Illinois Commerce Commission
2014 Summer Preparedness

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Executive Summary

• MISO projects adequate reserves to meet 2014 Summer Peak demand

• The reduced reserve margins from 2013 reflect tighter supply due to retirements and will result in a higher probability of calling emergency only resources

• MISO continues to coordinate with neighbors as we seek to eliminate barriers and inefficiencies across adjoining seams to maximize value for consumers

• The outlook for 2015/2016 is for further reduction of reserves across the footprint

• MISO is exploring the feasibility of establishing a seasonal resource adequacy model to reflect changing conditions
The generation fleet in MISO is being affected by timing, fuel prices and multiple phases of environmental regulations.

<table>
<thead>
<tr>
<th>Nature of Regulation</th>
<th>Compliance Dates</th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>PHASE 4</th>
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<tbody>
<tr>
<td>Mercury and Air Toxics Standards</td>
<td>2015 / 2016</td>
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<td>Carbon regulations (GHG)</td>
<td>To be determined</td>
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<tr>
<td>Cross State Air Pollution Rule (CSAPR) and Water Regulations (316b)</td>
<td>To be determined</td>
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<td>NAAQS? Coal Ash?</td>
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<td>???</td>
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**Impacts**

- Significant coal retirements
- Outage coordination challenges
- Shrinking reserve margins around MISO
- Growing dependence on natural gas
- June 2014 draft rule release
- Continued pressures on reserve margins
- Increased dependence on natural gas

These factors will culminate in the erosion of reserve margins and an increase in reliability risk.
2014 Resource Adequacy Overview

- MISO projects adequate reserves to meet 2014 Summer Peak demand but a reduced reserve margin and the tightening of supply results in a higher probability of calling emergency only resources this summer.

- The region’s resource portfolio is undergoing significant change which will result in reduced reserve margins:
  - MISO-wide 2014 reserve margin target: 14.8%
  - MISO-wide summer 2014 anticipated reserve margin: 15%
  - Reserve requirement is higher due to fleet performance and reduced neighboring reserve margins.

- Reserve Margin reductions from prior years mostly due to approved retirements, suspensions and removal of non-firm imports.
Planning Reserve Requirement 2013 – 2014

- 2013 PRM Target: 14.2%
- Reduction in Generation Fleet Performance and Imports: -0.6%
- 2014 PRM Target: 14.8%
- Diversity Benefit: 6.9%
- 2014 LSE Requirement, Non-Coincident Peak: 7.9%
Reserve Margins are Tightening
North and Central Region

In GWs

- **2013 Reserves**: 25.7 GW
- **Retirements**: 3.1 GW
- **Removal of Non-Firm Imports**: 4.5 GW
- **Capacity Transfer From South**: 1 GW
- **2014 Reserves North/Central**: 19.1 GW

Reserve Percent:
- **2013 Reserves**: 28.1%
- **Retirements**: 3.8%
- **Removal of Non-Firm Imports**: 5.4%
- **Capacity Transfer From South**: 1%
- **2014 Reserves North/Central**: 19.9%
2016 Resource Adequacy Forecast
As of January 31, 2014

North & Central Regions
In GW

- Claimed Resources: 99.8
- Unclaimed Merchant Resources: 106.4
- Reserves: 108.4
- Expected Shortfall: 2.0

South Region
In GW

- Demand: 93.7
- Reserves: 34.9
- Expected Surplus: 5.5
- Expected Shortfall: -4.0

2016 Resources
2016 Resource Requirement
Expected Shortfall
Reserves
Demand
2016 Resources
2016 Resource Requirement
Expected Surplus
Reserves
Demand
MISO’s Efforts to Improve Resource Utilization

• Evaluate potential solutions and cost/benefit to stranded capacity resources under varying conditions (4th Quarter 2014)

• Establish specific availability and use conditions of load modifying resources (Fall 2014)

• Eliminate barriers to efficient energy and capacity transactions across seams (Initial report – Summer 2014)

• Evaluate seasonal nature of resource and reserve requirements (2015)
  – Gas/Electric harmonization

• Evaluate infrastructure requirements (ongoing)
Appendix
Observations

- **Resources**
  - Reported retirements 1,211 MW Less than the Long Term Reliability Assessment
  - 98% of resources in zone reported as high confidence for 2016

- **Demand**
  - Reported demand 1,222 MW less than Long Term Reliability Assessment
Factors driving both supply and demand forecasts are indicative of persistent uncertainty and illicit caution

• **Demand Reductions**
  – Current survey shows an aggregated 2016 demand of 93.7 GW
    • This is a -0.75% annual growth rate for the next three years
    • MISO’s weather-adjusted annualized growth rate is 1.5% since 2009 (would imply a 2016 load of 100.2 GW)
    • The annual growth rate in the most recent Long Term Reliability Assessment is 0.8% (would imply a 2016 load of 98.1 GW)

• **Resource Increases**
  – 3.2 GW of previously uncounted resources are included
  – 3.5 GW of generators were reclassified from retirement / low confidence to high confidence - Investment and approvals are required to firm up these resources

• **Unclaimed Merchant Generation**
  – Results include 6.6 GW of generation not currently contracted to serve load