Illinois Commerce Commission
2015 Summer Preparedness Policy Session

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Regional Executive, Central Region

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Executive Summary

• MISO projects adequate footprint-wide reserves to meet 2015 Summer Peak demand based on an expected (50/50) forecast.

  – The Planning Reserve Margin Requirement is 14.3%
  – The 2015 projected Reserve Margin is 18.0%
  – This is consistent with the OMS-MISO survey which projected margin in 2015/2016 of 17.0%

• Individual utilities need a reserve margin of 5.4% - reflecting a diversity benefit of 9% versus what they would need as stand-alone entities.

• Reliability risk associated with lower reserve margins is increasing with Mercury and Air Toxics implementation in 2016 and the Clean Power Plan in 2020.

• MISO continues to work with stakeholders to develop and implement a broad response to the footprint’s changing energy landscape. We remain focused on ensuring reliability and maintaining least-cost energy delivery for consumers.
MISO’s footprint diversity continues to provide substantial benefit to members and their customers.
MISO’s 2015 reserves are slightly lower than 2014 levels

Reserve Margin Projections In GWs

<table>
<thead>
<tr>
<th>Component</th>
<th>2014 Reserves</th>
<th>Additional Available Capacity</th>
<th>Reduced Net Firm Imports</th>
<th>Increase in MISO Coincident Peak</th>
<th>2015 Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISO South</td>
<td>4.6</td>
<td>1.7</td>
<td>2.3</td>
<td>0.1</td>
<td>23.0</td>
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<tr>
<td>MISO North/Central</td>
<td>19.1</td>
<td></td>
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MISO's 2015 reserves are slightly lower than 2014 levels.

Reserve Margin Projections In GWs

- MISO South: 4.6 GW
- MISO North/Central: 19.1 GW

2014 reserves: 23.7 GW
Additional available capacity: 1.7 GW
Reduced net firm imports: 2.3 GW
Increase in MISO coincident peak: 0.1 GW
2015 reserves: 23.0 GW

18.6% vs 18.0%
The 2015 Summer Weather Outlook

• Summer 2015 is forecasted to be hotter than normal, with near-normal precipitation.

• The hottest periods are forecasted to be in early June, mid- to late July, and mid- to late August for the Great Lakes region with increased hurricane risks to the Gulf Coast region.
Probabilistic Risk Profile

- 74.1% Chance of Utilizing Load Modifying Resources (LMRs)
- 10.3 GW LMR
- 7.8% Chance of Utilizing Operating Reserves
- 2.4 GW Operating Reserves
- 2.7% Chance of Shedding Firm Load

% Chance of Calling an Event

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
The generation fleet in MISO is being affected by fuel prices and energy policies

<table>
<thead>
<tr>
<th>Regulation</th>
<th>MATS</th>
<th>CSAPR &amp; CWIS</th>
<th>Draft Clean Power Plan 111 (b) &amp; (d)</th>
<th>Ozone NAAQS, Coal Ash</th>
</tr>
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<tbody>
<tr>
<td>Mercury and Air Toxics Standards</td>
<td>Cross State Air Pollution Rule and Cooling Water Regulations (316(b))</td>
<td>CO₂ from existing and new power plants</td>
<td>New air quality standards/ Coal ash storage</td>
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| Compliance Dates | 2015 / 2016 | As early as 2015 | 2015/16 (New) Beginning in 2020 (Existing) | 2015 and beyond |

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<tr>
<th>Impacts</th>
<th>Significant coal retirements</th>
<th>NOₓ requirements tightened</th>
<th>New coal requires CCS; base load capacity options reduced</th>
<th>Increased costs</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Outage coordination challenges</td>
<td>Higher plant compliance costs influence retirement decisions</td>
<td>Significant coal retirements</td>
<td>Other potential impacts depend on regulations</td>
</tr>
<tr>
<td></td>
<td>Shrinking reserve margins around MISO</td>
<td>Increased dependence on gas and CO₂ neutral resources</td>
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<td>Growing dependence on natural gas</td>
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The region is showing a need for additional resources to meet projected load growth (0.8%).

<table>
<thead>
<tr>
<th>Planning Year</th>
<th>Reserve Margin %</th>
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<tbody>
<tr>
<td>2015/16</td>
<td>16.6%</td>
</tr>
<tr>
<td>2016/17</td>
<td>11.5%</td>
</tr>
<tr>
<td>2017/18</td>
<td>12.3%</td>
</tr>
<tr>
<td>2018/19</td>
<td>10.6%</td>
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<tr>
<td>2019/20</td>
<td>9.0%</td>
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<tr>
<td>2020/21</td>
<td>-3.3%</td>
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Capacity Surplus / Shortfall North / Central Regions in GW

111(d) compliance strategy with interim compliance

MATS

2015/16

2016/17

2017/18

2018/19

2019/20

2020/21
A broad response to the nation’s changing energy landscape is necessary

- **Environmental Regulations** – managing transition to Mercury and Air Toxics Standards (MATS) and preparing for carbon regulations
- **Resource Adequacy** – efforts being taken to ensure adequacy through the year and accommodate changing generation portfolios
- **MISO Processes & Procedures** – review/revise to re-align as the industry continues to evolve
- **Natural Gas/Electric Coordination** - MISO is actively working with stakeholders to enhance its electric/gas coordination initiatives as the footprint transitions to greater reliance on natural gas
- **Seams Management & Optimization** – enhancing reliable movement of resources to minimize costs to end user
For additional questions:

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