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THE OFFICE OF RATEPAYER ADVOCATES' COMMENTS ON THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR'S (CAISO) DECEMBER 19, 2017, CONGESTION REVENUE RIGHTS AUCTION EFFICIENCY WORKING GROUP MEETING AND PRESENTATIONS

January 12, 2018

The Office of Ratepayer Advocates (ORA) is the independent consumer advocate within the California Public Utilities Commission (CPUC), with a mandate to obtain the lowest possible rates for utility services consistent with reliable and safe service levels, and the state's environmental goals.

ORA submits these comments and recommendations in response to the stakeholder discussion at the CAISO's December 19, 2017, Congestion Revenue Rights (CRR) Auction Efficiency Working Group, where participants discussed the CAISO's CRR Auction Analysis Report¹ and two recent papers written by the CAISO's Department of Market Monitoring² (DMM).³ These three papers identify significant flaws in the design and operation of the CAISO's CRR Auction.

I. Executive Summary and Recommendations

A. The CRR Auction was designed to allow market participants to hedge the financial risk of congestion.

The CAISO implemented the use of CRR markets, including an allocation process and an auction process, as part of its 2006 Market Redesign and Technology Upgrade (MRTU). The purpose of CRRs in the redesigned energy market was to "allow market participants to obtain financial protection from the risk of congestion charges associated with the LMP [locational marginal price] management design in MRTU's day-ahead market."⁴ The CRR allocation

¹ *CRR Auction Analysis Report*, CAISO, November 21, 2017 (CRR Auction Analysis Report). Available at <http://www.caiso.com/Documents/CRR Auction Analysis Report.pdf>

² The DMM is the independent division of the CAISO that monitors the performance of the CAISO markets and has the primary duty to identify market inefficiencies and recommend solutions to ensure the CAISO markets are open, transparent and fair. See CAISO Market Monitoring Home Page, Overview at <http://www.caiso.com/market/Pages/MarketMonitoring/Default.aspx>

³ *Problems in the Performance and Design of the Congestion Revenue Rights Auction*, DMM, November 28, 2017 (DMM CRR Auction Problems Report); *Market Alternatives to the Congestion Revenue Rights Auction*, DMM, November 28, 2017 (DMM CRR Market Alternatives Report).

⁴ 116 FERC ¶ 61,274, *Order Conditionally Accepting the California Independent System Operator's Electric Tariff Filing to Reflect Market Redesign and Technology Upgrade*, Docket Nos ER06-615 et al.,

process was designed to protect load serving entities (LSEs) from the congestion costs of serving their customers under an LMP based market system,⁵ while the CRR auction process was designed to allow any entity qualified to participate in the CRR market.⁶

The CAISO, on behalf of its transmission ratepayers, sells auction CRRs⁷ to auction participants based on the results of the CAISO's auction transmission model.⁸ In exchange for the revenue from the sale of the auction CRRs, transmission ratepayers must pay the day-ahead price to buyers of the auction CRRs.⁹ The auction participants are guaranteed that they will be paid the value of their auction CRRs in the day-ahead market (DAM), even if the auction revenue is insufficient to make these payments. As sellers of the CRRs, the CAISO's transmission ratepayers are required to fund shortfalls in the CRR Auction through the CRR Balancing Account (CRRBA), even though ratepayers and LSEs are not permitted to decide whether they wished to sell any auction CRRs.

B. The CRR Auction has always had significant revenue shortfalls.

The CAISO implemented its redesigned energy market in April 2009, and since that time, revenue from the CRR auction has never equaled the payouts to CRR auction participants. This means that the CAISO has had to consistently payout more to holders of Auction CRRs than it has collected from the day-ahead market (DAM). The largest shortfall was observed in July 2014 at over \$40 million, and from 2015 through 2017 the observed revenue deficiencies was up to \$22 million in a given month."¹⁰ The CRR Report acknowledges that the "[t]otal monthly auction revenues have seen a declining trend, going from as high as \$11.9 million in September 2014 to about \$6.7 million in March 2017."¹¹

In total, according to DMM the auction revenue shortfall has cost CAISO transmission ratepayers an estimated \$680 million dollars to date,¹² with no quantified or perhaps even

September 21, 2006, P 704, p. 201.

⁵ 116 FERC ¶ 61,274, P. 707, p. 202.

⁶ CRR Auction Analysis Report p. 6; 116 FERC ¶ 61,274, P. 830, p. 228.

