



Midwest ISO Market Changes and Challenges



Presented by Paul Spicer
WIEG Meeting - November 5, 2009

Outline

■ Major Changes

- Load reduction and price decline
- Ancillary Service Market launch
- Module E “Capacity Market”

■ Significant Challenges

- Wind integration
- Regional transmission
 - Construction, and
 - Cost allocation



Major Changes

- Load reduction and price decline

Load and Weather Patterns



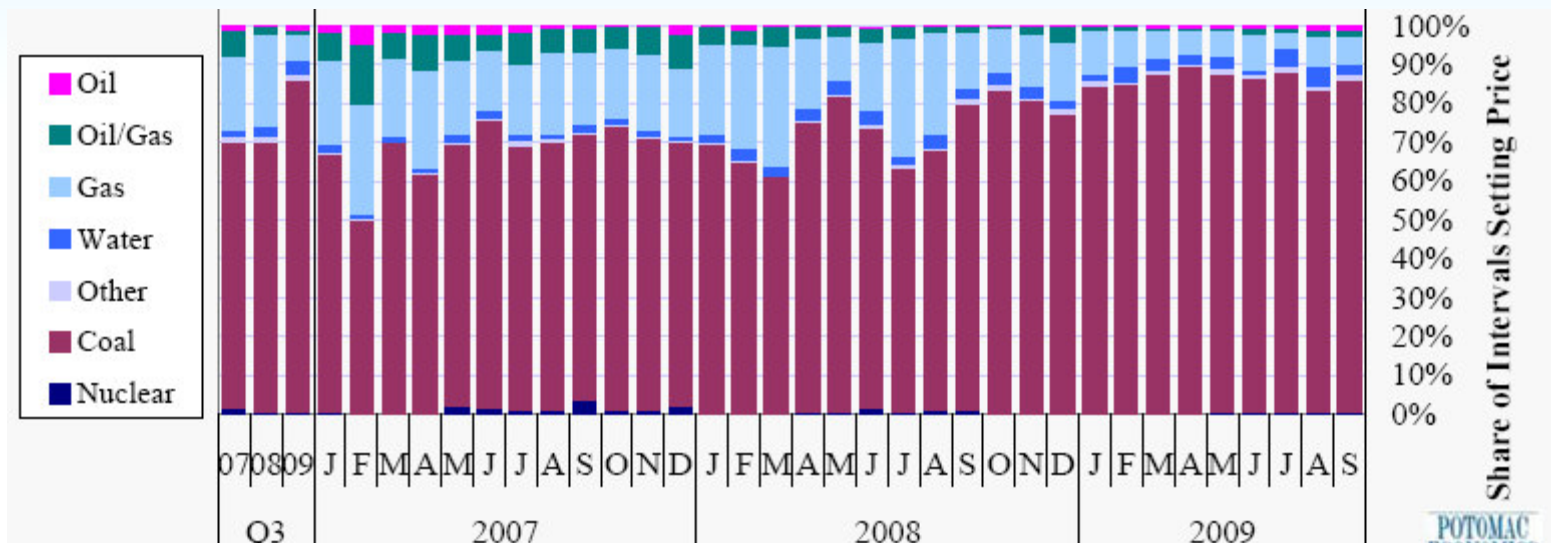
Source: Potomac Economics



Major Changes

- Load reduction and price decline

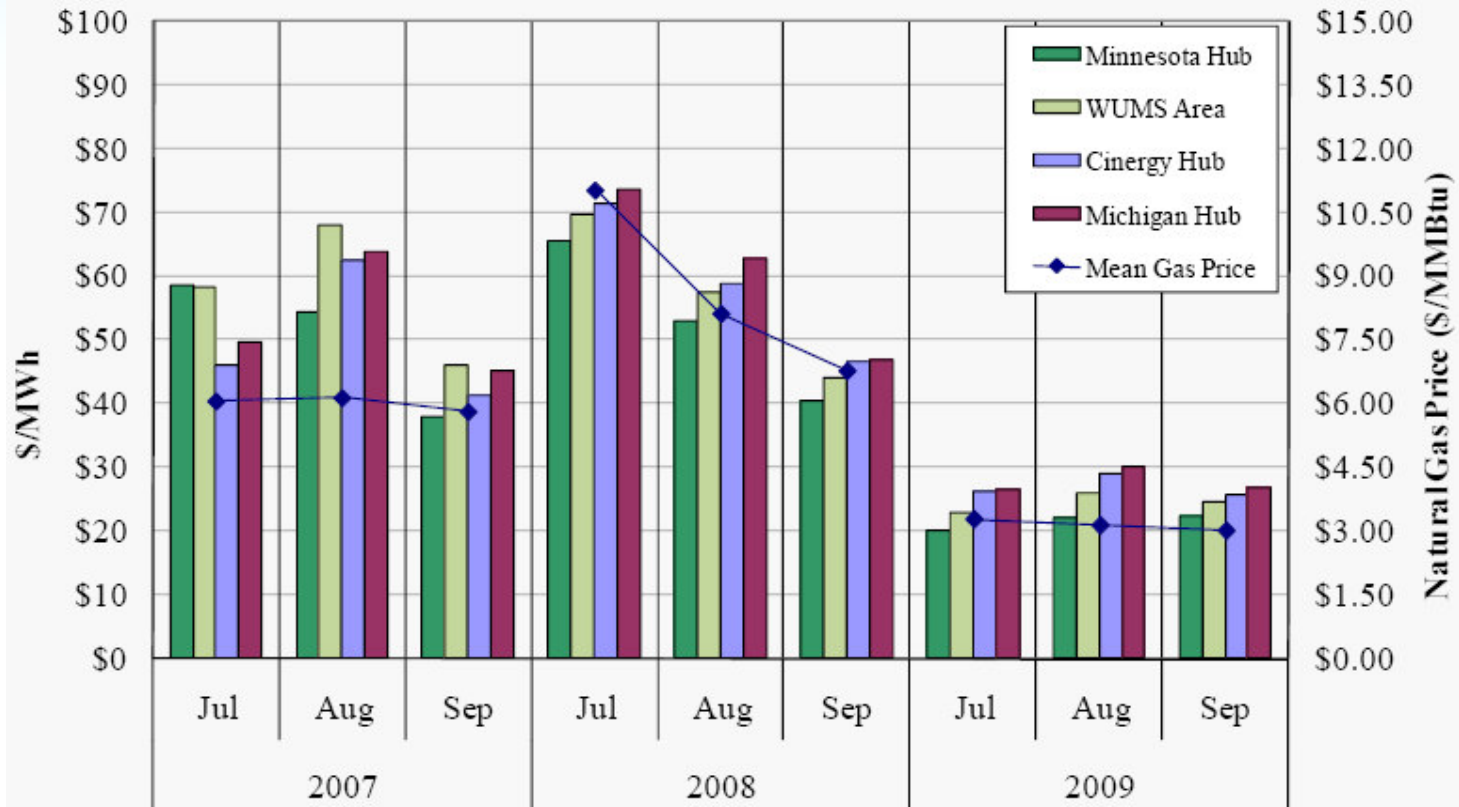
Fuel on the margin in MISO



