California ISO

Addressing core issues with bid cost recovery for storage resources

Department of Market Monitoring

Storage Bid Cost Recovery and Default Energy Bids Enhancements Working Group Meeting

December 11, 2024

Overview

- The ISO's recent filing can limit gaming, but does not directly address the core efficiency issues caused by storage BCR
- Addressing the core efficiency issues created by storage BCR in both the day-ahead and real-time markets should be a priority
- As the Market Surveillance Committee put it:

  "*The CAISO proposal does not address the problem of incentives for inefficient storage operations created by the current BCR design.*" (p.2 of MSC Opinion)

- More generally, this initiative should thoroughly assess drivers of BCR under the current design, and clearly determine where it is "warranted"

Real-time BCR when SOC constraints bind creates inefficient bidding incentives

- Current storage BCR rules remove exposure to real-time opportunity costs
  - This creates efficiency and reliability concerns
- The MSC opined:
  - *"The original CAISO proposal … was to identify when a resource could not charge or discharge as a result of a state-of-charge constraint, and eliminate BCR payments in those intervals.*
    …This would be an elegant solution to the problems…" (p.24 of MSC Opinion)
- Fixing the BCR rules should be a prerequisite to increasing bidding/parameter/DEB flexibility for storage resources

What are the cases where storage resources should receive real-time BCR?

- Current BCR rules operate from a presumption of BCR eligibility with specific cases removed
  - e.g. ASSOC, the once proposed Track 1 binding SOC changes
- Alternative is to start with presumption of no storage BCR eligibility and add eligibility for cases identified as needed
  - Exceptional dispatch, Mitigation, Multi-interval optimization forecast errors
    - Are there meaningful losses from MIO?
    - Should storage be paid for potential losses while still benefitting when the MIO increases their revenues
- ISO analysis could highlight situations that lead to uneconomic dispatch and inform discussion in stakeholder process

The MSC provided an in-depth discussion of the issues

- *"Moreover, elimination of BCR on phantom losses should precede any increase in bidding flexibility for storage resources. Therefore, the CAISO should almost immediately continue this process into a Phase II that can continue reforms that we believe will ultimately need to greatly reduce the scope of storage BCR to a few isolated conditions"* (p.3 of MSC Opinion)

- *"The lack of losses would simply reduce the incentive of storage operators to try to use offer prices and schedules to efficiently manage state-of-charge. In fact, without fundamental changes to the current BCR design, storage operators lack incentive to use increased offer flexibility to manage state-of-charge, and are instead incented to use that flexibility to further inflate BCR payments."* (p.22 of MSC Opinion)

- Much more detail and discussion can be found in the MSC Opinion: https://www.caiso.com/documents/market-surveillance-committee-final-opinion-storage-bid-cost-recovery-nov-01-2024.pdf

Should there be day-ahead BCR for storage resources?

- Vast majority of day-ahead BCR for storage resources has been found to be forced by parameter submissions
- Storage resources have no commitment costs or relevant ramp constraints. Day-ahead market optimizes over entire 24 hour horizon
- What are the scenarios where a storage resource should receive BCR payments?
  - Exceptional dispatch?
  - Regulation mileage bids? (very minor amount of BCR)

What should come from this policy initiative?

- Complete assessment of BCR design applied to batteries
  - Majority of real-time battery BCR to date appears related to SOC limitations, but this initiative should review all potential drivers (e.g. interactions with OMS)
  - ISO should assess other potential drivers and raise for discussion
- Result should address the core efficiency issues created by current storage BCR design in both the day-ahead and real-time markets
- Clearly identify where battery BCR is warranted and where it is not

Conclusion

- Addressing the core efficiency issues created by storage BCR should be a high priority
- Reassess overall storage BCR rules including cases beyond insufficient state-of-charge
- Consider moving from a presumption of BCR eligibility with specific cases removed to only paying BCR in specific warranted cases