⁷ The DMM points out that while the CRRs distributed through the allocation process are the right to congestion rent, auction CRRs are essentially forward price swaps. DMM CRR Auction Problems Report, p. 5.

⁸ DMM CRR Auction Problems Report, p. 6.

⁹ DMM CRR Auction Problems Report, p. 6.

¹⁰ CRR Auction Analysis Report, p. 7.

¹¹ CRR Auction Analysis Report, p. 6.

¹² 2017 DMM CRR Auction Problems Report, pp. 1, 11-12. DMM regularly reports on ratepayer auction losses. For example see: *Department of Market Monitoring, Q2 2017 Report on Market Issues and Performance*, September 25, 2017: <http://www.aiso.com/Documents/2017SecondQuarterReport-MarketIssuesandPerformance-September2017.pdf>.

measurable benefits. The primary beneficiaries of the CRR Auction market to date have been financial traders and marketers.¹³

C. The CRR Auction Analysis Report fails to recognize flaws in the CRR auction design as a cause of auction inefficiency.

The CRR Auction Analysis Report points to unreported outages as the main driver of the CRR Auction revenue shortfall, as these outages drive the misalignment of the transmission configuration between CRR Auction modeling and the DAM.¹⁴

ORA agrees with CAISO that there are improvements that can be made in the CRR modeling process to better reflect system conditions at the time of the DAM including formulating assumptions on short-term and forced outages based on the CAISO Auction Analysis Report, which it discusses further in Section II. Similar to the load serving stakeholders present at the December 19, 2017 CRR Auction Efficiency Working Group meeting,¹⁵ ORA also views shortcomings in the CRR Auction design as the main drivers of the consistent and significant CRR Auction revenue shortfalls.

D. The CRR Auction Analysis Report demonstrates significant shortcomings in the CRR Auction.

The CRR Auction Analysis Report did not demonstrate that the CRR Auction market provides hedges that reduce congestion costs or provide other tangible benefits to ratepayers. Instead, the CRR Auction Analysis revealed that the majority of the auction CRRs are between generators¹⁶ and potentially not to hedge energy deliveries and that most are sold at low or even zero prices.¹⁷ The CRR Auction Analysis also revealed that 83 percent of the auction CRRs are profitable.¹⁸

Given these findings, ORA shares the Six Cities' concern that the CRRs purchased in the auction are "not purchased primarily for the purpose of hedging physical transactions," but instead are more akin to a lottery in which "financial speculators can acquire a large portfolio of auctioned CRRs for modest payments and then profit from the payout of congestion revenues attributable

¹³ 2017 DMM CRR Auction Problems Report, p. 12, Tables 1 and 2 (From April 1, 2009 through October 31, 2017, financial traders and marketers have received \$586 million in profit; physical generators \$86 million in profit.) and CRR Auction Efficiency Analysis Working Group, CAISO, April 18, 2017, slide 4.

¹⁴ CRR Auction Analysis Report, p. 9.

¹⁵ These include Pacific Gas and Electric Company, Six Cities, Silicon Valley Power and California's Department of Water Resources as well as the California Public Utilities Commission. *CASIO Congestion Revenue Rights (CRR) Auction Efficiency Analysis Working Group*, CES Market IQ, December 19, 2017, p.9.

¹⁶ CRR Auction Analysis Report, p. 54.

¹⁷ CRR Auction Analysis Report, p. 35.

¹⁸ CRR Auction Analysis Report, pp. 8, 59.

to a few CRRs within the portfolio.”¹⁹ But as Six Cities points out, in other lotteries participation is voluntary.²⁰

These findings also demonstrate that there is a significant imbalance of risks between CRR sellers and buyers. This risk imbalance is inconsistent with established financial markets worldwide from stock to arbitrage markets. In these markets, the risk of the buyer equals the risks of the seller, or the potential of gaining or losing money from purchases is the same as the potential of gaining or losing money from sales.²¹ This aspect of the CRR auction design, which pairs a willing buyer with an unwilling seller, appears unique to the CRR market of the CAISO and other regional transmission organizations (RTOs) CRR markets²² in contrast to other financial markets, such as stock markets, currency arbitrage markets, and the sale of real estate.

