

# Decision on energy storage enhancements

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# Management proposes a set of enhancements to ensure reliable storage operation

## Enhancements for reliability:

- Improved accounting for state of charge while providing regulation
- Enhanced bidding requirements for resources providing ancillary services
- Exceptional dispatch tools for storage resources to hold state of charge and opportunity cost compensation

## Enhancements to co-located model:

- Electable mechanism to prevent 'grid charging'
- Extension of the co-located model to pseudo-tie resources

## Improvements to the storage default energy bid:

- Add an opportunity cost component into the day-ahead default energy bid

# Management proposes a set of enhancements to ensure storage resource availability for reliable grid operation

- Two changes will help ensure availability of storage resources while providing ancillary service
  - Update the model for state of charge to include impacts from regulation up and regulation down awards
  - Require bids alongside ancillary service awards to ensure market can charge storage resources, which will help ensure ability to provide ancillary services
- Improvements to efficiency and accuracy for issuing exceptional dispatch instructions to storage

## Proposal responds to stakeholder feedback and includes updates to the storage model

- Functionality to ensure storage receives charging instructions that are less than on-site renewable output
- Enable pseudo tie resources to use the co-located model functionality
- Update the day-ahead default energy bid to include an opportunity cost parameter

There is broad support for this proposal, but some stakeholders continue to express concern about the impacts from the reliability aspects of this proposal

- Some stakeholders requested exclusion of bid requirements alongside ancillary service awards
  - After carefully weighing reliability concerns against potential impacts to storage resource operators on the grid, the need for tools to ensure reliable operations are essential
- Management remains committed to assessing efficacy of programs and tools implemented for reliability
  - Proposed tools will be ‘tuned’ over time and market impacts may be reduced if reliability allows
  - Need for tools may be reevaluated in the future, as operational experience is gathered

## Management recommends the WEIM Governing Body and ISO Board approve the proposed energy storage enhancements

- Provide enhancements to ensure storage resources are available for reliable grid operation
- Responsive to stakeholder concerns that co-located storage facilities need to protect investment tax credits
- Align day-ahead and real-time default energy bid formulation