

**National Wind Coordinating Committee  
Midwest Transmission Workshop  
Draft Meeting Summary**

**St. Paul, MN  
December 5, 2002**

**Introductions**

After introductions of all participants, Abby Arnold, RESOLVE, reviewed the purpose of the meeting and the agenda. The purpose of the workshop was to share the results of the Midwest Independent System Operator (MISO) scenario development for wind and other fuel sources and the corresponding implications for transmission throughout the MISO control area. The workshop agenda is included in Attachment A.

**Session I: Background on Prior NWCC Meetings and Lessons Learned**

(See Attachment B for slides)

**Ed DeMeo**, Renewable Energy Consulting Services, Inc., began the workshop by providing an overview of the NWCC. Mr. DeMeo explained that the NWCC is a multi-stakeholder collaborative group united by a single vision of economically, environmentally, and politically sustainable commercial markets for wind power development. The group identifies key issues affecting wind power, establishes dialogue to achieve consensus views on those issues, and catalyzes activities moving toward the overall vision. The group convenes workshops and produces documents on a wide range of topics affecting wind energy development, including transmission, economic development, aviation, siting, and credit trading concerns. The NWCC prides itself on presenting high quality information in the workshops and documents. All of the information receives thorough technical review, and most is approved on a consensus basis.

Mr. DeMeo provided perspective from previous workshops convened by the NWCC on Midwest transmission planning issues. The two prior workshops conducted in the Midwest convened a multitude of stakeholders presenting differing views on the need for new transmission in the region. Some stakeholders expressed a need for a proactive long-term transmission planning process to be conducted by a Regional Transmission Organization (RTO), and others expressed a need to address landowner and environmental concerns related to building new transmission lines. In the March 2002 workshop, staff from the Midwest Independent System Operator (MISO), currently charged with the transmission planning process, informed stakeholders about the five year planning process underway and invited the wind community to provide input to develop a wind scenario for the region. Mr. DeMeo clarified that this December meeting serves as a status report on progress with the wind and other scenarios under study by the MISO transmission planners.

Mr. DeMeo concluded that these types of meetings provide unique opportunities for stakeholders from a cross section of perspectives to become informed of activities and allow for discussion and debate, thereby providing important contributions to the transmission planning process in the Midwest.

**Session II: Overview of MISO Transmission Planning Process**

(See Attachment C for slides)

**Dale Osborn**, MISO, gave an overview of the MISO planning process for studying aggregate transmission needs in the future and current status of the process. The MISO transmission

planning process has two objectives: electrical-system reliability and information dissemination. MISO planners emphasize that their primary concern is moving generation to load on a predictable basis. During the current planning process, MISO planners have worked with stakeholder groups and transmission operators to assess transmission needs throughout the region. Each individual transmission organization is tasked with developing local transmission plans. MISO will incorporate these individual local plans into a master transmission plan for the Midwest region, which will then be assessed for reliability. This plan will include impacts of new requests, such as interconnections and transmission service.

In regards to information dissemination, MISO planners are eager to explain transmission needs in the region to stakeholders and create a transparent planning process. The ultimate desire of the MISO planners is to create a continual feedback loop to clarify needs and concerns about transmission issues, including information about where to locate generation, how to provide interconnection services, and the commercial viability of the system. The MISO planners do not suggest to developers where to locate generation.

The MISO planning process receives input for transmission needs from several places. The Technical Support Group (TSG) includes transmission organizations and other interested parties and provides technical knowledge and discussion about transmission concerns. A December 17, 2002 meeting of the TSG has been scheduled to review the first draft of the regional transmission plan. The Planning Advisory Committee includes representatives from transmission organizations, generators, environmentalists, and other groups who provide broad input on transmission needs and concerns, such as environmental and siting concerns. The Expansion Planning Group serves as the nuts and bolts development group, providing technical expertise to MISO planners. Meetings of this group are convened as needed.

Mr. Osborn outlined the existing transmission planning process for MISO, which is based on two sets of assumptions. Under the request-based planning process, MISO planners develop a baseline analysis for transmission capabilities and ongoing commitments for transmission service. Planners then gather incremental requests for interconnection and transmission service. These two input levels provide the planners with some idea of required solutions for transmission expansion. Following a scenario-based planning process, planners compare the current status of transmission with future system scenarios focused on transmission needs and additional commitments to develop a future situation analysis. This analysis provides input back into future system scenarios that guide planning and generation development efforts.

