2011 Activities of the Joint Committee on Energy and Environmental Policy

Background

The Committee was established by enactment of 2008 SB 586 (KSA 46-3701), as an 11-member, bipartisan joint committee whose members serve two-year terms. The Committee's charge is to study energy and environmental policy in Kansas. For the 2011 interim, the Legislative Coordinating Council directed the Committee to study the Kansas Corporation Commission's (KCC) abandoned oil and gas well plugging program, including reviewing the effectiveness of the program and studying the impact of not transferring $400,000 annually from the State General Fund into the program, as required by statute.

Committee Activities

The Committee met for five days: January 21, September 9, October 17-18 and November 22. In addition to the assigned topic of reviewing the KCC's abandoned oil and gas well plugging program, the Committee gathered information on a wide range of topics including water availability, ownership of pore space, hydraulic fracturing, energy-related research at Kansas universities, updates on American Recovery and Reinvestment Act (ARRA) energy and weatherization programs, the potential effects of new Environmental Protection Agency (EPA) regulations, other issues affecting electric and gas utilities, wind and transmission development, renewable portfolio standards, energy tax incentives, and innovative landfill programs. The Committee also received testimony on four draft bills.

Abandoned Oil and Gas Well Plugging Program

Doug Louis, Conservation Division Director, KCC, provided an overview of the Program. Two funds were created by the Legislature in 1996 to support plugging activities: the Abandoned Well/Site Remediation Fund is used to plug abandoned wells drilled before 1996 and to remediate contamination sites; the Well Assurance Fund is used to plug wells drilled after 1996. The money from these funds is used only when the state is unable to locate a potentially responsible party, i.e., a person or company who is required by law to plug the well. The Assurance Fund has never been accessed to date, so testimony focused on the plugging of abandoned wells drilled prior to 1996.

The KCC classifies each abandoned well according to the threat it poses to surface water, groundwater, or public safety. For example, a Priority I-A well might be actively discharging oil or brine into surface water, a Priority I-B well might be intermittently discharging into surface water, a Priority I-C might be outside a sensitive groundwater area and intermittently discharging oil and brine or might have the potential for such discharges, while a Priority II well is more likely to be of relatively modern construction and not to pose an ongoing or potential threat to the environment or to public safety.

The agency reported it generally plugs the most dangerous wells first. Some exceptions occur, for instance it may be more economical to plug an entire field of wells at the same time, even if the wells are a mix of priority levels. The KCC reported its inventory of abandoned wells requiring action showed the following changes from January 1997 through July 20, 2011:

- The total abandoned wells requiring action decreased from 10,310 to 5,516 (46.5 percent reduction);
- Priority 1-A wells awaiting action decreased from 963 to 5 (99.5 percent reduction);
- Priority I-B wells awaiting action decreased from 2,107 to 1,207 (42.7 percent reduction);

- Priority I-C wells awaiting action decreased from 6,634 to 3,565 (46.2 percent reduction); and

- Priority II wells awaiting action rose from 606 to 739 (21.9 percent increase).

John McCannon, Conservation Division Litigation Counsel, KCC, discussed the criteria for determining who is responsible for plugging an abandoned well, and how the Commission's evolving interpretation of the term "current or last operator" has made it more difficult to locate a party responsible for plugging. The KCC expects the abandoned well inventory to increase as operators realize that, under the most recent interpretation, they can report abandoned wells on their leases and not be held responsible for plugging those wells (if the wells were drilled and abandoned by someone else).

The number of wells plugged each year has varied with the average cost of plugging (approximately $2,500 to $4,500 per well) and the amount of funding available.

By law, the Abandoned Well/Site Remediation Fund is to be supported from four sources: increased assessments on crude oil and natural gas production, the State General Fund, the State Water Plan, and 50 percent of the monies received by the state through the federal mineral leasing program. In 1996, transfers from each of the first three sources was set in statute at $400,000 annually, and it was estimated that 50 percent of mineral lease payments would generate about $400,000 per year also.

