



CAISO CRR Auction Efficiency Initiative

Congestion Revenue Rights Auction Efficiency Working Group

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Overview

1. Comments on CAISO analysis
2. Issues with current CRR Auction design
3. Proposed Principles for a Reformed CRR Market Construct

The CAISO identifies modeling discrepancies between the CRR Full Network Model (FNM) and the corresponding Day-ahead Full Network Models as a common factor driving CRR revenue inadequacy and differences between auction revenues and auction CRR payments

- ❑ Misalignment between CRR and Day-ahead transmission models *will* exist as CRR transmission models (on which the Auction sales are made) are forward-looking models that represent an entire quarter or month of Day-ahead market hours. By contrast, the Day-ahead market (on which revenues are paid out to CRR holders) is run with potentially 24 different network models per day.
- ❑ Ex) 2017 Annual Auction (Q1) and January 2017 Monthly Auction:

Auction	Period	Number of Day-ahead Market Hours
2017 Annual (Q1)	On-Peak	1216
2017 Annual (Q1)	Off-Peak	943
January 2017 Monthly	On-Peak	400
January 2017 Monthly	Off-Peak	344

- ❑ How much revenue inadequacy can be effectively mitigated by process improvements?
- ❑ A small percentage (9.7%) of constraints identified as contributing to modelling discrepancies or driving significant payments to CRRs in CAISO’s monthly analyses (August 2016 to May 2017) were associated with late reported outages, under CAISO’s current rules
 - ❑ Some of these late reports may have been forced outages, which could not be predicted in advance
- ❑ PG&E agrees with CAISO that there is “an inherent complication to align the CRR auctions with the day-ahead market”. This is because of:
 - ❑ Intra-period outages
 - ❑ Forced outages
 - ❑ Unforeseen events requiring enforcement of constraints or nomograms
- ❑ While some process improvements can be made to address modelling inconsistencies, we expect many cannot be mitigated

- ❑ Based on CAISO Monthly Market Performance Reports, the CRR market has been revenue inadequate for 60 consecutive months between October 2012 and September 2017, totaling ~\$561M
- ❑ While allocated and auction CRRs can contribute to overall revenue sufficiency, the CRR Analysis Report monthly analyses between August 2016 and May 2017 show that if only allocation CRRs existed, the CRR market would have been revenue adequate in 9 out of 10 months
 - ❑ The only month in this period when the CRR Allocation process was revenue inadequate was December 2016
 - ❑ Over the 10 month period, allocation CRRs were on net, revenue adequate
 - ❑ Absent the auction processes, LSEs could have received an additional \$35.1M in CRR payments and the CRR market would have been revenue neutral

CRRs are persistently sold in auction at significant discounts to payments to auctioned CRRs in the Day-ahead market

- From 2014 to Q2 2017, “about 17 percent of CRRs acquired in the auction had a net negative money inflow (net CRR payments) from holding CRRs”
- CRR valuation issues persist event with an increase in market participants and general increase in auction bids
- Auction CRRs skew toward being profitable on net and are fully funded; there is low risk for CRR Auction participants while LSEs fully absorb the risk associated with CRR underfunding and undervaluing of auction CRRs

1) In general, LSEs do not participate extensively in auction rounds. However, LSEs fully fund CRRs and bear all revenue insufficiency costs associated with auctioned CRRs regardless of their participation

- If 100MW of CRRs are sold in auction over Line A, but Line A is de-rated in the Day-ahead market to 50MWs, CRR holders are still entitled to full congestion rent on the 100MWs.
- Non-LSE CRR holders bear no risk associated with CRR underfunding. LSEs absorb this risk and guarantee CRR holders full payment on their CRRs

2) CAISO releases transmission capacity not used in the CRR allocation process in the auction; LSEs ratepayers are the default counterparty to transmission capacity sold in auction while unable to reflect willingness to participate in those transactions

- Transmission capacity not used in allocation rounds is released on behalf of ratepayers in auctions, initially valued at \$0; the market relies on participants' bids to set the value of the transmission capacity
- IOUs are restricted from speculating per CPUC-approved Bundled Procurement Plans
- LSEs should not be expected to “defensively bid”, especially on CRR paths not representative of their physical power

3) Valuation issues persist in CRR auctions

- Divergence between auction revenues and payouts to auction CRRs persists even with increased market participation over time
- The CAISO concludes that “Once one given auction has been impacted by a model issue, the overall economics of that auction may be distorted since enforcing or not enforcing one specific constraint may ultimately impact the pricing of other transmission constraints...” and finds that revenue sufficiency and net CRR payments are strongly correlated
- To the extent that the majority of modelling inconsistencies cannot be mitigated and impact market outcomes, there is no clear remedy to better converge CRR and Day-ahead market outcomes as long as the CRR market is overlaid on a forward-looking full network model

1) Allows for an equitable sharing of risks and benefits

- Today, LSEs bear risk of revenue insufficiency and fully fund payouts to CRR holders
- CAISO analysis shows that only 17% of CRRs in the analysis timeframe received net negative CRR payments – little risk of downside for non-LSE auction participants, yet significant risk placed on LSEs to fully fund auction CRRs

2) Supports the underlying purpose of CRR markets, which is to allow participants to obtain hedges that reduce exposure to congestion costs

- “The vast majority of CRR payments are for auction CRR definitions between individual supply points, mostly from generation point to generation point and from intertie point to intertie point”
- It is not clear that these paths represent hedges for contracts or physical power delivery – if not, what value do these transactions add to the market and how do they benefit consumers?

3) Facilitates transactions between willing counterparties and allows parties to manage their own risk

- Today's design forces LSEs to be the default counterparty to the sales of transmission capacity in auction that is not used in the CRR allocation process