



**National Wind Coordinating Committee
Southwest Power Pool Workshop II:
Transmission and Wind
*Meeting Summary***

**September 19, 2005
Topeka, Kansas**

The National Wind Coordinating Committee met in Topeka Kansas on September 19, 2005, to discuss transmission issues affecting the Southwest Power Pool, the nation's newest regional transmission organization whose service territory covers all or part of Kansas, Oklahoma, Texas, Arkansas, Louisiana, Missouri, and New Mexico. The purpose of the meeting was to engage local, state, and national policymakers, environmentalists, utilities, energy offices, advocates, and other wind-interested stakeholders in a discussion of key studies and assessments of transmission upgrades, additions, policies and related issues occurring in the SPP Region. These discussions also explored how the transmission landscape is affecting the development of wind energy in the region. Finally, meeting participants worked to identify critical decision makers and entities that need to play an active role in resolving transmission issues, and determine a path forward for engaging these individuals and organizations.

The Hon. Representative Tom Sloan of the Kansas Legislature provided a welcome and introduced the first speakers: Troy Findley, Governor Kathleen Sebelius' Chief of Staff, and her energy advisor, Dr. Lee Allison.

Welcome, Introductions, and Day Overview

Mr. Troy Findley highlighted some of the ways in which Kansas is moving ahead with strategic energy policy at the state level. Starting in 2003 with a state prosperity summit, the Governor has taken leadership on developing a long term strategic plan, culminating in the creation by executive order of the Kansas Energy Council in 2004. This body is charged with formulating and coordinating a comprehensive energy plan, making recommendations to the Governor, Kansas Corporation Commission, the state legislature, and others. The state's priority is to ensure a low cost, reliable, sustainable supply, increase conservation, extend the life of available energy resources, ensure adequate and stable transmission, and encourage renewables in state.

Mr. Findley continued that the Governor appreciates diversification of the types and geography of resources in Kansas, and recognizes the need for new transmission as a way to encourage choices and benefit consumers. By 2015, Kansas hopes to have installed 1000 megawatts (MW) of renewable energy, roughly 10% of the state's capacity. With the Elk River wind farm coming on-line and new wind procurement announcements from Kansas City Power & Light and Sunflower Electric Coop, the state will be halfway towards its goal by 2008.

He described activity underway in the state to spur transmission development. The Kansas electric Transmission Authority (KETA) is a new entity brought into force by legislation signed in the summer of 2005. This legislation also contained provisions for cost recovery of new transmission that provides recovery to any project deemed necessary or with economic benefits. The KETA will help bridge the funding gap for projects that have no sponsors, but demonstrated economic benefit.

Controversy does exist surrounding wind siting in Kansas, and Mr. Findley asserted that Governor Sebelius has been seeking a balance between preservation of the Flint Hills and resource development. With intelligent strategic planning, Kansas is poised to become a national leader in wind energy development.

Dr. Lee Allison, chair of the Kansas Energy Council and energy advisor to Gov. Sebelius, began by pointing out the economic wellbeing and energy security benefits of improved transmission and greater wind energy deployment. There are risks from having too much energy infrastructure concentrated geographically: if the infrastructure is stretched too thin, there will be effects on energy supply systems. With coming increases in the price of natural gas, oil, and even electricity as supplies become more constrained, diversification is an important goal. In 2005, the US will spend \$1 trillion for energy, up 25% from 2004. This highlights the importance of greater investment in traditional energy structures, and provides an opportunity to encourage new directions: conservation, efficiency, and renewable energy. The newly created KEC voted to focus its immediate efforts on conservation and efficiency as the fastest and least-cost approach until the end of 2005.

However, Kansas is making strides towards opening new markets for renewables, and many Kansans are ready to take part. The primary obstacle remains connecting resources with demand.