Over the years legislative action has reduced the funding available from the State General Fund and, to a lesser extent, from the State Water Plan. No State General Fund transfers have been authorized from fiscal year 2004 through fiscal year 2012. No State Water Plan transfers were authorized for fiscal years 2003 and 2004, and transfer amounts were reduced for fiscal year 2009 through fiscal year 2011.

The Committee was charged with studying the impact of not transferring $400,000 annually into the Abandoned Well/Site Remediation Fund from fiscal year 2004 through fiscal year 2012. During those years, the inventory of abandoned wells requiring action was reduced by 3,073 wells. (Note: the effects for 2012 are estimated) If State General Fund monies had been available during those years, an estimated additional 905 abandoned wells could have been plugged and removed from the inventory, as shown in the chart below.

The Committee received testimony on two draft bills related to plugging abandoned wells, and voted to introduce a bill in the 2012 Session that would increase the current tax credit for landowners who pay to plug an abandoned well on their land from 50 percent to 100 percent of the cost incurred to plug the well. The bill also would extend the tax credit to lease holders who plug an abandoned well on a lease. The Department of Revenue reported the current tax credit is claimed very infrequently.

Water Issues

Water Availability

Tracy Streeter, Director, Kansas Water Office (KWO), discussed possible interstate cooperation with Missouri and Oklahoma on Ozark Aquifer water supply. The Ozark Aquifer system underlies parts of Missouri, Kansas, Oklahoma, and Arkansas. This aquifer is the primary source of water supply for many municipalities in Southeast Kansas, Southwest Missouri, and Northwest Oklahoma. Based on studies completed by the Division of Water Resources (DWR), Kansas Department of Agriculture (KDA) the KWO and DWR agree the states must cooperate in order to ensure the quantity and quality of both the aquifer and Spring River remain adequate for all three states.

The Tri-State Water Resource Coalition, of which Missouri, Kansas, and Oklahoma are members, has discussed developing a Memorandum of Understanding or Agreement to create a regional water plan for the tri-state area. Such an agreement would require involvement of local water users, as well as state agencies, legislators, and possibly governors from all three states.

Mr. Streeter also discussed the potential for

economic development at existing and new reservoir sites in Kansas. The primary issue with development at federal reservoirs is that the land inundated by the flood pools at the reservoirs is largely held by the U.S. Army Corps of Engineers or the federal Bureau of Reclamation. Consequently, there is very little, if any, land that is considered excess that would be available for projects at federal reservoirs. In addition, any proposed development project must be tied to the natural resources of the project itself and must focus on facilities that accommodate or support water-based activities, including overnight and day use.

The Committee received testimony that the development of new reservoirs in Eastern Kansas could mitigate many of the economic development issues of existing federal reservoirs by emphasizing needed water supply over flood protection. The result would be that Kansas would have new reservoirs that would reduce water supply vulnerabilities in Eastern Kansas basins, while maximizing economic development potential.

Mr. Streeter spoke about water supply issues in the Neosho Basin. Three reservoirs are located within the basin: Marion Lake, Council Grove Lake, and John Redmond Reservoir. Of particulal concern to the state is that John Redmond Reservoir is used to supply the Wolf Creek Nuclear Generating Station's cooling lake. A reliable future water supply for the Neosho Basin depends on the successful reallocation of storage at John Redmond Reservoir and adopting any of the alternative options for stabilizing water supply, which include storage reallocation; streambank stabilization to reduce future sediment contribution; dredging existing sediment from John Redmond Reservoir; construction of a new reservoir; or constructing an interbasin pipeline.

The KWO is involved in ongoing discussions with state water planning officials from Oklahoma and Texas, as well as U.S. Army Corps of Engineers representatives, on ways to improve interactions with the Corps. The KWO is working with Texas and Oklahoma on proposed language for inclusion in a Water Resources and Development Act (WRDA), which is expected to be taken up by Congress within the next year. The WRDA is the statutory vehicle by which Corps of Engineers projects are authorized and guidance is provided by Congress to the Corps of Engineers. It appears there is a better chance of successfully getting language into the WRDA bill by working as a region with common interest.

