California ISO

Minimum State of Charge Extension
Straw Proposal

February 6, 2023

Agenda

Time	Item	Speaker
9:00-9:10	Introductions and Stakeholder Process	Brenda Corona
9:10-9:45	Background and Policy	Gabe Murtaugh
9:45-11:55	Additional Q&A	Gabe Murtaugh
11:55-12:00	Next Steps	Brenda Corona

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Policy Timeline

Date	Milestone
2/2/23	Post Straw Proposal
2/9/23	Stakeholder Call
2/23/23	Comments Due on the Straw Proposal
3/6/23	Post Final Proposal
3/21/23	WEIM Governing Body Meeting
3/23/23	ISO Board of Governors Meeting

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Initiative Stakeholder Process

PROPOSAL DEVELOPMENT

Issue paper and working groups

Straw proposal → Draft final proposal / Draft business requirement specification / Draft tariff and business practice manual revisions → Final proposal

DECISION

ISO Board / EIM Governing Body → Tariff filing → FERC

IMPLEMENTATION

Business practice manual / Training / Market simulation → Go Live

Stakeholder input

We are here

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BACKGROUND AND POLICY

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Earlier policy identified a potential issue with relying on use-limited storage to meet peak loads

- ## The ISO day-ahead market optimizes all resources on the grid over a 24 hour period
  - 4-hour duration storage resources are optimally scheduled
  - These resources are scheduled to charge during the lowest priced hours and scheduled to discharge during the highest priced hours, if 'spreads' exceed hurdle prices bid into the market

- ## There are challenges with managing storage in real-time
  - Real-time market primarily dispatches based on bids and LMPs
  - Real-time market only looks ahead about an hour and cannot anticipate needs outside of that window or day-ahead needs
  - I.e. There is no link between the day-ahead and real-time markets

- ## Storage revenues may be jeopardized if storage resources are not realized, and reliability may be jeopardized on very tight days

The market enhancements for summer 2021 readiness developed the MSOC requirement

- Minimum state of charge requirement initially developed in market enhancements for summer 2021 readiness
  - The initial concept was introduced in the ESDER 4 and RAE initiatives
  - The implementation details were developed quickly to ensure timely implementation and a relatively narrow scope and usage
  - The tool was developed to address reliability concerns

- Minimum state of charge requirement implementation:
  - Applies to only resource adequacy resources
  - Applies only on RUC infeasible days
  - Applies to day-ahead discharge awards during critical hours
  - Ensures state of charge immediately prior to critical hours
  - Limited MSOC requirement to two years (expired after summer 2022)

The minimum state of charge requirement was used by the ISO during the summer heatwave in 2022

- Operations relied on MSOC requirement during the heat event in September when loads were very high
  - These measures helped ensure sufficient state of charge across the storage fleet
  - Operations also issued some 'traditional' exceptional dispatch to help manage storage resources during this period
- On September 6th 2023 market conditions were very challenging (record load day)
  - Economic signals incentivized storage to discharge prior to the peak
  - The minimum state of charge requirement held some resources and charged others to ensure storage availability for later in the day
- There were significant RUC infeasibilities between 6 and 14 days during the summers of 2020, 2021 and 2022 when the requirement could have been used

The market operators relied on the minimum state of charge requirement on September 6

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The energy storage enhancments policy included new tools to retire the MSOC requirement

- Energy storage enhancements (ESE) included six major items, including improvements to exceptional dispatch
  - Ability for operators to exceptionally require storage resources to hold state of charge
  - Opportunity cost compensation for storage resources while holding state of charge due to exceptional dispatch
  - Improvements to manual/Excel tools that the operators currently use to issue exceptional dispatch instructions and monitor state of charge

- The operations team is comfortable with retiring the minimum state of charge requirement when this ESE development is complete
  - Development is currently scheduled to be complete by fall 2023
  - This would not be in time for this coming summer

This policy is narrow in scope and proposes a limited extension of the existing MSOC requirement

- This policy proposes extension of the minimum state of charge requirement until the changes related to ESE are functional in the market
  - This policy does not address other aspects of the tool
  - Hopefully implementation will be complete prior to summer 2024

- In the event that the implementation is delayed, this policy requests that the extension remain in place no longer than through summer 2024
  - The use of the requirement will not extend beyond September 30, 2024
  - This allows for one additional year for software development

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NEXT STEPS

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Next Steps

- All related information for the Minimum State of Charge Extension initiative is available at: https://stakeholdercenter.caiso.com/StakeholderInitiatives/Minimum-state-of-charge-extension

- Please submit stakeholder written comments on today's discussion and the straw paper by February 23, 2023, through the ISO's commenting tool

  - The commenting tool is located on the Stakeholder Initiatives landing page (click on the "commenting tool" icon): https://stakeholdercenter.caiso.com/StakeholderInitiatives

February						
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