Mr. Osborn acknowledged that managing the interconnection queue process is a difficult task and hinders long-term planning efforts. Currently, the queue process can take anywhere from six to nine months for a given request. The large number of participants makes such a system unworkable. MISO is working to develop a new streamlined process that will facilitate shorter approval periods.

Mr. Osborn described the specific process for developing the set of scenarios that MISO planners have run during the current planning process. The baseline scenario reflects the existing transmission system capacity and what transmission services are already committed. The MISO planners are developing the wind, coal and gas scenarios to determine what happens if large amounts of energy produced from those fuel sources are added to the transmission grid. These scenarios help planners estimate solutions that will serve future system needs. Mr. Osborn provided a map showing added transmission in the planned scenario. Generation models were then compared with the location of this planned transmission. In the future situation analysis, MISO planners studied production costs for the service area. The analysis assumes location

marginal pricing (LMP) at loads or generators to highlight the cost of transmission congestion. Market information for each scenario includes the prices of electricity at load and generation; constraints causing congestion costs; and sensitivity of costs to new regional transmission. In identifying potential solutions, MISO planners sought to resolve constraints through economically viable means, and to evaluate expansion plans that relieve those constraints and reduce congestion. The planners intended to select transmission options from transmission organizations and other stakeholders.

The Initial Midwest Transmission Expansion Plan (MTEP) represents the roll-up of all plans from transmission organizations. The MTEP proposes over \$1 billion in new investment over the next five years. This plan primarily discusses major transmission projects worth more than \$5 million, with a reliability assessment scheduled early in 2003. MISO planners used the Eastern interconnection model to generate the plans, with only the MISO area altered in the modeling exercise. This aggregate plan must meet reliability requirements based on the LMP analysis; MISO will be involved in developing those baseline reliability plans.

The final Transmission Expansion Plan will include a generation interconnection study (comprised of individual studies' interconnection requests) and transmission service requests (an overall study of transmission service needs). With this broad overview, MISO hopes to identify general areas for location of generation so that developers may better plan their development activities.

A draft of the MTEP plan will be publicly available by December 12, 2002. MISO planners will review the plan with stakeholders and MISO committees through April 2003. MISO planners hope to approve the plan in May 2003. MISO planners anticipate beginning the next phase of regional transmission planning – development of the reliability-based baseline plan in late spring 2003.

### **Session III: Review Scenarios Studied By MISO**

**Matt Schuerger, Wind on the Wires**, discussed briefly the wind industry scenario provided to MISO planners. The wind scenario was developed as a result of the NWCC Midwest Transmission Workshop, held in March 2002. Wind on the Wires worked extensively with the American Wind Energy Association (AWEA) to develop the scenario. The scenario was informed by the location of existing transmission, but planned beyond the existing interconnection queue process to include 10,000 megawatts (MW) of new generation from wind resources between 2003-07. The scenario utilized hourly wind data sets developed by the National Renewable Energy Lab (NREL). The data sets did not present operational data (which would have been ideal), but were based on wind patterns, which proved to be quite useful.

The wind scenario attempted to address several important issues regarding expanded wind energy development in the region. Variability of wind resources, coupled with such a high level of penetration (approximately 60% [\(Check this. Sounds very high.\)](#) of the energy mix under the wind industry proposal) adds a different complexity to the transmission picture. All parties – developers, planners, and other stakeholders – are learning how such a system would work. To address these issues, the wind industry is reviewing the concept of capacity credits to understand the load-carrying capability of wind power. Wind proponents are encouraging the streamlined queue process mentioned earlier in an attempt to reduce stress on the interconnection process, especially since wind's rapid construction time will require faster interconnection and impact

congestion. One thought includes tapping transmission capacity when the wind is blowing but other resources are not using the lines. The full proposal is posted on the MISO website and can be found as attachment D to this meeting summary.

#### **Session IV: Report on Preliminary MISO Scenario results**

**Dale Osborn** reviewed and contrasted the various scenarios run by MISO transmission planning staff. Mr. Osborn noted that these results were just completed and loaded onto the MISO web site the prior afternoon. He emphasized that these were preliminary results and there would be time in the coming months to review the results in detail and make needed changes. The four scenarios were based on variations in the Midwest fuel mix:

- A Baseline Scenario (maintaining the current fuel mix)
- A High Wind Scenario (higher proportions of wind in the fuel mix)
- A High Gas Scenario (higher proportions of natural gas in the fuel mix)
- A High Coal Scenario (higher proportions of coal in the fuel mix)

Mr. Osborn then presented key points observed during the development of the 10,000 MW wind scenario. The presentation is found at: [www.midwestiso.org/calendar/meetings/december17epg](http://www.midwestiso.org/calendar/meetings/december17epg). The presentation is also included in this summary as Attachment E.