E. ORA’s recommendations to address the CRR Auction shortcomings should be implemented as expeditiously as possible.

ORA supports efficient, competitive, and liquid markets that ensure all market participants have opportunities to obtain congestion hedges with equitable risks. However, the risk in the CRR Auction is not shared equitably. Ratepayers are forced to sell CRRs that have been reserved or are otherwise not allocated at a zero price in the auction. In addition, CRR sellers must also fund any auction shortfall if the revenue from the auction does not cover the payments due to purchasers of auction CRRs after the DAM clears. In contrast, the CRR Auction participants are guaranteed full payment for their auction CRRs even when the CRR Auction revenue is insufficient.

ORA supports the CAISO’s recognition that the current CRR Auction design as described above is flawed. ORA therefore supports the CAISO’s plan to address the auction’s shortcomings on two parallel tracks.²³ In the short term, ORA supports the CAISO’s proposal to change the way it models outages and enforces contingencies and constraints.²⁴

The optimal long-term solution would be a CRR Auction or market that pairs willing buyers with willing sellers. The only way to significantly reduce the risks of net CRR payments by CAISO ratepayers would be to allow the price of CRRs to be dictated by supply and demand and the

¹⁹ *Comments of the Cities of Anaheim, Azusa, Banning, Colton, Pasadena and Riverside, California on the CRR Auction Analysis Report*, December 6, 2017, p. 1.

²⁰ *Id.*

²¹ “A competitive market is in equilibrium when price has moved to a level at which the quantity demanded of a good equals the quantity supplied of that good.” The closer a competitive market is to equilibrium, the more efficiently it is assumed to be operating. *Economics*, 2009, Paul Krugman and Robin Wells, p. 29.

²² Financial Transmission Rights or FTRs serve as the functional equivalent of CRRs in other RTOs. *CRR Auction Analysis Report*, p. 20.

²³ *CRR Auction Efficiency Policy Phase – Stakeholder Working Group Presentation*, CAISO, December 19, 2017 (CAISO CRR Auction Policy Presentation), slide 3.

²⁴ CAISO CRR Auction Policy Presentation, slides 7-12.

counterparties' obligations. Furthermore, facilitating transactions between willing counterparties would allow them to manage their own risks based on their expected return. The CAISO should move to this proposed market design as soon as feasible.

This proposed fundamental change to the current CRR Auction market may require tariff revisions that might not be accomplished before the July 2019 CRR Auction process. ORA therefore recommends that interim changes to the CRR Auction design should be pursued concurrently to address inequities in the CRR Auction. Some of these changes could be made through the CRR Business Practice Manual (BPM). ORA recommends the following interim CRR Auction design changes:

1. Address the inconsistencies between the CRR Auction modeling and DAM by incorporating modeling assumptions about short and forced outages and market constraints with consistently high cost congestion based on the CRR Auction study results (discussed in Section II. A);
2. Limit the capacity offered in the CRR annual and seasonal auctions given the limited information to support these auctions (discussed in Section II. B);
3. Consider aligning the CRR nomination restrictions in the allocation process with the restrictions in the auction, and specifically remove current restrictions that limit the ability of LSEs to nominate CRRs at any point associated with serving load in the LSE's service territory (discussed in Section III.A);
4. Consider reducing the transmission capacity offered in the CRR Auction and not setting aside capacity for the CRR Auction (discussed in Section III.B)
5. Ensure that the quantity of Auction CRRs purchased does not exceed the quantity of Auction CRRs sold (discussed in Section III.C);
6. Consider implementing a reserve price for auction CRRs, which are currently offered for \$0 (discussed in Section III.D);
7. Consider limiting the CRR Auction payments to the revenue received in the CRR Auction (discussed in Section III E).

These interim auction design changes would not be necessary if the long-term solution of a CRR market that pairs a willing seller and willing buyer can be achieved in time for the 2019 CRR Auction.

F. The CAISO should amend the objectives for the CRR Auction Initiative.

The CAISO presented two objectives for the CRR Auction Initiative.²⁵ ORA recommends revisions to these objectives shown in italics and strike-out below, in order to address the CRR Auction issues and outcomes discussed above.