Major Changes

- Load reduction and price decline

Day-Ahead Average Monthly Hub Prices All Hours

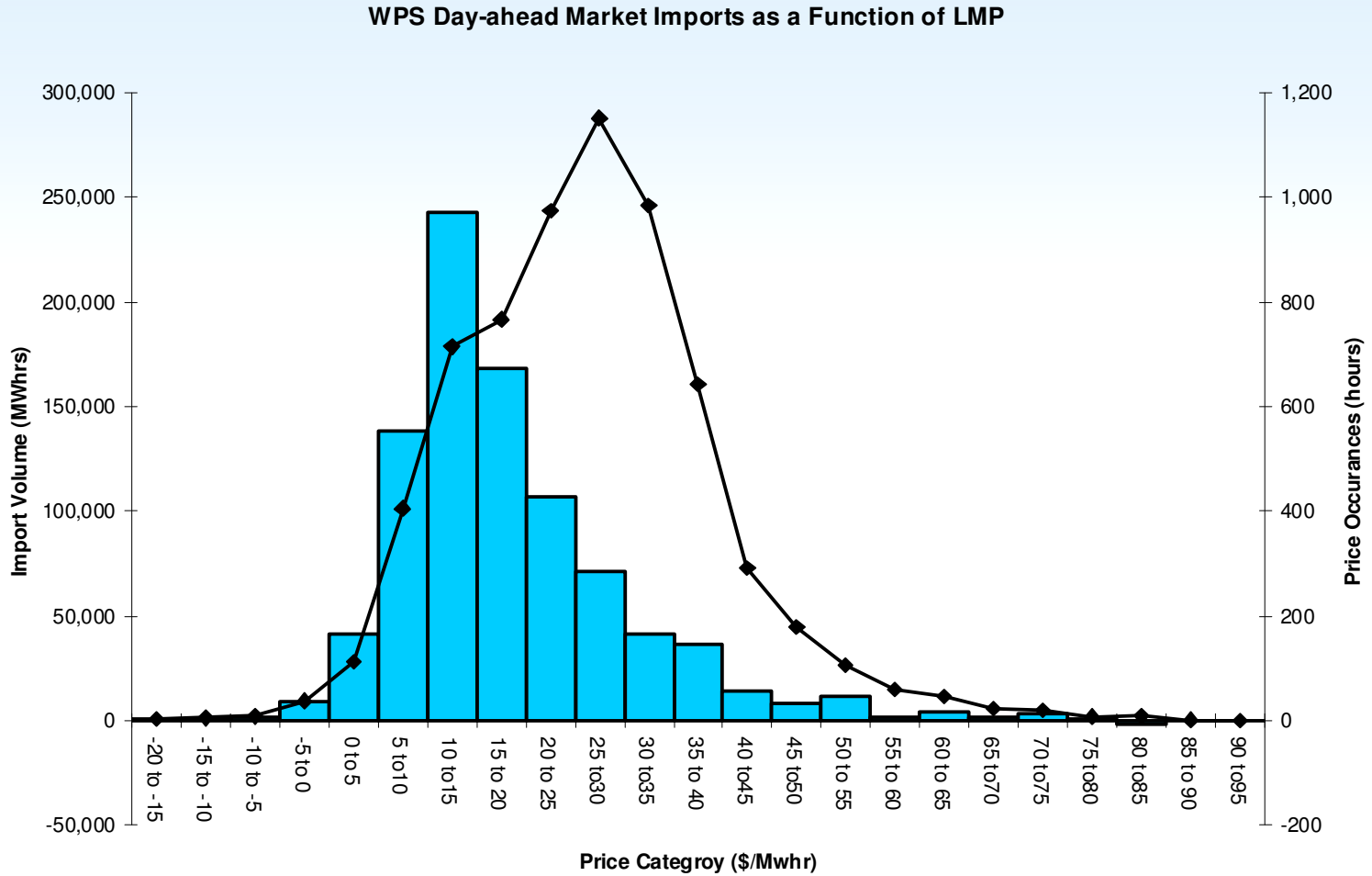


Source: Potomac Economics



Major Changes

- Load reduction and price decline



■ Imported Energy (left axis) ◆ Price Occurrences (right axis)



