

## ***MIDWESTERN WIND ENERGY: MOVING IT TO MARKETS***

**July 31 – August 1, 2008  
Dearborn, MI**

### **MEETING SUMMARY**

Over 170 leaders participated in the *Midwestern Wind Energy: Moving It to Markets* forum, co-hosted by the Midwestern Governors Association (MGA), and the National Wind Coordinating Collaborative (NWCC). Policymakers, wind and transmission developers, regulators, renewable advocates, and representatives of utilities, environmental groups, and state, federal, and tribal agencies convened to discuss ways to expand markets for wind power in the Midwest. Drawing on the Midwestern Governors' *Energy Security and Climate Stewardship Platform for the Midwest*, participants discussed ways to implement the transmission elements of the platform and considered the contributions that Midwestern wind power can make towards achieving 20% wind power in the region and nationwide.

Conference presentations are online at <http://www.nationalwind.org/events/meetings/windenergy.htm>. A brief summary of each session appears below. The summit agenda and final participant list appear in the appendix.

#### **I. Welcoming Remarks**

**Governor Jennifer Granholm** of Michigan welcomed the participants to the meeting and emphasized the importance of the expansion of wind energy not only to the Midwest, but also to the state of Michigan. She observed that Michigan is facing significant economic challenges and that the development of renewables and wind represents enormous job opportunities for the state and the region. Asserting that it is imperative to create demand for wind energy, she pointed out that governments have a role to play in formulating policy to stimulate that demand and to provide incentives for renewables. In particular, she cited the need to pass legislation establishing a renewables portfolio standard (RPS) in Michigan. She also mentioned Michigan's potential with regard to other renewables, such as biofuels and lake current energy.

As vice chair of the MGA, Governor Granholm highlighted the potential for Midwestern wind power to contribute to achieving the goal of 20% wind power by 2030, adding that the latest numbers indicate the Midwest could produce as much as 10 GW of wind. Furthermore, the Midwest is uniquely positioned in terms of wind turbine manufacturing potential, with the available infrastructure and work force and automobile manufacturers looking to diversify. In anticipation of the establishment of a national carbon tax, Governor Granholm noted the potential for the regions to pilot some of the solutions to the problem of carbon emissions. The Midwest could be a leader in creating a regional

cap and trade system for carbon and in fostering systems for carbon sequestration and storage. With an eye towards leading the nation in finding solutions to climate change, the Midwest could greatly benefit from building a green economy that could help replace the manufacturing jobs lost in recent years.

**Abby Arnold**, National Wind Coordinating Collaborative (NWCC) Senior Mediator, greeted the participants and gave an overview of the conference agenda. She also gave a brief introduction to the NWCC. The NWCC is a consensus-based collaborative that identifies issues affecting the use of wind power, establishes dialogue among key stakeholders, and catalyzes activities to support the development of environmentally, economically, and politically sustainable commercial markets for wind power. Its Transmission and Wildlife Workgroups bring together diverse groups of stakeholders to identify and address issues confronting wind power in these two critical areas. The NWCC has also recently established the Environmental Benefits and Costs Workgroup to document and compare the environmental effects of wind in relation to other energy generation technologies.

## **II. Midwestern Wind Power Context**

**Barry Matchett** of the Environmental Law and Policy Center introduced the group to the state of wind power in the Midwest. He set the stage with the observation that the U.S. has the wind resource potential to meet and exceed the country's demand for energy. He cautioned, however, that when the Production Tax Credit (PTC) lapses, wind installations tend to decrease. Of the wind capacity currently operating or in development in the U.S., installations are concentrated in Texas and in upper Midwestern states. In terms of economic benefits, major facilities would have the potential to create several thousand jobs. The economic benefits of renewables will further improve, however, as a value is placed on carbon emissions. Mr. Matchett enumerated five key drivers of wind development:

- Policy (RPS is generally the best driver)
- Good wind resources
- Regional support for wind interconnection
- Tax stability at the local level
- Transmission capacity

Mr. Matchett then reviewed the status of wind development in Midwestern states, including North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Michigan, and Ohio. In summary, he noted that the Midwest is in a position to drive the wind industry. In the eastern states of the Midwest, such as Indiana and Michigan, RPS policies are needed to drive more development. In the western states, transmission policies will be essential to wind development. Additional important drivers in the region will be reconciling the question of funding for wind development and the creation of a federal carbon policy.

### **Questions & Answers**

Mr. Matchett offered the following responses to participants' questions:

- **Need for RPS as a driver:** Given the existing value of wind power in South Dakota, North Dakota, Nebraska, and Kansas, an RPS might not be the most effective tool; the need is rather for improved transmission. In general, if there is a value on carbon, then utilities with coal plants will need to look to other low-cost options, such as wind. In this way, the carbon market and development of alternative energy work hand-in-hand.
- **Renewable energy objectives:** A participant commented that renewable energy objectives (REOs) - a voluntary objective with mandatory reporting on progress to the public utility commission - might be more effective than mandatory goals in certain states. Mr. Matchett agreed that REOs can be a good driver, maintaining, however, that the best solution is a federal RPS that would apply to all.
- **Other policy structures:** Asked about advantageous and disadvantageous policies for wind, Mr. Matchett cited the importance of a clear policy establishing stability for rate recovery on investment; a clear process for interconnection; and a standardized, well-controlled, and affordable grid as precursors for wind development. It is important, he added, to create well-balanced policies that do not disproportionately favor one set of interests.

### **III. National Wind Power Context**

**Ed DeMeo** of Renewable Energy Consulting Services, Inc. gave an overview of the U.S. Department of Energy's (DOE) report [20% Wind by 2030](#), which describes the scenario of 20% electric energy from wind, its potential costs and benefits, and the hurdles that would need to be overcome in order to achieve such a scenario. The study was based on a DOE / National Renewable Energy Laboratory (NREL) generation expansion model and the conclusions of a collaboration of over 100 experts. The report concludes that the 20% wind scenario is feasible, offers substantial net benefits (with significant economic development opportunities in the Midwest), and requires a departure from the business-as-usual scenario in order to realize wind's potential. For more information, Mr. DeMeo referred participants to [www.20percentwind.org](http://www.20percentwind.org).

**Hans Detweiler** of the American Wind Energy Association (AWEA) discussed the policies needed to achieve 20% wind. He outlined the growth of wind energy in the United States and the policies that enabled that growth, particularly the Production Tax Credit (PTC) and state renewable portfolio standard (RPS) requirements. In order to achieve 20% wind, these beneficial policies will need to be expanded to more states and policies directly attacking transmission barriers must be developed.

#### **Questions & Answers**

- **Ramp-up rate:** In response to a question about the anticipated rate of growth of wind power under the 20% wind scenario, Mr. DeMeo said it is envisioned that wind would ramp up in a linear fashion to 15-16 GW per year by 2018. Currently, however, wind power is running significantly ahead of that ramp-up rate, perhaps twice as high.

