

Comments on the CRR Auction Analysis Working Group
Department of Market Monitoring
January 16, 2018

The California ISO Department of Market Monitoring (DMM) appreciates the opportunity to comment on the ISO's *CRR Auction Analysis Working Group*.

During 2017—between the time the ISO embarked on the CRR auction data analysis and the submission date for these analysis working group comments—transmission ratepayers lost another \$100 million in the CRR auctions.¹ DMM hopes the ISO moves swiftly to remove the costs and risks the CRR auction places on ratepayers.

The main points in these comments are:

- The auction design prevents anyone from knowing if the CRR auction results are efficient.
- The CRR auction lacks the characteristics of a competitive market.
- Targeting revenue adequacy is not targeting the fundamental problem with the auction.
- The spot market's open access to transmission does provide "long-term" open access.
- The argument for a non-targeted subsidy for "intangible" CRR benefits is not supported.
- The CRR Secondary Registration System is not indicative of alternatives to the auction.
- The CRR auction undermines the ability of LSEs to hedge congestion costs.
- Extending the CRR auction to BAAs considering joining the ISO's Extended Day-ahead Market would reduce the benefits these BAAs would receive from joining the day-ahead market.
- There are feasible, easy to implement alternatives to the CRR auction. In particular, DMM strongly supports SCE's proposal to run almost the exact same CRR auction process that the ISO runs today, but with the limits of all constraints set to zero so that CRRs are only traded between willing buyers and sellers.

The Federal Power Act and FERC do require the ISO to provide a means for load serving entities to hedge their congestion costs. However, Federal regulations do not require the ISO to run a CRR auction that forces ratepayers to sell a quantity of CRRs determined by an approximation of available day-ahead market transmission capacity. In practice, the CRR auction has undermined the ability of load serving entities to hedge their congestion costs. We provide more detail on these points below.

¹ See *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, pp. 8-9: <http://www.caiso.com/Documents/ResponsestoAdditionalQuestionsreTestimonyofEricHildebrandt-Jan92018.pdf>

The auction design prevents anyone from knowing if CRR auction results are economically efficient

The ISO asks what a “reasonable” profit is; whether a buyer’s risk premium makes its profit reasonable; and what would a “reasonable share of CRRs” with losses versus profits be?² These questions are irrelevant because they only consider one party in the transaction between the buyer and seller of a CRR (i.e. the buyer).

In a competitive market between willing buyers and sellers, trade only occurs when both buyer and seller believe the trade benefits them. We do not have to ask if profits are “reasonable.” Both parties agreed to the trade. If one party thinks the trade terms are unreasonable they can simply not make the trade. Unfortunately, ratepayers do not have the choice to not trade in the CRR auction. That the ISO even asks what level of CRR auction profits are reasonable highlights this underlying problem.

The auction design also forces ratepayers to offer CRR contracts without regard to the costs imposed on ratepayers by those contracts. The entity that most values purchasing a CRR contract may bid their true valuation adjusting for their risk premium. In an efficient market this highest bidder would only be awarded the contract if the bidder valued the contract as much, or more than, the costs to the seller of providing the contract. Under the CRR auction design, the highest bidder can be awarded the contract even if they value the contract less than the costs imposed on ratepayers. A market in which the seller incurs costs that are greater than the benefits to the buyer is inefficient.

Asking whether the prices and trades make sense for the buyer because the buyer requires a risk premium constitutes only looking at half of the problem of whether or not a transaction is efficient. The relevant question for assessing the efficiency of a transaction is whether the prices and trades make sense for both the buyer and seller. Because the CRR auction forces transmission ratepayers to sell contracts without regard to the costs imposed on ratepayers, one cannot know if the trades make sense or if the CRR auction is efficient *even if the auction is otherwise competitive*.

The CRR auction lacks the characteristics of a competitive market.

The ISO also asks why market competition would not dissipate economic rents.³ The answer is simple. The CRR auction does not have the characteristics of a competitive market in numerous ways, as described below.

Transmission ratepayers are forced to offer contracts at zero dollar reservation prices. This is inconsistent with a competitive market. Notwithstanding other assumptions, the theory

² Bautista Alderete, Guillermo, *Analysis Report: Workshop on CRR Auction Initiative*, December 19, 2017, p. 6, 7 and 12: <http://www.caiso.com/Documents/Presentation-CRR Auction Analysis Report-Dec192017.pdf>

³ Bautista Alderete, *Analysis Report: Workshop on CRR Auction Initiative*, p.7.

underlying a competitive market assumes that both buyers and sellers make choices in their best interests. In most auctions products are offered because the seller chose to offer them. The seller may even choose a reservation price so the product is not sold for less than the seller's cost. But in the CRR auction the ISO decides the quantity of contracts transmission ratepayers will offer and assumes selling these contracts imposes no costs on ratepayers. Transmission ratepayers do not have a choice. They are conscripted sellers in the CRR auction.

