

**KEC Electricity Committee Meeting Notes
June 17, 2008**

KEC Electricity Committee Members Attending: Stuart Lowry, Committee Chair, Rick Anderson, Sarah Dean, Carl Holmes, Janis Lee, Mark Parkinson, Bill Riggins, Tom Sloan, Mark Taddiken, Michael Volker

KEC Staff: Liz Brosius, Ray Hammarlund, Jennifer Knorr

Opening remarks

Stuart Lowry opened the meeting by introducing Todd Tarter from Empire District, Colin Whitley of KPP, and Bill Dowling, Midwest Energy. Lowry reviewed the agenda, the committee objectives, noting that another meeting would need to be scheduled in July.

Presentation from Empire District Electric Company on future generation planning

Todd Tarter, Manager of Strategic Planning at Empire, gave a PowerPoint presentation on their strategic planning process (available on the KEC web site, under the June 17, 2008, meeting heading: <http://www.kec.kansas.gov/electricity/index.htm>).

In his overview of the utility, Tarter stated that Empire is a relatively small investor-owned utility (IOU): 55th out of 70 in the U.S. based on 2006 retail customers. They serve only one county in Kansas (Cherokee), with Kansas customers making up 6.1% of their system based on retail customer count.

Tarter noted that because many customers in the Branson and Ozark Missouri area portion of their service territory don't have natural gas, Empire is close to being a dual peaking utility, with winter peak at about 85% of summer peak.

In summarizing their generation assets, he said that Riverton Unit 12 is their lowest cost peaking plant. He mentioned that they had a PPA with Elk River Wind Farm (150 MW), which has a rated capacity of 7 MW. They have a 162 MW PPA from Jeffrey, which will expire in 2010.

Empire also has a PPA for 105 MW of the Meridian Way Wind Farm near Concordia, which will offset some natural-gas fueled generation (23% of their energy came from natural gas in 2007. There was also a major turbine outage at their largest coal unit in this timeframe). Empire has 12% ownership (approximately 100 MW) of Iatan Unit 2, currently under construction by KCPL. They'll get another approximately 100 MW from Plum Point (coal unit) through part ownership and PPA.

Tom Sloan asked if that would offset the loss of the Westar contract, and Tarter said it would more than make up for it (approximately 200 MW of new coal versus 162 MW Westar contract).

Rick Anderson observed that the Elk River Wind Farm was outside their service territory and asked if Empire had any responsibility for voltage regulation. Tarter said he wasn't

sure. Anderson how long it took to fire up gas turbines when the wind dies? Tarter said it took 10 minutes.

Tarter summarized some of the environmental projects at different units and mentioned the Missouri Carbon Sequestration Project, a joint pilot project to demonstrate feasibility, using food-grade carbon dioxide (they won't be capturing smokestack CO₂). Sloan asked who would be providing; Tarter said he didn't know and suggested the web site might have more information. Dean asked who was funding, and Tarter said some federal funding plus money from the utilities.

Tarter summarized the various demand-side management (DSM) programs operated in different states in the Empire service territory (Missouri, Arkansas, Kansas, Oklahoma). Anderson asked what was meant by DSM; are they just shaving peaks? Tarter said no, they offered general conservation programs as well. In other words, Empire offers both interruptible (peak shaving) and energy efficiency programs and is evaluating additional demand response programs. He said they expect energy savings of about 0.2 MW in 2007, but this annual level is expected to grow considerably over time as programs ramp up and new programs are introduced.

Regarding generation planning, Tarter noted that they developed a formal Integrated Resource Plan (IRP) in the mid 1990's and then the Missouri rule was waived; now IRP is back. He outlined how Empire had developed their current IRP and load forecast, noting that peak load in the 1980's was less than 700MW and now it is around 1,200 MW. Mark Taddiken asked if this was due to an increase in customer base as well as usage per customer and Tarter said yes, people are using more gadgets, plasma TV's. He concluded by saying that the preferred plan relies on a balanced portfolio of generation options that provides cost-effective, reliable, and safe service.

Dean asked about capital costs and Tarter said that they expect costs to go up for all generation options. Said that their current plan would need to be updated.

