

MARKET SURVEILLANCE COMMITTEE

Congestion Rent Shortfalls and Pricing

Scott Harvey

Member, California ISO/Western EIM Market Surveillance
Committee

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WESTERN ENERGY IMBALANCE MARKET

Topics

- Root Cause Analysis and Unpriced Flows
- Root Cause Analysis and Loopflows, TOR Flows and ETC Flows
- Willing Seller Discussion Points

Root Cause Analysis and Unpriced Flows

The CAISO carried out root cause analysis of two constraints with negative priced flows in mid 2024 after the spring 2024 changes.¹

- On 32214 Rio OSO 115 30330 RIO OSO 230 XF 1 the flow reversal due to unpriced flows was eliminated if flows were calculated without shift factor truncation.[slide 173]
- On 32056 Cortina,60.0 30451 CRTNAM 1.0 XF 1 it was determined that although eliminating shift factor truncation materially reduced the negative flows, there was still negative priced flows on the constraint when flows were calculated without shift factor truncation.[slide 192]
- In my view, the root cause analysis of unpriced identifies two issues with respect to unpriced flows for further study.
 - What kind of changes in calculating flows would be needed to substantially reduce the unpriced flows on the constraints with flow reversal in particular, and on constraints in general with large unpriced flows due to shift factor truncation.
 - What is the cause of the flow reversal on constraint 32056 Cortina that is not accounted for by shift factor truncation.

1. See California ISO, “Congestion Revenue Rights Enhancements,” February 27, 2025 pp. 46-72.

Shift Factor Truncation Impacts

With the identification of large amounts of congestion rent shortfalls due to shift factor truncation in late 2024, following the changes implemented in the spring of 2024, an important question is what kind of changes would be needed to materially reduce the unpriced flows.

- The constraints with flow reversal appear to be low voltage constraints on which all loads and generators may have low shift factors.
- However, there were other constraints on which the root cause analysis apparently identified large unpriced flows due to shift factor truncation after the Spring 2024 changes such as 30750 MOSSLD 230 30797 LASAGUIL 230 BR 1 slide 121 and 122 and 30765 LOSBANOS 230 30790 Panoche 230 BR 2 1 slide 157.
- We should try to identify changes that would reduce the level of unpriced flows in the IFM. Undue shift factor truncation that results in unpriced flows not only affects congestion rent shortfalls, it can also under price the cost of meeting load in particular DLAPs and over value the output of particular resources.

Unidentified Flows

There are also material differences between the priced IFM flows and IFM limits that do not appear to be due to shift factor truncation. 32056 Cortina 60.0 30451 CRTNAM 1.0 XF is one example and 30765 LOSBANOS 230 30790 Panoche 230 BR 2 1 is another

- These remaining unpriced flows are likely mostly due to loopflows, ETC flows or TOR flows. We should confirm this is the case in the examples that have been identified in the CAISO root cause analysis. Having carried out this much analysis, we should not fail to identify, and potentially correct, a significant undiagnosed issue.
- It is also important to determine whether the gap is due to loopflows, ETC flows, or TOR flows, so that appropriate changes to CRR allocation and auction modeling, or other practices, can be assessed.

Unidentified Flows

This assessment would also help the CAISO and stakeholders evaluate whether changes to the time of day granularity of CRRs would improve modeling, reduce congestion rent shortfalls and potentially enable more refined congestion hedging.

- Changes in the CAISO resource mix and generation patterns can impact flow levels and direction.
- Loopflow modeling in the IFM might be in one direction in some on-peak hours and in a different direction in other on-peak hours.
- Modeling of ETC as obligations in the CRR allocation and auction would not be appropriate if there are few ETC schedules providing that counterflow in the IFM.
- Historical modeling of ETC and TOR sources in the CRR allocation and auction model may not be accurate for today's resource mix or LSE hedging practices.

Willing Seller Design

The willing seller design, as I understand it, poses significant challenges for open access, a level playing field for LSEs, and hedging.

- Because there must be a buyer willing to take on the sink of an CRR being sold, the only entity interested in accommodating the sale of load shift CRRs could be the entity losing load that has generation at the source under contract. Such a restriction on the sale of load shift CRRs does not appear reasonable.
- There does not appear to be a realistic method for EDAM and other WEIM entities seeking to hedge congestion on CAISO wheel-throughs, exports or loopflows to acquire CRRs sinking at intertie points.