#### **IV. Midwestern Governors Association Energy Security and Climate Stewardship Platform**

**Jesse Heier**, Midwestern Governors Association (MGA), gave a presentation on the MGA [\*Energy Security and Climate Change Stewardship Platform for the Midwest\*](#). The governors of the twelve MGA member states, plus the Canadian provinces of Manitoba and Ontario, signed onto the platform as well as to the Midwestern Greenhouse Gas Reduction Accord, which aims to develop a regional cap-and-trade system for carbon emissions by 2010. The platform lays out guiding principles, key strategies, and goals in four areas: energy efficiency, bioeconomy and transportation, renewable electricity, and advanced coal and carbon capture and storage. There are three MGA advisory groups currently developing and prioritizing policy options in each of these areas; their report will be prepared for the next meeting of the Midwestern governors in September 2009.

Building on Mr. Heier's presentation, **Mike Bull** of Wind on the Wires, **Kristine Schmidt** of Xcel Energy, and **Tom Stanton** of the Michigan Renewable Energy Program, who are members of the MGA Renewable Energy and Transmission Advisory Council, gave a report on the steps the Council is taking to implement the MGA platform goals. The overall goal is to maximize the energy resources, as well as the economic advantages and opportunities, of Midwestern states while reducing greenhouse gas emissions. Two key strategies relate to wind and transmission:

- Maximize the economic and reliable integration of wind energy
- Develop regional electric transmission and energy delivery capacity sufficient to accommodate the substantial increases needed in low- and zero-carbon energy production

The MGA is aiming to achieve 30% renewable electricity by 2030, which complements DOE's 20% wind vision.

Some MGA states and provinces have signed on to the Transmission Adequacy Resolution, which recognizes that transmission expansion is critical to meeting renewable energy goals. Several workgroups have been developing policies to implement the resolution and will propose a set of recommendations to the governors on the following issues:

- MISO interconnection queue reform – MISO has filed a proposed queue reform with FERC that would 1) allow for more efficient interconnection in unconstrained areas of the grid and 2) help parties move through the process when they are ready, rather than strictly in queue order.
- Transmission cost allocation and recovery – the workgroup will ask the governors to agree on principles supporting new regional transmission projects.
- State by state evaluation of expected renewable resource development – the workgroup will survey load serving entities (LSEs) to determine their renewable energy needs.
- Regional transmission plan – the workgroup will develop model legislation to that would expand commission authorities and allow them to consider public benefits at a regional scale.

The panelists also presented eight proposed policy concepts (see Attachment C) to the participants and invited their feedback on them.

The subsequent panel reflected on the above presentations and offered suggestions on the plans for MGA platform implementation. The panel was moderated by **David Hadley** of MISO and composed of the following speakers:

- **Graham Edwards**, MISO
- **Don Furman**, Iberdrola Renewables
- **Will Kaul**, CapX 2020
- **Beth Soholt**, Wind on the Wires
- **Paul Sotkiewicz**, PJM
- **Joe Welch**, ITC

The panelists offered the following advice on the changes necessary in order for transmission to accommodate renewables in general and wind in particular:

- The electric grid, which was not designed from a regional perspective, needs to be transformed into a true regional grid, like an interstate highway system. This highway should be built where the load is and where the generation will be, rather than waiting for the wind facilities to be developed.
- Cost recovery and allocation are critical to building an interstate system, and the question of who pays must be resolved.
- It is important to consider who does the allocating. State commissioners are charged to look after state interests, so the Midwestern governors have a unique opportunity to do something innovative. Unless the region's political leaders take on transmission issues, the vision will not be achieved.
- A national energy policy on carbon is needed to ascertain what transmission needs to be built.
- The system needs to account for wind's variability and allow extra costs to be hedgeable to customers.
- Wind forecasting should be implemented more robustly.
- There needs to be more flexibility in the system from the generation and the transmission sides.
- A robustly interconnected transmission grid can address many of the issues with wind power.
- Interconnection queue reform is the first issue to resolve in order to move forward.
- Queue reform should be nondiscriminatory and allow for new generators. Lack of transmission, however, is the root cause of the congestion.
- Building new transmission will be very expensive, and it will be important to have a comprehensive public policy to draw investment and reduce risk.
- In order to fund new transmission, membership in RTOs could be mandatory and all members could contribute.
- For lines that are over 500 KV, one possibility is full regional allocation of costs
- The Midwest ISO could be empowered to determine regional necessary cost allocation
- The National Interest Corridor process could be used for Midwest regional buildout

- In order to minimize the number of lines needed to build, an effort could be made to build big lines and to place them strategically
- A regional Renewable Energy Zone process (e.g., WREZ) could unify MGA and Midwest ISO efforts

### Questions & Answers

- ❖ **Funding system for transmission proposals:** Joe Welch asserted that federal funding would be ineffective. It would be more useful, in his opinion, to ensure that when transmission is planned and built there is a reasonable opportunity to recover costs.
- ❖ **PJM approach:** In response to a question, Paul Sotkiewicz said that PJM arrived at socializing the cost of the system as a result of the stakeholder process. He added that one issue with the regional plan is that even though some projects are located in national transmission corridors, it has not prevented states from intervening. It is unclear whether DOE will exercise its authority in these cases.
- ❖ **Integrated resource planning:** Asked if a greater focus on analysis and resource integration would be helpful, Joe Welch responded that integrated resource planning can present obstacles to transmission projects. He observed that transmission cannot be a substitute for generation.
- ❖ **Transmission cost allocation and recovery:** David Hadley pointed to the Advisory Committee's agreed action to ask the governors to articulate principles and asked the panel whether that action would be adequate. Panelists responded in several ways:
  - Don Furman felt principles would be inadequate, saying it is more important to have an authority, such as the existing regional organizations, make decisions on building transmission on recovering costs.
  - Joe Welch stated it would be important for the governors to ensure that the utilities are committed to the process, and then ask MISO to provide a plan. The governors could lend their support to the plan MISO produced.
  - Will Kaul noted that the CapX experience with a multi-state initiative occurred under uniquely favorable circumstances; in other cases, he added, simply articulating principles would be inadequate.
- ❖ **Advice to the next administration:** The panelists were prompted to offer advice to the next administration on transmission issues; they gave the following suggestions:
  - Given that states would be unlikely to pay for projects that are more beneficial to other states, Paul Sotkiewicz maintained that leadership would be critical, either on the federal level or by the governors. Using the institutional framework provided by the Energy Policy Act of 2005 and the energy transmission corridors, the new administration could work on integrating wind into the system.
  - Beth Soholt would advise the new administration to adopt the 20% wind vision, work on policy goals, and secure federal funding for transmission projects.

