CAISO CRR Auction Efficiency Workshop

Submitted by	Company Name	Submittal Date
Nuo Tang	San Diego Gas & Electric	January 12, 2018

Below are SDG&E's comments on the CRR Auction Efficiency initiative. This initiative is intended to investigate the causes of sustained CRR revenue inadequacy—which CAISO Load Serving Entities (LSEs) currently fund through uplift payments—and to identify potential solutions.
Based on the CAISO's investigation to date, SDG&E understands causes of CRR revenue inadequacy include the following:

1. The CRR allocation and auction models differ from the day-ahead energy market model in terms of transmission topography and solution algorithm used.
    a. The topography of the system in the allocation and auction models differs from the topography in the day-ahead energy market model because many actual transmission outages are not known at the time the CRR allocations and auctions are performed.
    b. The monthly and annual temporal resolution of the on-peak and off-peak CRR allocations and auction, do not match the hourly resolution of most planned transmission outages (most planned transmission outages are scheduled for much less than a full month and many have schedules that are not well aligned with the on-peak and off-peak definitions used for the CRR allocations and auction).
    c. The CRR allocation and auction models use a DC solution technique, whereas the day-ahead energy market model uses an AC solution technique.

2. Clearing prices for many CRRs sold through the auction do not -- after accounting for congestion rents produced in the day-ahead energy market -- provide enough money to fully fund the CRR obligations that arise in the day-ahead energy market.

3. As the CAISO of Department of Market Monitoring (DMM) has pointed out, each of the three California Investor Owned Utilities (IOUs) have limited incentives to seek an allocation of, or to bid aggressively for, many CRRs which ultimately turn out to be valuable. As an example, DMM points to the following passage from a PG&E procurement plan:

> "As the Commission determined in Resolutions E-4135 and E-4122, [The LSE] uses CRRs and LT-CRRs to hedge against congestion costs (expected and anticipated). [The LSE] does not use CRRs and LT-CRRs for financial speculation."[1]

The ISO has identified two phases of this initiative to resolve these issues. The first phase is the operational improvements that do not require Tariff amendments. The second phase is the policy phase where structural changes would require Tariff amendments. SDG&E supports this two-phase approach.

[1] Pacific Gas and Electric Company Conformed Long Term Procurement Plan, Attachment A, Clean Public Version, 2012, p.158: https://pgeregulation.blob.core.windows.net/pge-com-regulation-docs/BundledProcurementPlan-Public.pdf.

Potential Solutions Not Requiring Tariff Changes

- Increase the transmission capacity global de-rate factor.

  The global de-rate factor is already quite severe. Increasing this de-rate further would reduce the number of CRRs awarded and further limit an entity's ability to fully hedge congestion costs.

  It also has the effect of creating further misalignment between (i) the transmission system modeled in the CRR allocations and auctions (which would be modeled with far less transfer capability than will, in fact, exist on most transmission facilities), and (ii) the transmission topology which exists in each day-ahead energy market run (where all transmission facilities are modeled at their rated capacity).

- Improve reporting of planned transmission outages prior to CRR allocations and auctions.

  SDG&E supports efforts to improve the reporting of planned transmission outages where such outages are known in advance of when the CRR allocation and auction processes occur. SDG&E notes, however, that there are significant limitations on how much improvement can be achieved.

  First, it is impractical, inefficient, and sometimes impossible, to schedule many planned transmission outages in advance of when the CRR allocations and auctions occur. Many times, the reason for taking a planned transmission outage is not even known in advance of when the CRR allocations and auctions occur.

  Second, locking down a schedule for planned transmission maintenance in advance of when the CRR allocations and auctions occur, may severely constrain the transmission owner's ability to shift transmission maintenance schedules in response to near-term changes in the availability of maintenance crews and repair materials. It would be highly inefficient to preclude a transmission owner from rescheduling a planned transmission outage based on the most current information.

  Third, many planned transmission outages have schedules and durations that are poorly matched to the on-peak and off-peak time periods defined for monthly and annual CRRs. So, even if the transmission owner takes the transmission outage in exact accordance with the plan, misalignment between (i) the transmission topology modeled in the CRR allocations and auctions, and (ii) the transmission topology which exists in each day-ahead energy market run, will still be present.

Potential Solutions Requiring Tariff Changes

- Eliminate the CRR auction such that CRRs are only issued through the existing CRR allocation process.

  SDG&E does not support eliminating the CRR auction. Unlike the CRR allocation process whose objective function is to maximize the *number* of feasible CRRs awarded, the CRR auction has an objective function of maximizing the *value* of feasible CRRs awarded. Maximizing the *value* of CRRs awarded improves market efficiency by allowing all market participants to pursue hedges for whatever transactions they believe have the highest economic exposure to adverse congestion impacts.

- In the CRR auction, clear only those bids where there are matching counterflow offers.

  SDG&E does not support this option. This option could greatly restrict the number of CRRs awarded, thereby reduce market liquidity, and limit the ability of market participants to fully hedge congestion.

- Allocate counterflow CRRs to all other auction participants based on prorate of volume awarded. This would not cap the CRR payments but would limit the financial responsibility of the auction to auction participants.

  Involuntarily allocating counterflow CRRs is inefficient and exposes market participants to potential economic losses they would not willingly accept. SDG&E is uncertain if this would provide the proper incentives for the auction participants.

- Change the allocation of CRR uplifts to include all market participants, not just LSEs, in proportion to the number of CRRs held.

  If the allocation of CRR uplifts were broadened to include all market participants, bid prices in the CRR auction would likely be increased to cover the bidder's estimate of the amount of allocated uplift. The result would be higher CRR auction prices and, presumably, less CRR revenue deficiency.

- Limit CRR payments to the sum of congestion rents generated in the day-ahead energy market and CRR auction revenues.

  SDG&E does not support this option. While it would eliminate CRR uplifts, it also prevents market participants from fully hedging congestion.

- De-rate awarded CRRs based on planned transmission outage information which becomes known after the CRR allocations and auctions are performed, and prior to operation of the day-ahead energy market.

  SDG&E supports consideration of day-ahead volumetric de-rates of CRRs that would incorporate more up to date outage information. Another option could lower the amount of CRRs available in the auction process to be released later in the day-ahead timeframe. This would allow the CAISO to use updated constraints to model the auction awards.

SDG&E recommends the CAISO to hold an additional workshop to narrow the scope of the solutions for consideration.