Earl Lewis, Assistant Director, Kansas Water Office, provided an update on how the drought is affect reservoir infrastructure. The current drought is one of the worst on record, and now affects areas that rely on surface water and reservoirs as the primary source of water supply. More than 50 water bodies experienced algae blooms that negatively affected waster quality, and water quantity in many reservoirs is declining. The water level at John Redmond Reservoir was expected to be at 34 percent of conservation pool capacity in mid-November.

Mr. Lewis provided information on the unfunded liability associated with water storage at five reservoirs. The contracts for purchase of water storage at those reservoirs, as well as operation and maintenance costs, was allowed to be deferred until the water was needed. There is a date certain by which it must be called into service, ranging from 2027 to 2040. Interest accrues until the date of purchase. The balance of the unfunded liability in 2011 is estimated at $86.3 million. The Water Office noted that issuing 20-year bonds at term would provide the best long term rate stability for water users.

Equus Beds Aquifer – ASR Project

Officials from the City of Wichita provided an update on the status of the Equus Beds Aquifer and the Aquifer Storage Recovery (ASR) Project. The Project captures above base-flow water from the Little Arkansas River and recharges the Equus Beds Aquifer through recharge wells and recharge basins. The first phase of the ASR Project resulted in the recharge of 945 million gallons of water. Phase II of the Project is under construction. The majority of the Project will be paid for by Wichita Public Works and utilities customers. Both federal and state governments have appropriated funds for the ASR Project.

There are continued risks to the Equus Beds Aquifer. Chloride sources will always be present in the area, due to historic agricultural and

municipal pumping that created a depression in the aquifer, encouraging migration of chloride plumes toward the well field, and permitted water rights that exceed the safe yield for the aquifer. If all rights holders pumped the maximum amount allowed, the gains made by the ASR Project would be depleted within four years.

Logjam at John Redmond Reservoir

Earl Lewis, Assistant Direct, Kansas Water Office, noted that John Redmond Dam, which is approximately three miles northwest of the City of Burlington, was completed in 1964. Though the reservoir below the dam was designed for a 50-year sediment storage capacity in the multipurpose pool, the allotted capacity filled by 1988. The sediment caused the need for storage reallocation in the 1970s and the U.S. Army Corps of Engineers has attempted to increase water storage capacity several times. Sediment problems are ongoing.

Starting in the 1970s, large woody debris that typically floated into the Reservoir began to collect at the mouth of the Neosho River as sedimentation created mudflats at the upper end of the Reservoir. Since 1991, the logjam has prohibited boating from the River to the Reservoir, and wood continued to accumulate at the site.

However, as of November 2011, it appears someone has removed a large portion of the logs. This was not an action taken by the state or federal governments. Some of the logs may have taken on water and moved to the bottom of the reservoir.

The Corps of Engineers has dedicated funds to correct impairments to the Hartford Levee, which is upstream from the Reservoir, and has committed to completing a reallocation of storage within the year. When complete, this will result in a two-foot pool rise at the Reservoir, increasing the conservation pool storage capacity by approximately 20,000 acre-feet, increasing the water supply use of the reservoir by 25 to 30 years. Because John Redmond is the source of water for the cooling lake at Wolf Creek Nuclear Generating Station, it is important to ensure adequate water supply at the Reservoir.

Vegetation in Cedar Bluff Reservoir

Robin Jennison, Secretary of Wildlife, Parks and Tourism, discussed vegetation control on the shoreline of Cedar Bluff Reservoir. The property consists of 15,242 acres owned by the U.S. Bureau of Reclamation and licensed to the Kansas Department of Wildlife, Parks and Tourism (KDWPT). The reservoir was originally authorized for irrigation, flood control, and water supply, with incidental benefits for recreation, fish and wildlife, and water quality. In 1992, Congress reformulated the project to create an operating pool for fish, wildlife, and recreation. Irrigation was abandoned and the irrigation district was dissolved.

At conservation pool level, the lake is approximately 6,800 acres, the wildlife area is 7,000 acres, and that state park consists of 1,000 acres. The reservoir has been in constant fluctuation since it initially filled and was at an all-time low of 998 surface acres in 1992. The reservoir refilled in 1998 and has declined since. Currently, the lake is 17.5 feet low and covers approximately 4,000 surface acres.