- Joe Welch would like to see aggressive standards set to eliminate the country's dependence on foreign oil and propel greater development of renewables technology.
- According to Will Kaul, a federal carbon policy would allow the market to take care of transmission issues.

## **V. Context for Transmission and Wind Power in the Midwest**

The speakers in this segment sought to give the group insight into the functioning of the MISO, PJM, and MAPP markets; offer a utility perspective on the markets; and convey information on the work underway in several Midwestern studies.

**Clair Moeller** of MISO described the MISO energy market, which is a good environment for wind power due to the real-time market and an ancillary services market that will be launched in September 2009. He mentioned reliability concerns and transmission constraints as potential barriers to wind integration. To reduce barriers to wind, MISO is conducting a study to identify and plan for renewable energy zones and is engaging in regional transmission planning efforts. Mr. Moeller also enumerated the conditions necessary for building increased transmission in the region: a robust business case, increased consensus around regional energy policy, a regional tariff that matches the beneficiaries with the payers over time, and cost recovery mechanisms to reduce financial risk.

**Paul Sotkiewicz** of PJM Interconnection, LLC gave an overview of wind's status in the PJM market and described its participation in day-ahead, real-time, and reliability pricing model (RPM) capacity markets. To better integrate wind, PJM is looking into wind forecasting services to facilitate wind's participation and anticipate when wind will be available. Without forecasting, pairing wind with more controllable resources, and/or advances in storage technologies, however, wind will continue to be excluded from the day-ahead market. With regard to building transmission for wind in PJM, the outstanding question is who will pay for the construction of transmission capacity. Furthermore, even if this question is resolved, operational, minimum generation, and controllability issues will still need to be addressed.

**Ed Weber**, Western Area Power Administration, described the Mid-Continent Area Power Pool (MAPP) wind markets. MAPP is a regional transmission group that covers eight states and two provinces. It has seams operating agreements with MISO, SPP, and PJM. Mr. Weber explained that wind has high potential in the region and that the market operates through bilateral agreements arrived at through negotiation, not a bid process. He observed that given the desire to move energy from the region to the MISO market or further east, interregional planning will be critical.

### **Questions & Answers**

- **Wind at negative prices:** Paul Sotkiewicz noted that wind can be observed operating in PJM and other markets even when prices are negative. With the PTC and negative Location Marginal Pricing (LMP), the price is not often so negative that it does not make sense for wind power to operate.

- **Effect of carbon fee:** According to Clair Moeller, modeling shows that the biggest impact of a carbon fee, which would add to the price of coal, is on the choice of fuel for new generation. While the average steam plant is not carrying significant capital cost, the choice for new generation is between the capital cost of fuel and the capital cost of gas. The biggest change, therefore, is the amount of gas on the margin that is load growth and the extent to which new gas penetrates.

**Steve Beuning** of Xcel Energy offered a utility perspective on markets, asserting that markets are of substantial benefit in integrating wind. Pointing to some of the challenges wind poses due to its variability, he outlined several paths to wind integration solutions, including market access and delivery, controllable customer load, responsive generation, storage, forecasting improvements, and reliability standards. Although efficient regional markets can be very helpful in integrating wind, they are not a panacea – additional transmission lines are still necessary. Furthermore, energy storage, customer load flexibility, and increased flexibility from traditional generator will be essential to achieving the best integration results.

**Michael Freeman** of PJM discussed the market for wind energy from a wholesale perspective. The demand for renewable energy credits (RECs), which aim to close the gap between cost and revenue in physical markets, is created by state compliance markets. Looking at the projected supply and demand of RECs, the imbalance between the two starting around 2010-11 creates significant opportunity for new entry into the market. Currently, there is little volume and depth in the RECs market, which are usually only for one-year trades. For longer-term projects, it is necessary to look at the forward REC valuation, which could be significantly impacted by national RPS. State RPS laws are currently a patchwork, with resources defined differently across states.

**Lynn Coles** of NREL gave an overview of the Eastern Wind Integration and Transmission Study (EWITS) and the related Joint Coordinated System Plan (JCSP) study conducted by Eastern Regional Transmission Organizations (RTOs). The goal of EWITS is to examine the transmission needs as well as the integration and power generation impacts of wind at high penetration levels. The study covers most of the Eastern Interconnection. Mr. Coles listed the key issues and questions to be addressed by the study, such as “what are the benefits from long distance transmission?” The tasks to be undertaken by EWITS are 1) a mesoscale modeling and power production estimate for wind; 2) a transmission study conducted in conjunction with the JCSP study; and 3) an integration study looking at the impacts of wind variability. The JCSP study, a long-term planning study incorporating both economic and reliability analyses, complements the EWITS and will provide the underlying assumptions for the generation scenarios. The JCSP is scheduled for completion in December 2008 and the EWITS for July 2009.

**Dale Osborn** of MISO discussed the futures studies conducted by MISO. The organization analyzes four futures per year as identified by the Planning Advisory Committee. It conducts several different types of studies, including the annual MISO Transmission Expansion Plans (MTEP). In an example scenario for MTEP '08, the model removes the real-world transmission constraints and looks at where the energy

would flow, revealing where transmission lines should be built. In addition to MTEP '08, which will be released in October, Mr. Osborn outlined the information to be produced by other studies, such as EWITS and the JSCP study. The JSCP wind database, he noted, should be able to model diversity and answer questions about the capacity factor of diversity. He added that the MTEP '09 study will include a 20% renewables scenario.

## **VI. Governors' Energy Leadership: The Western Example**

**Doug Larson** of the Western Interstate Energy Board discussed the example of the Western Governors' Association (WGA) leadership on renewable energy issues. He noted the similarity in the problems confronting the West and Midwest, with each region containing a significant amount of wind resources located far from load centers. They also both have active governors' associations. The two regions differ in several aspects, however, including on industry structure and the role of RTOs, the structure of their transmission grids (the Western Interconnection is unified while the Midwest contains separate grids), and the number of states with carbon policies.

The WGA's involvement in renewables and transmission began with the 2000-01 electricity crisis, leading the WGA to produce its [Clean and Diversified Energy Initiative](#), and culminating in the [Western Renewable Energy Zone](#) (WREZ) project, as well as a dialogue between the governors and Western utility CEOs. The goals of the WREZ project are to enable load-serving entities (LSEs), generation developers, and state regulators to make more informed decisions regarding renewables and transmission; promote a regional view of renewables; and pave the way for interstate collaboration. The WREZ project will proceed in four phases:

- 1) Identification of WREZs
- 2) Development of conceptual transmission plans from WREZs to load
- 3) Coordinated procurement of renewables
- 4) Institutional options to facilitate interstate transmission for renewables

The WREZ findings will help to shape new WGA policies, which may include the creation of virtual control areas and an evaluation of the large-scale penetration of renewables. Mr. Larson observed that key ingredients in the success of these efforts are the sustained leadership of the governors and a dedicated, knowledgeable staff to pursue the initiative.