Mr. Osborn provided some basic assumptions that governed the development of the wind scenario:

- Peak load was based on the MTEP '07 summer case.
- Generation totals are based on the GE MAPS database. MISO also used public information from MTEP '07 summer case.
- The transmission plan assesses MISO flowgates and all branches greater than 345 kV.
- Only the Eastern Interconnect can be accessed;
- The simulation was performed to model bi-hourly power generation and usage over a one-year period.
- The hourly locational marginal price for each generator was computed; bid curves were assumed to be variable costs of generation units.

The simulation shows a price difference between the Midcontinent Area Power Pool (MAPP) and the Southwest Power Pool (SPP) assuming access to the existing and planned system (transmission organization expansion plans). According to the study, ninety-nine percent of the modeled 10,000MW can be produced and delivered to the power system using the existing power grid (including existing transmission constraints), assuming interconnections are addressed. Under this scenario, coal and gas resources are displaced in North Dakota as a result of transmission limitation, lowering the price received for wind energy. In the model, central South Dakota showed constraints that limit wind output, as did Kansas. These constraints occurred because planned generation was located on the load side of the system, which drives prices up

and returns greater revenues to the generator. Hence, while locating generation near load may produce greater economic gains for generators, such location may also create congestion effects that affect prices.

The MISO model estimated that the customer payment for energy was lowered in the region by \$65 million, but coal capacity was reduced significantly, assuming coal units do not respond in some way. Coal producers could choose to bid lower prices, which would eventually lower wind prices. Mr. Osborn also noted that in the model the reduction in payment for coal is reflected in spot market payments, while no change is noted in long-term contract payments; hence coal capacity may not drop as much as the model suggests.

Using the GE MAPS database, the MISO model identified constrained transmission lines. In particular, the model was able to distinguish transmission lines with the highest contribution to congestion costs, addressing which constraints are important to eliminate and which constraints will fail to reap economic benefits through upgrades. This analysis is extremely useful to point out where stakeholders may get the most dollars for transmission investments. The analysis also explains where the lowest constraint hinders the transmission system so that investment will or will not take place at that location. Mr. Osborn noted that higher voltage generally leads to lower cost for transmission, but higher voltage transmission lines must also meet reliability standards. All transmission lines do not provide the same economic performance.

Mr. Osborn discussed the MISO's 500 kV Vision plan. Under this plan, single circuit 500kV lines cut constrained interfaces and bridge constraints. MISO planners estimate a \$4-5 billion cost for the proposed transmission plan. Another 500kV plan is currently under consideration for the SPP area. MISO planners estimated potential customer savings of \$200 million through the plan. (MISO is attempting to describe benefits to the system for various fuel mixes in a study similar to a recent Western Governors Association study, which showed that a \$6 billion transmission investment in the region resulted in much higher economic benefits). In the Vision Plan, 345 – 500 kV lines run through southern Minnesota and northern Iowa. The length of time necessary to build the transmission lines has been discussed. Currently, planners are concerned that 5-9 year time frames may be necessary for siting, permitting, and construction needs.

Mr. Osborn concluded that the transmission planning process is extremely complex. MISO must coordinate transmission systems throughout the region and work with other RTOs throughout the Eastern Interconnection to ensure reliability. In particular, the desire to build higher voltage lines will impact a much greater area. He reminded the participants that the scenario runs had just been completed and were preliminary, and that the runs would likely be modified.

### **Session V: Mid-Term Transmission Needs and Issues for Transmission Plan Implementation (3-7 years)**

**Frank Bodine, Iowa Utilities Board**, described efforts in Iowa to understand transmission needs for his state. Mr. Bodine expressed a need in Iowa for additional capacity to deliver transmission for new generation units, including wind. The state also may need transmission to import or export electricity. Mr. Bodine noted that other states in the region also need additional transmission capacity. Under current conditions, Mr. Bodine is concerned that much of this capacity will not be added due to uncertainty about the system. This reluctance to develop new transmission will continue to slow down progress of the system. The Federal Energy Regulatory Commission (FERC) has initiated its Standard Market Design (SMD) process with the hope of

addressing such uncertainty; Mr. Bodine believes that addressing uncertainty is necessary and Iowa has been active in the SMD process.

