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Improving Efficiency of CRRs

CAISO April 10 Workshop

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CRR Framework Must Address Identified Problems

- **Focusing on the specific "problem" we are trying to solve:**
  - Powerex agrees that persistent ***CRR revenue inadequacy is inequitable*** and should be addressed
  - Powerex does **not** agree that CRR auction "net revenues" represent "losses" to load
- **Powerex opposes eliminating the auction of CAISO-issued CRRs**
  - Ability to obtain CRRs from CAISO is necessary for ***open access*** on a forward basis
  - Entities that fund the transmission system should not get to determine whether (or on what terms) transmission service is made available to other users
  - Exclusive CRR allocation will also preclude open access through day-ahead and real-time markets
- **Proposed enhancements to increase efficiency of CRR auction and allocation processes**
  1. Improve revenue adequacy by volumetric reductions to CRR holding before the DAM is run
  2. Increase efficiency of (i) CRR auction, (ii) forward energy markets and, indirectly, (iii) short-term energy markets by limiting direct allocation of CRRs (replace with Auction Revenue Rights)

Focusing on the Specific "Problem" We are Trying to Solve (1)

Powerex agrees that persistent CRR revenue inadequacy must be addressed

- **CRR revenue inadequacy is inequitable**
  - CRR payments are intended to be funded by the collection of congestion revenues from users of the grid
  - Revenue inadequacy forces load customers to provide additional funding to CRR holders
  - CRRs provide "private benefits," but chronic revenue inadequacy imposes "socialized costs" on to load
- **The factors that drive CRR revenue inadequacy also largely drive negative CRR auction "net revenues"**
  - CRR revenue inadequacy can occur when the topology of the modeled grid is different between the CRR allocation/auction and the DAM
  - Facilities that are out of service or de-rated in the DAM but not in the CRR allocation/auction also result in congestion that is observed in the DAM (increasing CRR payouts) but not in the CRR allocation/auction (reducing CRR auction prices)
- **Powerex believes reducing CRR revenue inadequacy will**
  - **Avoid inequitable funding obligations on load customers; and**
  - **Help improve the efficiency of the CRR allocation and auction process**

Focusing on the Specific "Problem" We are Trying to Solve (2)

Powerex does not agree that CRR auction net revenues represent "losses" to load

- Some have claimed that load customers would have been better off if CAISO had not auctioned CRRs at all, and portray the difference between CRR auction revenues and the payout on auctioned CRRs as ratepayer "losses"
- This claim **assumes** congestion rents would have been the **same** if CRRs had not been sold at auction
  - There has been no evidence provided to support this assumption
- Without the ability to acquire CRRs in the auction, suppliers at the interties are less likely to enter into forward power contracts
  - As the volume of forward contracts declines, the volume of self-scheduled energy imports associated with forward energy contracts will also decline
  - As forward energy contracts to the CAISO BAA decline, external supply may be committed to other external markets on a forward basis, resulting in fewer scheduled imports into the CAISO day-ahead market
  - Each of these outcomes could materially reduce congestion rents collected in the day-ahead market

Powerex Opposes Eliminating the Auction of CAISO-issued CRRs

- **"Willing buyers and willing sellers"** is a **misnomer** for a proposal that would let LSEs determine which customers are able to obtain forward access to the CAISO grid, and at what price
- In LMP markets and under the OATT framework, the ratepayers that backstop transmission revenue requirements appropriately receive the **financial benefit** of the TSP providing transmission service to **other** customers…
  - OATT: Revenues from sale of Point to Point service reduce the rates paid by Network customers
  - CAISO: Revenues from the auction of CRRs are credited back to load customers
- …but ratepayers **do not determine** who receives forward transmission service, or on what terms
  - FERC has long recognized that "Non-discriminatory open access to transmission services is critical to the full development of competitive wholesale generation markets and the lower consumer prices achievable through such competition." (Order No. 888, at 50)
- The Day-Ahead and Real-Time Markets **are not enough**, on their own, to ensure open access
  - Open access to CAISO grid on a forward basis is essential to efficient *forward* energy markets
  - Only CRR holders can submit self-schedules (or price-taker bids) without being exposed to congestion
    - Self-schedules, in turn, displace economic bids from other customers, effectively preventing use of the CAISO grid in the day-ahead and real-time market by other users

