



What Drives Electricity Prices?

Ohio Clean Energy Transmission Summit

Bob Bradish

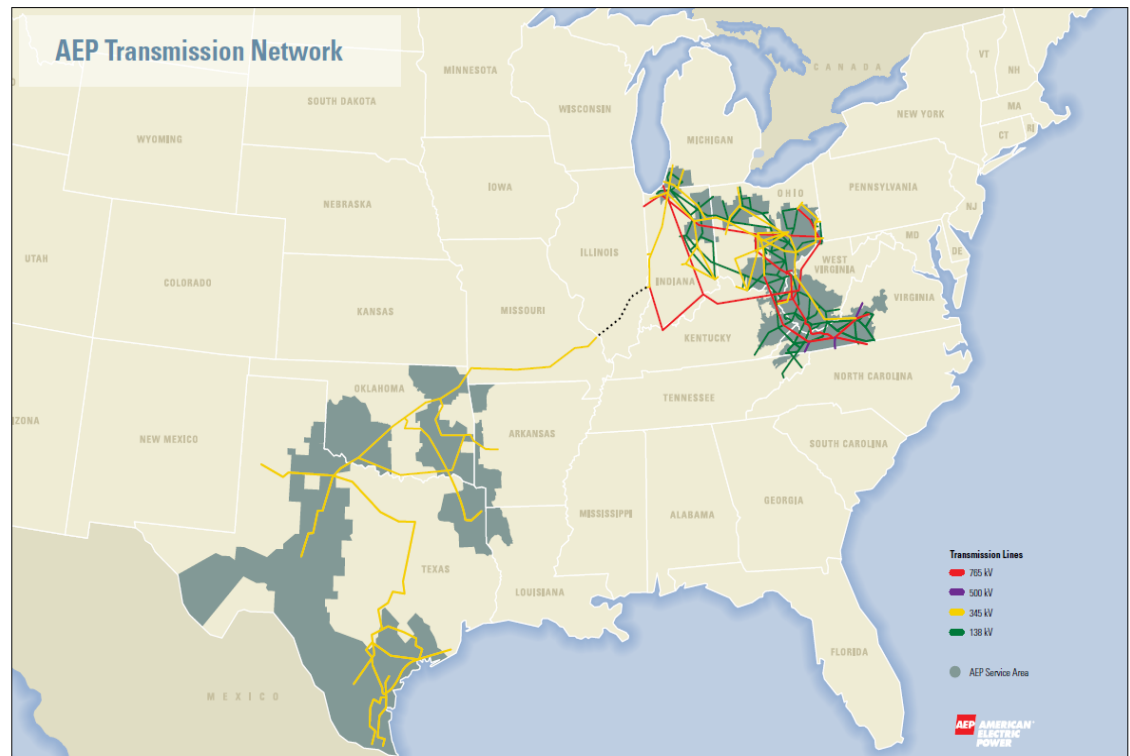
Vice President, Transmission Grid Development

American Electric Power



American Electric Power

- 5.2 million customers in 11 states
- Largest transmission owner
 - 39,000+ miles
- Operate in 3 RTOs
 - PJM, SPP and ERCOT