1. Minimize net payment deficiency in the CRR auction. *Specifically reduce net payment deficiencies to reduce CRR Auction costs to ratepayers. Ratepayers already pay for transmission projects and upgrades through the CRR Balancing Account (CRRBA), and fund CRR Auction revenue shortfalls.*
2. ~~Achieve~~ ~~Maintain~~ market efficiencies associated with ~~ensuring~~ and encourage greater market competition by allowing all market participants to have the same opportunities to obtain congestion hedges *with equitable risks.*

II. The CAISO Should Address Significant Shortcomings in the Current CRR Auction Modeling and Allocation Process.

To determine the feasibility of the CRR allocation and auction processes, the CAISO models transmission capacity and constraints. This modeling approach, known as the Simultaneous Feasibility Test (SFT)²⁶ considers all the available transmission at the time of the model run, the capacity of the existing transmission, and known outages.²⁷ It also considers load migration in the monthly CRR Auction, but not in the annual CRR Auction.²⁸ The SFT does not consider forced outages, short-term outages, and renewable power variation, or load profile changes. Variability in renewable power can require accessing different resources than scheduled. Increased reliance on renewables has also shifted the load peak demand hours to later in the day. Factors not considered in the CRR allocation and auction SFT will result in differences between the assumed transmission capacity in the SFT and the actual transmission capacity in the DAM.

A. The CAISO should revise its CRR Auction modeling to better align with the DAM.

The CAISO's 2017 Auction Analysis Report outlined four reasons for the differences between the CRR auction modeling and the DAM:: (1) not including late submitted outages in the model

²⁵ CAISO CRR Auction Policy Presentation, slide 15.

²⁶ The SFT relies on "a single estimated network model to estimate a series of different hourly day-ahead network models that are ultimately used in the market over the entire settlement month or quarter" DMM CRR Auction Problems Report, p. 2.

²⁷ CAISO *Business Practice Manual for Congestion Revenue Rights*, July 25, 2017, , (CRR BPM) pp. 104-108.

²⁸ CAISO Fifth Replacement Electronic Tariff Section 36, Congestion Revenue Rights, 36.8.5.1. (CRR Tariff).

runs; (2) not accounting for multiple short-term outages even when reported that impact the day-ahead congestion prices; (3) existing gaps in the CAISO modeling input processes to reflect outages in the CRR Auction model; and (4) “gaps in the CAISO processes to enforce and manage transmission constraints between the CRR Auction and the day-ahead market that eventually were binding in the day-ahead market even in the absence of any outage.”²⁹

The CAISO analysis revealed that only 15% of the planned outages that complied with the reporting requirements were modeled as out-of-service because they had a duration of 10 days or more, ³⁰ demonstrating that these modeling issues are significant and not easily addressed. In particular, the current CRR BPM does not require reporting short-term outages, but collectively these outages represent the majority of the outages not reported and or not modelled. Scott Harvey with the CAISO Market Surveillance Committee observed that “even short outages can contribute to significant congestion rent shortfalls if they materially reduce transfer capacity. In addition, outages expected to be short may last longer than expected.”³¹

Given that short-term outages can contribute to CRR revenue shortfalls and the CAISO’s reported issues with modeling them, the CAISO should use its auction analysis data from 2014 to 2017 on forced and short-term outages to determine realistic assumptions for these factors to use in its congestion allocation and auction modeling. Utilization of the CRR auction analysis data to support the CRR Auction modeling should better reflect likely system conditions, and should better align the CRR Auction modeling results with the DAM results.

B. The CAISO Should Limit the Capacity Offered in the Annual and Seasonal CRR Allocation and Auction.

The CAISO also should reduce the available capacity offered in the annual and seasonal CRR allocation and auction process to address issues with limited information at the time of these auctions that contribute to CRR revenue inadequacy and auction inefficiency. Currently, the CAISO offers 75% of the seasonal available CRR capacity for the annual CRR allocation and auction process.³²

The DMM illustrated the shortcomings with CAISO’s reliance on dated and limited information for its CRR feasibility tests.

“In the monthly CRR auction, the ISO uses a transmission model developed at least several weeks, and as much as a month, prior to the relevant day-ahead market hour. The[CA]ISO conducts the seasonal CRR auctions at the end of the year prior to the settlement year. Many outages

²⁹ CRR Auction Analysis Report, p. 202.

³⁰ CRR Auction Analysis Report, p. 9.

³¹ *Sources of Congestion Rent Shortfalls in the Day-Ahead Market*, October 15, 2014, FTI Consulting, slide 5.
<http://impmarketdesign.com/papers/CongestionRevenueRightsRevenueInadequacyAllocationDiscussion-MSCPresentation-Harvey.pdf>

³² CRR Tariff Section 36.4.1.