He highlighted that newly proposed coal power plants might provide a vehicle for wind energy to be transmitted west to Front Range load in Colorado. Kansas has also started looking at community wind – an approach especially suited to Kansas. Kansas sent a stakeholder group to study successes in community wind in Minnesota, and the Governor's office is studying the report of outcomes.

Introductions

The participants introduced themselves and their interest. Over 90 participants from utilities, environmental groups, wind energy developers, local, state, and federal agencies, and energy sector participants highlighted their interests in transmission system expansion, economic development, reliability, cost control, and environmental protection.

NWCC Background, Wind Transmission Basics

J. Charles Smith of the Utility Wind Interest Group provided an overview of the NWCC and related wind system integration efforts.

He highlighted the workgroups, products, history, and recent activities of the NWCC. Using work undertaken in the Midwest as an example, he noted how NWCC serves as a forum for discussion that catalyzes other activities in a region. He explained that with a diversity of stakeholders, including wind supporters and detractors, the goal of the NWCC is to achieve fair but not preferential treatment for wind.

He explained the importance of transmission for wind energy, noting that the technology is remote, intermittent, and new. He highlighted recent developments at FERC and NERC that illustrate the development of supporting policy, and pointed to the changes in technology over the last 30 years that have made wind a cost-effective resource and helped it move towards more straightforward interaction with utility systems

He highlighted developments on low voltage ride-through and reactive power support that create greater system stability due to an ability of new wind generators to ride through a fault on the system so that they are still there when the fault is cleared. To account for wind energy's characteristics, many thought that the cost of the energy being provided would exceed the value of the energy provided, but an Xcel Energy and UWIG study showed that at 3.5% penetration, the costs were quite modest. A second study at 10% penetration in New York demonstrated the economic benefits of wind forecasting. He also discussed the value of wind as an energy (rather than capacity resource) and noted that the costs of wind energy integration into the grid are moderate and can be calculated and dealt with.

Wind in the Region

Mr. Rick Walker of Sustainable Energy Strategies and the Wind Coalition provided a presentation on wind energy resources in the SPP region.

He highlighted some of the areas in the region with wind resources sufficient for wind energy development. While Arkansas and Missouri have significant areas with ample resources, he noted that the best wind resources in the SPP are in the western half of its footprint, in Western Kansas, Eastern New Mexico, and the panhandles of Oklahoma and Texas. In the west of the footprint, there is 1206 MW of wind generation with purchased power agreements in place, with more on the horizon – wind energy proposals in the SPP's interconnection queue number 4470 MW; this represents 65 % of the queue in terms of megawatts. The proposed sites are in areas without large load concentrations, and as such wind energy in the region would be particularly dependent on new transmission. Without transmission additions to carry power to the East of the footprint, wind energy development in the region could be limited as soon as 2006.

Comparing the wind potential in states to the energy demand in those states shows that for most of the states in the SPP, wind energy represents a strong export opportunity. Kansas' wind potential is ten times greater than its energy demand, Oklahoma is six times greater. To meet 10% of Texas' demand, 32,000 MW will need to be developed by 2050.

The current scenarios for expansion include SPP's Kansas/Panhandle Transmission Expansion, or the so-called "X-Plan", that could support 2500 MW of wind energy, along with 600 MW of coal. For now, this seems to be a strong potential project, as X-Plan benefits exceed its costs, according to the estimates of SPP staff. However, SPP's current policy of voluntary funding for economically-justified projects means the wind industry and transmission owners that would benefit from the project have to "step up to the table" with funding if the project is going to move forward. Policies are also coming into place in the region that encourage expansion: Texas' SB20, which increased the level of the state's renewable portfolio standard (RPS) and gives greater assurance of cost recovery to companies building transmission to support the RPS, and Kansas' KETA legislation point towards state efforts to move the region towards a large number of deployed megawatts of wind.

Community-scale wind deployment is another attractive option for the region. Smaller in scale than utility-scale projects, these efforts create jobs, increase local tax bases, and have other economic development benefits.

