FTR auction design is fundamentally flawed

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Background: Selection of DMM reports on FTR auction design flaws

- *Comments on the CRR Auction Analysis Working Group*, Department of Market Monitoring, January 2018: http://www.caiso.com/Documents/DMMComments-CRRAuctionAnalysisReportWorkingGroup.pdf
- *Response to Additional Questions for the Record*, submitted by Eric Hildebrandt to Committee on Energy and Commerce Subcommittee on Energy United States House of Representatives, January 9, 2018: http://www.caiso.com/Documents/ResponsestoAdditonalQuestionsreTestimonyofEricHildebrandt-Jan92018.pdf
- *Addressing revenue inadequacy does not resolve ratepayer losses from flawed CRR auction design*, Department of Market Monitoring, December 19, 2017: http://www.caiso.com/Documents/CRRAuctionWorkingGroupPresentation-RyanKurlinskiDMM-Dec192017.pdf
- *Summary of Testimony of Eric Hildebrandt, PhD*, submitted to Committee on Energy and Commerce Subcommittee on Energy United States House of Representatives, November 29, 2017: http://www.caiso.com/Documents/TestimonyofEricHildebrandt_Nov29.pdf
- *Problems in the performance and design of the congestion revenue right auction*, Department of Market Monitoring, November 2017: http://www.caiso.com/Documents/DMMWhitePaper-Problems_Performance_Design_CongestionRevenueRightAuction-Nov27_2017.pdf
- *Market alternatives to the congestion revenue rights auction*, Department of Market Monitoring, November 2017: http://www.caiso.com/Documents/DMMWhitePaper-Market_Alternatives_CongestionRevenueRightsAuction-Nov27_2017.pdf
- *Shortcomings in the congestion revenue right auction design*, Department of Market Monitoring, November 2016: http://www.caiso.com/Documents/DMM-WhitePaper-Shortcomings-CongestionRevenueRightAuctionDesign.pdf
- *Auctioned FTRs: Financial Swaps ratepayers are forced to sell…for huge losses*, Department of Market Monitoring, presented at Harvard Electricity Policy Group Meeting, October 13, 2016: http://www.caiso.com/Documents/DMM_Presentation_on_CRR_Auction_at_HEPG-Oct132016.pdf

FTR *allocation*

- Allow transmission customers (entities paying TAC) to hedge power purchases
- Method of allocating congestion rents back to those who paid for transmission to be built
- Congestion rents not allocated through FTR allocation
  - Still belong to TAC payers
  - Get allocated back to TAC payers

FTR *auction*– the standard story

- Stories that support current FTR auction design:
  - Leftover congestion rents after the allocation: free resource that can be used by central planners
  - *IF* single auction model = hundreds of DAM models
    → Auctioning FTRs is like auctioning leftover congestion rents
  - FERC thinks ISOs need to run auctions that offer hedges to generators and financial entities
  - *IF* competitive market
    → Auction revenues should converge to day-ahead market payouts
  - **Story supporting FTR auction currently at center of CAISO debate:**
    - **Current FTR auction design is necessary for open access to transmission**
    - **Lower prices on some forward energy contracts justify accepting flaws in current auction design**

FERC Standard Market Design: Allocate FTRs to customers, no auction requirement, **voluntary** FTR sales

- Standard Market Design White Paper on Wholesale Power Market Platform, April 28, 2003:

  "The Final Rule will eliminate any requirement that FTRs be auctioned. We will, instead, look to regional state committees to determine how such rights should be allocated to current customers based on current uses of the grid." [p. 5]

  "There would be no requirement to auction these FTRs either initially or after a transition period ….. Once the initial allocation of FTRs is completed, the RTO or ISO must operate a secondary ***market*** for holders of FTRs to ***voluntarily sell*** their FTRs to others." [Appendix A. p. 9. Emphasis added.]

Energy Policy Act and Order 681: Allocate FTRs to LSEs, no requirement for them to sell *more*

- Order No. 681, Final Rule, July 20, 2006, ¶116 at p. 66.