As the water level recedes, vegetation naturally develops in the band of exposed land around the lake, which increases as lake levels decline further. The Department manages the property for fish, wildlife, and outdoor recreation.

The Secretary outlined several key points regarding vegetation control issues at Cedar Bluff Reservoir:

- Due to constant water level fluctuation, there will always be a band of natural vegetation around the lake;
- The natural vegetation provides habitat for both fish and wildlife species. Large scale removal and control would result in the destruction of habitat;
- Visitation increases with the wildlife habitats that occur due to the vegetation growth. Economic benefits also increase for the lake and surrounding areas;
- Funding, manpower, and equipment may be better used on improvements to

facilities, park operations, fish and wildlife habitat, and recreational opportunities; and

- The Department removes and controls the shoreline vegetation on hundreds of acres in specific high use recreation areas and in minimum use areas to improve habitat and to provide recreational access.

Water Authority Recommendations

The Kansas Water Authority recommended five actions during the 2012 Legislative session to advance the success of the state's Reservoir Sustainability Initiative. They include the following:

- Support a 2013 budget request for $6 million for activities that reduce sedimentation and nutrient loading into waterways and reservoirs;

- Support the Authority's direction to the Water Office to develop a detailed implementation plan, including costs and schedules, of the recommendations proposed in the Neosho Basin Reservoir Roadmap;

- Amend KSA 82a-1102 to remove the requirement for federal participation in streambank stabilization, and permanently adopt the FY 2012 budget proviso permitting 100 percent cost share for projects with substantial state interest;

- Provide clear and comprehensive state authority for a systematic dredging program to restore water supply storage capacity at reservoirs; and

- Provide authority for the state to cooperate with local units of government or private entities for development of small lakes for any purpose; remove flood control as a primary requirement from the multi-purpose small lakes program.

Ownership of Pore Space

Pore space refers to the spaces within a rock body that are unoccupied by solid material. In recent years there has been increasing discussion of injecting carbon dioxide (CO_2) into deep strata, a process known as geologic sequestration.

Professor David E. Pierce, Washburn School of Law, discussed the legal issues related to ownership of pore space in Kansas. When mineral rights have been severed from surface rights, Professor Pierce thinks the surface owner will most likely "own" subsurface areas that are not part of the mineral comprising the mineral rights. He outlined a number of issues and risks associated with pore space (possible "taking" issues, subsurface trespass, potential for lower subsurface areas to be declared public domain, etc) because there is not yet a body of law addressing pore space ownership.

Professor Lynn Watney, Kansas Geological Survey, discussed research on geologic carbon sequestration. He described how CO_2 that has been injected is trapped underground, and demonstrated how storage effectiveness increases with depth. The Survey's current research on sequestration is being conducted in southern Kansas.

Matt Sterling, Kansas Revisor of Statutes Office reported that few states have addressed ownership of pore space. Three that have – Montana, North Dakota, and Wyoming – vest ownership of pore space with the owner of the surface rights, but they differ in whether and how they allow pore space to be severed from surface rights.

Eric Nordling, Executive Secretary of the Southwest Kansas Royalty Owners Association, testified that his members typically focus on ownership of surface rights and mineral rights, not ownership of pore space. However, they would be concerned about legislation that would change current common-law in Kansas, which holds that a fee-simple owner of land owns the entire tract "from the heavens to the depths". Designation of pore space ownership must consider unintended consequences in areas such as underground natural gas storage, disposal of salt water, and the impact

on existing leases that already may grant the lessee certain rights to use pore space.

The Committee received testimony on, and voted to introduce in the 2012 Session, a bill that would vest ownership of pore space with the owner of the surface rights.

Hydraulic Fracturing

Ed Cross, President, Kansas Independent Oil & Gas Association (KIOGA) showed a video demonstrating how hydraulic fracturing is executed, and discussed the process in depth. The first hydraulic fracturing well in the U.S. was drilled in Kansas in 1947, and the majority of wells in Kansas are fractured to extract oil and gas that otherwise might not be accessible. The National Petroleum Council estimates that 60 percent to 80 percent of all wells drilled in the U.S. in the next decade will requiring fracturing to remain viable. Mr. Cross cited numerous studies that concluded fracturing does not contaminate drinking water. Hydraulic fracturing is subject to many federal and state laws to ensure protection of the environment, and well operators in Kansas and nationally are being encouraged to voluntarily disclose the chemical composition of the fracturing fluid they use.

