

**KEC Electricity Committee Meeting Notes  
July 18, 2008**

**KEC Electricity Committee Members Attending:** Stuart Lowry, Committee Chair, Steve Johnson, Janis Lee (by phone), Mark Parkinson, Mark Schreiber, Tom Sloan, Michael Volker [KEC Co-Chair Ken Frahm, Bruce Snead]

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

**Opening remarks**

Committee Chair Stuart Lowry called the meeting to order, noted that some committee members were unable to attend, and apologized for not being able to find a time that worked better for more members. He acknowledged Janis Lee, who was participating by phone.

Lowry suggested that the agenda be modified so that the discussion of policy options comes first and committee concurred.

**Preliminary policy options**

Lowry alluded to the Electric Power Research Institute (EPRI) report entitled “The Power to Reduce CO2 Emissions: The Full Portfolio,” which he’d directed Liz Brosius to email out to the committee following the July 3<sup>rd</sup> meeting. He summarized the report, noting that it reflected EPRI’s charge to (1) maintain reliable electricity supply and (2) reduce CO2 emissions to 1990 levels by 2030. Lowry said he thought this report might be useful in the committee’s policy discussions and allow for better coordination with the GHG Policy Committee’s work. Mark Schreiber said he thought the report was a good tool and puts parameters around various options. Mark Parkinson said he liked the study and thought it was a good starting point for our consideration. Tom Sloan said it might be useful to consider regulatory impediments to adoption of new technology. Lowry agreed that this could impact carbon capture and storage (CCS) and added that the development of CCS will require large investments that, ultimately, will be recovered from utility ratepayers.

Lowry said he wrote up some background information, along with some initial policy statements, focused on baseload generation; he noted the document had not been reviewed by staff and suggested Brosius edit and supplement with the information contained in the utility presentations. [Staff note: Lowry’s draft is included at the end of these meeting notes.]

Lowry opened discussion on the five policy objectives/recommendations, and noted that they were either authored by him or by Michael Volker.

*1. Provide support and funding of research and development of generation technologies that can provide baseload power while achieving reduced CO2 emissions—*Sloan asked whether this was calling for federal or state support, and Lowry said both. Sloan referred to the discussion during the Greenhouse Gas Policy Committee earlier that morning, which indicated that Kansas was unlikely to have money in its budget for additional initiatives. He suggested it might be more productive to make policy recommendations to the KCC or the legislature to encourage investment and innovation and improvement of efficient transmission.

Parkinson said he agreed that this needs to be done on the federal level, not at the state level. Some of the recommendations that Lowry has laid out can be done at the state level.

Sloan said it is easier to achieve energy savings on the supply side, not on the demand side with the investments by the utilities; he advocated efficient investment in generation and transmission and noted that AEP wanted to invest in CCS technology but was turned down by the Virginia PUC. He proposed a recommendation approving the recovery of costs for new technology related to transmission and distribution systems. Schreiber said cost recovery is not as big an issue as the challenge on the emissions side; it isn't a problem we can handle here in Kansas. That is the impediment to modernization. Lowry referred to the FutureGen project and asked what policies can we recommend that will put us in a positive position? Sloan said he didn't see it as being any different than pursuing the NBAF facility at KSU. Lowry said that focusing on the generation side was consistent with the EPRI study and asked if there were policies or support the state can provide for parties that want to do those projects? Parkinson said that the Kansas Bioscience Authority has funds and it might be possible to recommend that they evaluate investments in biomass for electric generation. Volker noted that the center that was proposed as part of the Holcomb expansion included funding of biomass projects.

Brosius noted that to be consistent with the KEC planning process, recommendations probably need to be focused on generation, not transmission since the KEC. Transmission could be added to list of possible priority topics for next year.

Volker moved to take statement as worded to full Council with additional language that specifies that we encourage Bioscience Authority to analyze a portion of invested monies be toward biomass or other resources to be used for generation. Sloan seconded; motion carried.

[Staff note: recommendation will be worded as follows: Encourage federal funding of research and development of generation technologies that can provide baseload power while achieving reduced CO2 emissions; encourage Kansas Bioscience Authority to allocate some of their funds to R&D related to biomass-fueled electric generation.]