Competitive markets generally have low or insignificant transaction costs. The CRR auction attempts to make every transmission element a defined product. This creates unnecessary complexity. The auction's complexity creates significant transaction costs that limit competition. While auction participants seeking to hedge basis risk buy locational swaps, other market participants may create portfolios that give them exposure to specific portions of the transmission system. The complexity of the auction means firms need highly specialized expertise and modeling capabilities to find valuable exposures to specific transmission elements or areas. This need for specialized expertise and capabilities increases transaction costs and reduces competition for this type of trading. Also, as discussed in a research paper from the Stanford University Economics Department, the large number of potential products and product combinations in the auction can dissipate effective market liquidity.⁴

Further, the CRR auction uses an estimated transmission model that differs from the spot market model. CRRs are inconsistently defined between the auction and the spot market. That is, CRRs are not well-defined property rights. With these inconsistently defined products, auction participants can compare the auction's transmission model to their private estimates of the actual spot market models.⁵ When auction participants have better private estimates of a product's definition than the auction's public estimates, participants can extract value from the seller. Further, when the auction's estimate of a product is different than the actual product, the auction may not allocate products to the actual highest bidders. These are known problems in auctions that use estimates of the products being sold.⁶

The CRR auction relies on conscripted sellers, has high transaction costs, has poorly defined property rights, and dissipates market liquidity. These are not the characteristics of a competitive market.

⁴ Leslie, Gordon, "Why do transmission congestion contract auctions cost ratepayers money? Evidence from New York," November 14, 2017, downloaded 11/17/2017 p. 48:

http://www.web.stanford.edu/~gwleslie/index_new_files/Leslie_JMP20171114.pdf

⁵ Auction participants may also gain private estimates of spot market models that are superior to the auction model simply because, unlike the CRR auction model, auction participants are not constrained into having one estimate of hundreds of spot market models.

⁶ For two examples of academic articles discussing public-private estimate issues in auctions see:

Athey, Susan, and Jonathan Levin. 2001, "Information and competition in US Forest Service timber auctions," *Journal of Political Economy*, p.377: <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>.

Targeting revenue inadequacy does not solve the fundamental problems with the CRR auction.

Fixing revenue inadequacy does not tell us how many price swaps ratepayers should be forced to sell. Even if the CRR market was revenue adequate, there is no guarantee that undervaluing issues observed in CRR auctions and ratepayer auction losses would be resolved. MISO's FTR auction is an example. Despite being revenue adequate, it appears the MISO FTR auction still costs ratepayers over \$100 million a year.

DMM does not dispute the point made in the ISO's Working Group presentations and Analysis Report that there is a *correlation* between revenue adequacy and auction profits. In fact, this correlation is obvious because both revenue adequacy and auction profits are dependent on the same variables. If the ISO addresses revenue inadequacy by forcing ratepayers to sell less CRRs, auction prices will go up and ratepayer losses will decrease. This point does not require extensive analysis.

The point of DMM's presentation at the December 19 Working Group meeting was to emphasize that reducing the amount of CRRs sold to the point of resolving revenue inadequacy does not imply or ensure that ratepayer losses from the auction will be reduced to zero.⁷ Achieving revenue adequacy will not address whether the ISO's estimate of transmission capacity released in the auction is the correct or efficient amount of capacity to sell on behalf of ratepayers. In fact, the evidence from MISO strongly suggests that even if the ISO achieves revenue adequacy, ratepayers can still expect to be exposed to massive losses from the auction.

DMM is concerned that this simple point made by DMM in its presentation at the December 19 Working Group meeting has been misrepresented by the ISO. An ISO presentation states that DMM has inferred that "Zero profit can be achieved only if 0 MW CRRs are auctioned."⁸ DMM clarifies that DMM did not make this conclusion in its presentation, and notes that DMM has not made this point in any prior papers or presentations.

The ISO's spot market provides long-term open access to transmission.

The ISO's spot market provides open access to the transmission system. During the working group meeting some argued that the CRR auction was needed to provide "long-term" open access. But the CRR auction is not needed for long-term open access. The ISO's spot market open access also provides long-term open access.

⁷ *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>.

⁸ Bautista Alderete, Guillermo, *ISO Comments to DMM Presentation*, CAISO, December 19, 2017 p. 6:

<http://www.caiso.com/Documents/ISOCommentstoDMMPresentation-CongestionRevenueRightsAuctionEfficiencyAnalysisWorkingGroup-Dec192017.pdf>.