## **VII. Meeting the Midwestern Governors' Energy Goals: State and Regional Perspectives**

The final panel reflected on the information previously presented and addressed the question of how to achieve the MGA's energy and transmission goals in the Midwest. NWCC Facilitator Abby Arnold moderated the panel, which was composed of the following members:

- **John Flynn**, AEP
- **Ray Hammarlund**, Kansas Corporation Commission
- **John Norris**, Chairman, Iowa Utilities Board

- **Victoria Pebbles**, Great Lakes Wind Collaborative
- **Steven Transeth**, Commissioner, Michigan Public Service Commission

Mike Bull launched the discussion by reviewing the highlights from his presentation on the MGA Renewable Energy and Transmission Advisory Council's proposed steps to implement the platform goals. He welcomed the group's input and acknowledged several of themes that had been heard on the previous day:

Ms. Arnold asked the panelists to react to the Council's agreed action to invite the governors to agree on principles for new regional transmission projects. They offered the following comments on that proposal and on platform implementation in general:

- ❖ **John Norris** felt the proposal was fine and should go forward, although he emphasized that it is more important for the governors and states to take action and to build transmission. With RPS policies in place in Iowa, Minnesota, and Wisconsin, he would like MISO to present the options for meeting the RPS and the necessary transmission. Those states should then move forward on building, which could act as a signal for other states to get involved in the process.
- ❖ **Ray Hammarlund** observed that more basic steps need to be taken in Kansas and nationwide, such as expanding training, outreach, and education, in order to ensure that the risks and benefits are understood. Furthermore, he added, the target audience should change – it is a choice to be made by rank-and-file citizens, not by leaders.
- ❖ **Victoria Pebbles** stated that there are leadership challenges on this issue, expressing concern that individual states will hesitate to take the political risk of being leaders. She favored agreements, such as the Great Lakes Wind Collaborative's model, as a method for encouraging states to move forward. The analogy of the interstate highway system is a relevant one for transmission infrastructure. However, any federal transmission policy should be developed in close consultation with the states. It would be helpful for the governors to create a forum that informs and advises a federal policy framework for building transmission infrastructure. Having states involved in developing the federal framework will ensure that the federal policy outcome is one that empowers states and offers regulatory and financial incentives.
- ❖ **Stephen Transeth** noted that there is a tendency to look at transmission issues regionally and emphasized that it is important to remember states' rights in determining how to proceed. Commissioners have the right and responsibility to determine what is in the best interest of their citizens. While Mr. Norris agreed that it is important to guard states' rights, he pointed out that these rights might be eroded in the future by Congressional action on climate change, which will be a driving factor in transmission development. A meeting participant mentioned that the intention is to work within state jurisdictions and that one approach in working with states on transmission cases has been to clearly articulate the regional benefits, which allows the public interest standard to encompass the good of the whole region. Commissioner Transeth added that the package in Michigan is encouraging, as it is proposing to increase commission staff and empower the commissioners to play an important role.

- ❖ **John Flynn** highlighted certainty around project approval and siting as a critical element from the investor perspective. Given the enormous capital investment in infrastructure that is required, it is important to make investment as efficient as possible. RTOs are beginning to move towards a more regional perspective, so it will be necessary to address the siting and financing of cross-regional lines.

### **VIII. Implementing the Midwestern Governors' Goals**

Abby Arnold then invited the meeting participants to reflect on what they had heard and to offer their ideas on implementing the governors' platform goals. In the ensuing discussion, participants made the following comments and suggestions:

- The Texas legislative model has proven effective.
- Kansas has legislation authorizing commissioners to sit in joint hearings with other states on proposals, enabling them to look at the larger context. There is also legislation for the development of a financing board for transmission projects, which allows for the financing of cross-border projects. Finally, Kansas legislation permits upgrades of transmission on existing rights-of-way without undergoing regulatory and environmental reviews.
- We can look at Europe and California as examples of where we need to go in terms of installing distributed generation. One example is Ontario's green energy legislation, which is incorporating feed in tariffs.
- Aggregating low-density generation would be helpful.
- We need to work from grassroots up
- A role for the governors is prioritizing, although costs of implementation should also be considered (e.g., state authorities, states' rights)
- A regional siting authority or coordinated regional siting standards are possibilities to help with implementation.
- We could work on greater cooperation and shared cost allocation across the interconnection.
- One possibility is full regional cost allocation for all transmission
- States could develop a state compact for transmission.
- Rate-based transmission is one option
- Look at regional rate base as a possibility
- Rate-based transmission line and interconnection facilities are possibilities
- State commissions could be empowered to hold a panel to review multi-state lines
- It is important that studies have consistent, agreed-upon set of principles. Goals could be too identify reliability and economics.
- It would be useful to have a robust economic analysis of the tradeoffs of not investing in infrastructure
- We need to do regional cost-benefit analyses of various scenarios to help achieve the 30% goal.
- In order to balance load, we should look at entire mix of available renewables.
- The rationale should include economic and other regional benefits
- A timeline would be useful to convey the urgency of this work

- It's important to talk to stakeholders about benefits of wind energy – e.g., economic, environmental, and transmission benefits. An effort to get the word out would be helpful to the governors.
- We need consistent methodology for determining who the beneficiaries are. It would be useful to put forward common definition for the allocation problem.
- The process should be nondiscriminatory and allow everyone to participate
- We could take care of financial risk by:
  - Encouraging investment in infrastructure
  - Reducing the regulatory risk involved in the timelines for siting projects
- It's important to take a shared analytical approach to costs/benefits and for those in the region to agree on the analysts who will do the job.
- The governors could identify needed legislation and send it to Congress.
- With respect to decisions on transmission strategy balancing state and regional interests, the governors could provide direction to the commissions
- It's important for states to keep in mind larger regional scope and long-term process. Kansas, for example, could plan its construction in a way to make regional solutions easier down the line. (Modeling)
- Let's bring in the best thinking on 30% and least carbon and tie it to national security to make the nation less dependent on foreign fuel.
- A useful rationale in favor investing in renewables relates to volatility and financial risk: renewables such as wind and solar have known costs and no fuel costs. So they provide a hedge against fluctuation of the international energy prices, the risk of the future price of carbon emissions, and the unknown impacts of climate change.
- A recommendation to the national administration is that it should work with Congress to determine national policy to meet nation's electricity needs for next 50 years, including:
  - Factors should include benefits and costs – how to weigh tradeoffs
  - Cost allocation and cost recovery
  - Equity in dealing with winners and losers
  - Decision authority when states disagree – siting, cost recovery
- We could promote a regional and national EHV transmission grid
- One option is to support a carbon or pollution tax
- One idea is to develop and support state and regional authority over wind and transmission siting and zoning
- We could evaluate, and, if appropriate, support distributed energy (wind) to include small-large scale to take advantage of various wind regimes (speed) at different hub heights
- We could support the extension of the PTC

**Attachment A**  
***Midwestern Wind Energy: Moving It to Markets***  
**July 31 – August 1, 2008 – Dearborn, MI**

***Presented by the Midwestern Governors Association  
and Co-sponsored by the National Wind Coordinating Collaborative***

**Who Should Attend:** Policymakers; utilities; regulators; state, federal, and tribal agencies; wind and transmission developers; renewable advocates; environmental groups; and others who want to learn about increasing Midwestern wind power, the role transmission plays, and what they can do to help.