Major Changes

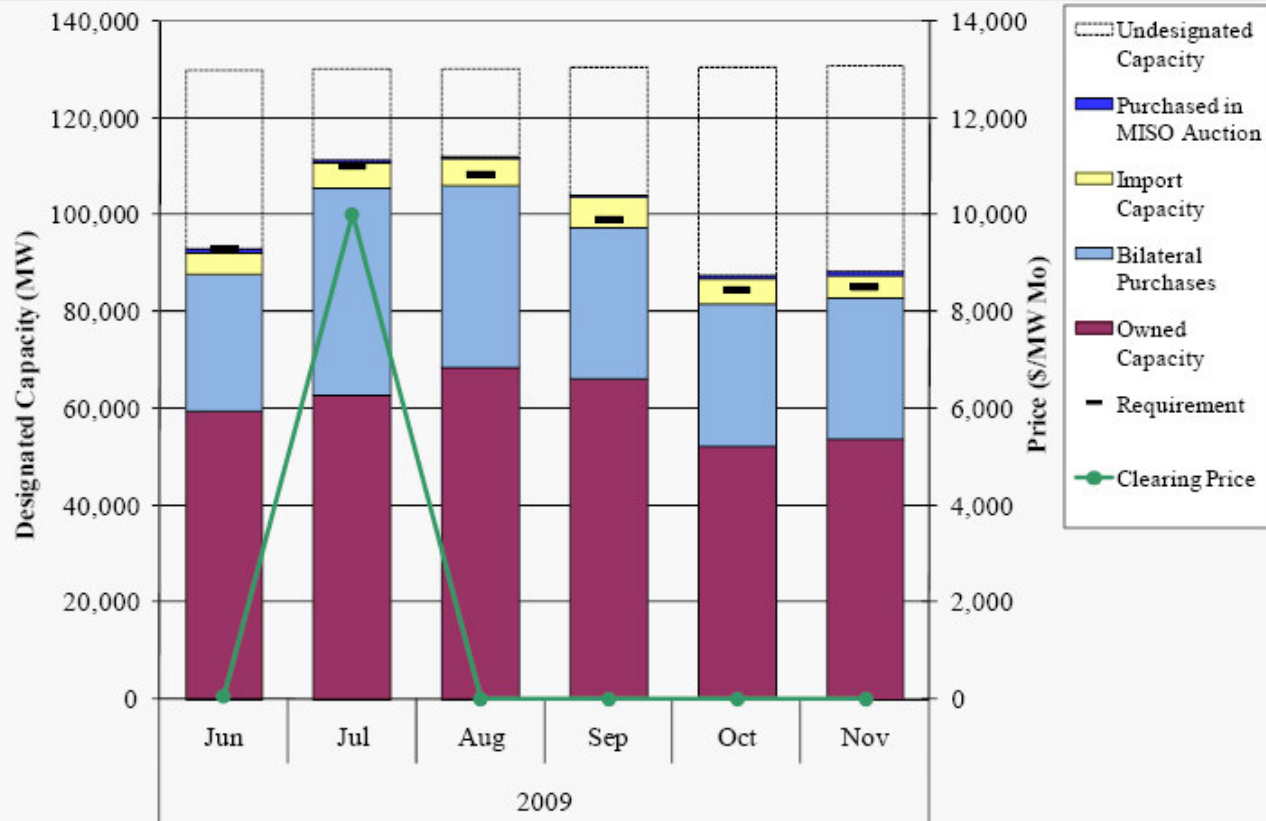
- Ancillary Service Market Launch
 - January 6, 2009
 - Critical for reliable operation of the bulk electric system
 - Relatively minor quantities
 - 97% MWhrs are for energy and 3% are for ancillary services
 - 99.5% of market dollars are for energy and 0.5% are for ancillary services



Major Changes

- MISO “Capacity Market”

