

MARKET SURVEILLANCE COMMITTEE

CRR Pricing, Track 0, 1A and 1B Changes

Scott Harvey

Member, Market Surveillance Committee

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Topics

- CRR Pricing
- 2018 Changes
- Why are CRR prices low?
- Empirical Questions

CRR Pricing

CRRs valued as hedges should generally be priced on average over a period of years with at least a slight premium to the expected payout, adjusting for the time value of money of the hedger.¹

- Differences between auction prices and CRR payouts to CRRs sold in a particular auction are often due to unexpected events that cause transmission congestion to be greater or less than expected at the time the auction is run.
- This is not a problem, this is the reason for establishing CRRs as a means of hedging unexpected variations in congestion charges, particularly on power contracted on a long-term basis.
- This variability is a reason that the relationship between CRR payouts and auction prices should be analyzed based on averages over a period of years.

1. Many points discussed in these slides were previously discussed in the MSC opinions of June 13, 2018 and March 13, 2018.

CRR Pricing

The ratio of overall net auction revenues to CRR payments calculated by DMM over the 2019-2022 period is .64¹. This 36% discount exceeds plausible values of the time value of money of hedgers purchasing CRRs (such as the transmission owner rate of return).

- The similar ratio calculated by DMM over the 2012-2018 period was only .48.¹ The higher ratio over the 2019-2022 period suggests that the 2018 changes have had some impact, although this is only a four year period.
- If we exclude 2019 as a year of change, the 2020-2022 ratio is .6, still better than ratio over the 2012-2018 period.¹

1. Data compiled by the Department of Market Monitoring at the request of the MSC.

2018 Changes

The ratio of overall auction revenues to CRR payments for financial entities calculated by DMM over the 2019-2022 period is .62. The similar ratio calculated by DMM over the 2012-2018 period is .38.¹

- The significant increase in the ratio of auction revenues to CRR payments for financial entity CRR transactions also suggests that the 2018 changes have had some impact.
- However, the .62 ratio of day-ahead market payments to auction net revenues is still far too high to be accounted for by plausible values of the time value of money for CRRs purchased by hedgers.

1. Data compiled by the Department of Market Monitoring at the request of the MSC.

2018 Changes

The track zero changes involved better modeling of the transmission system in the auction model, attempting to reduce the likelihood that transmission constraints that bind in the day-ahead market were not modeled/enforced in the auction.

- I am not familiar with data assessing the success of these efforts, such as data tracking the level of CRR payouts to transmission constraints that bound in the day-ahead market but were not enforced in the auction model.¹
- It would be useful to compile such data so we can assess the extent to which this continues to be an issue.

1. Transmission constraints that bound in the day-ahead market but were not modeled in the auction can be identified and the payments calculated by multiplying the CRR shift factors on such constraints in the day-ahead market time the constraint shadow price in the day-ahead market.

2018 Changes

It is also hard to assess the impact of the Track 1A and 1B changes.

- Although we can calculate the amount by which track 1B proration reduces CRR payouts in the day-ahead market, it is not so easy to assess the impact of track 1B proration on auction prices.
- DMM calculations show that there is a material reduction in the number of seasonal and monthly CRRs purchased in the auctions beginning in 2019,¹ which may be attributable, at least in part, to the Track 1A changes.
- However, it is challenging to tie this reduction in auction volume to improvements in the ratio of day-ahead market payments to auction revenues.