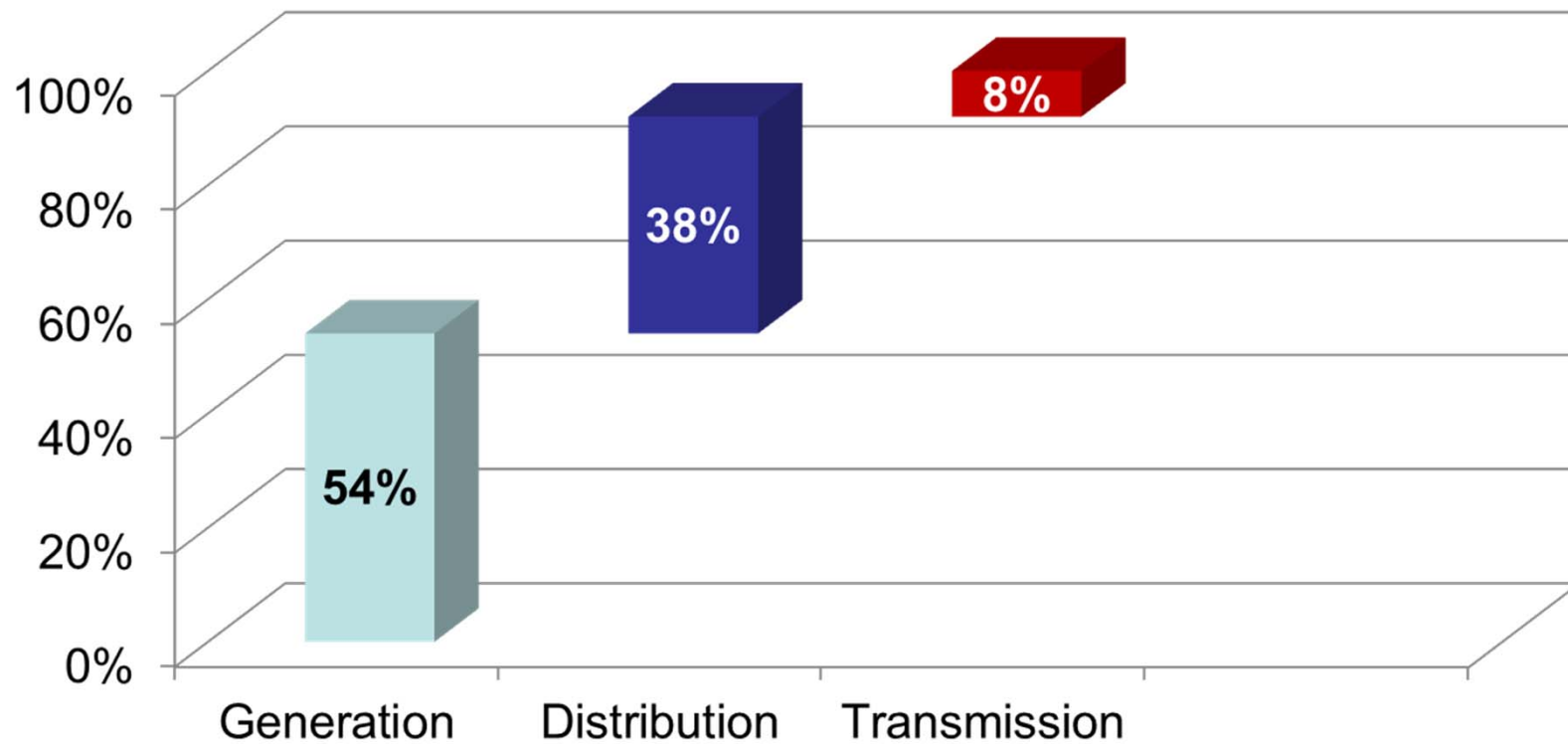


Wholesale Markets

- Energy
 - Day-ahead
 - Real time
- Capacity
 - Reliability Pricing Model [RPM]
- Ancillary Services
 - Reserves
 - Regulation
 - Black Start
 - Reactive Power
- Transmission Service
 - Network integration service
 - RTO Regional Enhancement
 - RTO Administrative
 - Marginal losses



