

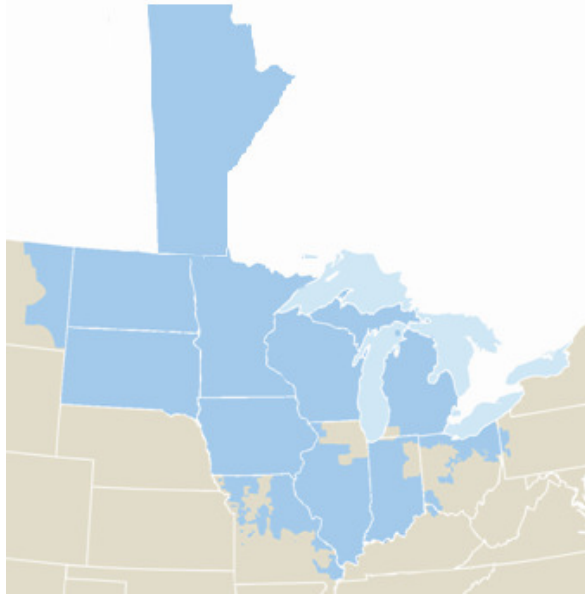
Natural Gas / Renewable Energy Dialogue on Grid Integration Issues

Best Practices Panel - East

June 7, 2011

MISO Overview

Midwest ISO's Reliability Footprint



Midwest ISO's Market Footprint



Interconnected High Voltage Transmission Lines

- ▶ 95,600 miles (154,000 kilometers)
- ▶ Owned by over 30 different companies

Installed Generation Capacity

- ▶ 138,556 MW (market footprint)
- ▶ 159,000 MW (reliability footprint)
- ▶ 5,500 generating units
- ▶ Owned by over 90 different companies

Peak Demand – 7/13/2006

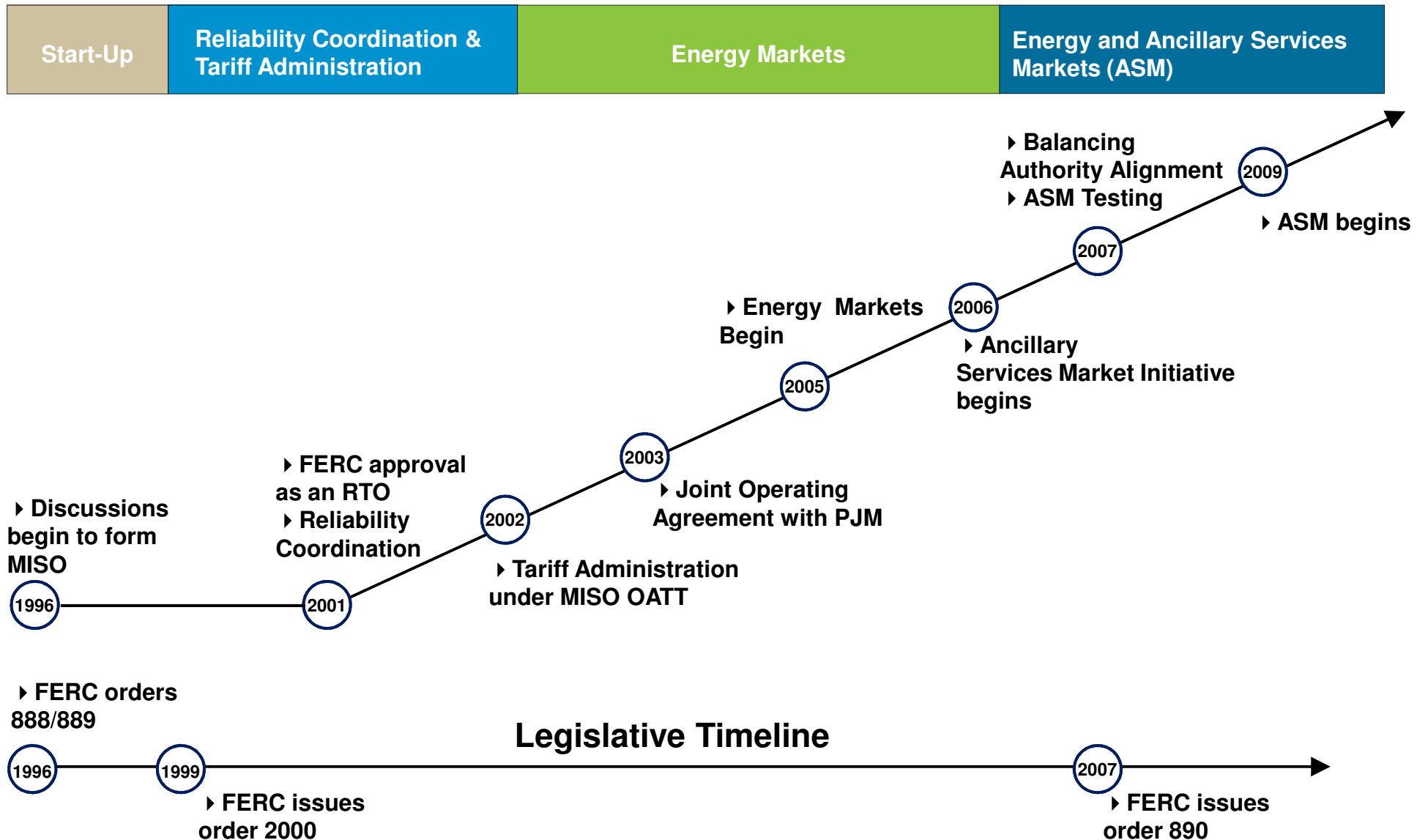
- ▶ 116,030 MW (market footprint)
- ▶ 136,520 MW (reliability footprint)