Mr. Bodine felt that multi-state entities (MSEs) will be necessary to plan for transmission expansion where routes cut through two or more states, and when generation increases are in more than one state. In the past, the focus of transmission was on reliability. Increasingly that focus will concentrate more on market issues.

**Phyllis Reha, Commissioner for the Minnesota Public Utilities Commission**, (see Attachment F for presentation) welcomed meeting participants to her state. Ms. Reha spoke about regional planning efforts and transmission needs in Minnesota. She noted that Minnesota has attempted some ad hoc regional planning with only a few successes. A new transmission development process has been established in Minnesota to address the problems. The new process requires transmission organizations to file transmission projects reports every two years, beginning November 1, 2003. The reports will discuss inadequacies in the transmission system. How public input will be incorporated and the role of government in the process is currently under development.

Ms. Reha noted that the new siting process is based on the assumption that new transmission is necessary for expanded energy needs, and a proposed line provides the best means of meeting that need. The new reporting requirements will be required for transmission projects that (a) are greater than 200 kV, (b) are greater than 100kV and extend more than 10 miles within Minnesota state boundaries, or (c) cross a state line. Ms. Reha acknowledged that the new reporting requirement may not speed up the transmission planning process, but should result in a better process. The reports require environmental assessments as part of the process.

**Jim Burg, South Dakota Public Utilities Commission**, provided some further insights on mid-term planning concerns in the Midwest. Mr. Burg expressed the sentiment that transmission is the issue limiting development of wind resources. System planners need the ability to move large amounts of cheap power into areas with high-cost retail power. Mr. Burg discussed the need to develop and move bulk power very efficiently and questioned whether the current centralized transmission system is well equipped to do that. The transmission system needs to facilitate small and large wind generation. Mr. Burg compared the electricity transmission system to the national highway infrastructure moving various types of transportation to different points. Mr. Burg advocates annual compensation for impacted landowners and pre-planning to shorten development periods.

**Bob Harms, Legal Council and Policy Advisor, Office of North Dakota Governor John Hoeven**, noted that North Dakota receives power from three primary sources: coal fields, WAPA, and wind. Key in North Dakota is the movement among decision makers to build a coalition between coal and wind representatives to take advantages of possible synergies between the two resources. Several companies are working with the state to build 500 MW clean coal facilities. A coalition between coal and wind may help make the case to build more transmission, providing for more fuel diversity. Mr. Harms noted his key involvement in developing the National Governor's Association report on multi state entities (MSE's) and commitment of North Dakota to participate in exploration of the formation of a MSE in the Midwest to address interstate transmission needs and to promote diversity in the fuel mix.

**Tom Sloan, Kansas State Representative**, discussed efforts underway to improve transmission planning in Kansas. Mr. Sloan noted that transmission access is necessary to unite Kansas, where the western part of the state is separated from the transmission grid in the eastern part of the state.

He felt that development of wind resources on farms is necessary to improve rural economies. To date, state tax structures that focus on individual state needs have hampered regional efforts to develop transmission needed for wind resources. In 2000, Kansas passed legislation to remove the need for regulatory approval of transmission upgrades, or for upgrades that follow existing four-lane highway rights-of-way. Rep. Sloan also has introduced a bill to freeze property values of transmission property. He expressed a need for more attention on reliability issues and emphasized the need for MISO to pre-screen transmission need, reliability, etc. Rep. Sloan noted that statutory changes may be necessary to force action in some states to create more seamless transmission planning throughout the region.

**Ethan Brown, Senior Policy Analyst** at the **National Governors' Association (NGA)**, (see Attachment G for presentation) described the new report NGA has published on MSEs. He acknowledged the support from Department of Energy and Bob Harms' contribution to the report. The NGA report [see web site] addressed means for improving the ability of states to address interstate transmission planning needs, allocate costs, and coordinate review and permitting. The length of the permitting process and transmission development is not in sync with rapid development of small and large wind facilities, meaning that generators may be without adequate transmission capacity. The MSE could provide a formalized means of MISO integration of state policy into its planning process. While the MSE would be designed to allow state input to RTO planning, it would not strive for uniform rules across the states, bringing into question methods for including environmental reviews in the planning process. Mr. Brown stated that such issues may be addressed by a pre-planning process or through use of existing corridors to reduce planning and construction timeframes necessary.