  "The primary objective of guideline (1), consistent with section 217(b)(4), is to allow a ***load serving entity*** to obtain a long-term firm transmission right for purposes of hedging congestion charges associated with delivery of power from a long-term power supply arrangement to its load. We will adopt guideline (1) without modification." [Emphasis added.]

- Clear in Order 681 that Energy Policy Act of 2005 requirements on FTRs apply only to allocation of FTRs to LSEs – does not require sale of additional FTRs by ISO through an auction.
  - See Order No. 681, Final Rule, July 20, 2006, ¶361 to ¶393 at pp.172-190.

FTR auction lacks the characteristics of a competitive market

- Auctioned FTRs are not well-defined property rights
  - Use of superior private information can result in decreased auction revenues relative to value of auctioned product[1]
- Liquidity dispersed amongst huge quantity of products
- Model complexity creates barriers to entry

∴ **We should not expect FTR auction to produce competitive outcomes**

- Empirical evidence: FTR auction prices have not converged to day-ahead market congestion prices as expected in a competitive market

[1] See Athey, Susan, and Jonathan Levin. 2001. "Information and competition in US Forest Service timber auctions." *Journal of Political Economy*: http://web.stanford.edu/~jdlevin/Papers/Skewing.pdf.

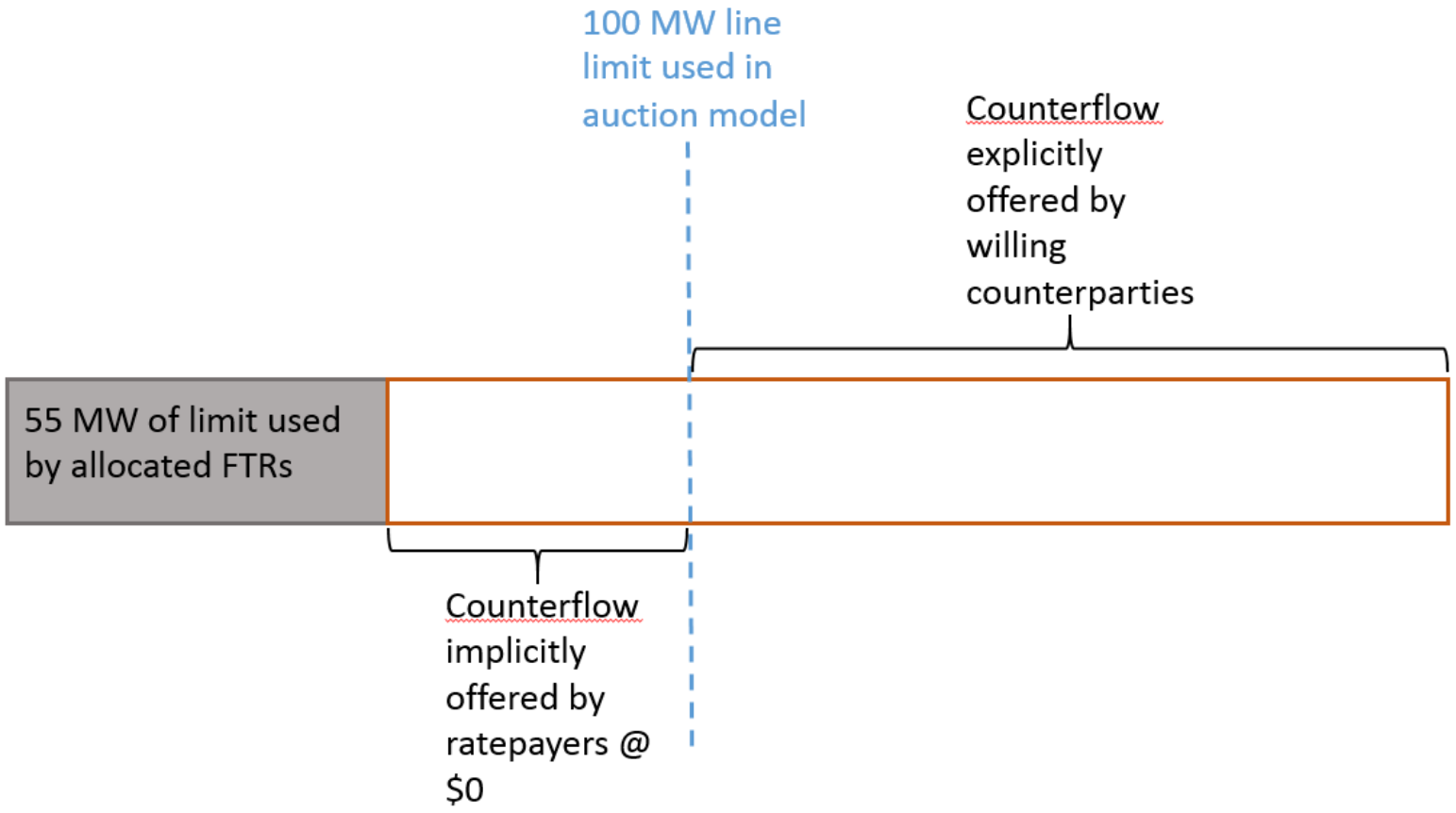
Agarwal, Nikhil, Susan Athey, and David Yang. 2009. "Skewed Bidding in Pay Per Action Auctions for Online Advertising" *The American Economic Review*: http://economics.mit.edu/files/10630.