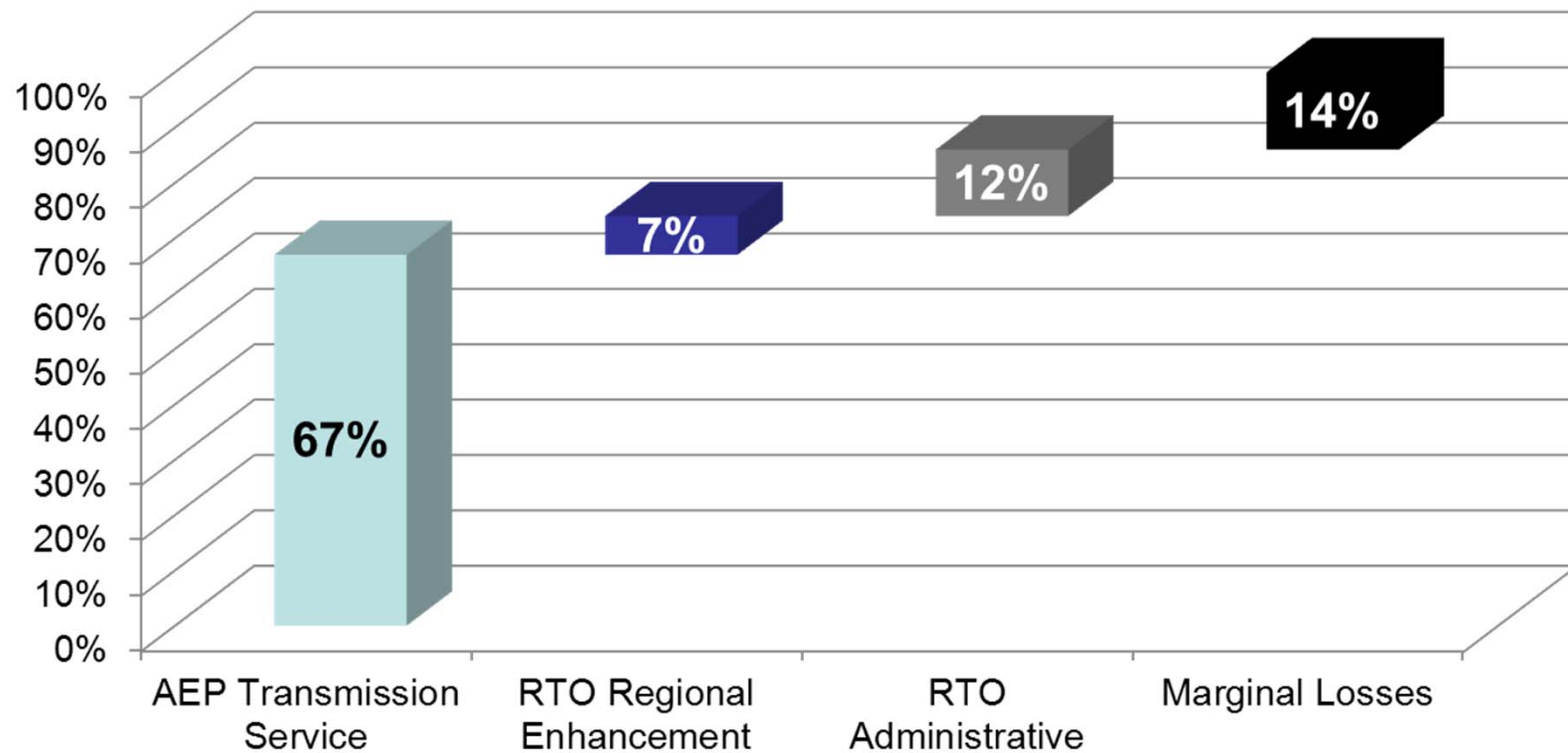
Share of Customer's Bill



Transmission service is a small component of the total bill.



Break Down of the 8% Transmission Cost Component



AEP's transmission service cost is less than 6% of the bill.