The report proposes that MSEs would be formed in regions across the country, and would be comprised of two appointees from each state, including one appointment from the state PUC and another appointee chosen by the appropriate person or entity. Memoranda of Understanding between participating states would outline regional needs and interstate protocol. The MSE will provide input to the RTO infrastructure plan, from which the RTO develops its grid study. The NGA is currently working with the Department of Energy (DOE) and regional governors' associations to initiate MSEs in various parts of the country.

Mr. Brown answered a few questions that arose about the MSEs. One participant expressed concern that state parochial needs will rule, even under an MSE framework. For instance, interstate planning means that some states will have to bear some environmental and social costs for the problems of other states. He expressed again that a pre-planning standard may be helpful to address such problems. He also explained that federal entities would be included in MSE discussions through input from each state's congressional delegations.

Some participants expressed other thoughts on the issue of MSEs. While some interstate compacts have had trouble, nuclear waste compacts and multi-state entities focusing on acid rain and drug offenders have been successful. Discussants stated that federal agencies may take siting authority if states cannot devise ways to address such concerns over parochial needs, and the MSEs offer a vehicle to accomplish that goal. Other participants broached the issue of using public money to build major transmission lines, similar to FCC (Federal Communications Commission) charges for telecommunications infrastructure or tax dollars for interstate highways. Participants felt the need to keep this prospect of public funding in view. The MSEs could focus on compensation for states. Still other attendees noted the gulf between technical work and bureaucratic structures. Many felt the NWCC could bring technical information to political and administrative officials in a digestible manner.

## **Session VI: Short-term Transmission Needs (0-3 yrs)**

**Charlie Smith, Utility Wind Interest Group (UWIG)**, offered information about a recently completed UWIG study highlighting near-term impacts of wind on ancillary services such as scheduling and real-time operations in a case study of the existing Xcel Energy North system. The study was completed under the assumption of a vertically integrated utility environment, and the simulation framework used conventional scheduling tools. Mr. Smith noted that the data used to run the models did not show dramatic hour-to-hour changes in wind output, with very definite wind patterns emerging over time. [\(add cite to UWIG web site and presentation there on this study.\)](#)

At current penetration levels (250 MW of wind in an 8000 MW control area) and existing system demand and load characteristics, the incremental cost of ancillary services was about \$1.85/MWh of wind generation. While this was an interesting result, the primary product of the study was the analytical methodology developed to perform the analysis. The methodology allowed for the quantification of the value of improved accuracy levels of the wind forecast through the associated reduction in cost of ancillary services. Mr. Smith noted that time series data on windplant output was key to the analysis. Further research may investigate the change in results given higher penetration levels.

**Jeff Miller, California Independent System Operator (CAISO)**, briefed participants on methods the CAISO is using to address short-term transmission needs [in the face as an adjunct \(?\)](#) to longer-range planning. California has approximately 1800 MW of wind capacity in the state, with policymakers seeking to increase that capacity to 3000 MW. Primary wind resource areas lie east of San Francisco in the Central Valley and northeast of Los Angeles. These areas are also known for thermal and voltage constraints, and a sufficient planning process is needed to strengthen the system.

To address short term transmission planning needs, California has instituted a two-stage Planning Process. The first stage includes an interconnection analysis where the California Independent System Operator (CAISO) conducts technical studies to identify reliability and congestion impacts of interconnection requests. Generators are required to mitigate reliability impacts, but are not obligated to alleviate congestion effects. The second stage is a continuous planning process that is completed for a five-year planning horizon. This division of labor ensures that short-term and mid-term needs are addressed continuously, and results from these analyses are rolled into long-term planning exercises.

California has developed special wind protocols intended to aid scheduling and settlements. As a result of the new protocols, wind generators pay CAISO a small forecasting fee. CAISO develops day-ahead, hour-ahead, and real time forecasts that can then be utilized by generators for scheduling their supplies of electricity to the power grid. Mr. Miller noted that hour-ahead forecasts have typically been very close (within 95% accuracy) of actual measured wind speeds.