**Purpose:**

- To discuss actions needed to implement transmission elements of the Midwestern Governors' *Energy Security and Climate Stewardship Platform for the Midwest*
- To explore the contributions that Midwestern wind power can make towards achieving 20% wind power in the region and nationwide, as well as steps needed to achieve this potential

**Day 1 – Thursday, July 31, 2008 – FORMAL CONFERENCE OPENS**

<b>7:30 am</b>	<b>Conference Registration &amp; Continental Breakfast</b>	<b>Location: Superior Michigan</b>
<b>8:30 am</b>	<b><u>Introduction of Governor Granholm</u></b>  <b><u>Welcoming Remarks</u></b>	<i>Richard Vander Veen, Mackinaw Power, LLC</i>  <i>Governor Jennifer Granholm, State of Michigan</i>
<b>9:00 am</b>	<b>I. <u>Welcome and Introductions</u></b> <ul style="list-style-type: none"><li>▪ Review meeting purpose</li><li>▪ Review &amp; adopt agenda</li><li>▪ NWCC Transmission Workgroup overview</li></ul>	<i>Abby Arnold, NWCC facilitator</i>
<b>9:30 am</b>	<b>II. <u>Midwestern Wind Power Context</u></b> <ul style="list-style-type: none"><li>▪ Midwestern wind power potential</li><li>▪ Overview of state RPS requirements</li></ul>	<i>Barry Matchett, Environmental Law and Policy Center</i>
<b>9:50 am</b>	<b>Q&amp;A</b>	
<b>10:00 am</b>	<b>BREAK</b>	
<b>10:30 am</b>	<b>III. <u>National Wind Power Context</u></b> <ul style="list-style-type: none"><li>▪ Overview of the 20% Wind Power Technical Report</li><li>▪ Policy perspective on 20% wind</li></ul>	<i>Ed DeMeo, Renewable Energy Consulting Services, Inc.</i> <i>Hans Detweiler, American Wind Energy Association</i>
<b>11:05 am</b>	<b>Q&amp;A</b>	

<b>11:15 am</b>	<b>IV. <u>Midwestern Governors Association Energy Security and Climate Stewardship Platform</u></b>	<i>Jesse Heier, Midwestern Governors Association</i>
	A) An overview of the 2007 MGA <i>Energy Security and Climate Stewardship Platform for the Midwest</i>	
<b>11: 35 am</b>	<b>Q&amp;A</b>	
<b>11:45 am</b>	<b>LUNCH</b>	<b>Location: Great Room</b>
<b>12:45 pm</b>	<b>IV. <u>MGA Energy Security and Climate Stewardship Platform</u></b> <i>(continued)</i>	
	B) Report from the MGA Renewable Energy and Transmission Advisory Council on steps being taken to implement platform goals	<i>Mike Bull, Wind on the Wires Kristine Schmidt, Xcel Energy Tom Stanton, Michigan Renewable Energy Program</i>
<b>1:15 pm</b>	C) Panel discussion of how to implement these initiatives <ul style="list-style-type: none"> <li>▪ What is needed to put these plans into action?</li> <li>▪ Can these initiatives be implemented with existing laws or are new laws needed?</li> </ul>	<i>Moderator: David Hadley, MISO Graham Edwards, Midwest ISO Don Furman, Iberdrola Renewables Will Kaul, CapX 2020 Beth Soholt, Wind on the Wires Paul Sotkiewicz, PJM Joe Welch, ITC</i>
<b>2:15 pm</b>	<b>Q&amp;A</b>	
<b>2:30 pm</b>	<b>BREAK</b>	
<b>2:50 pm</b>	<b>V. <u>Context for Transmission and Wind Power in the Midwest</u></b>	
	A) MISO, PJM, and MAPP markets <ul style="list-style-type: none"> <li>▪ How does each market operate? How could wind impact each market?</li> <li>▪ Seams agreements</li> <li>▪ What would it take for more wind energy to enter these markets? If the marketplace wants to move wind from west to east, what are the barriers that need to be addressed?</li> </ul>	<i>Clair Moeller, MISO Paul Sotkiewicz, PJM Ed Weber, MAPP</i>
<b>3:20 pm</b>	<b>Q&amp;A</b>	
<b>3:30 pm</b>	B) Utility perspectives on markets	<i>Steve Beuning, Xcel Energy Mike Freeman, Exelon</i>
<b>3:55 pm</b>	<b>Q&amp;A</b>	
<b>4:05 pm</b>	C) Midwestern studies: Eastern Wind Integration and Transmission Study (EWITS), Joint Coordinated System Plan, CapX, Regional Generator Outlet Study, and others	<i>Lynn Coles, NREL Dale Osborn, MISO</i>
<b>4:35 pm</b>	<b>Q&amp;A</b>	

**4:45 pm**    **VI. Governors Energy Leadership: The Western Example**    *Doug Larson, Western Interstate Energy Board*  
An overview of how the Western Governors advance regional energy initiatives through the Western Interstate Energy Board

**5:15pm**    **Q&A**

**5:30 pm**    **Adjourn to Reception**

**Location: Great Room**

**Day 2 – Friday, August 1, 2008 – FORMAL CONFERENCE CONTINUES**

**8:30 am**    **Registration and Continental Breakfast**    **Location: Superior Michigan**

**9:00 am**    **VII. Meeting the Midwestern Governors’ Energy Goals: State and Regional Perspectives**

Panel discussion about how to achieve MGA energy and transmission goals in the Midwest

*Moderator: Abby Arnold, NWCC*

*John Flynn, AEP*

*Ray Hammarlund, Kansas Corporation Commission*

*John Norris, Chairman, Iowa Utilities Board*

*Victoria Pebbles, Great Lakes Wind Collaborative*

*Steven Transeth, Commissioner, Michigan Public Service Commission*

**10:00 am**    **Q&A**

**10:15 am**    **BREAK**

**10:45 am**    **VIII. Implementing the Midwestern Governors’ Goals**

Discussion with reference to the Advisory Council concepts / action items:

- What are the policy suggestions?
- How can we implement them across all 12 states?
- What will be the challenges to implementing the policies?
- What action steps can we take to address the challenges?

