

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**California Independent System            ) Docket No. ER17-853  
Operator Corporation                        )**

**COMMENTS OF THE DEPARTMENT OF MARKET MONITORING FOR THE  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

The Department of Market Monitoring (DMM) for the California Independent System Operator (CAISO) files comments in the above-captioned proceeding. The CAISO proposes two modifications to the congestion revenue right (CRR) Settlement Rule. The CRR Settlement Rule was developed to deter potential manipulation of CRRs through virtual bidding. DMM supports the CAISO's proposed modifications to the CRR Settlement Rule.

First, the CAISO proposes to narrow the criteria used to determine when changes in day-ahead import and export schedules made in the real-time market are treated as virtual bids when applying the Settlement Rule. This should increase incentives for market participants to submit economic bids in the real-time market on the interties. DMM supports this modification because it includes new provisions to deter potential manipulation based on changes in the bid price of imports and exports between the day-ahead and real-time markets.

Second, the CAISO proposes removing exemptions for virtual bids placed at load aggregation points and trading hubs from the Settlement Rule. This change was recommended by DMM to close a gap in the current rule.

## Congestion Revenue Right Settlement Rule Modifications

The CRR Settlement Rule is an automated settlement feature that protects against participants using virtual bids to impact congestion on a constraint to increase the value of their CRR portfolio.

To be subject to the rule, a participant's total portfolio of virtual bids must impact power flows over a constraint by at least 10 percent of the total capacity of the constraint. This is referred to as the *constraint impact test*. In addition, the participant's virtual bids must increase or decrease congestion in a manner that increases the total profits (or reduces losses) of the participant's CRR portfolio. Changes in day-ahead import and export schedules made in the real-time market are also treated as virtual bids in the constraint impact test.

If the constraint impact test indicates an entity's virtual bids did significantly impact the flow on a constraint in the day-ahead market, the financial impact of congestion on the constraint on the entity's total CRR portfolio revenues is then calculated. The impact of virtual bids on CRR revenues is calculated by comparing the entity's CRR revenues from the constraint to a counterfactual based on the congestion price for that constraint in the real-time market. If the entity's virtual bids are determined to have increased its CRR revenues, then the entity must pay back this increase.<sup>1</sup>

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<sup>1</sup> The increase in CRR payments is further netted over on-peak and off-peak hours. The entity will only be subject to a settlement charge if the net effect on CRR payments across all hours in the period is positive.

DMM supports the CAISO's proposal to modify the constraint impact test in the following two ways.

### **I. Modify which imports/exports are considered virtual bids in impact test**

The CAISO proposes to modify which imports or exports are considered virtual bids when performing the constraint impact test. Currently all reductions in imports or exports are treated as virtual bids in the constraint impact test. The CAISO proposes to exclude certain import or export reductions based on their real-time bids. Imports bidding at or below the day-ahead locational marginal price, and exports bidding at or above the day-ahead locational marginal price, will be excluded from the constraint impact test.

DMM supports the proposal to use the day-ahead locational marginal price to limit which imports and exports the Settlement Rule treats as virtual bids. Scheduling coordinators likely intend to deliver day-ahead import schedules whose real-time bids are below the day-ahead locational marginal price. This is not necessarily the case for scheduling coordinators that re-bid a day-ahead import schedule at an offer price that makes the schedule unlikely to clear in real-time. Day-ahead import schedules that are bought back in real-time due to a higher bid price should therefore continue to be treated as virtual bids in the Settlement Rule.

### **II. Removing load aggregation point and trading hub exemption**

Currently virtual bids placed at load aggregation points or trading hubs are excluded from the constraint impact test. Based on a recommendation by DMM, the

CAISO proposes to remove this exemption so that all virtual schedules will be included in the constraint impact test.

The FERC has confirmed that the CRR Settlement Rule is a reasonable mechanism for mitigating virtual bids intended to increase the value of CRRs.<sup>2</sup> An entity that has a large quantity of virtual schedules clearing at a node or group of nodes can manipulate the day-ahead congestion of a constraint in ways that benefit the entity's CRR portfolio. The CRR Settlement Rule is needed to deter and mitigate this type of potentially manipulative activity in the CAISO's markets.

Prior to the implementation of virtual bidding, neither DMM nor the CAISO had the technical data and experience to accurately assess how virtual bids at load aggregation points and trading hubs could impact day-ahead congestion prices on individual constraints. When the CAISO filed its original virtual bidding and CRR Settlement Rule proposal at FERC, it seemed reasonable to expect that it would be difficult for virtual bids at liquid nodes to be utilized to manipulate the day-ahead market prices at those nodes. However, additional information on shift factors and experience with virtual bidding have led DMM to conclude this assumption was incorrect.

