



California ISO

Congestion revenue rights auction is fundamentally flawed – and continues to lose millions of dollars each year

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Core CRR auction design flaws

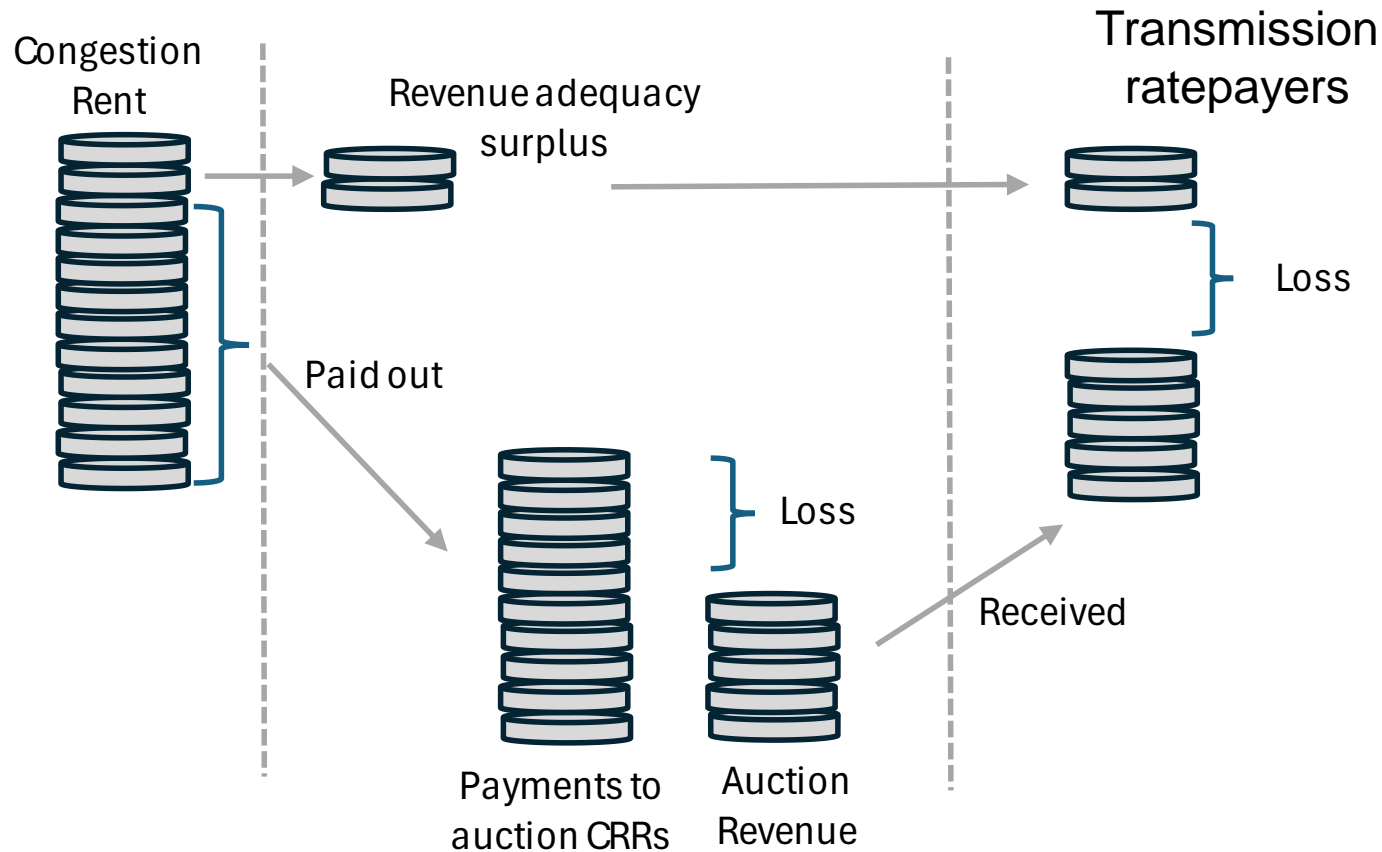
- ISO sells contracts backed by transmission ratepayers
 - ISO offers to sell these contracts at \$0 offer price
 - Transmission ratepayers do not have control over their rights, are not willing sellers
- Auction transmission model different than transmission models that generate CRR payments
 - The bundle of rights that are CRRs is different when sold in auction than when settled in day-ahead market
 - Financial traders can profit from modeling differences at the expense of transmission ratepayers

Core design flaw still present in revenue adequate RTOs

- RTOs that presented to working group were revenue adequate or had milder revenue adequacy shortfalls than the ISO.
- But all these RTOs lose hundred of millions of dollars per year from the auction based on their market monitors' state of market reports:

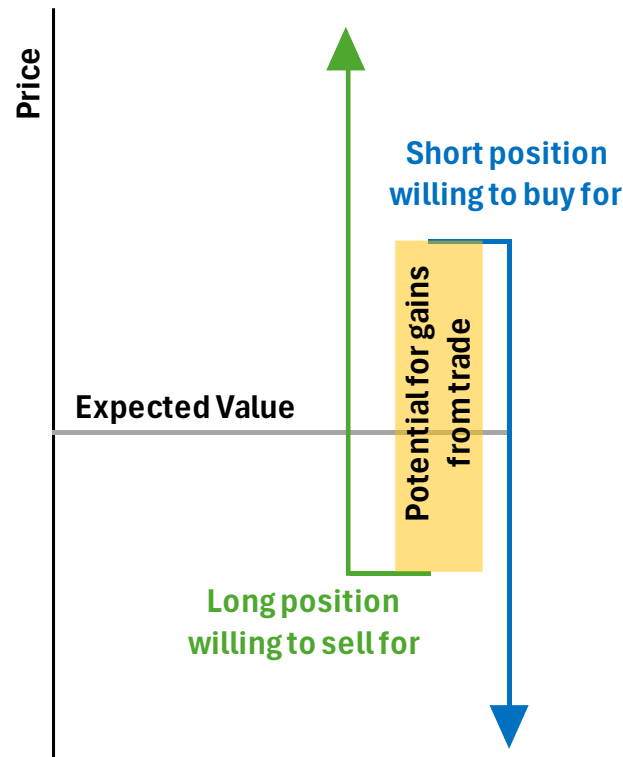
	Auction Losses (\$ millions)		
	MISO	ERCOT	PJM
2021	\$932	\$457	\$1,060
2022	\$387	\$969	\$387
2023	\$184	\$367	\$232
2024			\$527

Difference between revenue adequacy and auction losses

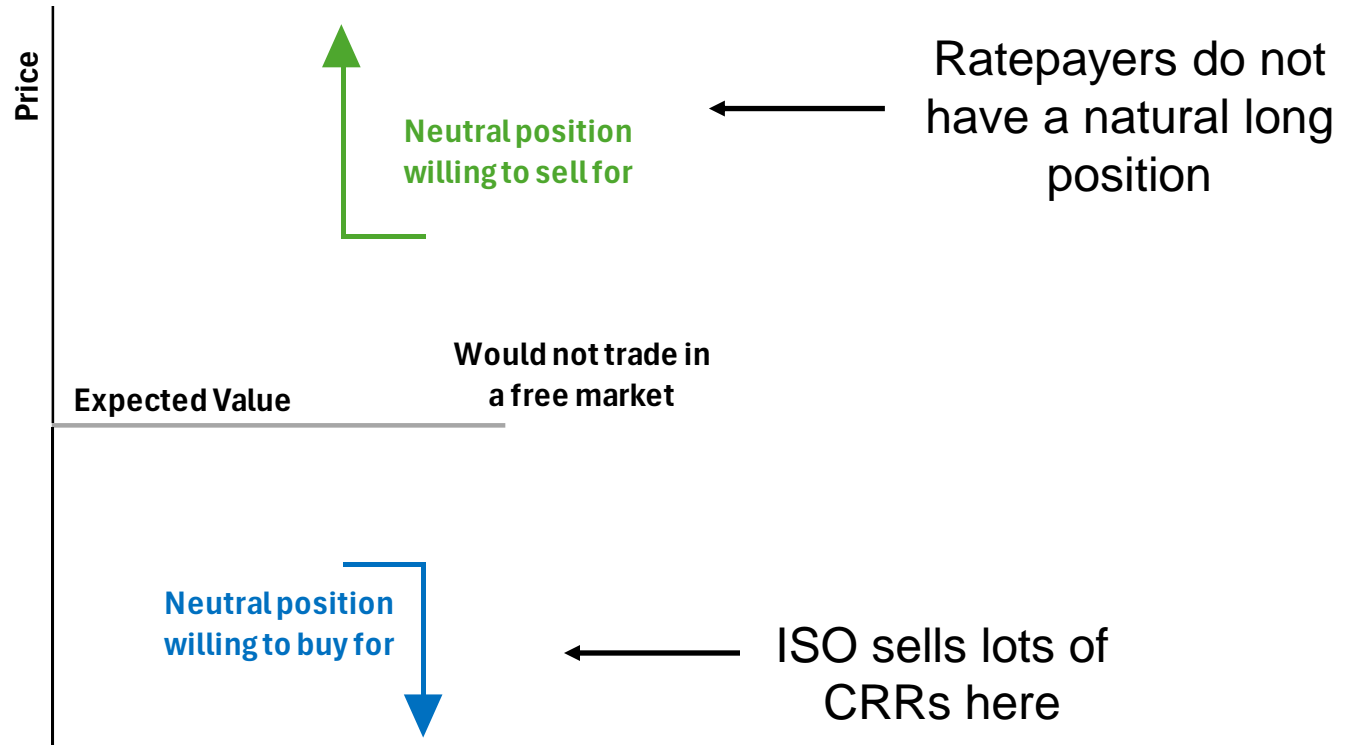


Who would be expected to trade forward contracts?

