from an attempt to manipulate CRR prices. The CPUC thus supports selection of a convergence bidding market design that avoids complication in case of market dysfunction, as simplicity will ease analysis and solution of problems as they arise.

CPUC does not suggest a particular method for calculation of load distribution factors (LDFs) between day ahead and real-time virtual settlements. Rather, The CPUC would like to pursue further discussion of the impact of LDF calculation on market function and ratepayer interests. The CPUC suggests that CAISO should analyze the available selection of computation options in order to weigh how LDFs may contribute uncertainty to the market and potentially harm California ratepayers’ interests. Such design decisions should be effected in a conscious, thoughtful manner.

4) The CPUC Suggests Further Discussion Of Market Power Mitigation And Analysis Of Whether Convergence Bidding Significantly Increases Locational Marginal Prices.
While convergence bidding may provide several benefits to the market, it may also create artificial congestion, ultimately raising ratepayer costs for energy. CAISO has not discussed a market power mitigation measure in the Day-Ahead and Real-Time markets should locational marginal prices (LMPs) in the CAISO market significantly increase after the introduction of virtual bidding. The CPUC believes that the CAISO should report on the effects of convergence bidding on LMPs, and prepare to mitigate such effects if the elevation in LMPs is not balanced by substantial market benefits.

5) The CPUC Recommends Differentiation Between Physical And Virtual Bids.
Both PJM and NY-ISO require the flagging of virtual bids in order to enable monitoring of the effects of virtual bids on market outcomes as well as to prevent the dispatch of resources to fulfill virtual demand bids in real time. The CPUC recommends adopting this measure.