

Transmission Planning and Cost Allocation Efforts in the Midwest

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State-Federal RPS Collaborative Project

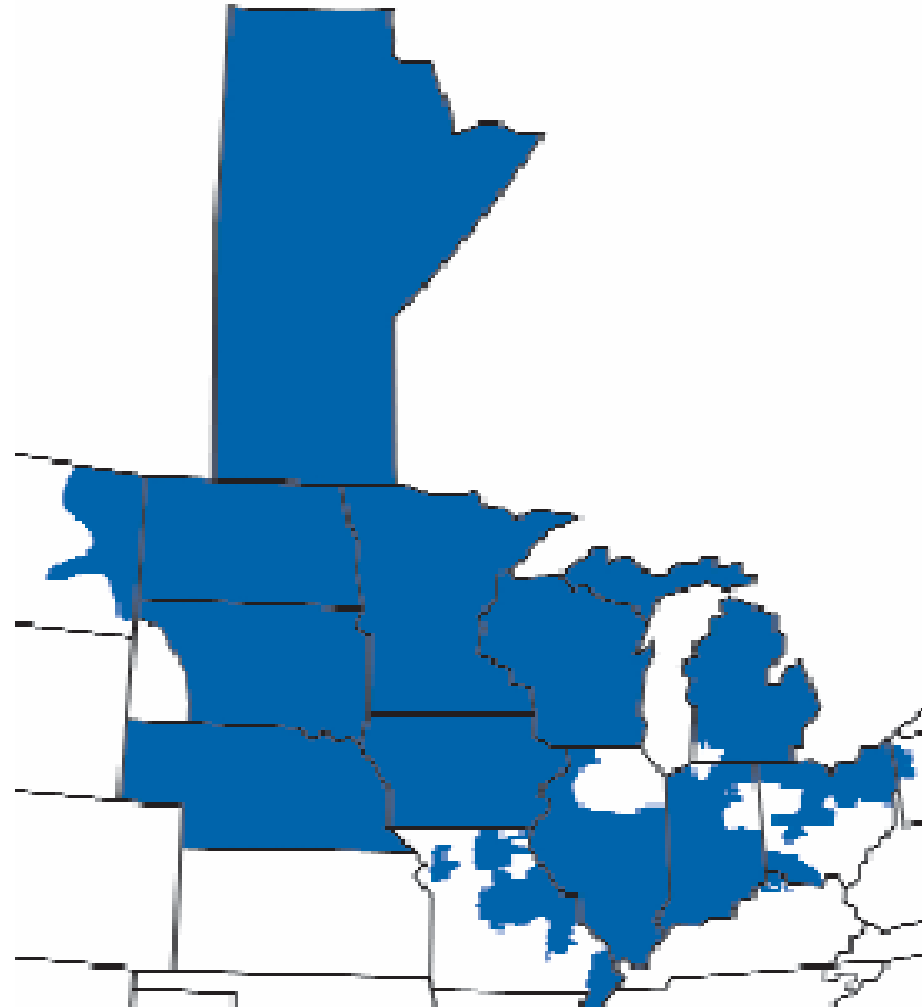


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Wind on the Wires

Background on Wind on the Wires

- **Organized** in 2001 to overcome the barriers to bringing wind power to market in the Midwest. WOW is the Midwest regional partner of the American Wind Energy Association (AWEA)
- **Work in 3 areas**: technical, regulatory/legislative, education/outreach
 - **Technical** – work with electric utilities and Midwest Independent System Operator (MISO – regional “grid” operator) on transmission planning for wind
 - **Regulatory/legislative** – actively promoting state and regional policies and decisions to advance wind power
 - **Education/outreach** – speak to many people and groups about our work and issues
- **Support** – Foundations and membership dues.
- **Members** – Wind developers, environmental and community energy advocates, goods & services providers.

