



# Congestion Revenue Rights Enhancements Working Group

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# Agenda

- Refinements to CRR design to allow storage hedging
- Additional requests for CAISO investigation to further initiative

# Refinements to CRR to hedge variable energy resources and storage resources

# Importance of CRR product definition challenges for storage

- CDWR and IPP and Marketers submitted policy catalogue submissions related to the need for enhancements for Variable Energy Resources and/or Storage.
- Storage plays a key role in California's clean energy plan, addressing oversupply conditions and supporting renewable energy integration.
- Ineffective CRR operations adversely impacts entities exposed to basis risk for storage assets including Load Serving Entities that have tolled storage and Independent Power Producers that are selling energy directly into markets.
- Physical hedgers cannot enter a clear hedge for congestion risks of storage which results in adverse impacts to market including:
  - Increases in costs of building and operating storage
    - Increased new build costs due to need to include risk adders into forward procurements.
    - Increased operating costs as limited options to hedge nodal basis risk leads to increased operating costs due to limited tools to hedge congestion risks.
  - As storage fleet grows, the inability to utilize CRR hedges to hedge storage basis risk will become a greater concern as its share of LSEs portfolios increase.

# Path limitations did not contemplate storage acting as load

Issue & Ask	Details
Source-sink paths eligible for a generator limits ability to hedge load position when in charging mode	<p>Under CRR Auction Efficiency 1A project<sup>1</sup>, the CAISO adopted rules limiting source-sink paths to only accept congestion revenue right bids sourcing and sinking in the following ways:</p> <ul style="list-style-type: none"><li>(1) from a generator PNode/APNode to either a LAP, MSS-LAP, Sub-LAP, Trading Hub, or Scheduling Point; or</li><li>(2) from a Trading Hub to either a LAP, MSS-LAP, Sub-LAP, or Scheduling Point; or</li><li>(3) from a Scheduling Point to either a LAP, MSS-LAP, Sub-LAP, or Trading Hub.</li></ul> <p>The limitation above harms storage because it makes it so it cannot hedge charging periods when it is <b>sourcing at the generator bus not sinking</b>. During the charging hours if a period for example during the solar hours can be added, the storage needs to be able to hedge on a source-sink path where it is from trading hub to the generator bus.</p>
Scope Requested	Vistra requests the initiative address source-sink path eligibility limitation for storage so that storage can appropriately hedge its load position during the period of the day that it anticipates participating as load withdrawing from the grid during its charging period. It is our belief that the intent behind the limitations was not to exclude hedging paths that legitimately match operations. Ask for the storage use case as a load during charging periods to be returned as eligible path.

<sup>1</sup> CAISO Tariff Amendment added restrictions to Tariff Section 13.13.5 in FERC Docket No. ER18-1344.

Note: Vistra does not believe this change requires significant implementation as it was a change made recently that could be unwound for storage generator bus'.

# Peak product definition is not granular enough to hedge storage

Issue & Ask	Details
Two time-of-use periods is insufficient for storage assets that operate differently within peak TOU <sup>2</sup>	<p>Existing CRR design includes only two time-of-use periods: peak and off-peak product. Current peak product definition spans the two operating periods of storage that includes an expected profile of charging for the bottom four energy hours and discharging for the top four energy hours.</p> <ul style="list-style-type: none"><li>• Lacks granularity needed to enter position in opposite direction in two different periods of time.</li><li>• While a single cycle storage may only need to hedge the evening net peak, a multi-cycle storage that offers flexible RA category 1 will need to prepare to hedge discharge during morning and evening net peaks.</li></ul>
Scope Requested	<p>Vistra requests the initiative address the granularity issue through adding CRR products that are more granular than the existing peak product including the following options:</p> <ul style="list-style-type: none"><li>• <b>Option A: CRR product defined by 4-hour strips (6 products)</b> Ideal solution for storage. Also, likely meets desired outcome proposed by CDWR since the fifth 4-hour strip would be HE17-HE20. Need to confirm feasibility.</li><li>• <b>Option B: CRR products defined to include off-peak, morning net peak, solar hours, and evening net peak products</b> Compromise to reduce TOU from 6 to 4 from ideal solution (Option A) to align new time-of-use periods by breaking peak TOU into morning net peak, solar hours, and evening net peak.</li></ul>

Note: TOU governed by CAISO Tariff Section 36.3.3 as described in CRR BPM Attachment A: CRR Time of Use Definition.