Mr. Walker answered a question about the costs to construct the X-Plan transmission lines for wind in the region by pointing out that about \$400 million dollars of transmission improvement costs would need to be recovered; from wind projects, this amounts to about \$3 per megawatt-hour generated, or about an 8-10% adder, very similar to the cost of transmission lines currently embedded in rates to SPP customers. However, the improvements in transmission and the addition of these resources to the system should result in net cost reductions for end users and a total net benefit for the system given the high cost of natural gas, which is forecasted to continue.

Transmission Planning in SPP

Mr. Jody Holland of the Southwest Power Pool staff provided an overview of system planning in the SPP footprint. SPP's planning cycle has moved past the point of reliability analysis, as these needs have been largely met. SPP's planners are moving towards analysis of the optimal market point for transmission, with the greatest economic benefits. Operating on an 18-month to 2 year planning cycle, SPP is investigating economic transmission upgrades and inviting stakeholder input through summits, workgroups, and its website, www.SPP.org.

The planning process identified \$170 million in reliability-related transmission improvements. SPP has also engaged in developing guidance for an aggregate transmission study process as part of an effort to reform the queue process. The current method, "1st in 1st out," slows down the study and upgrade process. Aggregate studies allow developers to enter in groups three times a year. Together those customers can pay for the upgrade based on impact to that line. The window to participate in the first aggregate study closed on June 1, 2005, with 6000 MW of transmission requested for study. This identified a number of upgrades that have benefits and will likely be built. With little available transmission capacity on existing lines, it is likely that more study

will identify more efficiencies and other needs. In determining the optimal configuration, system efficiency, least-cost, and greatest economic benefit must be considered.

In economic planning, the SPP is guided by the notion that reliability and economics are inseparable. For its economic analysis, SPP screened 34 potential projects and proceeded with 4 for further study. Based on the studies, there exists a clear constraint in central Kansas, and these projects may prove to be the template for future modeling and economic planning.

Expansion of transmission to Western Kansas and the panhandles of Oklahoma and Texas would be developed in one of two scenarios studied by the SPP, called the “X-Plan” and the “Box Plan.” The X-Plan would require \$419 million in upgrades, with a clear first leg in common between all permutations of its development. It would enable export of 600 MW at the proposed Sand Sage coal plant, along with 2500 MW of wind. In the region, it is expected that wind output capacity would be about 20% in summer and 80 % in spring, with the resource more consistently available off-peak.

The economic analysis undertaken by SPP indicates that the X-Plan creates greater efficiency and more economic benefit. It is also more able to serve wind-rich areas. However, if wind projects do not materialize, the lines beyond the first leg of the X-Plan are not viable. Whether wind will be developed will be in some part dependent on which lines are built following the first leg.

Mr. Holland also described an SPP – ERCOT joint coordinated planning study that will explore high voltage and variable frequency transformer improvements between the service areas. A third economic upgrade study being undertaken is for a project that would link transmission systems across the line between Kansas and Nebraska.

In taking on these first economic planning exercises, SPP has developed a process to memorialize the mechanism for stakeholders to propose an economic upgrade. In this process, SPP studies the impacts of proposal, whether it is reasonable to the system, and determines ways for customers proposing the upgrade to get cost recovery. Cost allocation for transmission improvements are handled using four categories, each paid for differently. The cost allocation methodology shares 1/3 of the cost for upgrades across the footprint to transmission-owning members, and 2/3 allocated to beneficiaries (those interconnected to the grid as a result of the improvements) based on a megawatt/mile formula within the zone that the impact occurs in. In this way, the upgrades are part of the expansion plan process. SPP is continuing to work on ways to handle so-called “out of cycle” upgrades.

In response to a wind developer’s question about the cost to request an aggregate study, Mr. Holland replied that the costs would be variable, but that \$35,000 - \$50,000 might be within the ballpark, based on the amount of capacity requested. Final study results should be posted in the Fall of 2005.