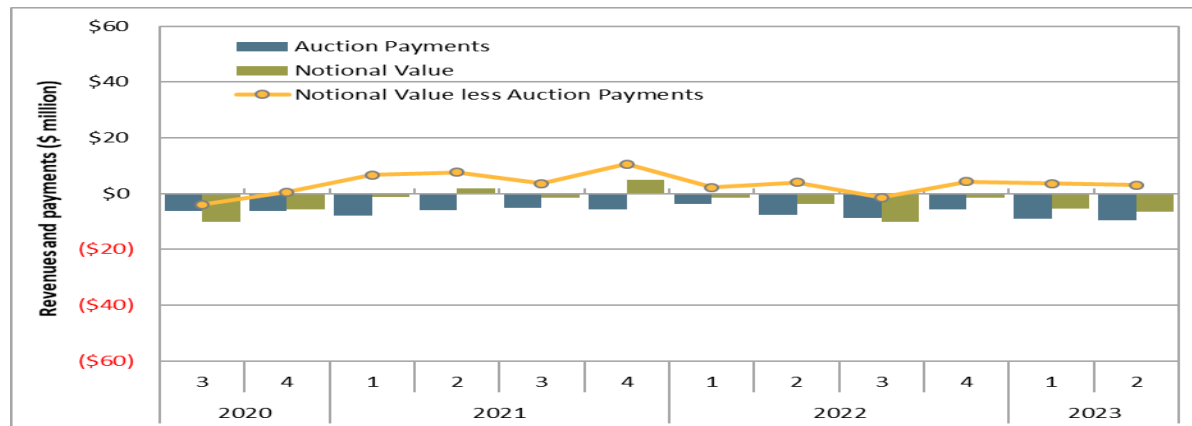
1. California ISO, 2022 Annual Report on Market Issues and Performance, Figure 6.9

Remaining Problems

Data that the MSC asked DMM to compile on the auction price and day-ahead market payments to negatively valued CRRs acquired by financial entities indicates that the high payments to financial entities are not accounted for by financial entities taking on risk from LSEs, marketers or generators by purchasing negatively valued CRRs that enable the sale of additional positively priced CRRs.

Financial – Notional revenues and auction payments by auction price type

Auction price ≤ 0

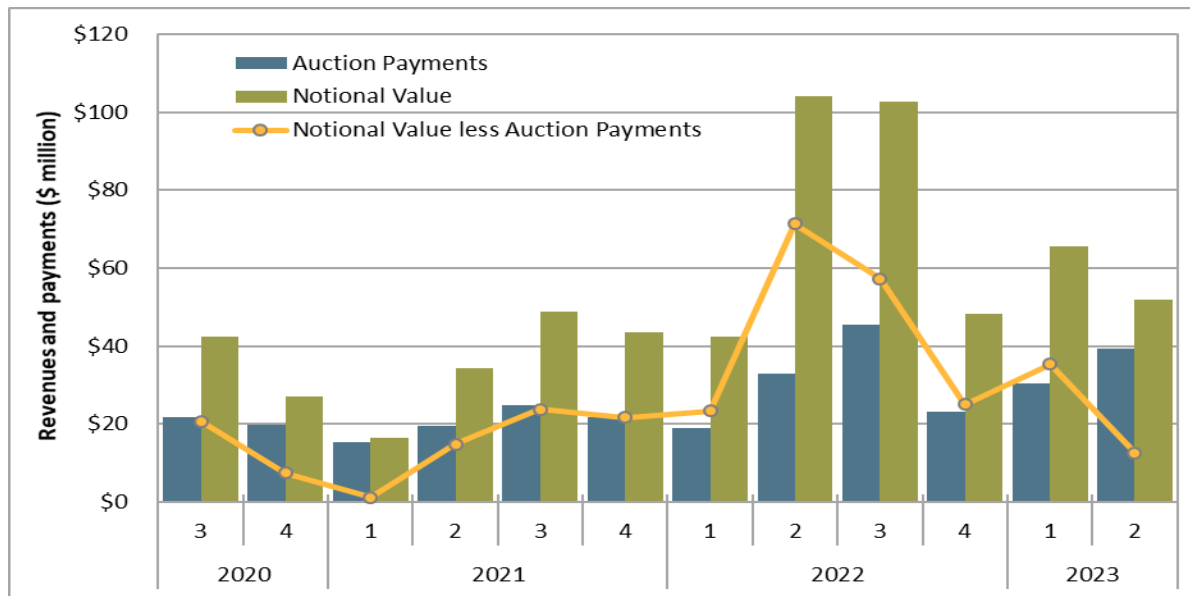


Source: California ISO, Department of Market Monitoring calculation for the Market Surveillance Committee

Remaining Problems

Conversely, the DMM calculation shows that there are large payments in excess of auction revenues to positively priced FTRs purchased by financial CRR traders.