“...cannot be known until real-time operations...” and these outages can “...change the system configuration and result in different shift factors...” than used in the auction. Different limits and network configurations are possible and likely. “Therefore, it might be that the assignment [of CRRs] is not, in all circumstances and under all conditions, actually feasible.”³³

In addition, as mentioned in Section II of these comments, the annual auction also does not consider load migration within a given year.

It is possible that outages modeled in the monthly allocation render awarded CRRs in the annual and seasonal auction infeasible. In this instance, the CAISO can correct these infeasible CRRs by increasing the operating limits of any given constraint beyond what has been modeled as feasible by the SFT per allowances in the CRRs (BPM). “The act of changing operating limits like this is a factor that could contribute to but does not necessarily mean a possible revenue inadequate condition.”³⁴

To address issues related to the limited information to support annual and seasonal auctions including annual and seasonal CRRs that become infeasible, the CAISO should implement the following additional BPM Changes:

- (1) Reduce the capacity offered to the annual and seasonal auctions. The majority of the capacity assumed should be assigned to the monthly auction, and the remaining capacity assumed should be assigned to the annual and monthly CRR auctions. Limiting the overall capacity in the seasonal allocation/auction process would also minimize the need to change the assumed operating limits for the monthly auction process.
- (2) Use the CRR Auction Analysis results to identify transmission constraints in the Auction with consistent lower transmission capacity in the DAM, and reduce the capacity offered for those constraints or remove them from the CRR modeling and auction.

The misalignment of transmission modeling between the CRR Auction and the DAM contributes to CRR Auction revenue inadequacy,³⁵ so it is imperative to make these changes as soon as possible.

³³ DMM CRR Auction Problems Report, p. 21. *See also* BPM, pp. 104-105 (explaining other factors that can change between the time that CRRs are modeled and the DAM that could lead to auction revenue shortfalls and inconsistencies between the Full Network Model (FNM) and the integrated forward market (IFM)).

³⁴ CRR BPM, p. 73.

³⁵ CRR Auction Analysis Report, p. 9.

III. The CAISO should redesign the CRR Auction so that Auction CRRs are sold by willing sellers to willing buyers.

The most fundamental defect in the CRR Auction design is that transactions are not between willing buyers and sellers. Unlike most other forward contract markets, the CRR Auction allows participants to take positions without a counterparty offering to take the opposite position. “This is because the auction makes the [CA]ISO’s transmission ratepayers the counterparty to contracts bought from the CRR auction without being an explicit willing seller.”³⁶ A market that pairs willing sellers and willing buyers would allow LSEs to sell CRRs that made operational sense based on the LSEs knowledge of the transmission system and customer needs. Moreover, LSEs would not be forced to sell Auction CRRs at low or zero value, but could negotiate a price that reflected the value of the Auction CRR. A market that paired willing sellers and willing buyers would not eliminate the ability of market participants to hedge transactions, but such hedges would need to be with willing counterparties.

Southern California Edison Company (SCE)³⁷ and DMM each identify potential market solutions that would allow CRRs to be traded between willing sellers and willing buyers, by first allocating all of the CRRs to LSEs, and then establishing a separate process in which willing counter parties would participate in voluntary bids and trades. DMM’s proposals envision the creation of locational price swaps that would pay the spot market price difference between two locations, in either voluntary decentralized market trades or a voluntary centralized market pool.³⁸ SCE envisions the creation of additional CRRs only if a party that wants to buy a CRR from point A to point B is paid by another party who wishes to sell a CRR from point B to point A. ORA supports further discussion regarding which of these models would best serve the CAISO’s energy market, with a goal of submitting tariff revisions to the Federal Energy Regulatory Commission that could be implemented in time for the CRR Auction in July 2019.

Moving to a CRR Auction design that pairs willing buyers with willing sellers would solve the existing CRR Auction design issues. If it is not possible to make this change in time for the July 2019 CRR Auction, the CAISO should consider additional changes to address the auction inefficiency and auction participation inequities. These potential changes must be carefully considered to avoid harmful unintended consequences and include: (1) aligning the CRR allocation and auction restrictions; (2) reducing the quantity of CRRs offered in the auction; (3) implementing a reserve price for CRRs in the auction; and (4) limiting the CRR auction payments to the revenue received in the CRR auction.

A. The CAISO Should Consider Removing the CRR Auction Participation Restrictions for LSEs.

The CRR allocation process limits the quantity of CRRs allocated to LSEs based on their load data and forecasts, outage schedules, and nominations.³⁹ The CRR allocation process also

³⁶ DMM CRR Auction Problems Report, p. 2.