Capacity Market Results June to November 2009



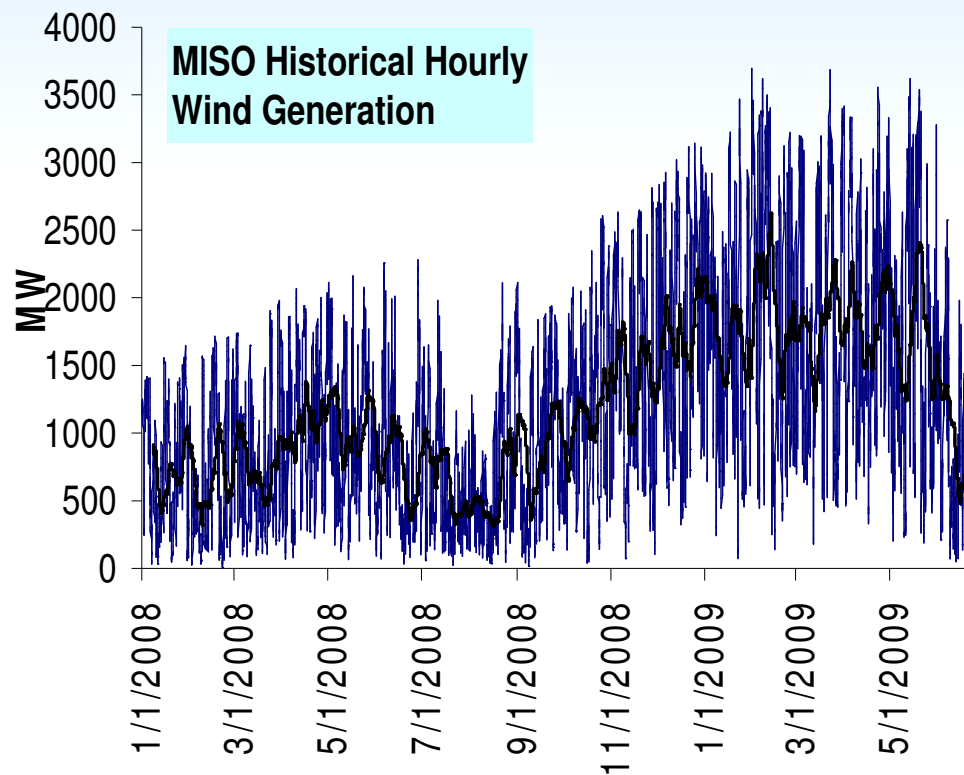
Source: Potomac Economics



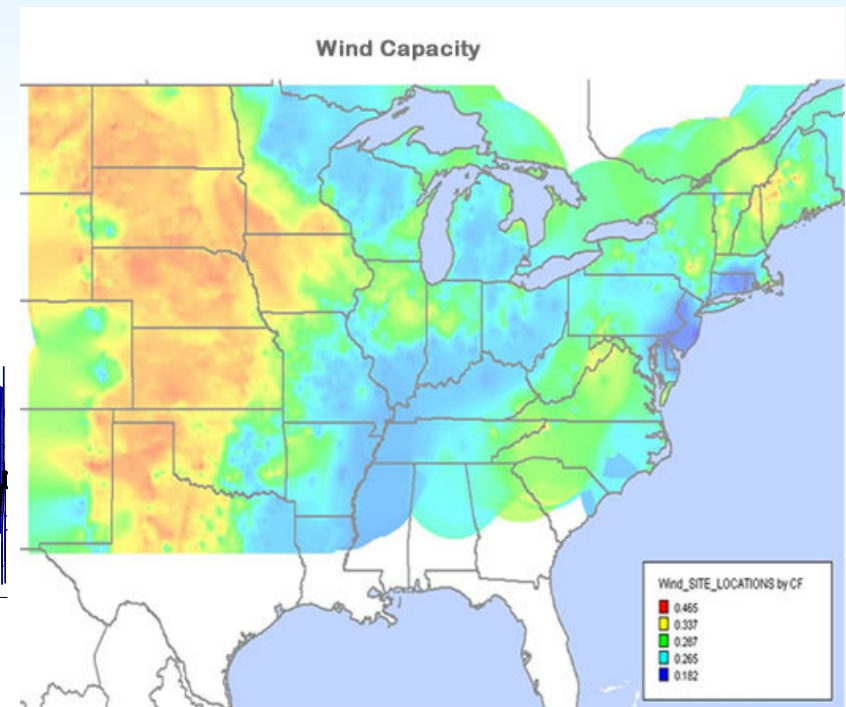
Significant Challenges

■ Wind Integration

Intermittent Supply



Concentrated in Remote Areas



Source: Midwest ISO

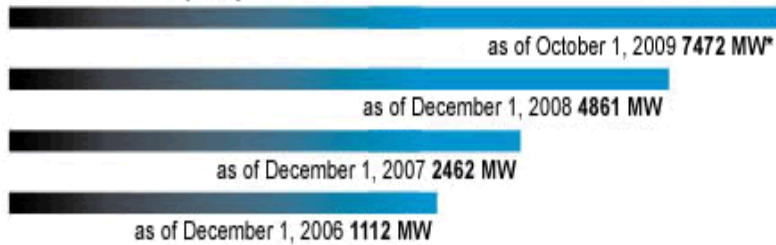


Significant Challenges

■ Wind Integration

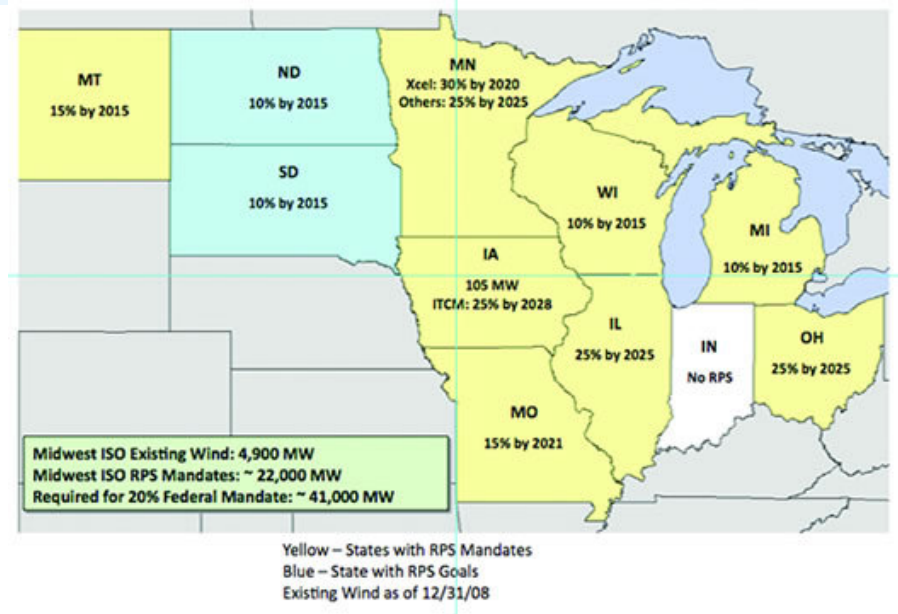
Increasing penetration

