KEC Electricity Committee Meeting Notes
May 13, 2008

KEC Electricity Committee Members Attending: Stuart Lowry, Committee Chair, Sarah Dean, Carl Holmes, Janis Lee, Mark Parkinson, Bill Riggins, Mark Schreiber, Dave Springe, Michael Volker [KEC Co-Chair Ken Frahm]

KEC Staff: Liz Brosius, Ray Hammarlund, Corey Mohn, Jennifer Knorr

Opening remarks
Committee Chair Stuart Lowry called the meeting to order at 9:00 and declined to make opening remarks, as did co-chairs Frahm and Parkinson.

Review, discussion of committee objectives
Lowry asked if everyone had a chance to review committee objectives. He referred to a document entitled "Objectives and Work Plan" and briefly summarized four objectives. Lowry suggested that committee will be closer to meeting the fourth objective—understanding how utilities will meet anticipated demand—after hearing all presentations. He suggested discussion of further objectives be deferred to the end of the meeting.

Liz Brosius led a discussion of the draft power plant summary and identified two questions she wanted feedback from the committee on: (1) should nameplate capacity be retained on table and (2) should gross generation be added to (or replace) net generation data? She noted that most of the net generation numbers were provided by individual utilities. Any additional qualifications on data are noted in the footnotes to the chart. She asked the committee if this was

Frahm asked what summer capacity is? Volker responded that peaking capacity is affected by temperature and stated that that summer capacity is a more meaningful indicator for the Council's purposes.

Kyle Nelson, Sunflower Electric Power Corporation, agreed, stating that nameplate capacity numbers can be extremely confusing, because different utilities may calculate it differently; he noted that there were different manufacturer nameplates (i.e., certified ratings) for different components such as boiler, turbines, etc. Nelson agreed that summer capability is most likely what the committee is looking for.

Lowry asked how if it was possible for a generating unit to exceed its nameplate capacity? Nelson replied that it is possible, citing Holcomb 1 as an example, noting that under optimal conditions, turbines can be fired up to exceed nameplate. He also noted that this kind of use may result in shorter turbine life or need for more maintenance.

Lowry asked if the Southwest Power Pool (SPP) required utilities to report summer capability data every year? Nelson said that utilities had to run a formal capability test at least every third year; during off years, they run an operational test (at least 90% of claimed capability).

Lowry suggested that this data might be available on the SPP web site. Nelson said it may not be public information for specific unit data, but you can get criteria information.

Lowry noted that this shows that planning and dispatch is a regional operation.

Carl Holmes asked that table include a column showing station power (difference between gross and net generation), and also suggested that upgrades to equipment might be behind difference between nameplate capacity and actual. Nelson said that, with respect to the latter, he didn't think you will ever see a nameplate fall right on summer capacity.

Janis Lee asked if CO2 emission rates were consistent with data the legislature received from KDHE? She agreed that it was important to know how much electricity a given unit requires to put electricity on the grid. She asked why some of the stations showed a negative generation? Nelson explained that reserve units are on standby and require some energy to keep turbines operational, but may not actually generate electricity during a given year; therefore, they have a net negative generation.

Frahm asked about wind generation and the use of nameplate capacity. Corey Linville, Sunflower Electric Power Corporation, referred to SPP's process for determining summer capability and noted that a wind farm with a 50-MW nameplate capacity might only have 3-4 MW claimed summer capacity. Bill Riggins added that a 100-MW nameplate project only gets a 7 MW capacity rating (based on SPP's rules).

Lee asked if nameplate for wind was what it gets when wind is ideal? In the discussion that followed, Nelson and other utility representatives clarified that capacity factor is not the same thing as the amount of time that the wind generator generates power because the wind at any given time may or may not be strong enough to reach peak output capability. They explained that average annual capacity factors are calculated on an annual basis, based on the number of MWh generated over the 8,760 hours in a year. [Staff note: historical capacity factors for Kansas wind facilities can be found in *Kansas Energy Chart Book 2008*, p. 20.] It was emphasized that wind, with current technology, is not a capacity resource; it provides a substitute for energy (e.g., fuel to run turbines). Capacity relates to reliability – wind doesn't help here. Have to have spinning and planning reserves to deal with emergency situations. SPP looks at what was operating during the hottest 10% of the peak load.