Midwest Market Highlights

- ▶ \$38-41 billion annual gross market charges
- ▶ 350 Market Participants who serve 40+ million people

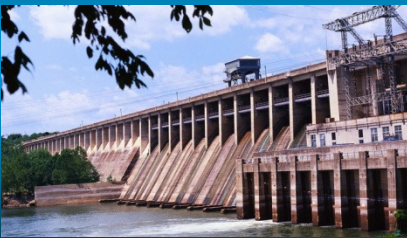


MISO Evolution

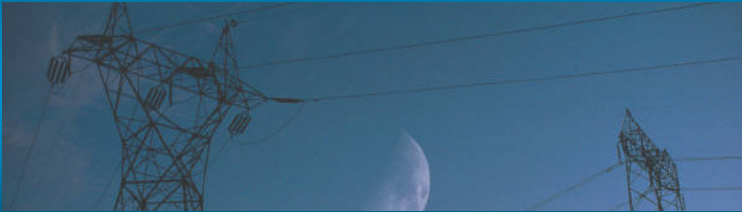


Challenges & Opportunities

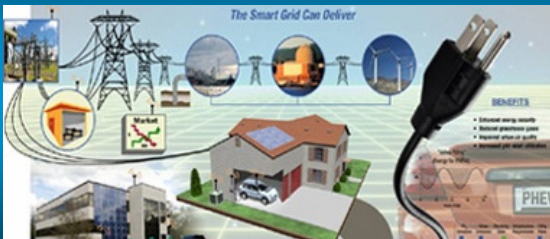
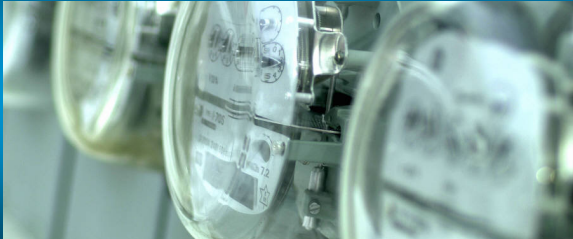
Renewable Integration