FTR auction– facts

- Underlying transaction:
  - Ratepayer implicitly sells financial swap
    - Receives auction revenue
    - Obligated to pay hourly price difference between 2 nodes

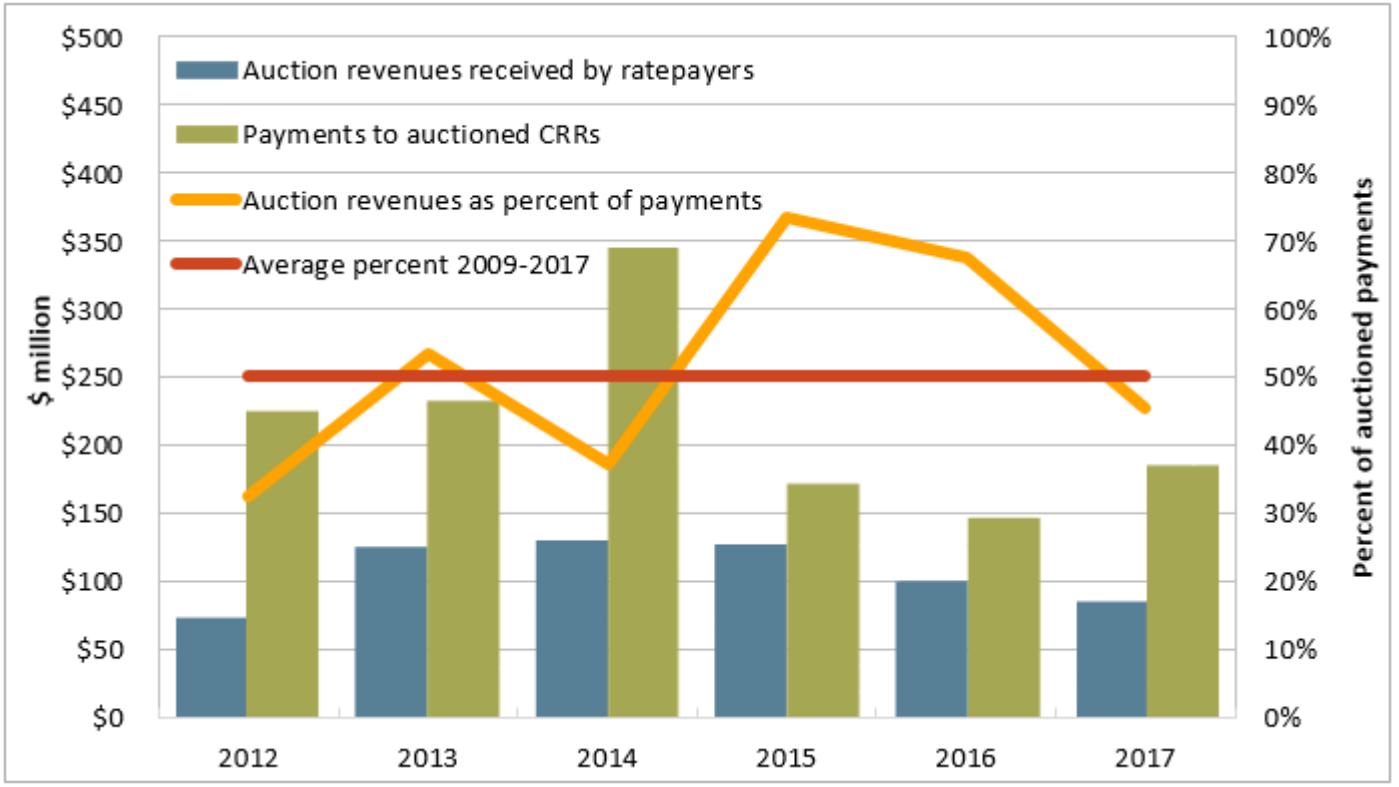
- FTR auction network model defines quantity of swaps ratepayers forced to offer ***at $0 reservation price***