# Impact assessment needed on additional time-of-use periods

- Vistra acknowledges expanding the CRR model's time-of-use options from the current two (peak and off-peak) to a minimum of four (morning net peak, solar hours, evening net peak, and off-peak) involves assessing its technical viability.
- As a next step, Vistra requests CAISO examine whether the technical impacts vary when adding more time-of-use options (transitioning from two to three versus from three to four or six) in the upcoming meeting.
- It is crucial to determine if the impact increases with the addition of more periods or if it remains relatively stable regardless of how many periods are introduced to assess whether the ideal approach or a compromise approach is needed.

# Additional requests for CAISO investigation to further initiative



# Discussion areas Vistra requests CAISO facilitate

- Would allowing for constraint surpluses to offset constraint deficits be appropriate?
- Are there areas of improvement that could be made to the simultaneous feasibility test?
- Are there sufficient mechanisms to incentivize external Balancing Authority Area's to report planned transmission outages prior to annual and monthly auctions to mitigate risks of overselling of CRR rights due to inaccurate transmission limits used in the auction?
- Is there a non-zero value for the reservation price used when the auction acts as the counterparty that could be explored to mitigate risks of the CRR auction overselling rights at prices below CAISO's expectation for congestion.
  - Specifically, we would like a discussion on whether CRRs should clear at de minimis auction prices due to CAISO acting as a price taker with the \$0 reservation price, even when CAISO would forecast expectations of congestion on those paths.
- Are only small amount of constraints adversely being affected by the revenue inadequacy?
  - Specifically, Vistra asks CAISO to expand its analysis to review constraint-level results to better inform “key drivers” of issues that may be undermining ability of the day-ahead market to collect as close to accurate congestion rents as possible to improve funding to the congestion revenue rights holders.

**Additional scope from IPP &  
Marketer catalogue submission  
not yet discussed**

# CRR revenue sufficiency improvements

- Assessment of how to protect CRR holders from shortfall risks not contemplated at time of Track 1B
  - Shortfalls unrelated to transmission derates such as unsettled flow can lead to flow reversals in CRR settlements (i.e., when offset is greater than notional value).
  - CRRs serve to protect supply and demand from unknown congestion costs, but shortfall can turn an expected hedge into an unexpected liability counter to purpose of CRR mechanism.
- Improved Requirements for Transmission Outage Submission.
  - According to the Outage Management Business Practice Manual, “requests for planned outages of Significant Facilities must be submitted to ISO Outage Coordination at least 30 days prior to the start of the calendar month for which the outage is planned to begin”.
  - The “30-day rule” is critical rule since outages on Significant Facilities significantly impact the amount of CRR network capacity offered and the resultant CRR revenue adequacy, however under current application it is advisory only and there is no implication for schedules submitted inconsistent with the rule’s timeline.
- CAISO should evaluate whether it can post more information related to CRR modeling on its market participant portal to improve transparency and support CRR convergence.

# CRR expansion to include balancing auctions

- Explore potential of expanding CRR auctions to include more frequent intervals.
- Today, 75% of the available network capacity is offered in the annual CRR auction, which is followed by one additional offering at the prompt month for the remaining amount.
- Under a balancing auction framework, auction capacity is released on a graduated scale at more frequent intervals.
- Benefits of introducing balancing auctions include:
  - Enhanced risk management: Provides more opportunities for competitive load-serving entities to shape, by period (balance of planning year, quarterly, and/or monthly) and by block (TOU periods), the congestion risk in their retail portfolio.
  - Enhanced price discovery: rationalize CRR clearing prices since all participants benefit from more up-to-date pricing information.
  - More frequent forward price discovery is an opportunity to reduce credit risk where the credit requirements would utilize up to date CRR auction prices to determine credit requirements as open CRRs positions approach settlement. This enhanced measurement of forward congestion risk would help rationalize credit requirements.

# Thank you for your time!

For questions or further discussion, please reach out after the holidays:



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