Parkinson asked with respect to a 100-MW wind farm and a 100-MW natural gas peaking plant, what is percentage comparison? Nelson said the capacity factor for wind would be in the 40% range and said he would address some of these topics during his presentation.

Holmes asked about the missing data for CO2 emissions rates on three of the Sunflower units. Brosius explained that staff needed to work with Sunflower to calculate these and would get that done.

Sarah Dean asked how the committee anticipated using this summary and argued for the removal of the adjective "intermittent" in the phrase, "exclusive of intermittent power generation sources such as wind farms." Lowry noted that the committee had discussed what qualified as baseload resources. Dean said she wasn't saying wind should be included in the chart, but objected to wind to the chart, objection is to how it is referred to. EIA does not use this term. We know it can be made non-intermittent with natural gas.

Lowry said the summary would be used by the Council in developing policy recommendations and also available as public information. Lee suggested revising to remove "such as wind" but leave "exclusive of intermittent power generation sources." Any plant on this chart could be called to service at any point in time and that is why they are on the chart.

Dean said assumption here is that wind will always be considered intermittent, that is the objection. With storage in the future, wind could be baseload. Maybe there is a way to reword. Lowry suggested tabling the discussion of the summary and moving to Kyle Nelson's presentation by Sunflower.

Presentation from Sunflower Electric Power Corporation

Kyle Nelson and Corey Linville, Sunflower, and Gary Groninger, Burns & McDonnell, gave a powerpoint presentation entitled "Sunflower Electric Power Corporation" (available on the KEC web site, under the May 13th meeting heading: http://www.kec.kansas.gov/electricity/index.htm). Presentation include overview of current generation assets and resource mix; factors that influenced past decisions; CO2 emissions from existing (and potential new) resources, and impacts of $20 and $40 carbon tax on various baseload generation options over 20 years; long-term planning efforts; balance loads and resources; and energy efficiency program projections.

Dave Springe asked how SPP looks at wind capacity, and Linville explained that SPP looks at the wind that is operational at the peak hours regionally, not just individually.

Parkinson asked if SPP capacity ratings mislead people into underestimating how much energy is actually derived. Nelson said that wind provides little in the way of rated capacity; reiterated that it is essentially only an energy resource – offsetting fuel costs.

Holmes noted that in Sunflower's service territory, there are 350 irrigation pumps that are on a waiting list to be converted from natural gas to electricity and asked what impact that would have on demand. Nelson noted that it will force them to rely more on natural gas peaking units, increase costs and prices to consumers.

Volker noted that Midwest Energy offers time and temperature rates, which have been effective in reducing demand during the peak hours

Lee noted that rates are going up and incomes are low in western Kansas. Nelson noted that western Kansas had fewer customers per transmission than eastern part of the state.

Volker said both Sunflower and Midwest Energy would be losing capacity due to expiration of contracts with Westar, noting that essentially Westar would be getting additional coal capacity without having to build another plant.

Holmes said ratepayers paid for Aquila system which included a portion of Jeffery. Springe explained that although the customers on the old Aquila system owned a percentage of Jeffrey, they lost ownership when Aquila acquired the system, moving instead to a lease arrangement with an option to buy when the lease expired in 2019; that option was eliminated when Aquila sold its electric generation assets to Mid-Kansas Electric Company and so the customer now have no ownership rights.

Lee said eastern Kansas is gaining coal capacity (old plant) without building, Western Kansas is losing.

Volker noted that increases in energy efficiency produces energy savings, not demand savings.

Nelson said that utilities have done what they can in terms of energy efficiency without triggering New Source Review of criteria pollutants. If you increase the reliability of the unit or increase production, this could trigger NSR by EPA. Different trigger points for each pollutant (for example, annual NOx emission increase of 40 tons).

Lee asked how many coal plants have scrubbers? Nelson said Holcomb doesn't have a Selective Catalytic Reactor (SCR) but does have dry scrubbers. Jeffrey is installing wet scrubbers and low NOx burners. LaCygne 1 has a first generation scrubber, and plans are in place to retrofit both unit 1 and 2 with new scrubbers. Lawrence has wet scrubbers, which are operational.