Total installed capacity



**Projected value subject to changes in federal tax credits, turbine availability, project financing*

Much more to come



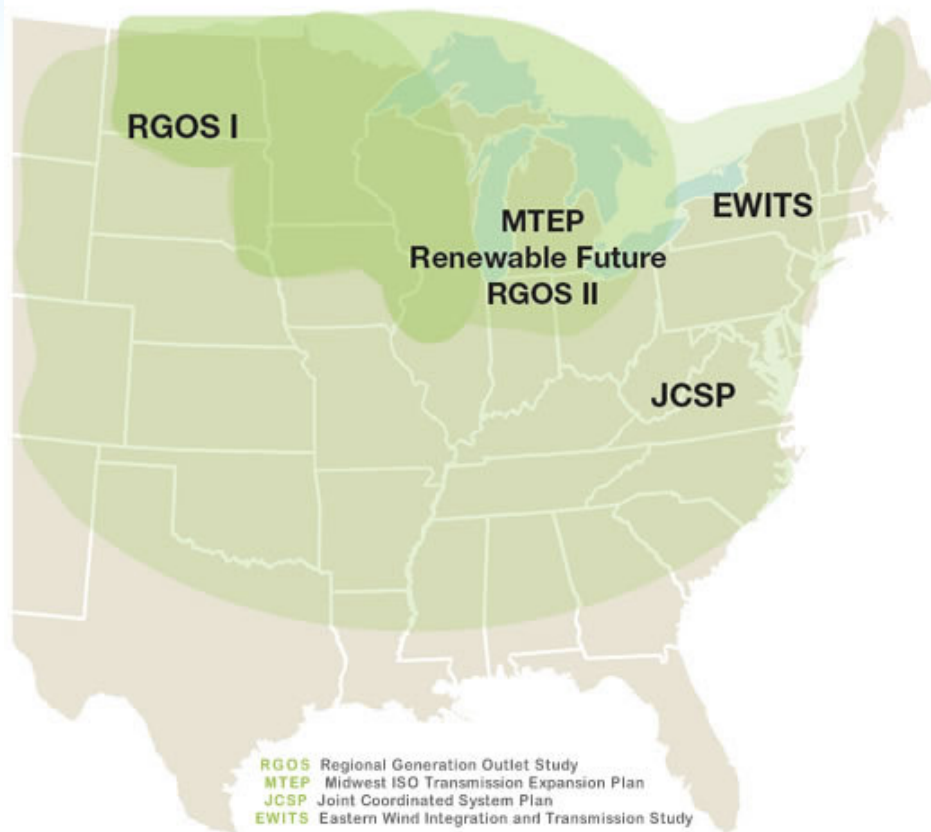
Source: Midwest ISO



Significant Challenges

■ Transmission

Planning/design studies



Cost allocation issues: Who should pay?

- (A) Generators
- (B) “Beneficiaries”
- (C) Everyone pays
- (D) Combination of the above



Questions?