Anderson asked about the actual cost of coal, wind, gas? Tarter said he couldn't speak to future costs of wind, but could provide some information to the Council. Anderson said it would be very interesting to see cost variables.

Janis Lee asked if the planning required in all states was the same; in other words, does Empire have to undergo planning three different times. Tarter said that the Missouri rule is so broad and onerous, that it suffices for the other states.

Taddiken reference the tornado chart showing risk analysis on slide 26, what the environmental risks represent. Tarter said it is largely the cost of fossil-fuel based generation due to a carbon tax.

Lee noted that the presentation didn't include a projection of future demand for the next 10 to 20 years. Tarter said he would be happy to provide that. Lowry asked if he could

give them an estimate, and Tarter said it ranged from 1.9% to 2.2% per year. Taddiken asked if that was increase in customers or base; Tarter said it was both.

Dean asked if he had any feeling on DSM and expectations? Tarter said they expected to get some real peak savings from their large customers who had agreed to be interrupted; in the past it was 30 MW.

Lee suggested that DSM won't help much with growth; Tarter said these programs are immature. Holmes asked how it worked for customers with interruptible service, and Tarter explained that many customers have backup generators that they turn on, while others (one large customer in particular) can shut down for a few hours and move production to other areas (in the country) if needed. They do not have to send folks home since they are mostly automated.

Holmes also asked about residential programs to shave peak, and Tarter discussed interruptible programs tied to air conditioning. Lowry asked if Tarter had an idea which programs paid the most dividends in terms of savings; Tarter said those options were prioritized and built into their IRP forecasts.

Brosius asked what cost-benefit test they used, and Tarter said they used the TRC.

Presentation from Kansas Power Pool (KPP) on future generation planning

Lowry introduced Colin Whitley, General Manager, CEO, Kansas Power Pool, who summarized information contained in a handout that was circulated (and which will be on the KEC web site, under the June 17, 2008, meeting heading: <http://www.kec.kansas.gov/electricity/index.htm>).

Whitley explained that the Wichita-based KPP had only been in existence since May 2005. It is a joint effort by municipal utilities to combine power supply assets and resources to improve economic efficiency and value for municipal utility customers.

Whitley noted that municipal utilities started initially because no one else would serve them. Now they are no longer efficient because these are largely oil or natural gas plants. He noted that pooling resources has resulted in significant savings—over \$1 million in transmission savings alone (what would have been built vs. what was built). Each member city votes and holds a position on the KPP board. Rate changes are voted on by everyone resulting in collective resource planning. Difficult for a small town to build a plant on their own which is why cities are working together through the KPP.

There was a general discussion of electric transmission in general as well as how it relates to some of the problems KPP is trying to address. Whitley said that increasing the high voltage transmission in the state won't necessarily benefit municipalities. There was also discussion of the SPP process for approving transmission upgrades. Holmes asked about the new line from Kingman to Cunningham; who paid? Whitley said that the City of Kingman paid; however, even though the new lines could carry more load, the substation can't handle more than 7 MW. KPP is working on how to pay for new

substation. Anderson said another issue to be aware of is the time it will take to receive parts. Most made in U.S but there is a large backlog.

Whitely noted that beginning June 1, KPP is buying energy from Bowersock. Sloan asked He said that KPP is looking to have more renewable energy in their collective portfolio; the City of Greensburg recently joined the KPP last week, and they have announced a goal of being 100% renewable; he said he didn't know that anyone could be 100% renewable but we're going to get as close as possible. Lee asked how much power Greensburg needed? Whitely said about 3 MW.

Whitley discussed their current generation mix, noting that the high reliance on natural gas (60%) is a real concern for municipals due to the high cost of the resource. Taddiken asked if they were considering PPAs as well as ownership, and Whitely said yes, though transmission constraints will need to be addressed if they want to bring more power in. Holmes asked if he could them some idea of fuel costs; Whitely said he would get that information to staff.

In terms of load and capabilities, KPP currently has far more capability than load; the problem is the proportion that comes from intermediate range is coming from peaking units; they're short on base load capacity, Whitely said, and **project 30% load growth by ????**. Holmes asked if they were required to have 12% reserve margins and Whitely said yes, they were.