At lunch, Miles Keogh of the NWCC staff provided a recap of some of the themes from the morning sessions.

The SPP is a wind-rich area:

- Areas that have wind are in the West, areas that have load are in the East.
- Large export opportunities exist.
- These need to be interconnected by transmission for wind to serve load.
- Policies are being adopted that drive wind adoption: KETA in Kansas, SB20 in Texas, and others.
- Other costs and benefits exist for the SPP region from developing wind energy.

The SPP transmission planning process has begun considering wind in the SPP footprint:

- The SPP uses two types of planning—reliability (for system stability) and economic (to create efficiency from a market perspective).
- Reliability and economics are inseparable.
- Outlined project areas (such as the X-Plan) appear to have economic benefits.
- Queue reform is being explored (through aggregate studies and other means).
- Planning for new transmission has developed mechanisms, but is not static.
- Cost recovery and allocation are key issues, and in SPP there are working groups made up of utilities, regulators, the system operator, and others addressing these issues.

Policies and tools that affect wind and transmission

Representative Tom Sloan of the Kansas House of Representatives provided an overview of Kansas Legislation that had been recently adopted that may facilitate the interconnection of more wind energy in the region.

The key transmission questions facing Kansas are who will build the lines, and who will pay for them? The recently adopted legislation (sponsored by Rep. Sloan) that creates the new Kansas Authority and adopts new cost recovery language represents an attempt to support answers to these questions.

The Authority creates incentives for the construction of new transmission, as well as state financed alternatives to regular investment in situations where the SPP has validated the need, but developers have not stepped forward to make investments. The new legislation also addresses cost recovery. In the current model, the Kansas Corporation Commission (KCC) applies pro-rated cost recovery and authority to recover on the basis of “who benefits, pays.” If no developer steps forward, the state can build but not operate the lines.

The majority of those appointed to the new Kansas Electric Transmission Authority are legislators, reflecting a recognition that not just engineering and economics but also politics needs to be harnessed to bring new transmission online. The legislators drove the

process of creating the authority, looking at other models like the Kansas Turnpike Authority, the Kansas Hospital Authority, and the analogous para-statal agency in Wyoming, the Wyoming Infrastructure Authority, taking lessons learned from these authorities and blending the parts they felt best suited the need.

The Hon. David Swinford, Chairman of the Texas House of Representatives, provided perspectives on the passage of Senate Bill 20 (SB20) in Texas, which increased the state's Renewable Portfolio Standard and authorized new directions for cost recovery. He noted that cost recovery risk is a central issue for utilities. SB20 ensures that if the Public Utility Commission issues a certificate of public necessity and need for transmission projects built to serve wind energy, then cost recovery is automatically allowed on that line.

The legislation added 5000 MW to the Renewable Portfolio standard and sets goal of 10,000 MW for the future. Legislators were able to push the issue of transmission for wind and incentives for renewables because they had the advantage of already having passed an RPS, and were simply moving up the scale. The bill instructs the PUC to designate best development zones for renewables, and then authorize cost recovery for the lines built to serve those zones, prioritized for those where projects would be most cost effective and beneficial.

In Texas, gas fired power plants constitute 70% of the generators, and 50% of the electricity capacity. Gas costs went from \$2 to \$7 per MMBtu between 1999 and 2005. Currently, the price is now at \$11 per MMBtu. Because of the huge increase in gas prices, and associated increases in other fuel costs, transmission is seen as being much cheaper and essential. In Texas, there is a sense of urgency on the part of legislators: 22 million Texan electricity consumers will pay half of the total cost of increased natural gas prices, averaging about \$2000 next year.