*2. Encourage consideration by the State of Kansas of assuming the role of a developer and/or equity owner, but not an operator, of new nuclear resources—*Lowry said that the state has a site that is large enough to accommodate a second nuclear unit, but no investor; this policy allows for the State to be either developer or equity owner. He said he didn't know what the corporate structure would look like. Parkinson asked Schreiber for his input on Westar's likely response; Schreiber said it was an interesting idea and speculated the NRC might have concerns. Volker said he didn't see why NRC would have issue with state ownership in a nuclear plant, as long as the guidelines are followed.

Parkinson said he understood that no utility is looking to build a new nuclear facility at this time, but wondered if it was possible that Kansas utilities would pull together a project that would be private-sector funded? Lowry said that was the intent of the next policy recommendation:

*3. Support policies in Kansas that promote the development of advanced generation facilities on a regional basis and promote the economic transfer of base load and intermittent electric power in and out of the state, e.g., wind, new nuclear or clean coal units.*

Schreiber said the only way it would happen in Kansas is if out-of-state/larger utilities shared in investment. Whether such an investment makes sense will be affected by future carbon policy. Parkinson asked if it was a matter of the capital markets being ready? Schreiber said it was and also whether utilities are ready to take on a project of this magnitude. Volker noted that the capacity from a new nuclear unit would be greater than the state's need at first; he said he didn't know whether the two policies complemented each other.

Audience member Susan Duffy, Executive Director of the KCC, reminded the committee that the KCC had a forum with representatives of the nuclear industry; we learned a lot about what's going on worldwide, and the Chairman has discussed a second meeting. She suggested the focus of the second meeting could be on how this could be feasible here.

Ken Frahm asked if this is something that could start the conversation for state vs. regional options for utilities? Schreiber said he thinks policy will come in due time (state and federal). Steve Johnson asked if it would be more likely that the plant would be built out of state and electricity shipped to Kansas. Schreiber said the benefit of Wolf Creek is that the units are already there; the next closest is in Fulton, Missouri, and noted that the 765-kV transmission backbone that SPP is looking at goes by Wolf Creek.

Lowry asked if there was a second to Sloan's motion to take this policy to the full Council in August. Volker said not at this point. Lowry said the proposal was back on the table for discussion. Parkinson asked if the utilities were ready to make a decision on this if the state were to say we want to move on a nuclear plant? Schreiber noted that Westar's strategy is to stretch out their current baseload capacity and didn't know if they would be ready at this point. Johnson suggested that the third policy (the regional approach to development of advanced generation) might be a good way to spark interest. Parkinson said he thought recommending state ownership might impair what we're trying to do at this point. Sloan said he would withdraw his motion.

Following some additional discussion, policy #3 was revised to read: Support policies in Kansas that promote the development of advanced generation facilities and promote the economic transfer of base load and intermittent electric power on a regional basis. A motion was made to approve this policy for discussion by full Council, seconded, and approved with no dissent.

Lowry asked Volker to walk the committee through policies #4 and #5.

*4. Support policies that promote true regional declines in GHG emissions, not policies that merely shift emissions within or between regions.*—Volker noted that this was intended as a broad recommendation. Johnson asked if it meant that we would not support a cap and trade program? Volker said it would rule out a state-level cap-and-trade or tax, but said it was consistent with a national or regional approach and was consistent with the discussion in the GHG Policy Committee earlier.

Parkinson asked Snead, as Chair of the GHG Policy Committee, if he had thoughts on this policy. Snead said his initial reaction was that it was appropriate. Parkinson moved to adopt; Volker seconded. Lowry asked for additional discussion, but there was none. Motion carried.

5. *Consider local impacts of policies as well as regional and global implications.*—Lowry said this embraced impacts on low-income individuals or particular regions. Parkinson asked what this meant for baseload issues? Volker said many think that baseload will need to increase dramatically and this calls for a consideration of impacts on individual regions or income classes when policy is developed.

Brosius noted that this recommendation and the previous one (#4 and #5) were essentially guidelines, or criteria, against which any policy recommendation would be tested. She said that staff had previously worked on a checklist of sorts of considerations for any policy recommendations (that was submitted to the Goals Committee). Volker said that his point was to make sure policies don't simply shift the costs and/or emissions somewhere else. Brosius agreed that those were questions that should be asked of any policy related to GHG emissions, but that these were not, in and of themselves, policy recommendations. Volker said efficiency and equity are the economist's main concerns and suggested that not all policies met either. Snead suggested that #5 was a criterion for policy ranking, not a policy recommendation. Volker said he wasn't necessarily calling it a policy. Brosius said staff would separate policies from guidelines/criteria for policy development when they summarized recommendations. Snead said he agreed that clarifying criteria for KEC policy development was important. Sloan moved to drop #5; Johnson seconded; motion carried.