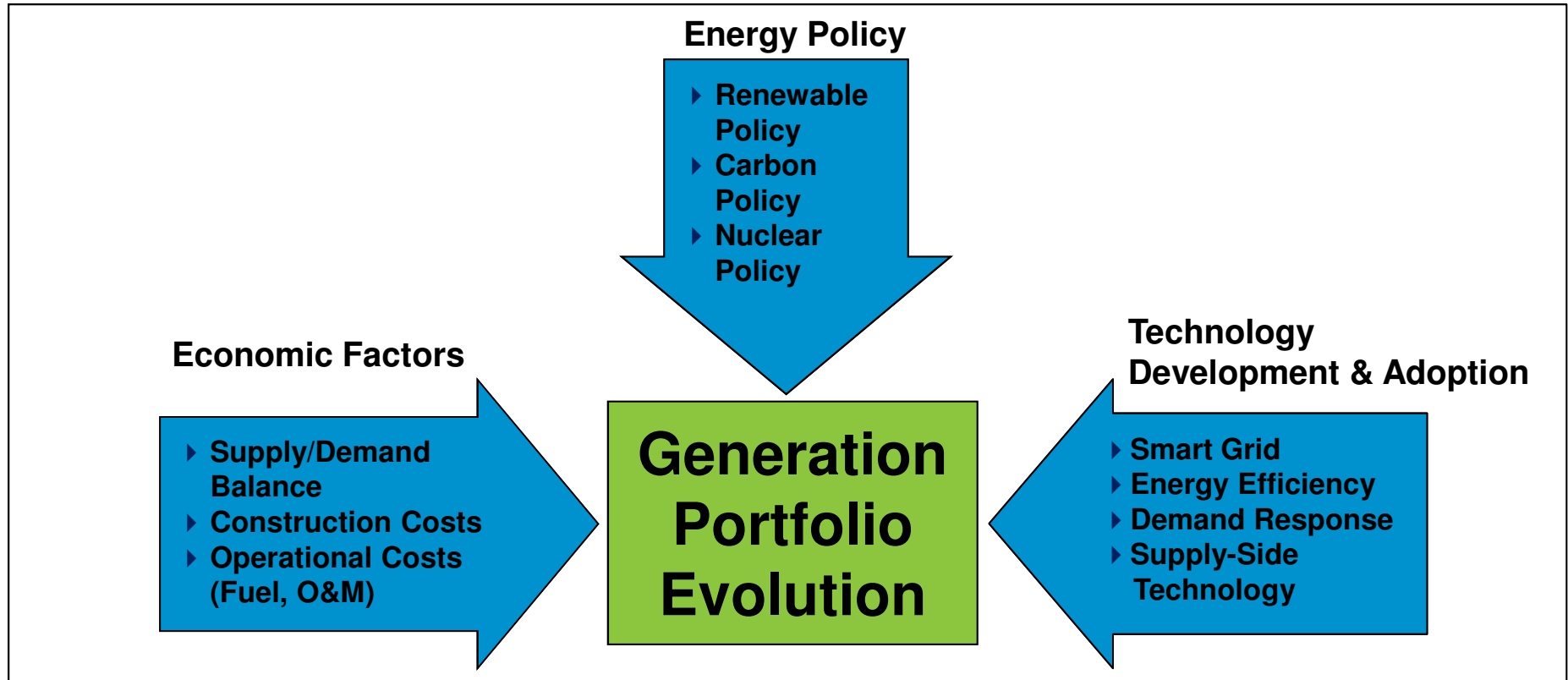
Infrastructure Development / Cost Sharing