In this context, and given the ample resource that Texas has, it is becoming clear that wind can be a part of the solution. A study undertaken by ERCOT and Pat Wood at FERC showed that a 9 % wind penetration rate is technically feasible, with modest transmission costs of about \$1 per month per customer. Meeting electric demand in Texas will be a challenge: between growth and demand, the next ten years will require an additional 38,000 MW of electric generating capacity. To meet the RPS goal alone, this would mean 7000 MW of new wind. The challenge will not be to marginalize any resource, and take advantage of everything available – coal, gas, nuclear, renewables, efficiency, and conservation - to meet the need.

Rep. Swinford discussed several transmission additions being studied in Texas, including the “Panhandle Loop” and ERCOT – SPP connections. Challenges in each case include high cost, reliability, FERC jurisdiction, and ensuring that projects deliver real economic benefits. Rep. Swinford also pointed to the results of a deliberative polling exercise that showed large majorities in favor of new renewables, even at higher costs.

Prof. Mark Meo of the Oklahoma Renewable Energy Consortium and the University of Oklahoma discussed the efforts that have been undertaken in that state that help develop wind energy. He noted that because of the improvements in the technology and interest in benefiting from Oklahoma's excellent wind resources, wind energy deployment has been rapidly increasing and continues to advance in the state. The challenge for Oklahomans is to bring these resources to market sooner, instead of later. This is challenging in a state that has had a rich tradition of oil and gas predominating in the economy, slow demographic changes, and little historical interest in renewable energy. To face this challenge, Oklahoma's wind advocates used meteorological monitoring stations to gather strong data about the wind resource. The Oklahoma Mesonet grid with 114 real-time sensors in each of the state's 77 counties provided the basis for creating a detailed image for landowners to determine wind power potential on their respective properties. All windpower density maps derived from the Mesonet have been posted on the web for public review. By using an approach that focuses on using wind energy for the economic development benefits rather than on its environmental attributes, Oklahoma has seen adoption of windpower at a relatively rapid pace since 2003.

Reactions To Plans and Policies that Affect Wind and Transmission Development

Utility Reactions

A panel of utility representatives from the SPP provided their perspectives on transmission and wind energy in the region.

Mr. Phil Crissup from Oklahoma Gas and Electric initiated the panel by commenting that OG&E is a member of the transmission working group at SPP. He noted that there may be different issues in each jurisdictional region. For example, the Transmission Working Group looks at the reliability issue first and foremost, looking at projects to ensure they're in compliance with NERC planning standards. By FERC Order, Generation planning is handled by a completely separate group, with little interaction between the two groups.

Mr. Crissup noted that transmission extension costs do affect the cost of energy, but that the interaction between these is highly complex. He pointed to the FERC's recent decision denying Southern California Edison's request to create a "renewable resource trunk line" service category for transmission as an example of the complexities. Though utilities in the region are working to find solutions, there are no quick and easy answers, and the pace is a reflection of these issues, not of a rejection of wind energy technology. Wind is frequently in low populated areas: "We have lots of wire in Western Oklahoma, but it's all barbed wire." With a history of low investment in transmission to that area, the planners will have to start a number of analyses from zero, and initial costs and other issues will create obstacles.

Tom Stuchlik from Westar Energy commented that over the last 5 years, a great deal of progress has been made on these issues thanks to the efforts of a large coalition of SPP members, legislators, regulators, wind developers, and other affected parties.

One thing the utilities have been concerned with is managing their cost recovery risks. Although the SPP is beginning to come to understand the complexities of the situation and develop fair formulae, there is still a long way to go. Westar is working with other parties in the region on operations and planning, and this effort has always tried to look at generating units independent of their fuel source, taking an open access tariff viewpoint and treating wind the same as other generation. Though policies are made at the regional level, FERC is increasingly becoming involved and adding an additional layer to consider.

Mr. Stuchlik commented that that the plans for aggregated studies do not fold perfectly into the SPP's transmission expansion planning process. Although transmission is a big issue, key questions remain in considering ancillary services, especially regulation and reliability unknowns surrounding system integration of large amounts of wind. From the perspective of the utilities in SPP, wind energy has a low capacity factor, and planners need to account for contingencies when the wind resource is not there.