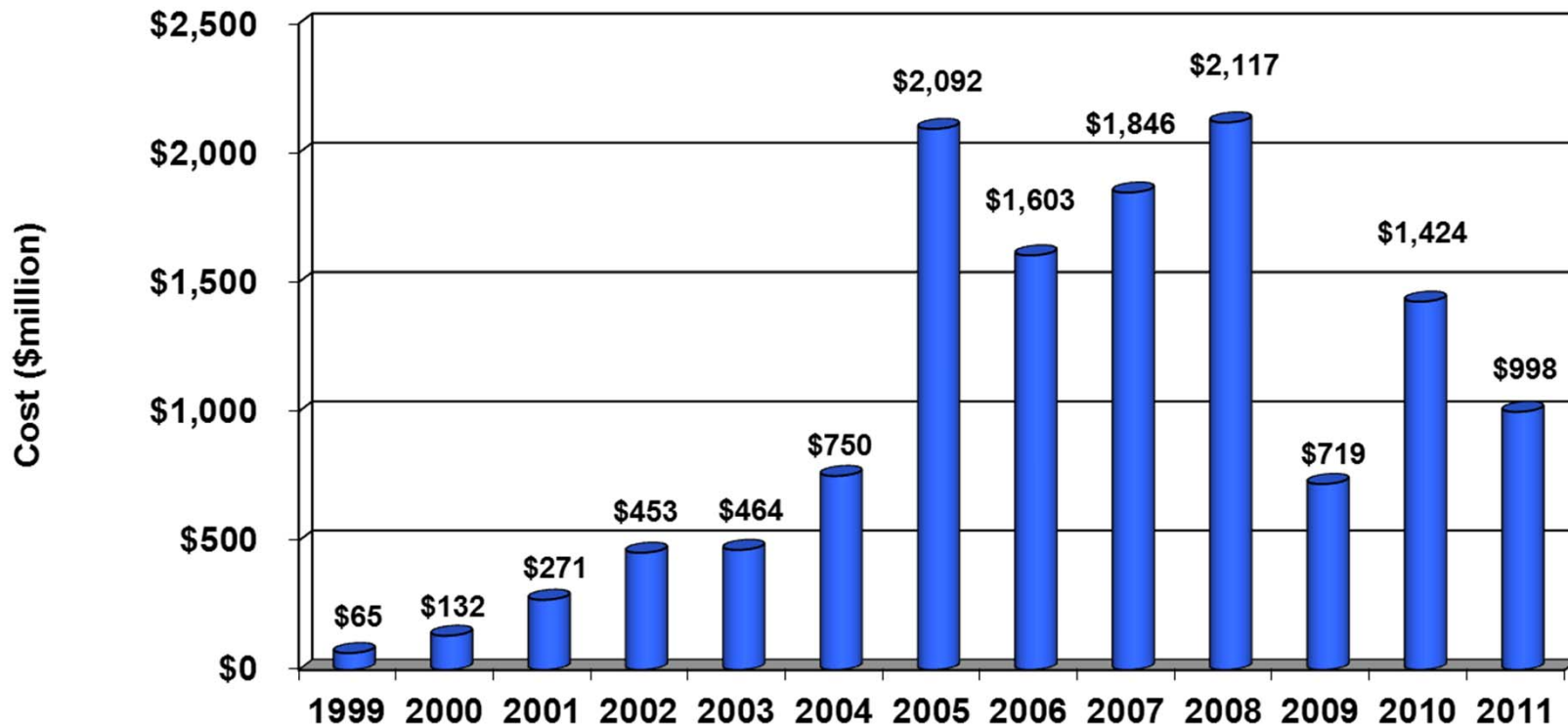


Role of Transmission Today

- Transmission plays an expanded role in today's environment:
 - Accommodate load growth
 - Accommodate generation development
 - Provide highly reliable system
 - Improve market efficiency
 - Reduce congestion and losses
 - Provide transfer [import and export] capability
 - Access to location constrained resources
 - National security
 - Support wholesale market liquidity
 - Provide margin to operate and maintain the system