Virtual schedules at load aggregation points and trading hubs can be used to impact – or manipulate – the day-ahead congestion price of a constraint in exactly the same way as virtual schedules at an individual load or generation node. If an entity's total portfolio of cleared virtual schedules at all nodes in the system have a

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<sup>2</sup> See FERC "Order Accepting Tariff Revisions, Directing Compliance Filing and Granting Waiver Request," in Docket No. ER10-1559, P 154, available at: [http://www.aiso.com/Documents/October15\\_2010Orderdirectingcompliancefilingandgrantingwaiverrquestindocketno\\_ER10-1559\\_convergencebidding\\_.pdf](http://www.aiso.com/Documents/October15_2010Orderdirectingcompliancefilingandgrantingwaiverrquestindocketno_ER10-1559_convergencebidding_.pdf)

sufficiently large flow impact on a constraint, that entity's portfolio of virtual schedules can change the constraint's day-ahead congestion price. The impact that an injection at a node can have on a constraint is the relevant indicator of whether or not a virtual injection of a particular size at that node can significantly affect the constraint's congestion price. The liquidity of virtual bids at a particular node is irrelevant.

Arguments made by participants in the CAISO stakeholder process in favor of maintaining the load aggregation point and trading hub exemption fail to consider the innovative safeguards built into the Settlement Rule's original design. These safeguards already protect an entity from being affected by the Rule unless their virtual bidding portfolio significantly impacted a constraint in a way that increased the entity's CRR profits.

In particular, an entity can only be affected by the rule if the flow impact on a constraint from its portfolio of virtual bids exceeds 10 percent of the constraint's limit. In general, an entity's net virtual position at load aggregation points or trading hubs would have to be very large in order for its flow impact on a constraint to exceed 10% of the constraint's limit. However, if the entity's net flow impact from all of its virtual schedules on a constraint does exceed this threshold, then the entity's virtual schedules are almost certainly having a significant impact on the constraint's day-ahead congestion price.

In its comments on the CAISO draft final proposal, WPTF presented an example that illustrates how this 10 percent flow impact threshold protects an entity with virtual bids at load aggregation points and trading hubs from being subjected to

the rule unless the entity's virtual bidding portfolio actually has a significant impact on the constraint in question.<sup>3</sup> WPTF's example shows an entity with a large virtual supply position at one trading hub and a large virtual demand position at a different trading hub. The flows on a constraint from the virtual supply and virtual demand exactly offset.

WPTF argued that because the flows from one of those positions exceeds a constraint's 10 percent flow impact threshold, the entity would be unfairly subjected to the CRR Settlement Rule. However, WPTF did not consider an important protective feature built into the Settlement Rule's original design. The constraint impact test evaluates the combined flow impact from an entity's entire portfolio of virtual schedules, not simply the flow impact from one node at a time. Because the combined flow impact of the entity's virtual positions is less than 10 percent of the constraint's limit (the virtual flow impact is zero percent) the entity bidding at the trading hubs in WPTF's example would be correctly protected from being subjected to the Settlement Rule.

A small alteration to WPTF's example also shows why virtual flows over a constraint should be treated the same regardless of which node the virtual flows came from. Consider WPTF's example in the case where the virtual supply's node is not a load aggregation point or trade hub. By excluding the virtual demand at the trade hub, as is currently done, the entity's remaining virtual bid portfolio of virtual supply would meet the 10 percent threshold impact test. The entity would potentially

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<sup>3</sup> See "Western Power Trading Forum Comments on CRR Clawback 5/16/16 Modification Proposal," available at: [http://www.caiso.com/Documents/WPTFComments\\_CongestionRevenueRightsClawbackRuleModification\\_DraftFinalProposal.pdf](http://www.caiso.com/Documents/WPTFComments_CongestionRevenueRightsClawbackRuleModification_DraftFinalProposal.pdf)

be subject to the CRR settlement rule (depending on the constraint's effect on the entity's CRR portfolio) even though the entity's actual virtual bid portfolio had no net impact on the constraint. By not treating virtual bids at load aggregation points and trading hubs the same as virtual bids at all other nodes, the entity is subject to CRR Settlement Rule charges even though its virtual bids had no actual effect on congestion over the constraint. To determine an entity's virtual bid flow impact on a constraint, all the virtual bids in the entity's portfolio need to be considered.

Pacific Gas & Electric company, in comments on the CAISO draft final proposal,<sup>4</sup> argued that virtual supply intended to represent physical generation not being scheduled in the day-ahead market should be exempt from the CRR settlement rule. Their argument illustrates how the current exemption at load aggregation points and trading hubs may actually be creating inefficient market participation. Virtual supply intended to represent a specific physical generator that only participates in the real-time market should schedule at that physical generator's specific node. Bidding the virtual supply at a load aggregation point or trading hub instead of at the generator's specific node would distort the day-ahead market away from the optimal solution. To the extent that such virtual supply bids are being placed at load aggregation points or trading hubs in order to take advantage of the exemption, the exemption is creating a market inefficiency. This represents another reason the exemption for load aggregation points and trading hubs should be eliminated.

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<sup>4</sup> See "Comments of Pacific Gas and Electric Company related to CAISO's Draft Final Proposal on CRR Clawback Rule Modification": [http://www.aiso.com/Documents/PG-ECOMMENTS\\_CongestionRevenueRightsClawbackRuleModification\\_DraftFinalProposal.pdf](http://www.aiso.com/Documents/PG-ECOMMENTS_CongestionRevenueRightsClawbackRuleModification_DraftFinalProposal.pdf)

Respectfully submitted,

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## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 15<sup>th</sup> day of February, 2017.

*Is/ Anna Pascuzzo*

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