Enhancements Should Address Efficiency of CRR Framework

Problem 1: Entities have been able to purchase CRRs on certain paths at very low cost, with high potential payouts

Problem 2: Persistent revenue inadequacy due to changes in transmission model (including de-rates and outages) between CRR allocation/auction and DAM

Problem 3: CRR allocation process is a large and growing source of market inefficiency

- Limits forward energy market liquidity, increasing forward contracting costs for new/smaller LSEs
- "Strands" CRRs, making them unavailable to support forward contracting, and
- Contributes to inefficient physical self-scheduling by LSEs in the day-ahead and real-time market

Entities Have Been Able to Purchase CRRs on Certain Paths at Very Low Cost, With High Potential Payouts

- Certain CRR paths are effectively near-free "lottery tickets," with load (not DAM congestion revenues) funding payouts when they occur
- Can be addressed by:
  1. Limiting eligible CRR source/sink pairs to paths that can support physical delivery
     - *Already part of CAISO's Track 1a measures*
  2. Limiting "home run" payouts on paths experiencing de-rates or outages
     - *Addressed in revenue adequacy proposal, below*

Persistent Revenue Inadequacy

- Even with best efforts, it is inevitable that when transmission service is sold on a forward basis (*i.e.,* for a month, quarter or year) there will be periods in which the actual available transmission capacity is less than what was sold
  - Uncertainty regarding future de-rates and outages
  - Different granularity of CRR model (monthly and quarterly, by TOU) and DAM model (hourly, each day)
- Three options for dealing with the inevitable changes in model topology
  1. Sell a much smaller fraction of the expected transmission capability
     - Reduces benefits of open access leading to lower forward contracting opportunities
     - Global de-rate needed to eliminate revenue inadequacy may be very large
  2. **Current approach:** socialize the cost of de-rates by allocating revenue shortfall to load on a load-ratio basis
     - Is it equitable for the private benefits of holding a CRR (by auction or by LSE allocation) to be funded by all LSEs, including those that do not receive any of the CRR payments associated with the applicable constraint?
  3. **Powerex's recommended approach:** allocate the cost/risk of de-rates to all entities holding CRRs on the affected paths

Addressing Persistent Revenue Inadequacy (1)

- Powerex supports reducing CRR payments when issued CRRs are not revenue adequate
- Reducing CRR payouts results in an "imperfect hedge" relative to purchased CRR amount, but this is not necessarily an insurmountable problem
  - Transmission customers under OATT framework bear "volume risk" due to transmission de-rates or outages
  - This risk has not prevented continued transmission investment and robust forward contracting in the region
- It is critical for entities to know of any reductions to their transmission rights **prior to** the DAM
  - Allows participants to adjust their scheduled use or offers to the CAISO market
  - Allows external suppliers to make alternative arrangements for the sale or delivery of their supply (*e.g.*, sell into regional bilateral markets outside CAISO)
- "CRR de-rates" that are proportional to the de-rates of underlying facilities can limit harm to CRR holders
  - Historical availability of transmission is well known, and can be a useful guide to expected CRR "de-rates"
    - (*e.g.*, PDCI is generally out for scheduled maintenance for approximately 4-6 weeks per year, and is de-rated in approximately 10-15% of other hours)
  - CRR de-rates would mirror reductions in transmission service on external systems
    - (*e.g.*, on PDCI, a 20% de-rate on NOB-SP CRRs would mirror 20% de-rate of BPA transmission service)

Addressing Persistent Revenue Inadequacy (2)

- CRR de-rate should not discriminate based on type of CRR holder or how it was acquired
  - A CRR's effectiveness in relieving congestion does not depend on whether it is a monthly vs. quarterly CRR, or whether it was acquired in the auction as opposed to a direct allocation to an LSE
  - Giving auctioned CRRs lowest priority would reduce attractiveness of CRRs, reducing CRR auction revenue
  - A "priority order" would prevent CRR de-rate from reflecting capability of underlying facilities.
    - *e.g.,* a 20% de-rate on the COI should not result in a 80% de-rate of Malin – NP auctioned CRRs
- Powerex believes an efficient allocation of CRR revenue inadequacy can be achieved by re-running the CRR SFT prior to DAM (CAISO proposal), with following refinements
  - All CRRs are "re-bid" each day (at Day-2) based on clearing prices in the most recent auction
    - No categorical priority based on term or auction vs. allocation
  - Objective function is to maximize the value of (adjusted) CRRs
- Above approach would also reduce the payout from targeting "esoteric" or mis-modeled paths
  - CRRs targeting a specific constraint would have a high shift factor *and* a low auction price, exposing them to significant reductions when the targeted constraint is de-rated or out of service
  - CRRs on paths with highest value in the latest auction, and CRRs with lower shift factors on binding constraints would be less likely to be de-rated