The ISO spot market uses a centralized dispatch market that generates locational prices. Market participants buy or sell power through the central market at their local price. Participants do not ship power between locations. This locational pricing system allows market participants to have open access to the transmission that is needed to support its energy schedules without needing to procure and exchange transmission rights.

Locational pricing not only avoids complicated and costly trading of transmission rights in the spot market, locational pricing avoids the need for such trading in the forward markets. Market participants can write financial contracts against the spot market prices. Because the ISO spot market provides open access, participants can know a lack of “transmission rights” will not leave their financial position unbalanced by a spot market schedule. Prices connect the physical trade-offs in the spot market to the financial markets.

For example, suppose a generator sells a forward contract for \$40 that settles on the generator’s local spot market price. The forward contract obligates the generator to pay the spot price. Assume the spot price turns out to be \$100. If the generator does not have transmission access it cannot schedule power and will lose \$60. But because the ISO spot markets are open access, the generator does not need to worry about obtaining transmission rights when they sell the forward contract. The generator will not lose money if it bids \$40 because the spot market will schedule the generator when the price is above \$40. The generator’s energy schedule will balance its financial contract obligation unless its local price falls below the generator’s bid. When the local price falls below the generator’s bid, it is advantageous for the generator to not balance their financial contract obligation because it is not worth the costs of scheduling energy.⁹

Locational pricing, however, creates many different prices. How do parties with different local prices choose which local price to settle a financial contract against? A party with a financial contract settling against a price different than their local price will have to pay the uncertain difference between the contract price and their local price. This uncertain price difference is basis risk. But because load owns the congestion rent, parties purchasing energy can hedge their financial contract basis risk when writing contracts that settle on the energy supplier’s local price.

Energy buyers and sellers are natural trading partners for forward financial contracts. However, with many different locational prices, generating additional trading interest in any one price may be difficult. That is, individual locational prices might not have a liquid market for financial contracts. As is done for many other commodities, a common reference price can allow energy buyers, energy sellers, and financial traders to all trade a liquid financial contract. But, as with

⁹ Similar examples could show this for buying power, importing power, exporting power or simultaneously importing and exporting power (i.e. wheeling).

other commodities, parties trading financial contracts at the common reference price will face basis risk.

Basis risk does not imply a lack of open access. A wheat farmer in Montana faces basis risk when forward contracting at the price in Chicago. Such basis risk does not imply the farmer lacks open access to the wheat market. Hedging basis risk is a financial problem that financial markets can solve. DMM has previously discussed potential financial contracts that can allow suppliers to hedge basis risk through voluntary markets.¹⁰ The ISO does not need to force ratepayers to sell contracts or conflate the allocation of congestion rent with a market for hedging basis risk. The ISO spot market locational prices and open access provide the foundation for financial contracting.

Arguments for a non-targeted subsidy for “intangible” CRR auction benefits is not supported.

During the working group meeting, some argued that ratepayer losses might be worthwhile for transmission ratepayers because the auction losses might be outweighed by some “intangible” benefits.¹¹ This is nothing more than an argument for subsidizing insurance for basis risk. DMM thinks it is incumbent on those arguing for such a subsidy to show that the benefits are justified and explain exactly what market failure necessitates this subsidy. Proponents of this subsidy should explain how underpricing in the CRR auction is superior to a targeted subsidy aimed at the behavior that generates these intangible benefits. The fact that some in the meeting argued that these purported benefits are “intangible” or “unquantifiable” is insufficient to justify such a subsidy. DMM does not believe the intent of the CRR auction was (or should be) to provide subsidized insurance for basis risk.

The CRR Secondary Registration System is not indicative of auction alternatives.

The ISO points out that the ISO currently has a “platform for bilateral trades.” This platform is called the CRR Secondary Registration System (SRS). “Using the SRS, a CRR Holder may transfer ownership of CRRs to any entity eligible to be a CRR Holder.”¹² The ISO asks why only a couple bilateral transactions for CRRs have been made since the inception of the platform and why bilateral trade appears to not be attractive.¹³

¹⁰ *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

¹¹ The ISO’s presentation defined the concept of “intangible” benefits. See Bautista Alderete, *Analysis Report: Workshop on CRR Auction Initiative*, p. 4. The argument described in this sentence was made verbally by Working Group participants including Vitol.