- A risk adverse party who is long on a price (benefits when price rises) may be willing to sell a forward contract for less than expected value
- A risk adverse party who is short on a price (benefits when price falls) may be willing to buy a forward contract for more than expected value



It is not a mystery why ratepayers lose in the CRR auction

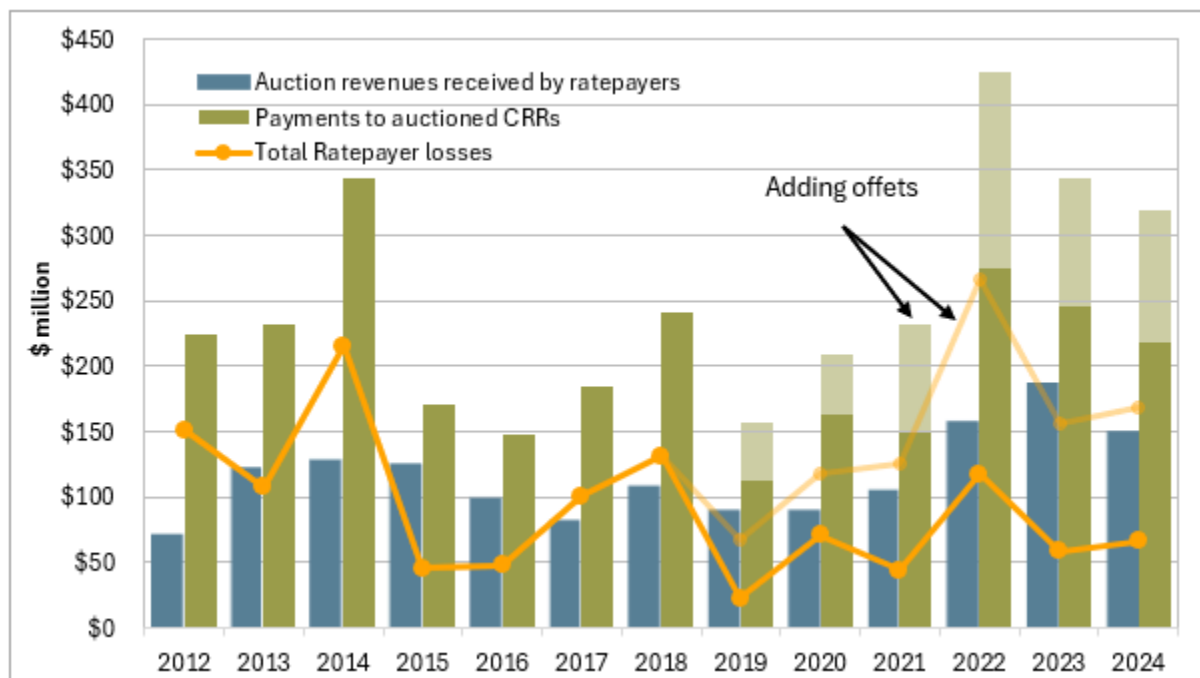


Deficit offsets are a symptom of Simultaneous Feasibility Test (SFT) assumptions not holding

- If SFT assumptions held, the rent on constraints underlying the MCCs could fund CRRs
 - The bundle of rights would be equivalent to paying MCC difference
- SFT assumptions clearly do not hold for CAISO CRRs
 - CRRs do not support a contract that could pay total MCC differences
 - Taking money from other constraints, from which the auction CRRs did not purchase rights, is ad hoc and not supported by SFT theory
- Deficit offsets have reduced the value of CRRs to parties wanting to hedge, yet auction revenues have risen from about 50 cents to 67 cents per dollar paid out.

Deficit offsets are primary reason for reduced ratepayer losses since 2019

- Non-LSE offsets have averaged almost \$90 million (30%), while ratepayer losses have fallen by about \$50 million per year since 2019
 - Average annual auction revenue increased by about \$24 million
 - Average annual net CRR payouts decreased by about \$27 million



- The ISO has analyzed causes of revenue inadequacy in detail for over one year ...