Parkinson asked if the lack of wind was because of the transmission limitations? Whitely said no and that they planned to work with Greensburg to diversify portfolio. However, to do the best with wind, you need a unit that will balance it out when wind is not available, and he noted that they don't have anything to ramp up and down when the wind doesn't blow. Parkinson asked why they couldn't use wind to replace your natural gas component? Whitely said they could offset some of their natural gas usage, but cost and transmission are issues. He noted that the 10% of the energy KPP receives through contracts is renewable (wind and hydro); but reiterated that they don't control enough generation to turn the plants on and off whenever we want. Lee observed that it sounded like balancing wouldn't be possible and referenced concerns from municipal utilities about a proposed renewable portfolio standard (RPS): they were purchasing their power and couldn't control when the offset was turned on and off. Whitely said, yes that's correct.

There was a brief discussion of the three different utility types—investor-owned utilities (IOU's), rural electric cooperatives (Coops), and municipal utilities (muni's)—that serve Kansas. It was noted, for example, that the Lawrence Energy Center was owned by Westar.

Regarding KPP's load projection mix, Whitely said that all of KPP's coal-based current (and future) resources are through PPA's; increase in natural gas would be through both PPA's and a joint project to build a unit. Dean observed that they didn't show any wind, and Whitely said they would like to add some wind in the future. Dean asked what's

driving that desire? Whitley said that the last time the board met, they agreed that they'd like to continue to have 10% of their total energy mix from renewable resources. Holmes asked if the increase in hydro at 2010 represents Bowersock and Whitley said yes. Holmes asked where the increase in oil-fired generation comes from; Whitley said it comes from new members that already own oil-based plant. Lee observed that it would be helpful to add the population of the cities to give a better idea of the growth. Holmes said it would be helpful if KPP could provide a new chart with forecasting for cities.

Lee said she'd heard that the larger utilities are requiring smaller cities to run their peaking plants if they have them and asked if KPP was seeing this as well. Whitley said yes, there are times when there is no other option; people have to keep their lights on. It used to be there was excess capacity; we're not at that point any more and now we have to find another solution. Whitley said it was too expensive to run the municipal generators 365 days a year. That's why transmission is such an important component.

Whitley invited members to come to the monthly KPP meetings if they were interested in seeing some of the cities they serve.

Holmes asked if any of the current large transmission projects being considered will help KPP move power? Whitley acknowledged that those projects would help, but they will also need to address other issues such as the transformer problems. He noted that the SPP process can take a long time.

Anderson asked if KPP heard anything regarding the cost of power? Where are KPP member cities at compared to rest of the world? Whitley said the costs range from \$0.05-\$0.06 per kWh but could jump to \$0.13 depending on situation in future.

Presentation from Midwest Energy on future generation planning

Lowry introduced Bill Dowling, the Vice President of Energy Management and Supply at Midwest Energy. Dowling gave a Power Point presentation entitled Power Supply Portfolio Development (available on the KEC web site, under the June 17, 2008, meeting heading: <http://www.kec.kansas.gov/electricity/index.htm>).

Dowling gave a brief overview of Midwest Energy, noting that it is a member-owned cooperative that serves 48,000 electric and 41,500 natural gas meters in central and western Kansas. He summarized their energy sales by customer (21% of which comes from oil-field pumping), total annual electric load and load duration curve. Regarding their historic supply portfolio, Dowling explained that in the early 1990s they retired old generating facilities and replaced that supply with purchased resources (98-99% PPA's) from multiple suppliers with a mix of fuels (coal, natural gas, oil). The new Goodman Energy Center will give Midwest Energy 75 MW of natural-gas generation by the end of 2008, in addition to 13 MW at Colby, plus 9 MW at Great Bend, and 4 MW at Bird City. They project 0.5% annual growth in demand for energy.

Dowling summarized their risk-integrated resource planning process, noting that they were looking to design a "no-regrets" energy portfolio. In response to a question from

Lee, Dowling noted that they did look at the potential for carbon regulation with an estimated carbon price that would raise costs anywhere from \$5 to \$20 per MWh. He discussed the demand forecasts (2005 to 2024), based on several different scenarios. He also summarized the recommended portfolios for 2006, 2010, 2015, and 2025, noting that they will need about 52% base load generation, 8% intermediate, and 40 % peaking, which should come from at least 3 different suppliers (of which Midwest would likely be one). Despite increases in expected environmental compliance costs, Dowling said coal would remain in portfolio. Up to 50 MW of wind could be accommodated in their system without raising overall energy costs; transmission is expected to impact both the cost and reliability of supply options.