*Facilitator: Abby Arnold, NWCC*

**12:15 pm**    **Adjourn**

**Attachment B**  
**MIDWESTERN WIND ENERGY: MOVING IT TO MARKETS**

July 31 – August 1, 2008

**Doubletree Hotel Dearborn**  
5801 Southfield Expressway  
Detroit, Michigan 48228

**FINAL PARTICIPANT LIST**

**Gregory Adanin**  
Vice President  
Detroit Steel

**Mark Ahlstrom**  
CEO  
WindLogics Inc.

**Sarah Akers**  
Associate Analyst  
Wachovia

**Kamran Ali**  
Transmission Planning Engineer  
American Electric Power

**TaJuana Antwine**  
Business Developer  
Shell Wind Energy

**Earl Aragona**  
Senior Project Manager  
URS

**Nathaniel Baer**  
Energy Program Director  
Iowa Environmental Council

**Julie Baldwin**  
Staff Engineer  
Michigan Public Service Commission

**Richard Barclay Ph.D.**  
Director of Research and Policy Development  
Michigan Electric Cooperative Association

**Bruce Barget**  
Wind Resource LLC

**Kyle Barry**  
Vice President, State Government Relations  
McGuireWoods Consulting

**Richard Benedict**  
Developer  
Indianapolis Power & Light

**Stephen Beuning**  
Director, Market Operations  
Xcel Energy

**Michelle Bissonnette**  
Vice President  
HDR

**Terry Black**  
Project Director  
Project for Sustainable FERC Energy Policy

**Anthony Blommel**  
Project Manager  
Alternity Wind Power, LLC

**James Boardman**  
Executive Director  
City of Taylor Department of Public Works

**Kevin Borgia**  
Executive Director  
Wind for Illinois

**Joe Borkowski**  
Developer - Great Lakes Region  
Airtricity

**Bret Borth**  
Associate Principal  
Braun Intertec

**Richard Bowers, Jr.**  
City of Detroit

**Mike Bull**  
Regional Policy Manager  
Wind on the Wires

**Luis Cely**  
Cross Industrial Research / Duckes Worldwide

**John Cherry**  
Intern  
Great Lakes Commission

**Zafar Choudhry**  
Senior Specialist Contracts  
Exelon Corporation

**Catherine Cole**  
Engineer  
Michigan Public Service Commission

**Lynn Coles**  
Senior Engineer  
National Renewable Energy Laboratory

**John Coluccy**  
Manager of Conservation Planning  
Ducks Unlimited, Inc.

**Geoff Coventry**  
Vice President Business Development and  
Operations  
TradeWind Energy, LLC

**Brad Crabtree**  
Great Plains Institute

**Sage Crowe**  
Energy Practice Coordinator/GIS Specialist  
EDAW, Inc.

**Marcus da Cunha**  
Director  
LS Power

**Karl Dahlstrom**  
Development Manager  
Invenergy LLC

**Winton Dahlstrom**  
President  
Helix Synergy LLC

**Jason Davis**  
Business Development Manager  
Lee Contracting

**Ronald Davis**  
Principal Consultant  
BEW Engineering

**Jenn DeCesaro**  
Exeter Associates

**Edgar DeMeo**  
President  
Renewable Energy Consulting Services, Inc.

**Hans Detweiler**  
Manager of State Legislation and Policy  
American Wind Energy Association

**Irene Dimitry**  
Director  
Renewable Energy

**Joseph Dudak**  
Vice President, Major Contracts & Special Projects  
ITC Transmission

**David Dueker**  
Utility Relations Manager  
John Deere - Wind Energy

**Matthew Dykstra**  
Engineer  
Michigan Public Power Agency

**Tim Eder**  
Executive Director  
Great Lakes Commission

**Graham Edwards**  
CEO  
Midwest ISO

**Tiffany Elliott**  
Citigroup

**Dan Fahrner**  
Director - Project Engineering  
DTE Energy

**Barry Fladeboe**  
Project Developer  
Navitas Energy

**Larry Flowers**  
Wind Powering America Team Leader  
National Renewable Energy Laboratory

**John Flynn**  
Managing Director – Transmission Strategy and  
Business Services

**Michael Freeman**  
Senior Originator  
Exelon Power Team

**Don Furman**  
SVP Development, Transmission and Policy  
Iberdrola Renewables

**Steven Gaarde**  
Director of Transmission and Regulatory  
Strategies  
Consumers Energy Company

**Sarah Gagnon-Turcotte**  
Research Associate  
Great Lakes Commission

**Vicki Garon**  
Senior Project Engineer  
Golder Associates

**Chad Geiger**  
Director, RTO Policy  
Wolverine Power Cooperative

**Paul Gire**  
Regulatory Affairs Liaison  
Consumers Energy

**Michael Goggin**  
Electric Industry Analyst  
AWEA

**Bruce Goodman**  
Attorney  
Varnum Riddering Schmidt Howlett

**Rob Gramlich**  
Policy Director  
American Wind Energy Association

**Jennifer Granholm**  
Governor  
State of Michigan

**Donovan Greening**  
Director Transmission Regulations  
ITC

**Jeffrey Greenwalt**  
Vice President  
Greenfield Builders, Inc.

**Mike Gregerson**  
Program Consultant  
Great Plains Institute

**Terry Grove**  
Director, Regional Transmission Development;  
Co-leader  
Great River Energy; CapX 2020

**Sean Haas**  
Reserve Energy

**David Hadley**  
VP, State Regulatory Relations  
Midwest Independent System Operator

**John Hafner**  
Manager, Development  
Competitive Power Ventures, Inc.

**Todd Halls**  
Project Manager  
Billy Astle, LLC

**Tasha Hamilton**  
Manager, Energy Policy  
Constellation NewEnergy

**Ray Hammarlund**  
Director  
Kansas Corporation Commission

**Jesse Heier**  
Washington Director  
Midwestern Governors Association

**Kevin Helmich**  
Renewable Origination  
Iberdrola Renewables

**Gerald Hesson**  
Contractor Rel. & Business Dev.  
Representative  
Laborers Intl. Union of N. America

**Danny Hinds**  
Substation Operations Manager  
M.J. Electric, LLC

**Margaret Hodnik**  
Minnesota Power

**Mark Holmes**  
MBA, PMP  
Lawrence Technological University

**Kate Houlihan**  
Development Manager  
E.ON Climate & Renewables

**Ryan Hrabe**  
Senior Biologist  
Ecology & Environment, Inc.

**John Hummer**  
Project Manager  
Great Lakes Commission

**Chris Idema**  
Project Developer  
Winde Resource, LLC

**Donald Idzior**  
Principal Engineer  
Consumers Energy

**Gregory Ioanidis**  
ITC

**Rick Johnson**  
Account Manager  
Windemuller Electric, Inc.

**Jarrold Johnson**  
Commissioner  
State of South Dakota, Office of Schools & Public  