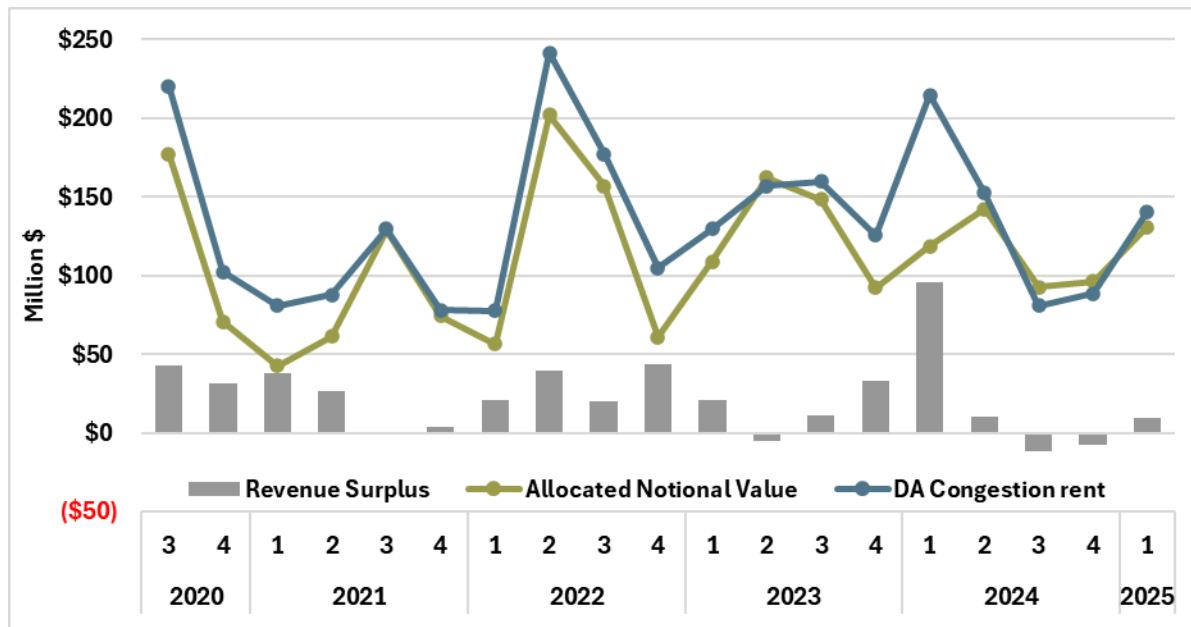
Main findings of analysis on CRR market performance

Based on assessment of specific constraints, there are three main root causes identified leading to revenue inadequacy:

1. Missing power flow contributions from locations with small shift factors that fall below the existing threshold
 2. Power flow contributions from loop flows that consume capacity from transmission constraints
 3. Model differences between the CRR and DA markets
- *These 3 root causes have been previously identified, and ISO has already made extensive efforts to address them.*
 - *Incremental improvements will not mitigate fundamental flaw in CRR auction design.*

Allocated CRRs have been revenue adequate overall

- Allocated CRR notional value averaged a surplus of about 17% of congestion rent since Q3 2020.
- After the auction, CRR revenue adequacy had shortfalls of about 25% of congestion rent.



Surplus % of congestion rent				
2020*	2021	2022	2023	2024
23%	18%	21%	11%	16%

*Q3 and Q4

The CRR auction design is the fundamental problem

- ISO auctions off contracts on behalf of transmission ratepayers who must take on risk for negative expected value
- Most CRRs are not purchased by entities hedging risks in energy markets
- Assumptions underlying SFT do not hold in CAISO.
 - Cannot support contracts that pay full MCC differences.
- Fixing revenue adequacy is not the same as fixing the auction losses.
- Allocated CRRs were revenue adequate overall
- Even if subsidized contracts for hedging were desired, the CRR auction is not an effective way to do that

Willing seller auction design approach

- Maintain/enhance CRR allocation process
 - Because the willing seller auction is fully self funded, the amount of CRRs allocated to LSEs could be increased without creating revenue insufficiency
 - Deficit offsets would be eliminated
 - Deficit offsets have reduced payout of allocated CRRs by about 25% since 2019.
- Willing seller auction
 - ISO runs auction only with bids from willing sellers and buyers.
 - ISO does not offer CRRs for \$/MW
 - This can be done by setting transmission limits to 0 in CRR model.
 - Willing sellers include LSEs reselling allocated CRRs, financial entities, marketers “selling” hedges at appropriate bid price
 - Eliminate current restrictions on CRR locations
 - All CRRs sold in auction are fully funded by willing counterparty