Demand Response / Smart Grid

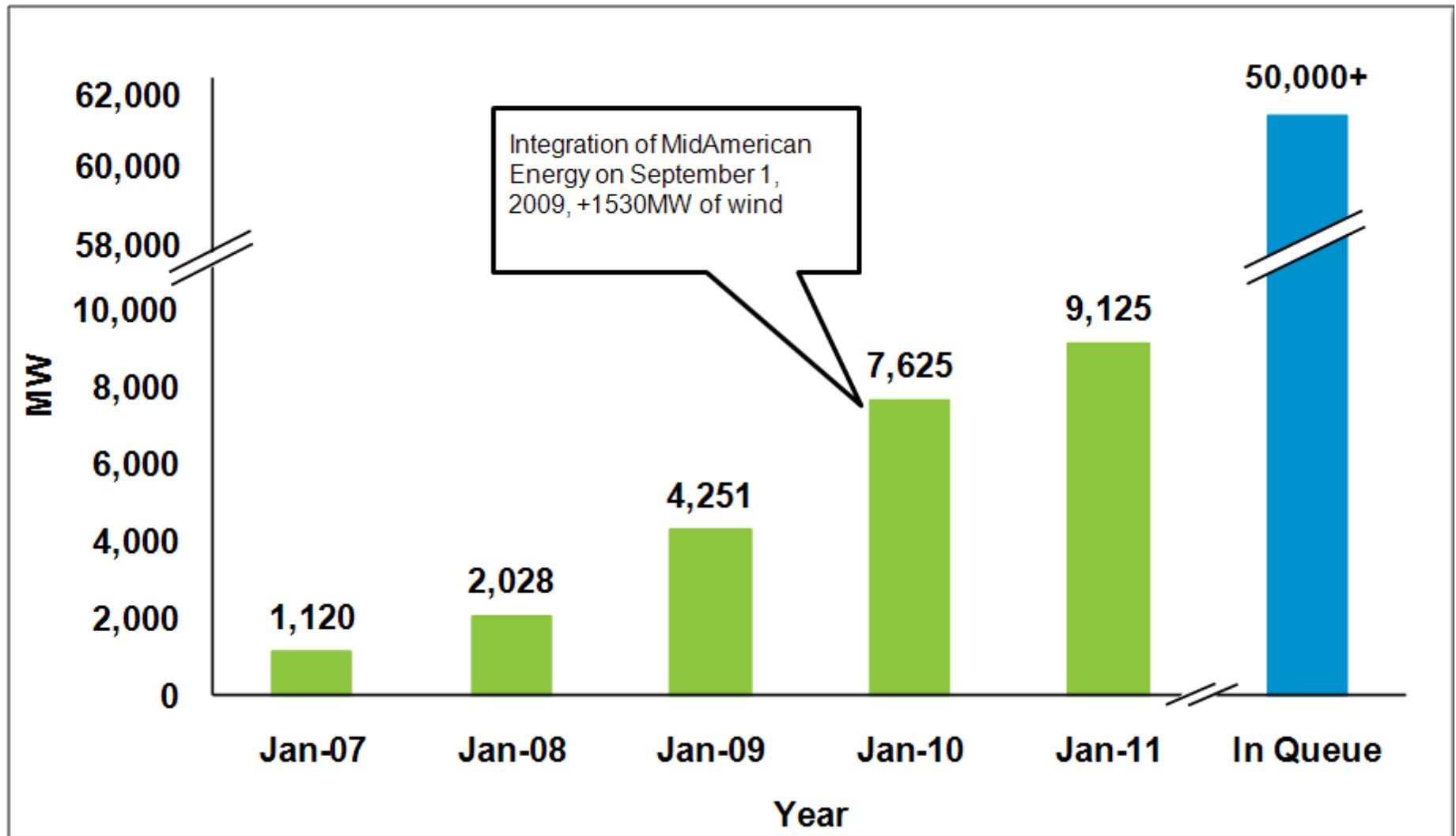


Influences on Future Generation Portfolio



A versatile transmission system expansion is required to accommodate multiple potential generation futures