Lands

**Darshan Karwat**  
Graduate Student  
University of Michigan

**Will Kaul**  
Vice President, Transmission Division  
Great River Energy

**Rodger Kershner**  
Partner  
Howard & Howard Attorneys, PC

**Andrea Kline**  
Ecology and Design Group Leader  
Environmental Consulting & Technology (ECT)

**Jon Kreucher**  
Attorney/Shareholder  
Howard & Howard Attorneys, PC

**Steven Kulesia**  
Energy Specialist  
Michigan DEQ, Environmental Science and  
Services Division

**Tim Kumbier**

**LaVerne Kyriss**  
Federal Energy Corridors Project Manager  
U.S. Department of Energy/OE

**Doug Larson**  
Executive Director  
Western Interstate Energy Board

**Kathleen Law**  
Representative  
House of Representatives

**Phillip Mann**  
NSI Consulting & Development, Inc.

**Jennifer Martin**  
Attorney  
Stoel Rives LLP

**Barry Matchett**  
Policy Advocate  
Environmental Law & Policy Center

**Tom Maves**  
Renewable Energy Specialist  
Ohio Department Of Development

**Ron May**  
Senior Vice President - Major Enterprise Projects  
DTE Energy

**Melanie McCoy**  
General Manager  
Wyandotte Municipal Utility

**Robert McLure**  
CEO  
Stark International

**Richard McMichael**  
Transmission Manager  
BP Alternative Energy

**Brenton Meese**  
Regional Account Manager  
Ventyx Energy

**Andrew Melka**  
Assistant Development Manager  
E.ON Climate & Renewables

**Clair Moeller**  
Vice President, Transmission Asset Management  
Midwest Independent System Operator

**Gary Moland**  
Vice President  
Ventyx Energy

**Sherri Monteith**  
Manager -- Regulatory and Legislative Policy  
American Electric Power

**Madhu Naidu**  
Ducker Worldwide

**Michael Nix**  
PJM

**John Norris**  
Chair, Iowa Utilities Board  
Iowa Department of Commerce

**Lisa Ogden**  
Business Development Manager  
Nello Corporation

**Patrick O'Neill**  
CEO  
NSI Consulting & Development, Inc.

**Dale Osborn**  
Transmission Technical Director  
Midwest ISO

**Rob Ozar**  
Manager  
MPSC

**Purna Pai**  
DTE Energy Services, Inc.

**John Patten**  
Professor, Director, Chair of Manufacturing &  
Engineering  
Western Michigan University

**Steven Patterson**  
CFO  
ABHCO

**Victoria Pebbles**  
Program Director  
Great Lakes Commission

**Jeff Peters**  
Director, Marketing and Development  
Missouri River Energy Services

**Melissa Peterson**  
Program Associate  
Windustry

**Tremaine Phillips**  
Energy Program Associate  
Michigan Environmental Council

**Patricia Poli**  
Senior Staff Engineer  
MPSC

**Richard Polich**  
Development Manager  
TradeWind Energy, LLC

**Alex Pollock**  
EAPC Wind Energy Services, LLC

**Cameron Priebe**  
Mayor  
City of Taylor

**Michael Printup**  
Senior Director of Facility Development  
Michigan International Speedway

**Josh Reynolds**  
Executive Director, Business Solutions  
SiteMaster

**Charles Richey**  
Manager-Lidar Systems  
Michigan Aerospace Corporation

**Roby Roberts**  
Government Relations  
Goldman, Sachs, & Co.

**Kristine Schmidt**  
Director, Federal Regulatory Affairs  
Xcel Energy

**Matt Schuerger**  
Technical Consultant  
Energy Systems Consulting Services / National  
Renewable Energy Laboratory

**Michael Serafin**  
Specialist, Market Operations  
DTE Energy

**Tom Shirilla**  
Program Manager  
Consumers Energy

**Patricia Sliter**  
Director of Corporate Marketing  
Rowe Incorporated

**Tom Sloan**  
State Representative  
Kansas House of Representatives

**Stuart Smith**  
Oak Creek Energy

**Kristin Smith**  
Senior Planner  
Leelanau County Planning Department

**Beth Sohlt**  
Director  
Wind on the Wires

**Paul Sotkiewicz**  
Senior Economist  
PJM

**Tom Stanton**  
Coordinator  
Michigan Renewable Energy Program

**Bryan Starry**  
Development Manager  
RES Americas

**Steve Steingraeber**  
Vice President - Sales, Marketing & Development  
Trinity Industries, Inc., CEMC Energy Group

**Barry Stuedemann**  
ENTRIX, Inc.

**Nancy Stokes**

**Glen Strother**  
Principal  
Oxford Group

**Thomas Swartz**  
Financial Director  
Consumers Energy

**Greg Switaj**  
Vice President, Sales  
Watts Energy

**Sandi Tabor**  
Director  
North Dakota Transmission Authority

**Sally Talberg**  
Analyst, Energy Markets Section  
Michigan Public Service Commission

**Lance Tennant**  
Senior Vice President New Business Development  
Cascade Engineering

**Theodore Theofrastous**  
Managing Partner  
ThetaSquared, LLC

**Andrew Thorson**  
Partner  
Waner Norcross & Judd LLP

**Steven Transeth**  
Commissioner  
Michigan Public Service Commission

**Kevin Trimble**  
Golder Associates

**Richard Vander Veen**  
President  
Mackinaw Power, LLC

**Janet Vanderpool**  
Strategic Program Management

**Julie Voeck**  
Manager, Planning Policy and Methodology  
American Transmission Company

**Edward Weber**  
Transmission Systems Planning Manager  
Western Area Power Administration

**Jason Weiers**  
Supervisor Delivery Studies  
Otter Tail Power Company

**Joe Welch**  
Chairman, President and CEO  
ITC

**Paul Wendelgass**  
Vice President  
Competitive Power Ventures, Inc.

**Brian Wezensky**  
General Manager  
Oak Tree Enterprise LLC.

**Cliff Williams**  
Michigan Aerospace Corporation

**Jim Wilson**  
Vice President, Regulatory Relations  
MidAmerican Energy Company

**Scott Winfield**  
Partner  
Visionary Partners

**Michael Young**  
Montgomery Energy Partners

**David Zwitter**  
Manager, Wind Development  
Consumers Energy

**FACILITATION STAFF:**

**Abby Arnold**  
Senior Mediator  
RESOLVE

**Taylor Kennedy**  
Associate  
RESOLVE

**Dana Mason**  
Facilitator  
RESOLVE

**Attachment C**  
**Preliminary Explorations of Eight Policy Concepts**  
**for Meeting Renewable Electricity Goals and Objectives:**  
**10% by 2015; 20% by 2020; 25% by 2025; 30% by 2030**