Auction price > 0



Source: California ISO, Department of Market Monitoring calculation for the Market Surveillance Committee

Remaining Problems

While the track 1B changes have reduced the ratio of actual CRR payouts to congestion rents, the level of gross congestion rent shortfalls following the track 0 and 1A changes remains high.

- The result is a level of CRR payment proration that appears to me to be too large to reflect just the impact of transmission outages on the cost of meeting load.
- At the request of the MSC, the DMM has calculated the ratio of actual CRR payments to target payments over the period 3Q 2020 to Q2 2023 for several groups as reported below.
 - Financial Entities 69%
 - Marketers 73%
 - Generators 79%
 - Investor Owned Utilities 77%
 - CCAs 73%
 - Public Power 74%
 - Retail Access LSEs 78%

The ratio is somewhat lower for the financial entities than for the various types of LSEs, but the LSE ratios appear to me to be too low to be accounted for solely by the impact of day-ahead market transmission outages on the cost of meeting load.

Remaining Problems

While there is a reasonable case for reducing CRR payouts to a level reflecting the actual hedge provided by the transmission grid, taking account of transmission outages, the level of payment proration under the track 1B changes is pretty high.

- The level of CRR payment proration appears to me to be driven by more than the impact of transmission outages on the cost of meeting load.
- The apparently inflated level of CRR payment proration also reduces the value of CRRs as hedges.
- It would be desirable to address the root cause of the inflated impact of transmission outages on revenue adequacy.

Why?

Why is the payout to CRRs in aggregate relatively high compared to the auction payments?

- Lack of hedging demand by LSEs at the margin?
- High payouts to constraints not modeled/enforced in the auction?
- Auction revenues reduced by purchases of counterflow CRRs to restore feasibility?
Has this been eliminated by the phase 1B reduction in seasonal CRRs sales?
- Financial traders buying CRRs that have no value as hedges at prices based on auction shift factors and being paid based on inflated day-ahead market shift factors due to known transmission outages.¹
- Are some LSEs reluctant to purchase CRRs in the auction so there is little hedging demand in the auction for CRRs that cannot be acquired in the allocation process?
– related to first bullet
- Others?

1. This was discussed in Scott Harvey, CRR Revenue Adequacy, Auction Values, and Settlement Rules, California ISO Market Surveillance Committee meeting, April 4, 2018

Questions

There are several empirical questions whose answers may provide insights into the source of the low valuation of CRRs and guide further changes:

- What is the trend in payouts to constraints not modeled in the auction?
- What is the ratio of CRR payout to auction payments for low priced CRRs?
- What is the ratio of CRR payout to monthly auction value for allocated CRRs?
- What are the ratios of CRR payout to auction value for CRRs purchased in the monthly auctions versus those purchased in seasonal auctions? ¹
- What is the pattern of CRR payout across the different allowed source sink pairs relative to monthly auction prices?
- What is the ratio of CRR payout to auction value for CRRs sourcing or sinking at scheduling points with few competitors?

1. From my perspective it would be preferable to compare CRR payments to the auction payments to purchase those CRRs to avoid mixing in the impact of CRR purchases and sales, particularly when analyzing monthly auction CRR prices and payments.

Questions

- What would be the payout to CRRs purchased by financial entities and other CRR holders in a representative month with settlements based on auction shift factors compared to the historical payout?
- What is the level of congestion rent shortfalls on days/hours in which the day-ahead market transmission grid is essentially the same as the auction grid?
- Is there any analysis of the effect of the way ETCs and TORs are modeled in the day-ahead market on the level of congestion rent shortfalls?
- Is there any analysis of the magnitude of congestion rent shortfalls due to limit reductions in the day-ahead market relative to the limits in the auction model?
- Is there any analysis of congestion rent shortfalls due to differences in load zone weights between the auction model and the day-ahead market?