Executive Summary

- Aggressive decarbonization goals and policies are driving rapid portfolio change, resulting in increasing variability and diminishing reliability attributes.
- New resource project delays or cancellations, mostly driven by build-related issues, increase risk for future capacity or reliability attributes shortfall.
- MISO is advancing resource adequacy and generator interconnection queue reforms to mitigate long-term risk.
Key resource adequacy assessments across planning horizons provide visibility into gaps between future resource adequacy requirements and accredited capacity.

1 YEAR
- MISO Planning Resource Auction (PRA)

2-5 YEARS
- OMS-MISO Survey
- Interconnection Queue

6-20 YEARS
- Member Resource Plans
- Regional Resource Assessment (RRA)
Committed capacity projections from the OMS-MISO Survey show an increasing deficit beginning in 2025-26; capacity additions are needed, and retirements may need to be delayed to mitigate reliability risks.

**Summer Seasonal Accredited Capacity Projections (GW)**

*2023 OMS-MISO Survey*

### Target Planning Reserve Margin

<table>
<thead>
<tr>
<th>Planning Reserve Margin</th>
<th>Installed Capacity</th>
<th>Potential New Capacity</th>
<th>Potentially Unavailable Resources</th>
<th>Committed Capacity</th>
<th>Projected PRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PY 24/25</td>
<td>142.7</td>
<td>2.9</td>
<td>3.5</td>
<td>136.4</td>
<td>16.6%</td>
</tr>
<tr>
<td>PY 25/26</td>
<td>145.1</td>
<td>6.9</td>
<td>(2.1)</td>
<td>134.6</td>
<td>(3.4) SHORTFALL</td>
</tr>
<tr>
<td>PY 26/27</td>
<td>151.0</td>
<td>13.0</td>
<td>3.4</td>
<td>134.6</td>
<td>(4.8) SHORTFALL</td>
</tr>
<tr>
<td>PY 27/28</td>
<td>155.0</td>
<td>17.1</td>
<td>3.8</td>
<td>134.1</td>
<td>(9.5) SHORTFALL</td>
</tr>
<tr>
<td>PY 28/29</td>
<td>155.2</td>
<td>20.7</td>
<td>3.9</td>
<td>130.6</td>
<td>18.4%</td>
</tr>
</tbody>
</table>

- Bracketed values indicate difference between Committed Capacity and projected Planning Reserve Margin Requirement (PRMR)
- Committed Capacity includes signed GIA projects shown on slide 19 of OMS-MISO workshop presentation
- Capacity accreditation values and PRM projections based on current practices
- Timing/GW of potential New Capacity projected per methodology noted in Oct 2022 RASC
- Regional Directional Transfer (RDT) limit of 1900 MW is reflected in this chart

**Slide Data Source:** OMS-MISO Survey Results

*Planning Year 2023-2024 Loss of Load Expectation Study Report*
External factors are limiting construction of new resources which is compounding MISO’s resource adequacy risk

49 GW of resources approved through MISO’s interconnection queue are awaiting construction, with an average delay to commercial operations of over 650 days.

Projects Under Study
- 242 GW (1414 Projects)
- 128 GW (53%)
- 38 GW (16%)
- 44 GW (18%)
- 23 GW (10%)
- 7 GW (3%)
- Other 1 GW

Approved Projects
- 49 GW (316 Projects)
- 31 GW (63%)
- 6 GW (12%)
- 6 GW (12%)
- 4 GW (8%)
- 2 GW (4%)

Fuel Type
- Other
- Gas
- Wind
- Solar
- Hybrid
- Storage

Queue data as of July 9, 2023. * Reasons for delay based on best available industry information. PPA – Power Purchase Agreement.
Alternative capacity projections based on historical annual additions of 2.5 GW show greater risk beginning in planning year 2025/26.
Projections based on publicly announced plans captured in the 2023 Regional Resource Assessment show declining accredited capacity even as installed capacity grows to meet demand.

Projected Capacity Change
Based on Member-Announced Plans: 2023 – 2042 (GW)*

* This is a recent snapshot of members' publicly announced resource plans. It is not common practice for utilities and states to solidify their plans 20 years in advance, so the projections shown here will evolve over time. Additional Member capacity beyond announcements is being captured in current planning and is not represented.
MISO continues to monitor several uncertainties as we work on refining our understanding of the evolving risk

**Challenges**
- Accelerated retirements under current policies/goals and potential greenhouse gas regulation
- Delays in capacity addition due to continued supply chain bottlenecks
- Bulk of new resources with lower reliability contributions (i.e., reduced attributes and accredited capacity)

**Upside Possibilities**
- Sustained “bridge” market responses (e.g., delayed retirements, increased imports)

**Near-term**
- Relief in supply chain bottlenecks
- Increased investments in “attribute-rich” resources
- Advancements in long-duration storage
- Increased distributed energy resources & demand response

**Longer-term**
- Higher load growth due to economic factors, onshoring in manufacturing, digitalization and data center growth, and electrification
- Increases in planning reserve margins due to incorporation of energy adequacy and reliability attributes

*Timeframes are illustrative*
MISO’s Reliability Imperative includes several initiatives to address the changing and increasing resource adequacy risk:

1. Engage with policy makers on the impact of fleet evolution and timing.
2. Identify, track and measure system reliability attributes, and ensure the provision of these attributes.
3. Align resource capabilities and accredited resource value with needs during the highest risk hours across the year.
4. Improve alignment between price signals and reliability outcomes in the Planning Resource Auction.
5. Reduce the speculative volume in future queue cycles to preserve timeliness and effective outcomes; advance progress on Joint Targeted Interconnection Queue with SPP.