¹² Business Practice Manual for Congestion Revenue Rights version 21 July 25, 2017 p.88: <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Congestion%20Revenue%20Rights>

¹³ Bautista Alderete, *Analysis Report: Workshop on CRR Auction Initiative*, p.21

There are at least three reasons apparent to DMM why the SRS would have little activity. There is no reason to think such activity would be indicative of activity that might exist in a voluntary swap market in the absence of the CRR auction.

First, as pointed out by Silicon Valley Power (SVP) in the December 19 meeting, the CRR auction exists and is, on average, selling CRRs for about 50 cents on the dollar. Why would anyone go to the SRS, or any other market, where you would have to pay based on terms acceptable to the seller when you get CRRs for half off in the auction? The existence of the CRR auction crowds out potential voluntary markets.

Second, the SRS only allows participants to transfer existing CRRs to another party, not write new contracts. The SRS is not designed to work like a normal financial contract market.

Third, the fact that only existing CRRs can be transferred gives the SRS a large horse trader problem: if CRRs are on average such a great deal in the auction, why do you want to get rid of *these CRRs*?

The CRR auction undermines the ability of LSEs to hedge congestion costs.

Federal regulations do not require the ISO to run a CRR auction. The Energy Policy Act of 2005 update to the Federal Power Act simply requires that the ISO provide a means for load serving entities (LSEs) to hedge congestion costs on power purchases made by LSEs on behalf of their customers.

The Commission shall exercise the authority of the Commission under this Act in a manner that facilitates the planning and expansion of transmission facilities to meet the reasonable needs of load-serving entities to satisfy the service obligations of the load-serving entities, and enables load-serving entities to secure firm transmission rights (or equivalent tradable or financial rights) on a long-term basis for long-term power supply arrangements made, or planned, to meet such needs.¹⁴

Allocating congestion rents to LSEs allows them to hedge their congestion costs. The CRR auction places obligations on LSEs to make payments related to congestion prices. Because the payments to auctioned CRRs rise with congestion prices, these payments undermine the ability of LSEs to hedge their congestion costs. Therefore, in practice, the CRR auction has undermined the requirement that the ISO provide a means for LSEs to hedge congestion costs.

Further, as shown in PG&E's Working Group presentation, payments to the allocated CRRs would have been more or less revenue adequate when compared to the day-ahead congestion rent.¹⁵ If, in an attempt to affect the auction outcomes, the ISO increases the constraints in the CRR model, the ISO could reduce the amount of allocated CRRs available to LSEs. This could

¹⁴ Pub. L. No. 109-58, § 1233, 119 Stat. 594, 958.

¹⁵ CAISO CRR Auction Efficiency Initiative, PG&E, December 19, 2017, p.5:

<http://www.caiso.com/Documents/Presentation-CristySanadaPGE-Dec192017.pdf>

occur even if there was enough congestion rent to support additional allocated CRRs. Over-constraining the allocation could further undermine the ability of LSEs to hedge their congestion costs.

CRR auction and extended day-ahead market.

The CRR auction has cost California transmission ratepayers over \$85 million per year on average. If the ISO applies the CRR auction and its existing fundamental design flaws to the extended day-ahead market, the ISO could reduce the benefits to ratepayers of joining the extended day-ahead market.

There are feasible, easy to implement alternatives to the CRR Auction.

There are feasible alternatives to the CRR auction that will ensure CRRs are bought and sold only between willing counterparties while allowing market participants to manage basis risk. One such alternative is to replace the auction with a market for locational price swaps. DMM detailed in a recent white paper how contracts to manage basis risk can be designed where products are consistently defined; where trading occurs between willing counterparties; where natural long and short positions reduce costs by using offsetting basis risks to insure each other; and where natural long and short positions provide natural market liquidity that financial traders can build on.¹⁶

SCE proposes another easy to implement alternative in its December 11, 2017 comments.¹⁷ The ISO could maintain an auction structure but set auction limits for all constraints to zero. To supplement this design, the ISO could administer a bulletin board in advance of the auction where market participants would be able to provide information on CRRs they plan to offer to buy or sell in the auction. This information could include CRR sources, sinks, and MW quantities. This information would allow potential counterparties to observe which nodes will have potential buyers or sellers and construct bids accordingly.

DMM believes the ISO should give serious and timely consideration to SCE's proposed alternative as a very effective option that could be implemented quickly by the ISO.

¹⁶ *Market alternatives to the congestion revenue rights auction*, Department of Market Monitoring, November 27, 2017:

http://www.caiso.com/Documents/DMMWhitePaper-Market_Alternatives_CongestionRevenueRightsAuction-Nov27_2017.pdf.

¹⁷ *SCE CRR Proposal*. December 11, 2017:

<http://www.caiso.com/Documents/SCEComments-CRRAuctionAnalysisReport.pdf>