**from Energy Security and Climate Stewardship Platform for the Midwest –  
2007**

[www.midwesterngovernors.org/Publications/MGA\\_Platform2WebVersion.pdf](http://www.midwesterngovernors.org/Publications/MGA_Platform2WebVersion.pdf)

**RE-1: Stimulate the Development of New Renewable Electricity  
Generation**

**Policy Description**

Policy-makers need to identify and implement appropriate policies that will overcome existing barriers in the Midwestern region for the development of renewable electricity generation. *There are a number of barriers, including policy, institutional, and marketing impediments. Examples include lack of sufficient government policy support, lack of information dissemination and consumer awareness, actual or perceived near-term cost of renewable technology, challenges incorporating new technologies into traditional utility operations, inadequate financing options for renewable energy projects, and others.*

**Policy Design**

Develop and implement a stable regulatory environment for regional renewable energy production and consumption. Assess the effectiveness of various policy mechanisms and means for improving linkages and synergies between them. Develop and implement a region-wide planning process for renewable electricity buildout.

1. Maximize in the region cost-effective renewable electricity production and grid integration.
2. Strive for consistent, long-term federal policies and financial support, which recognize and equitably accommodate MGA regional needs.
3. Enact, where appropriate, or enhance existing state Renewable Energy Standards or Renewable Energy Objectives (RES/REO) in the Midwestern Governor's Association (MGA) region. Promote and assess coordination amongst all states in the region regarding meeting RES/REO goals.

**RE-2: Expand Collaborative Regional Transmission Planning and Siting**

**Policy Description**

Collaborative regional transmission planning and siting are necessary enablers for the widespread, near term development of renewable electricity generation, especially from the region's extensive wind power resources.

## **Policy Design**

Inter-jurisdictional transmission planning and siting must be strengthened to support optimization of future electricity infrastructure investments and ensure the region's grid infrastructure enables robust development of renewable electricity generation and broader system adequacy. Elements for a stable regulatory environment for regional transmission planning and siting should include MGA support and encouragement for:

1. State PUC authority broad enough to encompass a regional definition of the public interest;
2. Inter-jurisdictional and inter-regional transmission planning;
3. National and international standardization of regional transmission planning criteria and procedures; and
4. Equitable cost-sharing for transmission system improvements.

### **RE-3: Incorporate transmission development requirements into existing state renewable energy objectives and standards**

#### **Policy Description**

*Link renewable energy generation targets with transmission requirements so that, when it proves economical, high-quality wind resource areas will be provided with adequate electricity transmission capability in advance of wind farm development.*

#### **Policy Design**

Adequate transmission needs to be coordinated with state renewable energy standards and objectives. States should manage transmission planning and construction so that renewable energy obligations will be met in the most economical manner. Approval for transmission improvements through the appropriate utility regulatory process should be streamlined, and construction facilitated, to enable timely development of renewable generation facilities.

### **RE-4: Pursue a Multi-State Transmission Initiative**

#### **Policy Description**

Implement at least one multi-state transmission initiative to facilitate construction and delivery to market of a large amount of new renewable electricity generation, together with power from other lower-carbon generation facilities.

#### **Policy Design**

Utility transmission planners have long identified bottlenecks in the transmission system that must be addressed in order to deliver to market large quantities of new wind energy as well as other renewable and low carbon electricity. Elements for a multi-state transmission initiative should include the following:

1. *Regional planning:* Cooperation and collaboration on transmission and generation initiatives should be pursued.
2. *Cost allocation:* cost-benefit analysis and cost allocation issues across states must be addressed.

## **RE-5: Encourage Orderly Development of Wind Resources**

### **Policy Description**

Comprehensive siting principles and policies for wind farms must be developed and implemented, to encourage orderly development of the resource. *When combined with other policies (e.g., RPS, PTC or other federal and state financial incentives, net metering or other favorable renewable energy pricing, fuel supply and environmental disclosures, etc.), these principles can encourage the sustained, orderly development of wind power in the region.*

### **Policy Design**

Wind energy deployment must take into account ecological, scenic, cultural, and other concerns. Guidelines and a toolkit of resources incorporating best practices and principles need to be readied for: (1) optimum/maximum siting approach of wind farms, turbines, and ancillary facilities; (2) for siting ordinances; and (3) land leases. These will lead to more rational development and thereby help promote wind resources. Adequate and consistent state policies and procedures should be crafted cooperatively and inter-jurisdictionally to ensure that wind development proceeds in ways that foster long-term public support for the industry and avoids pitting states against one another or impeding regional wind development approaches.

## **RE-6: Encourage a Diversity of Approaches to Renewable Electricity Development**

### **Policy Description**

A diversity of approaches to renewable electricity development should be encouraged, including projects with local and community ownership. *Renewable electricity development evaluation criteria should be expanded to include a broader array of economic criteria, such as the extent of local industry and manufacturing development, job creation benefits, and competitive parity amongst Midwestern States.*

### **Policy Design**

Policymakers should evaluate the experience with local ownership incentives in Minnesota, Iowa, and elsewhere and consider how best to foster local equity participation in wind and other renewable energy projects to enhance local economic returns. However, policy-makers should continue to support a diversity of ownership structures and avoid creating barriers to expanding renewable electricity development and associated transmission.

## **RE-7: Maximize Electricity Generation from the Region's Wind Resources through Demonstration Efforts**

### **Policy Description**

Technology, engineering, and operating strategies must be demonstrated, in order to eventually maximize the total electricity generation from the Midwest region's wind resources.

### **Policy Design**

Policy-makers should support the development and deployment of strategies and technologies to maximize wind energy's contribution to the region's electric power generation through a series of demonstration efforts. Pilot projects should focus on:

1. Demonstrating how high percentages of wind power can be incorporated reliably into the electric power system.
2. Making better use of existing transmission infrastructure and capacity through next generation grid management.
3. Commercializing all practical and economical energy storage options, such as advanced batteries and compressed air storage.
4. Developing new uses of wind energy, such as wind electrolysis to produce hydrogen or wind-to-ammonia for fertilizer production, that do not necessarily require bulk transmission and can readily substitute for existing GHG-emitting fossil energy sources.

## **RE-8: Attract Renewable Energy Component Manufacturers and Service Providers to the Region**

### **Policy Description**

Develop and implement economic incentives and workforce development policies to attract renewable energy equipment manufacturers and service providers to the region.

### **Policy Design**

Inter-state competition should be conducted in a manner that does not interfere with regional success. The Midwestern Region must seek recognition as one of the world's premier locations for advanced energy technology research and development and manufacturing.