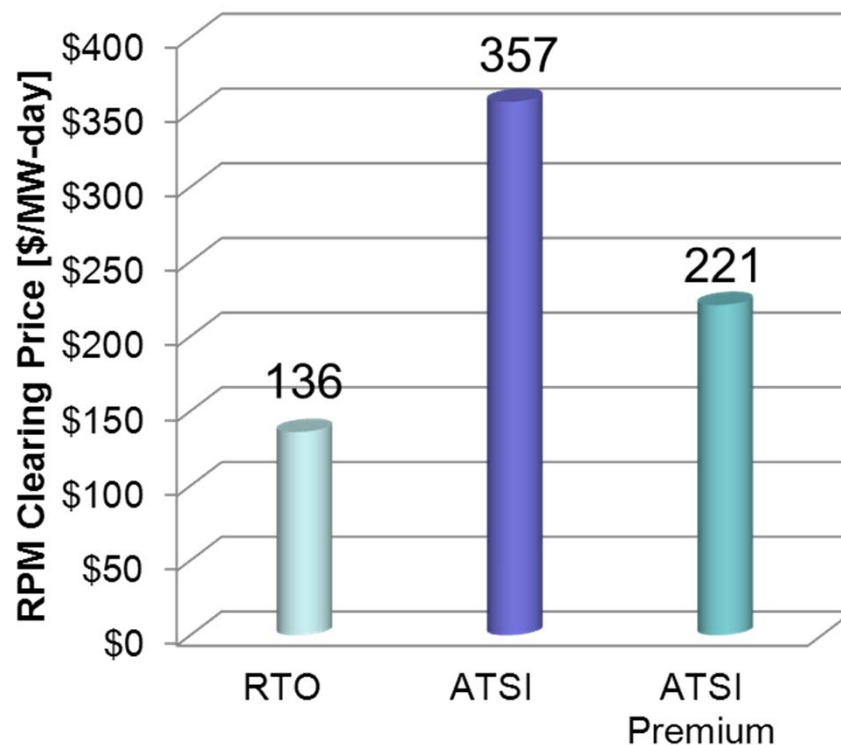
PJM Annual Congestion Cost



Congestion cost indicates market efficiency opportunity for Transmission.



Recent Capacity Market “Congestion”