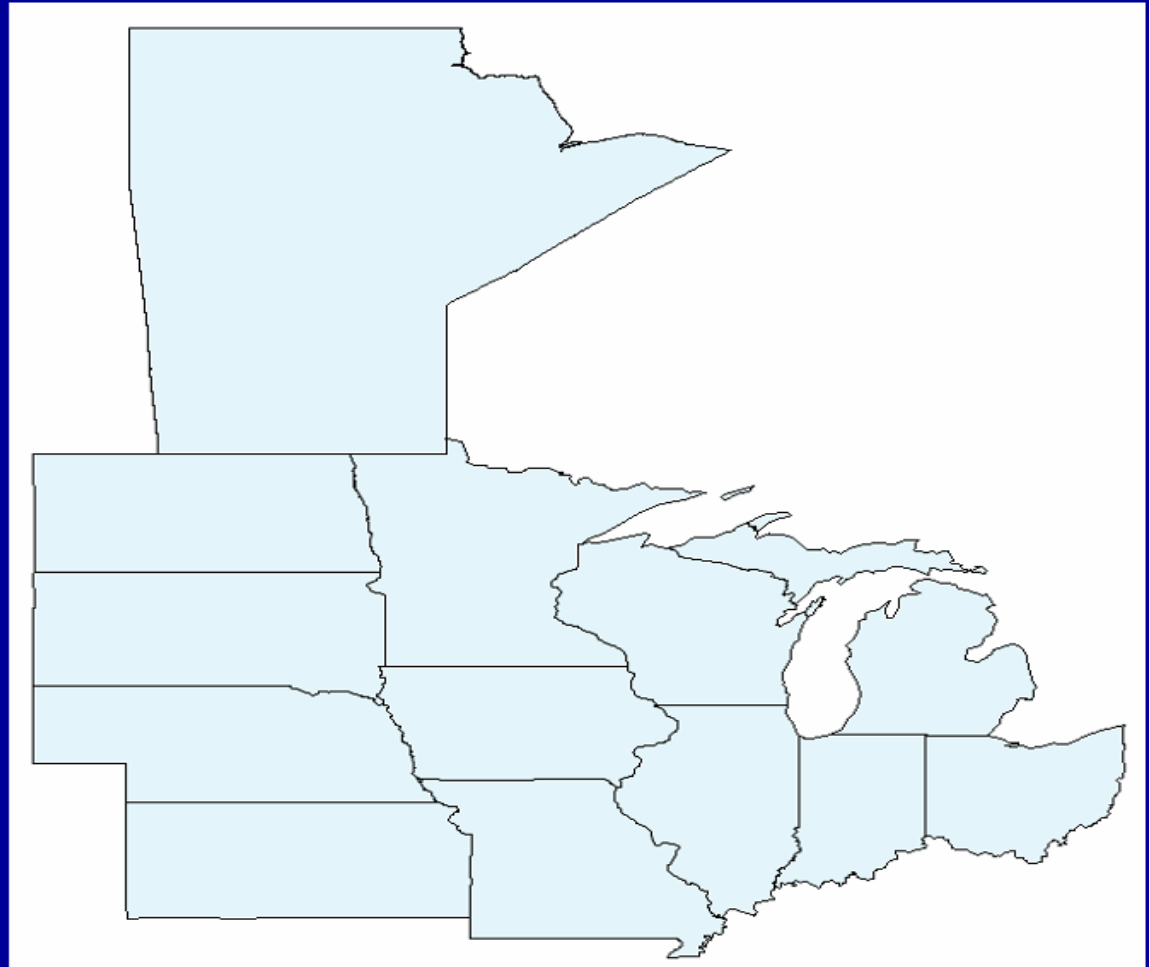
WoW has a similar footprint as the Midwest Independent System Operator...



Midwestern Governors Association

12 States

- Illinois
- Indiana
- Iowa
- Kansas
- Michigan
- Minnesota
- Missouri
- Nebraska
- North Dakota
- Ohio
- South Dakota
- Wisconsin



12-State MGA Footprint plus Manitoba

... and the MGA.

What's driving the case for wind in the Midwest?