³⁷ *SCE CRR Proposal*, December 6, 2017, p. 2.

³⁸ DMM CRR Market Alternatives Report, pp. 4-7.

³⁹ CAISO Tariff Sections 36.4 and 36.8.2.

restricts the sinks where LSEs can nominate CRRs to the LSE's Default Load Aggregation Point (DLAP) or the Sub-LAP.⁴⁰

In contrast, CRR Auction bidders have no limitations on the type of location that can be used for sources and sink locations. These locations can be intertie scheduling points, DLAPs, Trading Hubs, Custom and Sub-LAPs, Metered Subsystems (MSS) and locations where a generating resource is located.⁴¹

Amending the tariff to allow LSEs to nominate sinks other than their DLAP or Sub-LAP could mitigate auction inefficiency by allocating more CRRs to LSEs and therefore limiting the number of CRRs sold in the auction. This proposed tariff amendment would not allow LSEs to engage in speculative trades if otherwise prohibited,⁴² but it would allow LSEs to acquire CRRs at any sink within their service territory.

This change would not address CRR Auction participants' ability to use CRRs as a financial investment rather than a congestion hedge. However, it would still allow CRR nominations between two sources. According to the CRR Auction Analysis Report, CRR nominations between two sources represent more than half of the transactions in the CRR auction.

“About 56 percent of all net CRR payments accrued on CRRs awarded (in both annual and monthly auctions and both times of use had a source-to-sink definition) from generation location to generation location, while over 85 percent of all net CRR payment accrued on CRRs from supply to supply locations.”⁴³

B. The CAISO should consider reducing the transmission capacity offered in the CRR Auction and should not set aside capacity for the CRR Auction.

The transmission capacity assumed for the CRR allocation and auction is the same.⁴⁴ Since there are no additional restrictions on the transmission assumed for the CRR Auction, CRRs that are not allocated through the CRR allocation process are offered in the CRR Auction. In addition, the CAISO also sets aside a certain percentage of the transmission capacity at scheduling points

⁴⁰ CRR Tariff, Section 36.8.2.

⁴¹ CAISO BPM Section 9.2, CRR Source & Sink Location for the Auction Process, p. 68.

⁴² Investor owned utilities (IOUs) regulated by the California Public Utilities Commission (CPUC) are prohibited from using CRRs “as tools for financial speculation in the congestion market” or that are unrelated to their sources of power. *See e.g., CPUC Resolution E-4135*, December 7, 2007, approving with criteria or implementation the request of Pacific Gas and Electric Company to establish standards and criteria for procurement of CRRs, p. 7.

⁴³ CRR Auction Analysis Report, p. 6.

⁴⁴ CRR BPM Section 8.3 Available CRR Capacity, p. 65. 75% of Seasonal Available CRR Capacity for the annual CRR Allocation and CRR Auction processes, 60% of the Seasonal Available CRR Capacity in Tier LT (long-term), and 100% of Monthly Available CRR Capacity for the monthly CRR Allocation and CRR Auction processes (See ISO Tariff § 36.4.1).

for the CRR Auction.⁴⁵ Through this set-aside and the LSE nomination restrictions, the capacity offered in the CRR auction is not residual. The opportunities for market participants to obtain the capacity offered in the CRR Auction are greater than are allowed in the allocation because the nomination opportunities are greater in the auction.

Auction participants other than LSEs can select any quantity of CRRs based on their credit limit.

C. The CAISO should ensure that the quantity of Auction CRRs purchased does not exceed the quantity of Auction CRRs sold.

In a current auction, the CRRs purchased do not have to equal the ones sold which also contributes to auction inefficiency. DMM explains:

“The total forward contracts purchased by participants bidding in the auction do not need to equal the forward contracts sold by participants bidding into the auction. Instead, the forward contracts bought minus the forward contracts sold must be less than the forward contracts made available in the auction through each constraint’s transmission limit.”⁴⁶

D. The CAISO should consider a CRR reserve price for the Auction CRRs.

Currently, the CAISO’s CRR BPM and CAISO Tariff sections do not require that auction CRRs have a reserve or floor price. As described in the CRR BPM, “In general, any bid point (quantity, price) is allowed, as long as the first megawatt (MW) quantity is zero.”⁴⁷ As observed in the CAISO’s CRR Auction Analysis, a significant number of auction CRRs clear at \$0 price. The CAISO points out that

“in the annual auctions, over 90 percent of the CRR volume was awarded at prices between \$0/MWh and \$1/MWh, while for monthly auctions over 90 percent of the total volume of CRRs awarded in the monthly auctions between at prices between -0.25/MWh and +\$0.25/MWh.”⁴⁸

The significant quantity of CRRs that are procured at a zero price reflects lack of competition in the CRR Auction market. DMM correctly observes that “a well-function competitive auction would price CRRs near their expected value.”⁴⁹ CRR Auction participants should not receive a payment for no risk taken through a zero priced CRR.