Doug Louis, Conservation Division Director, KCC, described regulations that apply to hydraulic fracturing in Kansas, including surface pipe and production casing regulations, as well as requirements related to well-cementing, intent-to-drill, well spacing, pit permitting, well completion reporting, and injection well permitting for disposal of flowback water.

Mr. Louis also provided an update on FracFocus, the website that displays information about the chemical composition of fracturing fluids. He noted the website was created by and is maintained by credible sources; is educational; has a standardized, easy-to-read format; and is recognized by the federal Department of Energy. However it has limited search ability, it is voluntary, quality control is left to the companies supplying the information, it provides no guidance on the level at which components could be considered trade secrets, and it may not have stable funding.

Joe Spease, Chairman of the Hydraulic Fracturing Committee, Kansas Sierra Club, discussed regulatory trends and environmental issues. He noted that fracturing primarily is regulated at the state level rather than by national environmental laws; in particular it is exempt from the Safe Drinking Water Act's underground injection control program, except in the case of diesel-fueled fracturing. Six states now require disclosure of the chemicals used in fracturing fluids, although “trade secrets” protections prevent release of certain information to the public. He discussed three ways fracturing poses a risk to water: the large amounts of water that are withdrawn for the process; possible improper handling of the return flows, which contain chemicals; and possible underground releases caused by poor well integrity. Proposed regulations from the EPA on volatile organic compounds (VOCs) will address air quality impacts of fracturing.

Dan Klaus, Basic Energy Services, discussed the “large-oil” perspective on fracturing. He described the processes used and said he is not aware of any problems with water supply in Kansas due to hydraulic fracturing.

Matt Sterling, Assistant Revisor, Office of the Revisor of Statutes, described legislation adopted in Texas in 2011 that requires the State Railroad Commission to promulgate rules and regulations requiring disclosure of hydraulic fracturing components. The proposed rules require operators to submit specified information to FracFocus and to provide other additional information to the Commission. It would grant trade secret protection, if approved by the Attorney General, but would allow certain parties to challenge the trade secret designation.

Energy-Related Research

Researchers from the University of Kansas (KU) and Kansas State University (KSU) described current research related to energy, water, and general sustainability.

Rex Buchanan, Interim Director, Kansas Geological Survey, described the Survey's work in measuring and modeling changes in groundwater levels, as well as research that assists oil and gas

producers in exploration and production in the state.

Judy Wu, Distinguished Professor, KU Department of Physics, described new initiatives at the Kansas Center for Solar Energy Research involving 29 research groups from KU, KSU, and Wichita State University (WSU). Project areas include development of advanced solar cells and transformation of biomass to biofuel. The National Science Foundation has funded $10,000 annual scholarships for students in renewable energy studies.

Jenn-Tai Liang and Corey Berland, Professors, KU Department of Chemical and Petroleum Engineering, described new research on carbon sequestration and improved oil recovery, nano technology for oil and gas applications, chemical injection for enhanced oil recovery, and flow assurance. Their research on use of enzymes as a environmentally-friendly breaker in hydraulic fracturing fluids is expected to be commercialized in the next one to two years.

Robert Goldman, Distinguished Professor, KU Department of Geology, discussed the research and training program conducted by the Kansas Interdisciplinary Carbonates Consortium (KICC). Carbonate rocks hold more than 75 percent of the oil and gas in Kansas, and significant percentages worldwide. Research efforts focus on the nature of the rock, including the study of modern marine environments where carbonate sediments are deposited, chemical alternation of the pore system in the rock, simulation of fluid flows through pore systems, geophysical characterizations of rock and pore systems, and fine grain carbonate rock. Seven oil and gas companies contribute funding to the program, which provides training for students in solving environmental problems.