Lowry said that the committee had endorsed three options (#1, #3, #4, as amended) for discussion on August 13<sup>th</sup>. He asked if there would be further opportunities to offer recommendations? Brosius said that although the planning schedule was designed to make sure recommendations were based on topics the KEC had had time to consider in some depth, that additional recommendations could be considered so long as they fell with the priority topics that the KEC had approved and studied.

Lowry asked Brosius to discuss the handout entitled "Preliminary Policy Questions" [included below]. Brosius said this was staff's attempt to capture the questions underlying the discussion at the July 3<sup>rd</sup> meeting.

Electric Generation

1. Should there be more coordinated generation planning by utilities?
2. Should state government be involved in determining types of generation built by utilities?
3. Should the state view the import and export of electricity any differently than other commodities produced or purchased in Kansas?
4. Should it be an objective of the Kansas Energy Council to better understand the current federal and state regulation related to air and water quality (including waste management regulations)?

Electric Transmission

1. Should it be an objective of the Kansas Energy Council to better understand the state's electric transmission system its relationship to regional and national grid?
  - a. Should this be an additional objective for this year's committee or a priority topic for 2009 planning session?
  - b. Should we attempt to schedule an informational presentation for a full Council meeting?
    - i. Should we schedule regular reports from KETA and the SPP's Regional State Committee?

*Should there be more coordinated generation planning by utilities?*—Schreiber commented that there are some things you just don't do, from the utilities' perspective. Sloan said if you are looking at the need for generation in Kansas, from a policy-makers perspective, there should be more coordination. Johnson asked if we say yes or no, does this become a policy recommendation? Lowry suggested they review the list of questions and determine for each whether there are any more policy recommendations to put forward. Snead wondered if the recommendation already adopted (#3) didn't already cover this? Schreiber said he thought that "coordination" implied a more top-down, centralized approach.

Lowry asked if there were any other policy positions for committee to discuss today? Sloan said he had a "half-baked" idea: that the KCC needs to consider all domestic customers, as part of coordination efforts. Volker followed up on this idea, noting that utilities are required to look at native load customers first; this makes it difficult to deal with wholesale customers in Kansas; there are regulatory hurdles that make it difficult for a utility like Midwest Energy to enter PPAs with Westar and others. Schreiber said that Westar has an obligation to serve its customers as #1 priority. Volker referred to FERC regulations that affect utilities with "market power" (such as Westar); these regulations impact the way in which Westar can sell power to in-state utilities such as Midwest Energy. Sloan said this issue was relevant to the KEC if we are trying to look at the state of Kansas as one entity. Johnson asked if they were trying to develop a Kansas Generation Authority, and Sloan said that was not his intent. Volker said that if the KCC requires utilities to put their own customers first, this could limit their freedom to sell on the wholesale market. Sloan suggested that he and Volker write up a draft of the policy recommendation for the committee to consider via email. The committee agreed and Brosius said she would facilitate the online discussion (in keeping with open meeting rules).

Lowry called for additional suggestions. Frahm asked whether the state was prohibiting oil and gas exploration in areas where there are vast reserves? Johnson said there was probably some truth to that perception. Frahm asked what the obstacles are, and Johnson said environmental and NIMBY concerns. There was a brief discussion of gas hedging by utilities.

Lowry asked Brosius to continue overview of policy questions. Regarding whether the state should be involved in determining the types of generation built by utilities, Sloan asked if this referred to RPS; Brosius said it included RPS but was a broader question regarding the role of the government vis-à-vis industry. Regarding the export-import questions, Sloan said it is better that jobs be here and investment here, and suggested that the committee had already endorsed a regional approach. Brosius said these were questions were based on the July 3<sup>rd</sup> committee discussion of preliminary policy ideas. She noted that the Executive Order asked the KEC to consider strategies to increase the export of energy from Kansas and added that the KEC had concluded several years ago that the state's net importer or exporter status was not the only important consideration (it was not necessarily a bad thing to be a net importer). Frahm asked if there was anything that prevents coordination in the private marketplace and suggested that government should stay out of the way.

Lowry asked if there were any more suggestions. Brosius noted that Corey Mohn raised a question about the updating of the generation and forecast summaries that staff had prepared for

the committee; she said that these summaries would be incorporated into the chart book and updated routinely.