Willing Seller Design

When allocated CRRs are expected to become counterflow CRRs as a result of market conditions, the only apparent way for an LSE to exit the position with a willing seller design would be someone to be willing to buy CRRs sourcing at the allocated CRR. This restriction is gratuitous if the transfer capability is available.

- Such a restriction could make it expensive or even impossible for LSEs to exit CRR positions with changes in market conditions, even if the exit would satisfy simultaneous feasibility.
- It would be instructive to rerun the seasonal auction for 1Q 2024 and the monthly auction for January 2024 and assess the ability of LSEs to exit counterflow positions in a willing seller model compared to the actual auctions.
- More generally, there is a need to analyze the impact of these willing seller restrictions in more recent auctions with higher levels of sales of allocated CRRs by CCAs. The 1A and 1B changes would affect offer prices and auction prices but would permit calculation of auction quantities.

Willing Seller Design

- Because CRR buyers providing liquidity have to guess the exact sources and sinks that will be for sale in the auction, the auction design is intrinsically inefficient. Buyers cannot offer to buy CRRs from a variety of potential source sink combinations without risking buying far more CRRs than they intend.
 - CRR sellers could disclose the source and sink of CRRs they plan to offer for sale but sellers would not know which combinations to submit bids for without knowing offer prices.
 - In a CRR auction, bid clear based on flows on the binding constraint so buyers and sellers do not need to know which point to point rights will be offered.

Willing Seller Historical Analysis

The historical analysis of 2017-2018 auctions does not verify if the CRRs sold in monthly auctions were allocated CRRs, or CRRs purchased in the seasonal auction that would not have been available for sale under a willing seller design.

- The results in Figure 3-10 are informative for sales volumes in seasonal auctions with a willing seller design, but may materially overstate liquidity in monthly auctions based on a willing seller design.

1. See California ISO, Department of Market Monitoring, “Willing seller market design for congestion revenue rights,” October 23, 2024. Figure 3-10 page 28.

Willing Seller Analysis

More detail should be provided regarding some of the results of the willing seller auctions reported in the October 2024 paper.

Figure 3-1 reports total cleared CRR volumes for financial, marketer, generator and LSEs groups. ¹

- It would be informative to break these sales down between purchases of negatively priced CRRs (often sales in the 2017-2018 period) and positively priced CRRs for the marketer, generator, and LSE groups.
- It would also be informative to break the positively and negatively priced sales volumes down for distinct types of LSEs: IOU, CCAs, publics, and retail access so stakeholders can assess the effects on these groups.
- As explained above, this analysis should be carried out separately for the seasonal auctions.

1. See California ISO, Department of Market Monitoring, “Willing seller market design for congestion revenue rights,” October 23, 2024. figure 3.1 page 17.

Willing Seller Analysis

More detail should be provided regarding some of the results of the willing seller auctions with respect to intertie locations.

- Data should be reported on the MW amount of CRRs awarded sinking at intertie points in the actual 2017-2018 auctions and in the willing seller auction models for this period.
- It would also be informative to carry out a similar analysis for the 1Q 2024 seasonal auction and the January 2024 monthly auction.
- The CAISO's analysis indicates that the current auction design accommodated a large changing in hedging positions for January 2024. It would be informative to compare this to outcomes with a willing seller design. The 1A and 1B changes would affect offer prices and auction prices but would permit calculation of auction quantities.

1. See California ISO, "Congestion Revenue Rights Enhancements," February 27, 2025 pp. 46-72.

Willing Seller Analysis

More detail and explanation should be provided regarding some of the results of the willing seller auctions reported in the October 2024 paper.

Tables 3-1 and 3-2 appear to report auction revenues from the purchase of negatively priced CRRs and payments to the holders of negatively priced CRRs purchased in the auction.¹

- These tables appear to indicate that financial participants received \$65 million for taking on negatively priced CRRs, that required them to pay \$120 million in day-ahead market payouts.
- These results are surprising and should be explained or corrected if there are typos or some other reporting issue affecting the reported results.

1. See California ISO, Department of Market Monitoring, “Willing seller market design for congestion revenue rights,” October 23, 2024. Tables 3-1 and 3-2 page 20.