Alan Myers from Aquila provided that utility's perspective. Aquila serves load from Missouri to Colorado, including wind-rich areas in the west of the footprint. Aquila takes the full output of 110 MW wind farm that is interconnected with their system. As a result, they are highly invested in seeing the rules being worked out that provide a fair playing field for wind. In looking at how to make wind cost competitive, it is important to remove technical and tariff obstacles. In their experience with wind, it has taken some creative system management: on days when the wind generators are at a high level of production, Aquila has had to back down coal generation to accommodate it. All in all, however, Aquila's experience has been positive, and they have found their system is capable of accommodating the wind generation presently integrated into the their system.

From a technical perspective, there are still solutions being worked out on the VAR issue and on sensitivities of the system to voltage fluctuations. Integrating changes in VARs and dealing with load following requirements with slow reacting existing power plants causes serious system problems. On tariffs, Mr. Myers said that he liked the idea of a flexible firm transmission product, but that it would need to be provided to all generation types, not only wind.

Bill Dowling from Midwest Energy began his remarks by pointing out that something had not yet been highlighted by other utility panelists, that wind has become a cost competitive resource. Colorado's recently-completed long range resource planning study explored how much wind could be not only technically but also economically accommodated. The study concluded that there are times when wind will balance currently expensive gas-fired generation, but also times of the year when it would be offsetting less costly coal-fired resources. Accommodating it as an energy resource requires balance.

Midwest is highly interested in Community Wind in the region to help its consumers and diversify its supply. The transmission system in the SPP was not designed to deliver electricity from resources in the West to loads in the East, in fact, the opposite is

sometimes true. To reverse it, investment is required. There might be a number of places where a handful of turbines would keep infrastructure investments low. Smaller units that interconnect at 115 or 69 kV might be very helpful. Dispersing wind geographically could also dilute the variability problem, and may make interconnection requirements more feasible.

Discussion

When asked what the key question facing transmission and wind was, all the panelists agreed that cost recovery was central. Without assurance that the investment can be recouped, no transmission would be built.

The panelists were asked about whether environmental variables, particularly the cost of carbon dioxide sequestration, were taken into account in the region's planning scenarios. Panelists responded that this had not generally been the case. One goal of this kind of plan, featuring tariff and cost allocation elements, is to try to send economic signals to site generation "properly" – politically, economically, and environmentally. On the transmission side, climate change has not been a consideration, because this falls into the category of generation planning - almost always a separate activity. In generation planning, the utility panelists said that climate was being considered.

A wind developer asked the utilities whether, if regional legislatures offered cost recovery assurances, that would be enough to get transmission built that serves wind energy. Utility respondents commented that it would go a long way, but that they would still need to study impact and effects and need to understand costs and benefits from these expansions, in order to make prudent decisions and avoid "gold plating". If the system is not cost effective, the surplus costs would be put onto the bills of retail customers.

Utility Regulator Reactions

A panel of regional utility regulators provided their perspectives on the issues being discussed.

Commissioner Brian Moline of the Kansas Corporation Commission led off by noting that the "800 lb gorilla" is what happens when the costs exceed alternatives that are available? The regulator's statutory concern is to ensure that the most preferable option, including that which is least-cost, is provided to consumers. If a utility comes through wanting to pass along costs, regulators always ask about cost of alternatives.

Kansas has shut off a third of the state for aesthetic and environmental reasons. Moving to the westernmost third of the state simply means more transmission and higher costs. When alternatives are cheaper, statutory limitations and lawsuits are going to stop development of those westernmost wind resource areas. Consequently, absent a legislative mandate to do otherwise, Commissioners are compelled to continue to look at the wind through the prism of the costs of alternatives.