### **Committee objectives and work plan**

Brosius reviewed the current committee objectives (printed on the back side of the agenda) and reminded committee that these had been revised somewhat prior to the July 3<sup>rd</sup> meeting. She alluded to the questions about electric transmission that had been raised on July 3<sup>rd</sup> and suggested that they were probably outside the scope of this year's committee work, which had focused solely on generation.

### **Review of two staff-prepared summaries**

Brosius summarized the changes in the summary of existing generation: revisions to the introduction; decision not to include new generation in the chart (which deals with units that were operational from 10/1/06 to 9/30/07), though these would be referenced in a note; asked BPU for additional source information.

Michael Deupree discussed the forecast capacity and load summary, noting that he was still waiting on additional data from utilities. Volker suggested that capacity be denoted as net capacity in order to clarify capacity that is being sold through PPAs and avoid double counting. Brosius said that she had emailed the utility representatives with a number of questions related to these forecasts and would follow up on these questions. She noted that, for now, staff was focusing on the forecasts; the charts do not include 10 years of historical data. She asked whether it made sense to include only the utilities listed on the generation summary or broaden it to include KEPCo, KMEA, and others who had made presentations to the committee? Following some discussion, it was agreed that forecast summaries would include entities who submit information on EIA 411 form. Staff will bring another version of the summaries to the August 13<sup>th</sup> meeting for further review and discussion.

Lowry asked if there was anything further. Brosius announced dates of upcoming meetings and events related to KEC:

- August 19<sup>th</sup>, 2:00 p.m., Kansas Geological Survey, Lawrence: meeting with KU, KSU, WSU researchers to discuss (GHG emissions-related) research priorities and funding issues at Regents institutions;
- September 2-3: timeframe for Robert Repetto presentation to KEC and meeting with KU researchers (more details coming soon);
- November 13 (?): tentative date for an informational meeting on carbon capture and storage, co-sponsored by the Kansas Geological Survey, Westar, and the KCC.

Meeting adjourned.

*[Note: Lowry's document is copied in full below.]*

### **Chapter \_\_\_\_: Electricity**

#### **Section \_\_\_\_ Power Plants:**

Power plants can be grouped into the types of fuel or energy source they use to produce electricity. These include fossil fuels (coal, natural gas, or a refined oil product), nuclear energy, and renewable energy sources such as water (hydroelectric power), biomass, waste-to-energy, geothermal, wind, and solar energy, as well as alternative fuels. One of the features of electricity is that your television and stereo, heating system, air conditioning system,

appliances and light fixtures cannot tell the difference between the types of generation, location, or fuel sources. This makes all the electricity on the system usable by all those connected to the grid. A major component of the price of your electricity is the cost and availability of fuel used for power generation and the transmission necessary to deliver the power to you, as well as construction costs of plants and the associated expense for operation and maintenance. Supply and demand for fuel and transmission, international events and changes in weather also affect the price of your electricity. In most areas, the cost to generate electricity fluctuates daily and monthly. These fluctuations are a response to changes in demand for electricity. Daily demand for electricity is usually highest in the afternoon and early evening (on-peak). Seasonal peaks reflect regional weather and climatic conditions, with the highest occurring in the summer when air-conditioning use is greatest. Power plants tend to operate in two basic modes: base-load and peaking load. Base-load power plants are most efficient generating electricity at an even, consistent level, around the clock, and generally include nuclear, coal-fired, geothermal and waste-to-energy plants. Some plants may sit as a “spinning reserve” during off-peak or on-peak periods. Peaking plants are turned on or “dispatched” as demand increases above the normal base demand or load. Peaking plants are expensive to operate, often fueled by refined oil products, or natural gas, and have a fuel cost per kWh higher than a baseload plant. Hydropower plants can operate in base and/or peaking mode.

A relatively small amount of electricity is generated from “pumped storage” plants. These economically efficient plants pump water from a river or reservoir up into reservoirs located above hydroelectric turbines. Wind and solar power plants are referred to as intermittent resources. They may supply power during peak and off-peak periods depending on the availability of their energy source. (*Source for all of the above, Energy Information Administration*)

In order for a robust healthy economy, electricity supply must be reliable, readily available, and provided at the lowest cost consistent with public policy objectives. Energy suppliers in Kansas, along with those who operate transmission and distribution systems are variously regulated by the Federal Energy Regulatory Commission (FERC), the Securities Exchange Commission (SEC), by individual state regulatory commissions (in Kansas, the Kansas Corporation Commission), and by publicly elected or cooperatively elected governing boards.