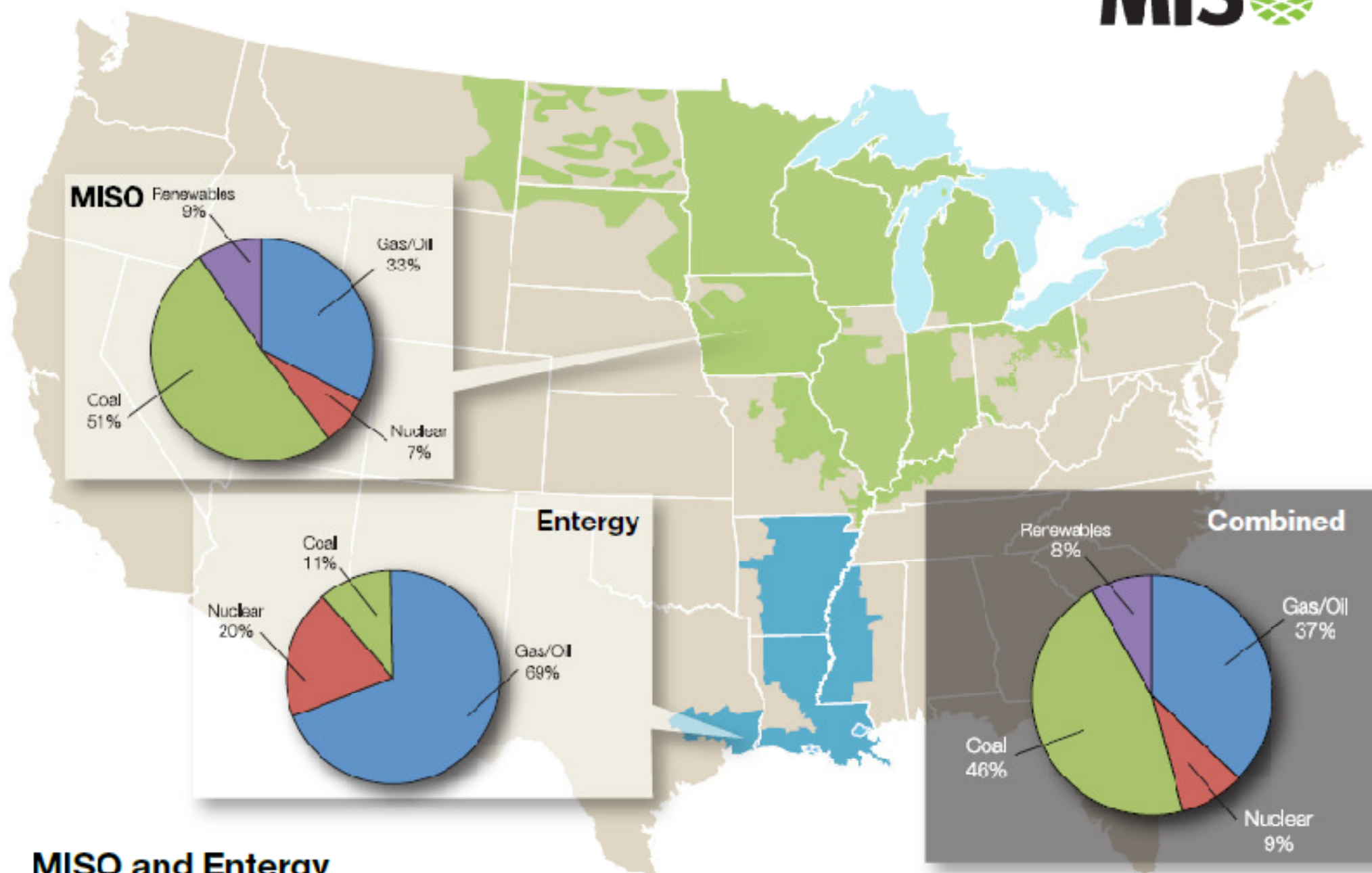
MISO Installed Wind Generation Capacity



Potential Shift in Supply/Demand Paradigm?

- Demand Response, Energy Efficiency programs and new technologies could gain traction and expand
- Proposed EPA rules may force significant coal retirements
- Wind generation continues to expand in response to Renewable Portfolio Standards
- New technologies, and pilot projects could yield market and operations benefits
 - Battery storage, flywheel, CAES, PEV, grid-interactive water heaters

The ultimate resource mix will be determined by asset owners, but MISO is evaluating potential impacts to ensure continued system reliability and market efficiency



**MISO and Entergy
Generation Assets**