Purpose & Key Takeaways

Purpose: Review draft conceptual design and project update

Key Takeaways:

- Short-Term Reserve product: Online/Offline, Available in 30 Minutes, Locational Requirements, Co-optimized
- Settlement, clearing and deployment rules discussed
- Feedback requested by November 29
- Stakeholder workshop scheduled for January 15
Agenda

• Introduction and Review of STR
• Load Pocket, Regional and Market-Wide Solution Approach
• Registration and Pricing
• Ramp and Capacity Sharing
• Measurement and Verification
• Settlements and Make Whole Payments
• Next Steps
Short Term Reserves (STR) meet three identified current and future needs

MISO’s identified Short Term Reserve needs
- Managing **Regional Transfer Limits** between MISO North and MISO South within contractual limits
- **Load Pockets** with limited availability of flexible resources, which are also constrained by transmission issues
- Fostering **System-wide requirements** to ensure flexibility to meet load and supply volatility and variability with future changes to mix of generation resources
STR design will follow Market Roadmap guiding principles to deliver meaningful benefits

Market Roadmap guiding principle

• Develop transparent market prices reflective of marginal system cost, and cost allocation reflective of cost-causation and service beneficiaries

Key Benefits

• Increased efficiency of commitment processes for Load Pocket, Regional Transfers and market-wide
• Increased transparency by pricing needs with STR product
• Enhanced reliability by aligning operational needs with market procured capability
• Better position MISO for resource mix changes
Four key STR features to meet needs and achieve intended benefits

30 Minute ramp response time

Offline and online capacity eligibility

Locational requirement

Co-optimization with energy and ancillary services
STR Requirements

- Market-wide, regional and local requirement
- Response can be nested - local can satisfy regional which can satisfy market-wide
Regional and Load Pocket solution based on flow constraints

- Combined energy and STR constraint impact is used to dynamically determine required STR
- Linear, flow-based constraint considers system state, STR requirement, cleared energy and cleared STR
- Benefits
  - Increased commitment efficiency
  - Improved transparency of costs
  - Better alignment of STR needs and market models
Market-Wide solution approach to be developed

- STR capacity requirements will be included in commitment and dispatch
- Still to be developed – study/method to determine flexibility required for market
- Benefits
  - Increased commitment efficiency
  - Improved transparency of costs
  - Better alignment of STR needs and market models
  - Better position MISO for resource mix changes
Load Pocket voltage issues not fully addressed by STR

- Some voltage needs require VAR capability
- Due to interaction with reactive power, market-based clearing of energy and reserves enforcing thermal transmission constraints are not sufficient
- As a result, voltage needs will not fully addressed by the STR product
Registration & Offer Price

- Any online dispatchable resource may provide **Online** STR (no registration needed)
- Initially, self-certify **Offline** STR capability
  - After initial, demonstration (test) required
- **Online** STR Dispatched considering opportunity cost (no offer price)
- **Offline** dispatched based on offer price
Resource Ramp Rate and Capacity

- STR resource ramp rate is shared – full ramp rate available to each product
- STR capacity can overlap with Ramp Capability and Contingency Reserve
  - Because STR response period is longer
New Objective Function Components for STR

- Offline Offer Cost
- Demand Curve
- Transmission Violation Cost
- Single Resource STR Maximum Violation Cost
Measurement and Verification

- Online STR capacity cleared and deployed in UDS energy dispatch target
  - Subject to existing performance charges (excessive/deficient energy) when not responding as instructed
- Offline STR capacity receives commitment instructions
  - Failed response results in deployment failure charges and capping at measured response
- Operators may temporarily disqualify resources for reliability
Settlement and Make Whole Payments

- Resources are paid cleared STR volumes times the STR market clearing price (MCP)
- STR procurement costs allocated based on binding settlement zones (like CR)
  - STR price will reflect impact of local, regional and market-wide binding constraints
- Make Whole Payments resulting from commitment for Load Pocket/Regional STR need will be allocated locally/regionally
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>October 12</td>
<td>Posted Draft Conceptual Design Document</td>
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<tr>
<td>November 8 (MSC)</td>
<td>Review of draft conceptual design</td>
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<tr>
<td>November 29</td>
<td>Stakeholder Feedback Due</td>
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<tr>
<td>January 15 (Workshop)</td>
<td>Review of revised conceptual design</td>
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<tr>
<td>February (MSC)</td>
<td>Review stakeholder feedback and any subsequent updates</td>
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<tr>
<td>2019</td>
<td>Remaining schedule subject to budget and Market Roadmap prioritization</td>
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Feedback Request

• MISO seeks stakeholder feedback on the Draft Short-Term Reserve Conceptual Design by November 29
• Please use the MISO feedback tool and reference Short-Term Reserve
  • https://www.misoenergy.org/stakeholder-engagement/stakeholder-feedback/
References

Draft Conceptual Design

Product Evaluation Paper

Market Roadmap – Short Term Capacity Reserves (MR010)

IMM 2017 State of the Market Report
Questions and Comments

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