⁴⁵ CRR BPM, p.76. “After tier 1 of the monthly CRR Allocation the ISO will calculate and set aside for the monthly CRR Auction 50% of the residual capacity at the Scheduling Points.”

⁴⁶ DMM CRR Auction Problems Report, p. 6.

⁴⁷ CRR BPM Section 9.3. CRR Bid Submission, p. 68.

⁴⁸ CRR Auction Analysis Report, p. 5-6.

⁴⁹ DMM CRR Auction Problems Report, p. 9.

E. The CAISO should consider funding the CRR auction through CRR revenue only.

Limiting CRR payments to revenues received through the CRR Auction would shift some risk to the buyers, in that they could only share in revenue available from the auctions (if revenue was paid out to the dollar amount, not per MW). It would result in risks that are shared equally between the buyers and sellers, and would better align the risk allocation of CRR Auctions with the risk allocation of other financial markets.

For these reasons, ORA recommends considering a reserve price for the Auction CRRs and limiting the CRR payments to the CRR revenue received as short-term solutions to protecting all ratepayer interests in the CRR Auction.

IV. The CAISO should implement solutions to correct the deficiencies in the CRR Auction as expeditiously as possible.

The CAISO should implement solutions that align the CRR Auction with its intended purpose to allow market participants to hedge the risk of congestion. As currently designed, any benefits from market liquidity come at a steep cost to ratepayers.

A. Recommended Short-Term Solutions

The CAISO identified a number of actions it could take as soon as June 2018 to correct some of the modeling deficiencies discussed in Section II of these comments.⁵⁰ Those changes include better enforcement of contingencies and nomograms,⁵¹ and better monitoring of outages.⁵² ORA supports consistent enforcement of contingencies and nomograms in the CRR Auction as soon as feasible.

ORA also agrees that enhanced enforcement of existing requirements to report anticipated outages should also begin as soon as possible so that these outages can be reflected in the CRR Auction modeling. ORA also recommends that CAISO CRR Auction modeling practice incorporate assumptions regarding short-term outages using its Auction Analysis. These actions will assist with reducing the consistent and significant CRR revenue shortfall, although they will not eliminate the auction inefficiency problems discussed.

B. Recommended Long-Term Solution

Over the longer term, the CAISO should pursue changes to its tariff that will eliminate the fundamental flaw of the CRR Auction design. ORA agrees with DMM's observation that

⁵⁰ The proposed changes would be to its Business Practice Manual by April, to its desktop procedures by the March auction, to its market performance metrics by April, and to its interactions with other balancing area authorities by June. CAISO Workshop Policy Presentation, slide 3.

⁵¹ A nomogram defines a limit on a transmission line or group of lines that depends on multiple variables, e.g., generation, load and voltage. *Transmission Constraints and Congestion in the Western and Eastern Interconnections, 2009-2012*, U.S. Department of Energy January 2014, p.19.

⁵² CAISO CRR Auction Policy Presentation, slides 6-12.

“the largest problem with the [CRR] auction design is that not all trades are voluntary...Transmission ratepayers cannot choose which contracts to enter and which to walk away from.”⁵³

ORA recommends modifying the auction structure to one that pairs willing buyers and sellers. This new auction design should be implemented as quickly as possible to minimize the losses incurred by the ratepayers under the current auction design. If it is infeasible to redesign the CRR Auction to reflect a market design that pairs willing sellers with willing buyers in time for the July 2019 CRR Auction, ORA supports the interim solutions discussed in Sections II and III.

With the proposed Energy Imbalanced Market (EIM) expansion into the DAM, ORA is concerned that the CRR revenue shortfall may increase. This revenue shortfall has the potential to erode any EIM benefits.

If you have any questions or comments, please contact Kanya Dorland at Kanya.Dorland@cpuc.ca.gov or (415) 703-1374.

⁵³ DMM CRR Market Alternatives Report, p. 2.