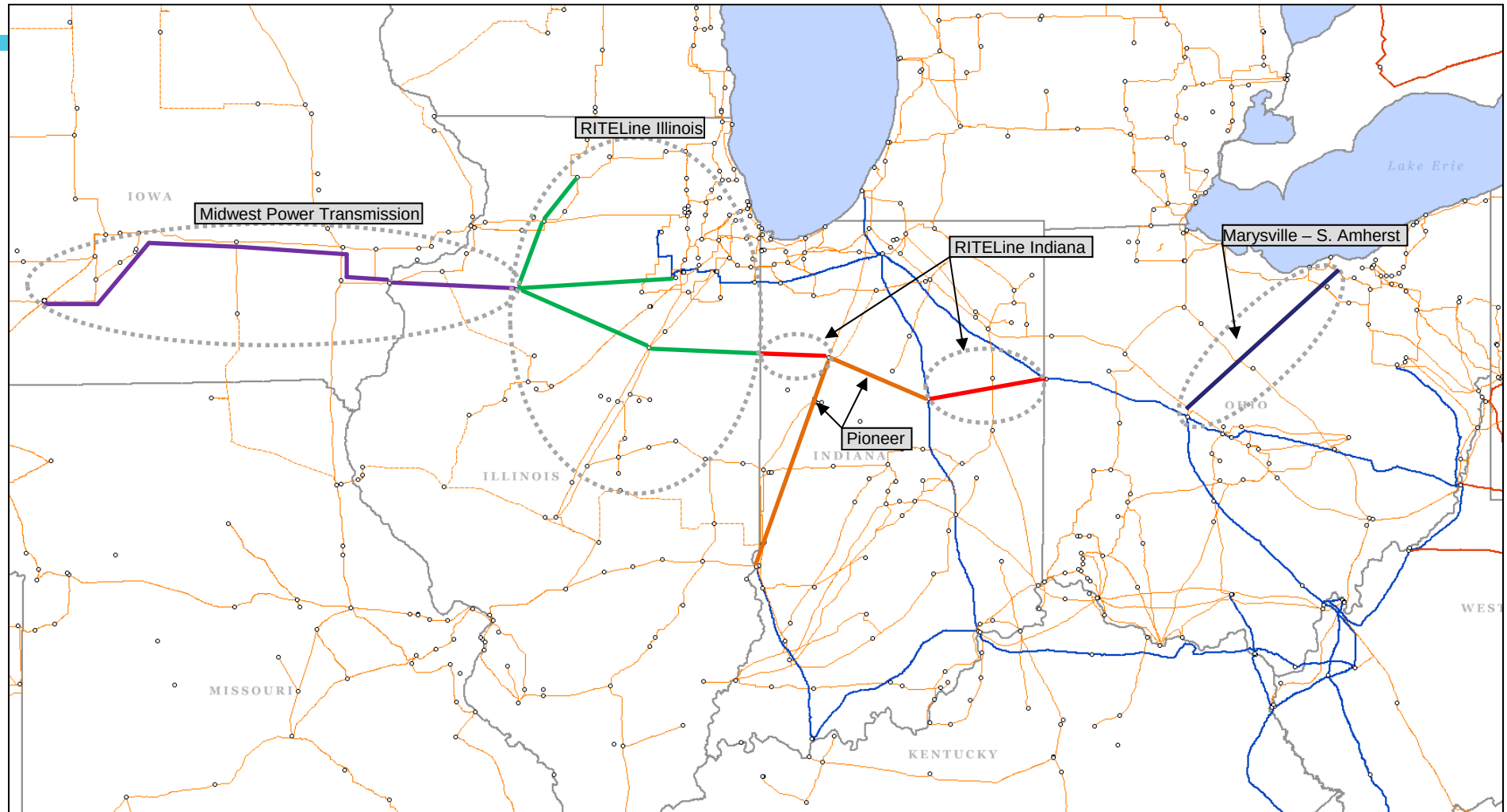


- Annual value of premium is about \$860M
- Premium driven by limited import capability
- CETL/CETO > 115%