- Need to reduce environmental & climate impacts from energy production
 - Wind is our most reliable cost-competitive carbon-free generation resource
 - Energy efficiency and wind energy have to be the foundation of any cost-effective climate strategy
- Economic development
 - Benefits to rural economies
 - Green jobs, green economy

Resulting Policy Commitments

- Midwest state renewable electricity standards
 - Current state commitments < 30,000 MW by 2025
 - Ill, MN, IA, WI, OH, MI, MO
- Midwest Governors Association - 2007
 - Regional commitment to 30% renewable electricity by 2030
 - Over 90,000 MW installed in the next 22 years
 - Consistent with DOE/AWEA/NREL 20% National Vision

Renewable Requirements & Goals

	RPS Requirements	Estimated RPS Demand
Iowa	2% by 1999	105 MW
Illinois	25% by 2025	10,000 MW
Michigan	10% by 2015	1,100 MW
Minnesota	25% by 2025	6,000 MW
Missouri	15% by 2021	3,000 MW
Ohio	12.5% by 2015	6,000 MW
Wisconsin	10% by 2015	1,500 MW
North Dakota	Goal 10% by 2015	350 MW
South Dakota	Goal 10% by 2015	350 MW
MGA Goals	Goal 30% by 2030	90,000+ MW

Transmission – the major barrier

- To accomplish those goals, we need to a regional transmission network.
- *If you love wind energy, you have to at least like transmission!*

Transmission for Wind

The problem

- Best wind resources far away from load
- Transmission system not designed to:
 - Export wind from low load regions that have the highest capacity wind resources
 - Carry wind power long distances
- Where will the new wind farms be located?
- Who pays for new transmission?

Note: New transmission lines will be needed regardless of resources choices. We don't have enough capacity to serve expected load growth and maintain a reliable grid.

How is the Midwest coming up with a Solution?

Transmission Planning efforts

- MN RES transmission planning effort
- MISO Regional Generator Outlet Study
- MISO Transmission Expansion Plan
- Joint Coordinated System Plan and Eastern Wind Integration Study

Multiple efforts to address cost allocation

- Upper Midwest Transmission Development Initiative
- Organization of MISO States
- MISO RECB Task Force



Renewable Energy Zones

- **Integrated** – planning for wind power along with other generating resources
- **Aggregated** – large amount of wind power rather than one wind farm at a time
- **Coordinated** – Utilities working together
- **Forward looking** – plan infrastructure today for large amounts of wind power

A Promising Regional Example – Midwest ISO Regional Generation Outlet Study (RGOS)

- Midwest ISO, working with utilities, developers and other technical stakeholders
- Jointly analyze scenarios of potential wind zones and corresponding transmission upgrades needed to support the Renewable Electricity Standards of Minnesota, Illinois, Iowa, and Wisconsin
- Comparing delivered energy costs of local and remote development scenarios
 - Local wind requires shorter transmission upgrades, but has higher wind costs
 - Remote wind is less expensive, but requires longer lines for delivery

Upper Midwest Transmission Development Initiative (Sept. 2008)

- Organized by Governors of Iowa, Minnesota, Wisconsin, North Dakota and South Dakota
- Will work to identify renewable resource areas in the region and develop transmission infrastructure needed to support development of those resources cost-effectively
- Will develop cost allocation plan for transmission
- Will coordinate closely with regulators, Midwest ISO and other stakeholders

MISO's Current Cost Allocation

- **RECB I** – Reliability projects and Generator Interconnection Projects
 - Reliability Projects must meet cost thresholds
 - Above 345 kV costs are postage stamped 20% to MISO, and 80% to subregions based on beneficiary analysis
 - 100 kV - 344 kV costs are postage stamped to subregion
 - Generator Interconnection projects are charged 50% to generator and 50% on same basis as reliability projects
- **RECB II** – Regionally Beneficial Projects (economic)
 - Must meet certain cost/benefit ratios, and cost thresholds
 - 345 kV and above
 - Postage stamped 20% to MISO and 80% to subregions based on beneficiary analysis
 - To date no projects have been approved for cost sharing

Other Cost Allocation Approaches

- **Postage Stamp** – charge all customers across the MISO footprint equally to support upgrades.
- **Balanced Portfolio** – Southwest Power Pool has approved this approach. A portfolio of projects is approved together for cost sharing on a postage stamp basis, when the portfolio shows benefits for all regions.
- **Injection and Withdrawal charges** – Currently MISO charges only load for use of the transmission lines. A method of charging both loads and generators could address the remote resource problem.

Contact Information

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