Addressing Inefficient CRR Allocation to LSEs (1)

- The same concerns expressed regarding the CRR auction apply to the CRR allocation, as the CRR allocation also shifts the costs and benefits of congestion revenues ***among*** LSEs
  - CRR payments flow only to the loads of the LSE that receives the allocated CRR on a given path
  - But all LSEs bear the costs associated with CRR revenue inadequacy
  - CRR payments to allocated CRRs have been significantly larger than the payments to auctioned CRRs*
- Allocation of CRRs to LSEs can be an ***inefficient use*** of hedging instruments
  - LSEs may hold the CRR for income, rather than to support financial forward contracting
    - Hedging instrument is "stranded", reducing forward market activity and efficiency
  - LSEs become a physical intermediary between external supply and CAISO grid, typically committing to take delivery of energy in standard multi-hour blocks and submitting self-schedules rather than flexible economic bids
  - Similar to MIC, allocation of CRRs based on load-ratio share makes it difficult for new/smaller LSEs to acquire CRRs necessary to complete forward transactions with desired counterparties, must instead contract at locations where they can acquire CRRs and MIC, at higher prices
  - Allocation to narrow group of participants, and on an load-ratio share basis, is highly inefficient and prevents development of robust competition in forward energy markets

* CAISO's November 2017 *CRR Auction Analysis Report* provides CRR payments separately for auctioned CRRs and for allocated CRRs for the ten months ending May 2017. Over this period, payments to allocated CRRs totaled approximately $171 million, while payments to auctioned CRRs totaled approximately $114 million and CRR auction revenues totaled approximately $66 million. Payments to allocated CRRs exceeded payments to auctioned CRRs, net of auction revenues, in each of the ten months in the CAISO analysis.

Addressing Inefficient CRR Allocation to LSEs (2)

- Powerex proposes that CAISO's Track 2 process include a comprehensive examination of eliminating the direct allocation of CRRs to LSEs
- Design intent of direct allocation was to achieve an equitable allocation of the value of the transmission grid to the load customers that backstop the revenue requirement of the facilities
  - This same purpose can be achieved through allocation of Auction Revenue Rights
  - LSEs, like all other market participants, would acquire CRRs through an open and competitive auction
- If complete elimination of allocation is found to be unworkable, CAISO should consider limiting the direct allocation of CRRs to LSEs to paths and volumes needed to support executed forward contracts
  - Still provides LSEs with risk-hedging instrument to support forward contracting, but avoids the adverse consequence of reducing liquidity and competition in forward markets due to a scarcity of CRRs
  - Improves ability for new/smaller LSEs to acquire CRRs to support their forward contracts
  - More efficient to allow the entity that values the CRR instrument the most to obtain it

Summary of Powerex Recommendations

Proposed enhancements

- Track 1b: Volumetric de-rate of outstanding CRRs, prior to each DAM run, based on market shift factors and value of CRRs in most recent monthly auction
- Track 2: Eliminate (or greatly restrict) the direct allocation of CRRs

Requested data analysis

- Powerex requests that CAISO undertake an analysis of the extent to which CRRs may affect the physical use of the grid in the day-ahead market. Specifically:
  - Are entities that hold CRRs more likely to submit self-schedules or price-taker offers on the paths and for the volumes of their CRRs?
  - Are LSEs more likely than other market participants to self-schedule (or submit price-taker offers) imports that reflect their CRR positions?
- The answers to the above questions has importance consequences for:
  - The assumption that, without a CRR auction, loads would have received historical congestion rents;
  - The consequences of allocating all CRRs exclusively to LSEs; and
  - The efficiency improvements that can be expected if the direct allocation of CRRs is eliminated or greatly reduced

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Thank You

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