With respect to demand response programs, Dowling said that they looked at a variety of options (and recognized existing programs, including the successful time/temperature rates for irrigation, which accounts for about 35 MW of demand) and concluded that cost-effective demand response would not cover their expected load growth. Dowling provided an overview of the responses Midwest received to its RFPs for baseload, intermediate, peaking, and demand response resources. Currently, he said, they are working with two parties on long-term base load deals; revisiting some other proposals in light of recent developments. They are constructing 75 MW of peaking generation (Goodman) and negotiating new long-term contract for additional peaking resources.

There was some discussion of how the time/temperature irrigation program worked. Holmes asked if they were getting requests to switch irrigation pumps to electricity; Dowling said yes, especially from diesel users. When you get to western part of their service territory (Colby), they were electric years ago and it is easier. If they need 3 to 5 miles of three phase, that will take longer. Holmes asked how long did people have to wait; Dowling said about 4-6 weeks.

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Dean said I think you are engaged with some wind. Dowling said they were; they have 29 MW of wind and we will have 50 MW by the end of the year from Smoky Hill wind farm. Of this 50 MW, they can count 6-8% as certified capacity; it represents 16% of their nameplate peak load. They have some concerns about voltage stability from wind. That is one of the reasons we are investing in the Goodman facility. Dowling noted that there is an almost perfect correlation between the timing of peak demand and the drop in production from wind facilities. Said they hoped the wind energy would offset some peaking generation, not just base load coal. Holmes asked if capacity factors for wind were around 40% and Dowling said that is what recent history has shown, though there is insufficient data to know what these factors will be over 10 years or with the new turbine

designs. Holmes said when he talked to NREL last week, they still have gearbox problems 6 to 7 years out.

Power Plant Summary

Due to time constraints, Brosius said she would email out her questions about the power plant summary and solicit feedback. They would plan to review more fully at the next meeting.

Other business, announcements

Lowry facilitated a discussion of possible dates for the next Committee meeting—July 3, 7, 8, 18. Brosius collected some feedback from members about availability and said she would send out a follow up email.

Lowry said that the Committee would need to decide about next steps, noting that they would hear one more presentation from FPL. He encouraged members to send Brosius any proposals for policy.

Dean asked if they would get a better idea of expected demand growth and where we are going? Lee suggested staff could quantify how much of the future demand could be met by energy efficiency and conservation. Dean referred to the Summit Blue study, and Brosius said that they would have the final report at the end of July.

Volker said it would probably be better to develop a statewide load forecast by using the individual utilities' demand forecasts. He said aggregated information could be obtained from SPP and offered to help Brosius get that information.

Parkinson raised the issue of transmission, asking if there was a need to make the approval process and the regulatory process better? Holmes said that the Legislature had already implemented policies to cut red tape: the KCC has a 90-days turnaround time on requests for transmission lines, which is the fastest in the nation. The Legislature also added a provision so that upgrades don't have to go through the KCC process: 6 months from decision to upgrade to energy is very fast. Lee noted that the hang up came from how to allocate costs. Holmes also said that KETA was working on getting transmission built, but they can't do anything that is not authorized by the SPP.

Lee suggested staff (either KEC or Legislative Research) could do a short summary of the legislation that addresses transmission.

Dean asked if transmission had been discussed much in the previous presentations from the utilities? Brosius said it was not really part of the discussion of future generation plans; Lowry noted that it is an important element.

Parkinson said it appeared that the time from making a decision to actually building a line is four years. By the time you go to SPP, KCC, right of way, it takes four years, which seems like a long time. Dowling said funding is the major issue, along with acquiring property through right of way.

Holmes noted that he liked the power plant summary that staff had prepared and suggested that a similar chart be constructed showing projected demand on a utility-by-utility basis. Brosius said that mirrored her plans and if that information can't be extracted from the presentations, staff would ask the utilities for further information.

Meeting adjourned.