FTR auction model defines quantity of swaps ratepayers forced to offer at $0 reservation price



Causes inefficient transactions– ratepayers forced to sell swaps at prices less than their actual reservation prices

Big CAISO ratepayer losses from being forced to offer large quantities of (FTR) swaps at $0 reservation price



- Big ratepayer losses in the other largest ISOs as well[2]

[2]See research from the Stanford University Economics Department: Leslie, Gordon "Why do transmission congestion contract auctions cost ratepayers money? Evidence from New York" November 14, 2017, downloaded 11/17/2017: http://www.web.stanford.edu/~gwleslie/index_new_files/Leslie_JMP20171114.pdf

How do we fix this flawed FTR auction design- Part 1

- Proponents of auction: “Address revenue inadequacy”
  - Would obviously reduce ratepayer losses

BUT

- No reason to believe ratepayer losses magically go to zero if revenue adequacy achieved
  - Ratepayers still offering large quantities of swaps at $0 reservation price
  - MISO: Massive ratepayer losses from auction despite achieving revenue adequacy

How do we fix this flawed FTR auction design- Part 2

- The fundamental flaw
  - Using an estimate of day-ahead market models to determine quantity of (FTR) swaps ratepayers forced to offer at $0 reservation price

- Directly address the flaw
  - Stop forcing ratepayers to offer swaps at $0
  - Allow real market to develop for hedging basis risk between generator price and liquid forward product (trading hub) price
  - *Market* where transactions only occur between willing sellers and willing buyers

Current debate in CAISO: Part 1 of 2

Is an FTR auction with ratepayers being forced to offer large quantities of swaps at $0 reservation price necessary for open access to transmission?

- Day-ahead market guarantees open access
  - Forward contracts can be signed
  - Hedge for basis risk will be available—if the price is right
  - Exposure to basis risk does not prevent open access

Current debate in CAISO: Part 2 of 2

Do lower prices on some forward energy contracts justify forcing ratepayers to offer large quantities of financial swaps at $0 reservation price?

- Use empirical data to estimate total potential increase in cost of forward energy contracts under worst case scenario (i.e. no CRRs that may currently support forward energy contracts can be replaced by hedge at price less than supplier values hedge)
- Compare to ratepayer auction losses from CRRs that do not support forward energy contracts

Innovate financial products that pool risk, allowing low cost hedges for basis risk on liquid forward energy product without inefficiencies of current CRR auction design