The energy system is further evaluated for reliability purposes by the National Electric Reliability Council (NERC) and by regional (multi-state) independent transmission system operators. Kansas utilities are members of the Southwest Power Pool, the oldest regional reliability region in the nation, and the primary authority governing energy reliability and energy transfer between energy supply companies in Kansas and other states in the region. New energy resources which are to be connected to the SPP bulk transmission network must first undergo engineering evaluations of the impact of newly connected energy resources, regardless of whether they are powered by steam, combustion turbines, or renewable sources.

The release of carbon dioxide and other potential greenhouse gases is a relatively new aspect of the complex industry of energy supply. Consideration is being given to restricting the release of carbon dioxide, including the release from power plants.

Nationwide, many electric utilities participate jointly to evaluate various issues and matters of concern to the business of energy supply thru the Electric Power Research Institute (EPRI). EPRI has evaluated the measures which must be undertaken to assure the provision of reliable energy in the context of reducing the carbon released.

#### The EPRI Study:

The large-scale CO<sub>2</sub> reductions envisioned to stabilize, and ultimately reverse, global atmospheric CO<sub>2</sub> concentrations present major technical, economic, regulatory and policy challenges. Reconciling these challenges with the continued growth in energy demand highlights the need for a diverse, economy-wide approach.

EPRI has provided stakeholders with a *framework* for developing a research, development, and demonstration (RD&D) Action Plan that will enable sustainable and substantial electricity sector CO<sub>2</sub> emissions reductions over the coming decades.

EPRI attempted to address the technical feasibility for the sector to achieve large-scale CO<sub>2</sub> emissions reductions, the technology development pathways and associated RD&D funding needed to achieve this potential, and the economic impact of realizing emissions reduction targets. Given the 20- to 30-year

lead-time needed to fully research, develop, and commercially deploy technologies, it is critical for the industry to define priorities and initiate RD&D activities.

The EPRI analysis assumes successful achievement of performance and deployment targets associated with several advanced technologies as a basis for estimating CO<sub>2</sub> emissions reduction potential:

- End-use energy efficiency
- Renewable energy
- Advanced light water nuclear reactors
- Advanced coal power plants
- CO<sub>2</sub> capture and storage
- Plug-in hybrid electric vehicles
- Distributed energy resources

The technologies considered and the selection of “aggressive but feasible” analysis targets were based on capabilities that still face substantive research, development, demonstration, and/or deployment challenges, but for which a specific sequence of RD&D activities can be identified that will achieve wide-scale deployment of the technologies between today and 2030.

Capabilities requiring assumption of break-through technology developments or which have deployment timelines past 2030 were excluded from the analysis.

Several important conclusions derive from the EPRI study:

- The emissions “profile” for the U.S. electricity sector as it aggressively implements advanced technologies would represent a slowing, stopping, and eventually declining level of annual CO<sub>2</sub> emissions. Such a curve shape may be necessary to comply with future carbon policies and to contribute to global efforts to stabilize atmospheric greenhouse gas concentrations.
- Achieving the indicated emissions reductions requires deployment of a diverse set of new and existing technologies, including those in the base load generation area, none of which will provide the majority of potential reductions. In other words, there is no “silver bullet” that represents the bulk of emissions-reducing potential.
- Consequently, if one or more of these technology options are not available, even more aggressive levels of technology performance and deployment would be necessary in the remaining technology areas to achieve the estimated emissions-reduction potential.
- Key enabling grid-related technologies are needed to fully realize the emissions-reduction potential associated with end-use efficiency, renewables, plug-in hybrid electric vehicles, and distributed energy resources.

Policies and Goals:

Section \_\_\_\_: Base load power plants

1. Provide support and funding of research and development of generation technologies that can provide baseload power while achieving reduced CO<sub>2</sub> emissions.
2. Encourage consideration by the State of Kansas of assuming the role of a developer and/or equity owner, but not an operator, of new nuclear resources.
3. Support policies in Kansas that promote the development of advanced generation facilities on a regional basis and promote the economic transfer of base load and intermittent electric power in and out of the state, eg wind, new nuclear or clean coal units.
4. Support policies that promote true regional declines in GHG emissions, not policies that merely shift emissions within or between regions.
5. Consider local impacts of policies as well as regional and global implications.