Julie Goonewardene, KU Associate Vice Chancellor for Innovation and Entrepreneurship, addressed the commercialization of KU research technology, which annually results in two to four start-up companies, 15 to 20 licenses, 8 to 10 patents issued, and 90 to 100 invention disclosures.

Mary Rezac, Professor of Chemical Engineering, KSU, and Co-Director of the KSU Center for Sustainable Energy described the work of numerous researchers at KSU. She discussed research related to fermentation of sugars and grains, fermentation of cellulose, and thermochemical conversion of cellulose to a stable bio-oil. The High-Plains Small Wind Test Center in Colby conducts research on small turbines, and the Kansas Wind Consortium (KSU and WSU) conducts applied research such as developing equipment for testing turbine vibration, a new inverter for wind generators, and several efforts to safely increase the percent of renewable energy on the power grid and to help utilities better use renewable energy. KSU researchers also are studying how to concentrate solar energy to produce ammonia from water and air. Research continues on drought-tolerant crops, with forage sorghum biomass shown to produce more mass than corn and requiring significantly less water.

American Recovery and Renewal Act (ARRA) Updates

Pat George, Secretary, Kansas Department of Commerce, provided an update on the reallocation of $20.5 million in ARRA funds from the KCC Energy Office to the Department of Commerce. The Department awarded a $15.6 million grant for biomethane digester equipment technology at an ethanol facility, and a $4.9 million grant to support a biomass harvesting, handling and delivery demonstration project. The projects will be replicable without further stimulus funding. The money originally was intended for use by the Efficiency Kansas program, but was reallocated to ensure it would be spent by the federal deadline, March 31, 2012.

Ryan Freed, Acting Director, Energy Division, KCC, discussed implementation of the Efficiency Kansas program. Slow growth in the program led to development of contingency plans to ensure the money would be spent within Kansas. Nearly $6.9 million was awarded for energy projects at Regents institutions, and $22 million was transferred to the Department of Commerce, although $1.5 million of that money was ultimately returned to the KCC to ensure that 159 loan requests in process for the Efficiency Kansas Program could be fully funded. The intent of the program was to stimulate the market and encourage energy auditors, banks, and utilities to

continue the activities after stimulus funding was no longer available. In addition, Mr. Freed reported that more than 70 grants were awarded to public organizations under the Energy Efficiency and Conservation Block Grant program funded by ARRA. Contracted reports on a comprehensive utility rate design project are scheduled to be received by the end of 2011.

Al Dorsey, Director of Housing with Supportive Services, Kansas Housing Resources Corporation (KHRC) discussed the weatherization program offerd through his agency. With new ARRA funding, they were able to provide funding to replace "energy hog" appliances with Energy Star appliances. KHRC received $56 million in ARRA funds for weatherization for a three-year period that will end in March 2012, and as of September 2011 had weatherized more than 6,000 homes with those funds. Ongoing funding for weatherization from traditional federal sources ranges from about $4 million to $8 million annually.

Effects of Environmental Protection Agency (EPA) Regulations

Mark Ourada, Central Region Vice-President, American Coalition for Clean Coal Electricity (ACCCE) described his organization's analysis of the combined impact of four EPA regulations: Cross-State Air Pollution Rule (CSAPR), Mercury and Air Toxics Standards (MATS) [which previously went by the acronym U-MACT], cooling water intake structures (316(b)), and coal combustion residues (CCR). Using three models to calculate projected results, the ACCCE's preliminary conclusions are that the rules will result in annual costs of $21 billion; a total cost of $127 billion (present value by 2020), of which $104 billion is capital cost; all or portions of 30 states will have peak year price increases exceeding 10 percent; and facilities generating 39.1 gigawatts of electricity (12 percent of the coal fleet) will be retired by 2015. ACCCE further estimates the cost to families will be $270 per year.

Bill Eastman, Director of Environmental Services, Westar Energy, discussed Westar's significant reductions in emissions of sulfur dioxide and nitrogen oxide since 2001 as well as projected reductions through 2017, at a time when energy generation has been increasing. He described the status of the four rules, including effective dates, types of emissions covered, types of fuel sources impacted, and the issues each rule raises for the utility. He expressed concerns about the adequacy of the level of allowances that will be available to utilities under CSAPR, and noted that reliability modeling by the Southwest Power Pool shows large increases in areas with reliability weaknesses (i.e., potential for rolling blackouts) under the EPA regulations.