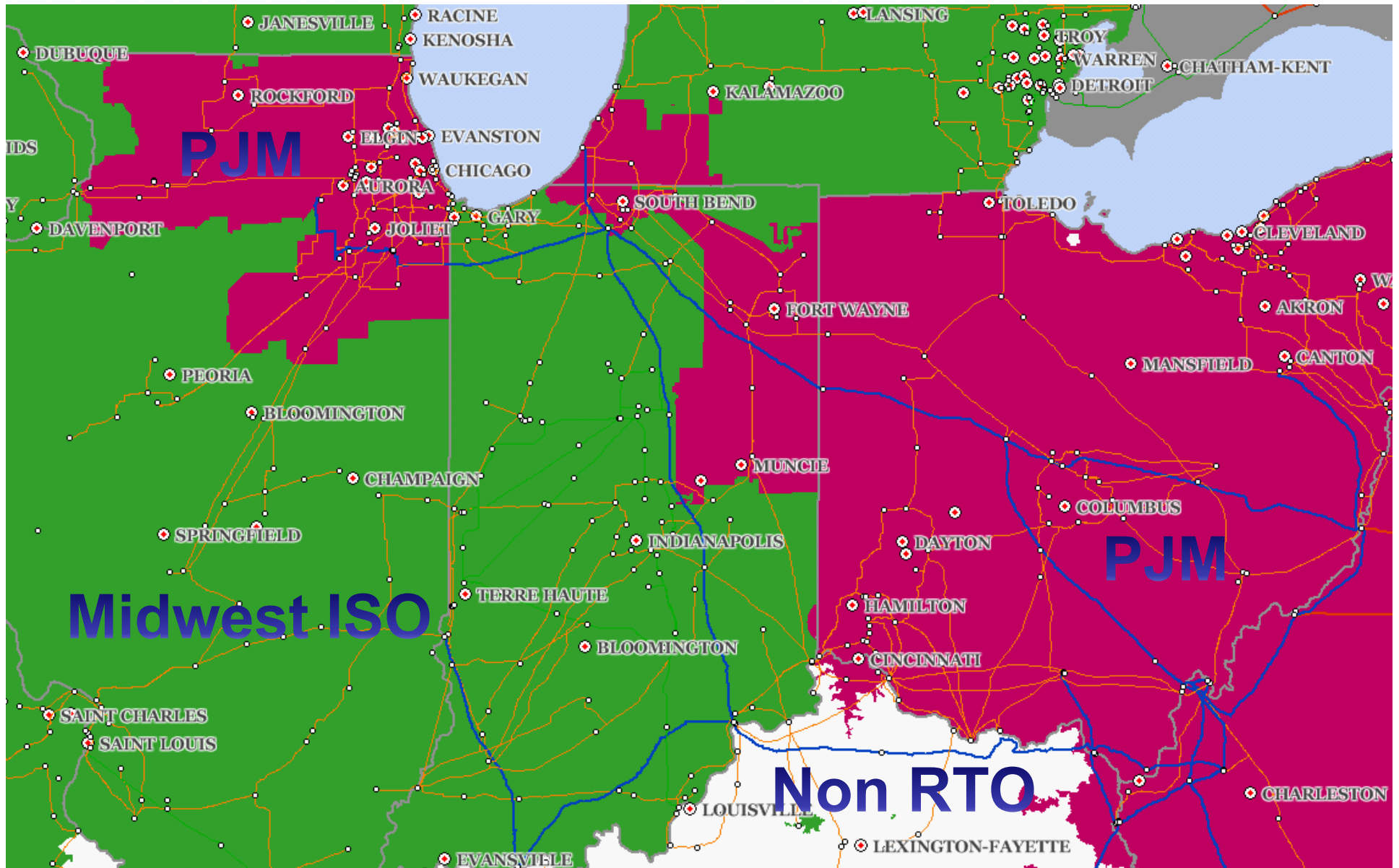
Spread in RPM clearing prices indicates opportunity for Transmission.



AEP Transmission Projects



PJM / MISO Seam Complexity



Addressing RTO Seams

- The seams between PJM and MISO are very complex and create challenges for effective and efficient development of new transmission
- PJM and MISO held their first, joint stakeholder meeting on Joint and Common Market issues along the MISO-PJM seam
 - July 16, 2012
- As a next steps, RTOs are seeking additional input from stakeholders on challenges related to three key areas:
 - Market Operations
 - Transmission Planning
 - Resource Adequacy



PJM Planning Process Changes

- Today's planning process provides for reliability solutions coupled with market efficiency solutions
 - Reliability solutions are developed first
 - Market efficiency solutions [1.25 B/C ratio] are developed incrementally
- Future multi-driver projects could involve
 - Reliability and market efficiency
 - Reliability and public policy
 - Market efficiency and public policy
 - Reliability, market efficiency, and public policy
- Other drivers may also be addressed
 - Aging infrastructure
 - Operational performance



Regional Cost Allocation Proposal

- Distinguish between Regional Extra High Capacity (EHC) Projects and Lower Capacity Projects
 - Double circuit 345kV and 500kV and above projects treated as Regional Extra High Capacity
 - Regional Extra High Capacity Projects allocated using hybrid approach
 - 50% allocated to identified beneficiaries
 - 50% allocated on postage stamp based on non-coincident zonal peak load ratio share
 - Lower Capacity Projects allocated to identified beneficiaries
- Further changes driven by enhancements to the planning process



Value of Transmission

- Lowers system wide energy costs
- Facilitates competition for customers and lower costs
- Provides access to and integration of new domestic energy sources
- Increases efficiency
- Improves system reliability