Nelson said the results of the analysis by Burns & McDowell is that natural gas is best option for reserve and peaking generation, and for balancing intermittent wind load. Supercritical coal still best option for baseload, even with carbon tax. He estimated 25% cost increase if more coal generation is not available. He urged committee members to remember that urban areas will have different projections than rural sections and that each utility has different existing resource mix. There is not a simple one-size-fits-all answer.

Frahm said that based on the $40 carbon tax scenario, he assumed they were still preferring coal because of volatility of gas prices; Linville concurred.

Groninger noted that a $40 carbon tax is estimated to cost Sunflower $500 million over 20 years. Schreiber agreed that for Westar, the costs would be significant.

Lee said we will chase business out of the country if we impose national regulation that affects the economy. In any case, the consumer pays.

Holmes asked how cap-and-trade policy would affect costs. Nelson said it depends on how it is structured. Volker reminded them that the most efficient, cost-effective form of carbon regulation would be a carbon tax; cap-and-trade is next. Hammarlund and Brosius note that the Greenhouse Gas Policy Committee will be discussing these issues at their meeting in the afternoon.

Holmes said that he believes the costs of regulating carbon are scaring Congress; they don't want to pass along higher costs.

Presentation from Kansas Municipal Energy Agency (KMEA)

Jim Widener, KMEA General Manager, passed out their 2006 annual report and a handout summarizing his presentation (available on the KEC web site, under the May 13th meeting heading: http://www.kec.kansas.gov/electricity/index.htm). KMEA is a nonprofit joint action agency; could be viewed as a coop of municipalities; primary function is to assist cities in acquiring economical supplemental base power supply (power supplier, aggregator). Highlights of Widener's presentation are listed below:

- They are not regulated by KCC.
- They are not the Kansas Municipal Utilities (KMU).
- 75 municipal members scattered across the state
- Prior to 2005, aggregator of baseload power with IOUs.
- Muni's don't want to run peaking units because of expense; trying currently to buy more baseload.
- Future plans – trying to fill in baseload. Cimarron and Russell – helped them apply for hydro.
- Too small and too scattered to own and operate wind ourselves, but are willing to purchase wind energy from larger control areas. (Looking at Smoky Hill).
- Noted that Greensburg was trying to rely 100% on green power and wondered about feasibility.
- Baseload contracts will all expire in the next 10-15 years. Would like 75MW to 100 MW of baseload coal on east and also on west, some wind and some hydro.

Holmes said he'd heard that some municipalities were signing contracts for wind turbines. Widener said he hadn't heard of new wind activities. This prompted discussion of wind turbines in City of Jetmore and news that they had signed contracts. Lee expressed concern that they hadn't coordinated with Midwest Energy; others expressed concerns about reliability of refurbished units and voltage issues on their power lines.

Lee asked if there was any way to assess the cost of gas-fired plants that may be built (in lieu of coal). Groninger said he could get this information to KEC staff for distribution.

Holmes asked a question about integration of wind. Audience member Holly Starling, FPL (owner of Grey County Wind Farm) offered to make a presentation on details of wind integration, and Lowry said he would work with staff to see if there was room on a future agenda. Holmes said he'd like to hear where they are with respect to compressed air storage and what are the possibilities and costs in Kansas.

Other business, direction to staff

Lowry asked if there were suggestions for additional objectives. He noted that KCPL and KEPCo would be making presentations at the next meeting on May 21.

Brosius asked for clarification of committee's wishes regarding nameplate capacity and gross generation data on the power plant summary chart. It was agreed that nameplate capacity would be removed, and gross generation would be added. Brosius will coordinate with utilities to get the gross generation numbers.

Lee asked when do we get to Objective #4, discussion of how utilities will meet future demand? Parkinson said we have to get through presentations, then issue a report. He agreed #4 is the most important.

Lowry noted that the next meeting is last scheduled meeting and that we will need one more after June 10 to hear from the rest of the utilities. Objectives will drive how many additional meetings will be needed.

Brosius noted that KEC intended to hire another research assistant by July 1; staff would work on compiling a summary of how Kansas utilities expect to meet demand over the next 5 to 20 years. Lowry suggested that a graph could be compiled for entire state similar to one provided by Sunflower that shows load and reserves.

Meeting was adjourned at 12:30 p.m.