The SPP's Regional State Committee has been looking at a planning and cost allocation process, including an initiative for reliability-based transmission costs that spreads these costs across benefiting customer zones and participants. He recognizes that this is of little benefit to wind generators, because of its basis in capacity value and the low capacity value that has been assigned to wind in the SPP formulae. These formulae were derived as the best "can-live-with" option after a workgroup process that involved multiple states and stakeholder groups. As a result, absent legislative direction, regional regulators have no choice but to always look at transmission and other costs, and weigh these against the other alternatives.

He continued that the Commission has, in the past, encouraged gas-fired generation, but with increased costs, it will be interesting to see in public hearings what the public response would be to a legislative or regulatory mandate calling for wind.

Commissioner Michael Moffet of the Kansas Corporation commission noted that the "fuel of the moment" was once coal, then gas, now wind. This illustrates the evolutionary nature of this. Those concerned about the pace should note that it is not for a lack of trying that wind faces obstacles. Wind faces some obstacles based in the nature of the technology: it is a fact that the wind doesn't blow all the time. There are technological impediments to wind integration into the system, and as the price of the alternatives goes up, the cost of technology and operational procedure fixes that address these obstacles of wind will become less important. Wind advocates are trying to rationalize the use of free-fuel resource into the system. In our enthusiasm to accomplish this, because of our considerable amount of wind in Kansas, there is a danger that the man on the street will be left with the impression that coal, wind and gas are fungible to meet generation needs. While there is some interchangeability, it is not completely so, and if it were, nobody would pass up the free fuel.

Commissioner Moffet continued that it disserves the people when integrating large amounts of wind is sold as a simple thing. Planners and regulators need to be realistic about what they want to accomplish. The system is cumbersome, but it is that way for a reason – regulators are entrusted with being careful and moving in ways that ensure stability and reliability in that system.

Mr. David Hurlbut of the Public Utility Commission of Texas offered insights into policies for wind development in Texas that have been hardwired to restructuring. Without restructuring, there may be little commonality in some areas. With that caveat, however, he thought there were some lessons to be learned from the experience in Texas.

Foremost among these was the importance of a retail market in encouraging wind. Retail electricity customers in Texas have the ability to choose renewable energy, and this has led to a demand for wind power in excess of the state's renewable portfolio standard. With approximately 1400 MW installed of wind, Texas is years ahead of the initial goal set by their legislature for renewable energy. Roughly 60% of the state's installed renewable energy capacity is supported by the RPS, and roughly 30% by the state's voluntary market. In Texas there are significant sources of retail demand for wind

energy. If the in-state source of retail demand is not clearly identified, developing transmission policy may be premature.

Moving forward on Transmission and Wind Energy in the SPP Region

The agenda moved to group discussion. Environmental advocates commented that while there are uncertainties about wind energy, there are uncertainties about all generation types: note the price of gas, and the questions about timing for future carbon dioxide controls that could increase the cost of coal-fired power dramatically. Committing to coal power now means those uncertainties are likely to stay with us for a 60 year lifetime.

Wind advocates described their experiences with deliberative polling, and recommended it as a tool for determining consumer priorities relative to wind energy. Because wind is new, initiating policies that encourage it can be challenging without a clear sense that it is a consumer priority. Commissioners replied that in most respects, it is a priority in the region. Governor Kathleen Sebelius sent a letter challenging the state's utilities to bring 1000MW of cost-effective renewables online. However, for regulators, without a legislative driver, for regulators, inquiries must be set within the statutory structure in which they operate. The problem lies when a policy making process is diffuse, and not on a level where a number of people can agree on a course of action.

Regulators commented that the policy direction on wind energy is not always clear, and that sometimes it is hard to see past the intentional ambiguity of state legislation installed and removed by conflict. Resolving these issues by bringing together the right constituencies takes time, especially when dealing with conflict. Though the process is slow, in some ways this is a sign that the process is working. Slowness of the process is an inevitability.

