RTO Performance: Are They Accountable?

Harvard Electricity Policy Group
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Vice President & Chief Financial Officer
Midwest ISO Overview

The Midwest ISO is an independent, 501(c)(4) “Not for Profit – Public Benefits Corporation”. We are entrusted with the non-partial, efficient and reliable operation of the transmission grid and energy markets.

Operations History
- Began Reliability Operations on Dec. 15, 2001
- Began Tariff Administration and Scheduling Operations on February 1, 2002
- Energy Market Operations since April 1, 2005
- ASM Operations to launch in January 2009

Voluntary Membership
- Large footprint (~947,000 square miles)
  - 15 States
  - One Canadian Providence
- 156,000 MW of generating capacity
- 93,600 miles of transmission lines

Governance
- Independent Board elected by Members
- Advisory Committee
  - Nine Stakeholder Sectors including Public Consumer Advocates

Financial
- $ Cleared per year = $41 billion (last 12 mo.)
- 2009 Operating Budget = $264 million
- 2009 Capital Budget = $22 million
# The Midwest ISO’s Role

<table>
<thead>
<tr>
<th>What We Do</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide Independent Transmission System Access</td>
<td>• All parties have equal and non-discriminatory access</td>
</tr>
<tr>
<td>• Regional Reliability Coordination</td>
<td>• Reduce risk of outages</td>
</tr>
<tr>
<td>• Perform Efficient Market Operations</td>
<td>• Lower cost unit commitment, dispatch and congestion management</td>
</tr>
<tr>
<td>• Coordinate Regional Planning</td>
<td>• Cost effective infrastructure</td>
</tr>
<tr>
<td>• Foster Platform for Wholesale Market Development</td>
<td>• Encourage infrastructure investment and facilitate regulatory initiatives</td>
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</tbody>
</table>
RTOs Are Positioned To Help Address National Security/Energy Independence & Global Climate Change

Infrastructure Development

Renewables (including Wind) Integration

Demand Response / Smart Grid Integration
Metrics, Metrics, Metrics – Not Enough or Too Many?

• Energy Market Performance
  – Monthly report to Midwest ISO Board of Directors
  – Annual “State of the Market” Report to FERC

• Operational Performance
  – Monthly report to Markets Committee of Board of Directors
  – Summary dashboard with 21 metrics and supporting details for each metric

• Financial Performance
  – Stakeholder input into development of annual budget
  – Budget v Actual reporting to Board of Directors

• Overall Benefit of RTOs
  – Wholesale market benefits quantified by Midwest ISO

Note - All reports cited above are presented in open meetings and posted to Midwest ISO website.
## Market Operations Dashboard – period ending 10/31/08

### Operations Excellence

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current Month Indicator</th>
<th>Prior 3 Months</th>
<th>Detail Slide</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA/RT Price Convergence</td>
<td>●</td>
<td>●●●</td>
<td>4</td>
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<tr>
<td>Load Cleared Day Ahead</td>
<td>●●●●</td>
<td>●●●●</td>
<td>10</td>
</tr>
<tr>
<td>Headroom</td>
<td>●●●●</td>
<td>●●●●</td>
<td>11</td>
</tr>
<tr>
<td>MTLF Accuracy</td>
<td>●●●●</td>
<td>●●●●</td>
<td>11</td>
</tr>
<tr>
<td>Virtual Market Profitability</td>
<td>●●●</td>
<td>●●●●</td>
<td>12</td>
</tr>
<tr>
<td>FTR Funding</td>
<td>●●●</td>
<td>●●●●</td>
<td>12</td>
</tr>
<tr>
<td>Fuel Normalized RSG per RT MWh Served</td>
<td>●●</td>
<td>●●●●</td>
<td>21</td>
</tr>
</tbody>
</table>

### Customer Service

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current Month Indicator</th>
<th>Prior 3 Months</th>
<th>Detail Slide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Availability</td>
<td>●●</td>
<td>●●●●</td>
<td>22</td>
</tr>
<tr>
<td>UDS Solution %</td>
<td>●●●</td>
<td>●●●●</td>
<td>22</td>
</tr>
<tr>
<td>Day 1 Settlements Accuracy</td>
<td>●●●</td>
<td>●●●●</td>
<td>22</td>
</tr>
<tr>
<td>Day-Ahead Post Time</td>
<td>●●</td>
<td>●●●</td>
<td>22</td>
</tr>
<tr>
<td>Settlements Disputes</td>
<td>●●</td>
<td>●●●</td>
<td>20</td>
</tr>
</tbody>
</table>

### Metrics

- **●**: Expected
- **■**: Concern/Monitor
- **▼**: Review Status

### Detail Slide

- **13**: Tie Line Error
- **13**: CPS 1 Performance
- **13**: CPS 2 Performance
- **14**: NERC Violations
- **14**: Unit Commitment Efficiency
- **14**: ARS Deployment
- **23**: Monthly Transmission Queue
- **23**: Cycle Time
- **23**: Increase in Yearly Transmission Queue Backlog
- **23**: Generation Queue Status and Progress

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Midwest ISO
Energizing the Heartland

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Wholesale Market Benefits

Midwest ISO Annual Benefit by Value Driver¹ (in $ millions)

- **Price Transparency**
- **Data / Informational Transparency**
- **Planning Coordination**
- **Seams Management**
- **Regulatory Compliance**
- **Wholesale Platform for Demand Response**
- **Wholesale Platform for Renewable Portfolio Standards**

(1) Figures shown reflect annual benefits and costs reflected in 2007 dollars.
Conclusions

• Midwest ISO is providing measurable value at the wholesale market level
• Value is a function of:
  – Decreased risk of outages
  – More efficient use of existing resources
  – Reduced need for new resources
• Cost per MWh is less than it would be but for RTOs
• Global climate change response includes major role for price responsive demand and renewable resources such as wind turbines
• RTO energy markets provide transparent price signal needed to make price responsive demand a reality