**Ed Weber, Transmission Planning Manager with the Western Area Power Administration (WAPA)**, presented some ideas about short-term power interests in the Upper Great Plains region. In particular, Mr. Weber discussed the integration of wind power with hydropower generation, a particularly plentiful resource in that region. One problem for the area is too much generation. Because of sparse population, the Upper Great Plains region must export as much as one third of its generation to other areas. WAPA is currently seeking funding to conduct an

integration study to assess the feasibility and opportunities for such integration and any necessary transmission additions that will be required. Among the critical issues the study is intended to address is development of a wind generation profile for the Dakotas overlaid with Western's hydro generation profile and correlated to a customer demand curve to determine the timing of wind generation to serve Western customer load. WAPA is working with NREL to gather existing profile data and to try and determine ultimate customer groups from outside the region to purchase wind generation from the Dakotas region. This analysis will help system operators to look at markets outside the control area and consider how to distribute power from new and existing resources.

**Jeff Webb, Director of Planning for MISO**, outlined the planning challenge ahead for his organization. Mr. Webb pointed out that the Midwest simply does not have enough transmission for the existing interconnection and transmission service queues. MISO has a current queue of 144 active interconnection requests (48,000 MW). Combined interconnection queues including surrounding areas amount to well over 100,000 MW. New requests will not be accommodated without significant new transmission, which could take years to construct. Delivery of both new renewable and non-renewable resources located in areas remote from load (wind and coal) will be particularly difficult. In addition, 39 wind projects currently wait in the MISO queue, representing 3100 MW of wind generation. Despite \$170 million in transmission upgrades planned for the next five years, the transmission system will be insufficient for queued development or potential development.

MISO hopes to institute some process changes that will lessen some of these problems. These changes include shortening processing time for entities in the existing queue and lowering financial barriers for "next-in-line" requests. MISO will evaluate the value of these new proposals for economics (LMP based delivered costs to loads) and reliability standards. MISO will also evaluate other projects proposed by stakeholders, or identified by staff as potentially beneficial. Ultimately, however, the region will need an efficient expansion planning process that considers all seriously planned uses of the system and develops an efficient plan to accommodate the combined uses. It will also need to allocate costs among beneficiaries.

To handle incremental requests, MISO planners have been proposing aggregate planning similar to planning exercises within PJM and NYISO. MISO will coordinate with PJM and other planning entities within the Eastern Interconnection footprint to establish such a planning process. MISO hopes to receive cooperation from transmission organizations to provide data necessary for such a process. Another important component of the process will be a rigorous independent review of baseline needs.

**Jim Caldwell, Policy Director with the American Wind Energy Association (AWEA)**, summarized the discussion by outlining some ideas for short-term improvements to the transmission system that could benefit wind power generators. Mr. Caldwell stated that the current system offers opportunities for additional transmission products that would benefit wind, given that investments and types of expansions for wind are different than past systems. Mr. Caldwell expressed a need for planning during periods of coincident peak. He suggested that wind proponents look at more than capacity issues. The ability to move power in incremental amounts is most important; the existing system has the capacity to perform that function, with some creative thinking about transmission products and services. Stakeholders need to distinguish between large and small constraints and determine how to address these constraints using existing tools and creative new mechanisms. Mr. Caldwell clarified that the new Day 2 tariff will define integration costs and will more efficiently allocate those costs. He also stated that the interconnection queue process may benefit significantly from this reformed process.

These new developments point wind proponents in the direction of a different kind of transmission product – semi-firm transmission. Knowing that curtailment can occur would enable generators to plan financially for these stoppages. While wind generators may have to take lower prices in the short run, small curtailments can be factored into financing models and projects can be initiated now.

Mr. Caldwell pointed to Congestion Revenue Rights (CRRs) as a potential source of revenue that will be available to mitigate impacts. CRRs would be available to any entities who gave up transmission (curtailment) or to generators who received the lower prices due to congestion constraints. The revenues can be distributed so as to lubricate the transmission development process and encourage judicious upgrades to the system.

Mr. Caldwell encouraged state officials to embrace these ideas and take some risks to improve the transmission planning process and the physical system. He urged officials to take one or two transmission expansion recommendations and implement them using the MSE plan, possibly at a smaller scale. He also encouraged decision makers to consider ways to provide transmission access to small wind generation. In particular, these generators need help dealing with interconnection fees. Some provision for small wind producers would strengthen their ability to participate in power generation. Finally, Mr. Caldwell emphasized the need to focus on coal and wind alliances. Such alliances, Mr. Caldwell stated, are important to building support for transmission expansion in the Midwest.

The meeting adjourned at 5:00 pm.