Utility representatives brought up a topic of discussion on the certainty of cost recovery. They commented that this remains an issue, but not just through retail rates. Competing drivers, such as being held to a standard of providing a cost effective, reliable service that is governed by regulators and subject to federal scrutiny by FERC. FERC's pro-forma interconnection agreement provides for the transmission owner to build lines and have its costs repaid by wind energy over a period of time once the facility is operational. What FERC did not include in the mandates is certainty that there will be a revenue stream to assure and fund cost recovery. If the wind generator is outside that transmission owner's service territory, it may be forced to use rates to recoup the investment. Therefore, if the wind generator that is the beneficiary is not a rate payer, the wrong people can be charged for infrastructure improvements.

Wind energy advocates noted that the impacts of variability as a cost factor are oft-cited. They commented that the Utility Wind Interest Group (UWIG) has undertaken research to estimate these costs in a number of regions, and offered UWIG as a resource of there was interest by a regional utility in this kind of cost-estimative process. Utility representatives said that this might be of interest, but because there is no one-size-fits all solution, a state or region-wide study would be better, if possible. Other utility

representatives said they were always open to any help in evaluating impacts to the system. They would welcome information about how they could potentially integrate the resource.

These representatives commented that under some conditions, wind represents a large part of individual utility load. For example, Aquila has 500 MW peak load, 100 MW of which is being met with wind. During minimum load times when wind is blowing, they have found that they need to turn down a lot of resources. As ancillary service markets are developed it may become less of an issue. This is an area where expertise would be helpful.

Abby Arnold, the session moderator, began a summary of the issues. She noted that she had heard a lot of themes in common between the utilities and wind developers. In addressing common themes, a number of additional comments were raised by commenters. Themes and discussed issues included:

- There is interest from utilities and wind industry to address vague rules and inconsistencies in guidance.
- The feeling from wind industry is that they are “out on the ice during a hockey match without protection or skates.”
- Most groups are interested in taking advantage of community wind energy opportunities.
- A central question: what do ratepayers want? Least costs? Deliberative polls sometimes show other priorities.
- Addressing cost recovery is a top priority– how are utilities going to get costs recovered?
- Commissioners felt that clear legislative guidance is essential. Legislators feel that an RPS is not politically likely.
- There is room for translation of IEEE and UWIG study work into language usable by new and broader audiences. Many misunderstandings remain about study work and results.
- The wind industry representatives argue that revenues of the electric utility industry amount to \$340 billion a year, while the wind industry is a \$10 billion a year industry. Yet, there’s a delegation of some aspects of the transmission problem to the wind industry. With a huge reliability machine in place, the capacities of the wind industry will be ill-equipped to address these transmission issues alone. If Spanish, Danish, and German engineers can address solutions, the Oklahoma engineers should be able to.
- The Kansas Electric Transmission Authority’s “commitment” to building wires leaves many open questions: how will they do it? What will the budget be? What will the anticipated timeframe be?
- Transmission and generation are separated – this is a bigger question than wind. Regional stakeholders can consider bringing together planning for transmission and generation, maybe at the commission level, to investigate these and linked topics.

- Cost allocation must have a political solution to separate the relative use of electricity by different consumer types and regions.
- The economics of wind have to be considered together with the economics of transmission.
- Economics from a wind developer's perspective are very short term. Transmission developers are medium-term, measured in decades. The priorities of environmental activists involve the long-term collapse of the climate. Each should be appropriately considered.

Members of the group noted that some of these questions seem to be solved elsewhere, even within SPP. By identifying these solutions, successes, and lessons learned, there may be templates for further success. Federal representatives offered their assistance and that of UWIG and NWCC, including following up on the idea of conducting a comprehensive evaluation of how wind can fit in the SPP system, not just today, but in future scenarios as well, taking cues from other state and regional efforts in the West, New York, and Minnesota.