Paul Ling, Senior Manager, Environmental Services, Kansas City Power and Light (KCP&L), described the expected impact on the company's generating units of CSAPR, MATS and the revised ambient air quality standard for sulfur dioxide. With regard to it's Kansas units, KCP&L anticipates LaCygne Station will be short on allowances for both sulfur dioxide and nitrogen oxide beginning in 2012, which will result in the company reducing generation, switching to lower sulfur coal, installing low-nitrogen oxide burners, and trying to get better results from existing selective catalytic reduction (SCR) equipment. KCP&L does not expect any significant impact to its Kansas units from the MATS rule or the revised sulfur dioxide standard. Several of its Missouri units will need additional allowances or equipment to meet the various rules. In all, KCP&L estimates it will cost $1 billion to comply with five current and proposed rules

George Thullesen, Director of Environmental Policy, Empire District Electric Company. Empire provides service in Cherokee County Kansas and in Missouri. In Kansas, it operates the Riverton Power Station, which includes two 1950-era coal fired baseload units. With regard to these two units, the company anticipates that to meet CSAPR requirements it will switch to low sulfur coal, purchase additional allowances, and either purchase alternate energy or switch fuel to natural gas. Costs are expected to be significant and recoverable in rates. It is not feasible to retrofit the two units to meet MATS requirements, so they either would be switched to natural gas or retired. Empire does not know if switching to low-sulfur coal will allow it to meet revised air quality standards for sulfur dioxide. If it would not, the units would have to be switched to natural gas or retired. The water intake rule (316(b)), as

proposed, could force retirement of the units. The CCR rule, as proposed, would require closure of the current surface impoundment, which would require switching to natural gas or retirement.

Wayne Penrod, Executive Manager, Environmental Policy, Sunflower Electric Power Corporation, described anticipated effects on the company's coal- and gas-fired units. To meet CSAPR requirements, a planned upgrade at the coal-fired plant at Holcomb will need to be advanced a year, at significant additional cost. Improvements will be needed at gas units, which EPA incorrectly assumed would be retired. Sunflower is concerned the CSAPR requirements will negatively affect grid reliability. MATS will require installation of mercury control equipment on Holcomb by November 2014, and could prevent construction of the proposed Holcomb 2 unit.

Phil Wages, Government Affairs, Kansas Electric Power Cooperative (KEPCo), noted that the cooperative owns a 3.5 percent share in one of KCP&L's newest coal-fired generating unit. Costs to upgrade that unit to meet CSAPR would be shared proportionally with KEPCo, as would the compliance costs incurred by any of the utilities from which KEPCo purchases power. In addition, KEPCo owns the 20 megawatt (MW) diesel-fired Sharpe Generating Station, which will require upgrades estimated to cost $350,000 to $400,000 to comply with the EPA's Reciprocating Internal Combustion Engine (RICE) National Emission Standards for Hazardous Air Pollutants (NESHAP) rule.

Brad Mears, Director of Operations, Kansas Municipal Utilities, discussed the effect of the RICE NESHAP Rule, which will have a significant impact on the generating units owned by municipal utilities. Typically these units are old and not cost-competitive to operate, so they are used in emergency or peaking situations, with most facilities operating fewer than 100 to 200 hours per year. The costs of bringing these units into compliance ranges from $60,000 to $100,000 per engine. Mr. Mears provided examples of how 13 Kansas communities will be affected.

Patrick Cassidy, Director of Environmental Services, Kansas City Board of Public Utilities (BPU), described the effects of EPA regulations on the City's Nearman and Quindaro generating units. Sulfur dioxide and nitrogen oxide emission are far greater than the allocations under CSAPR. The BPU has identified near term compliance solutions which could include adding significant control technologies, switching to natural gas at one or more units, entering into power purchase agreements, or purchasing allowances. Long-term, the utility must consider closing the Quindaro 1 unit. BPU faces additional challenges in meeting water intake structure requirements, the coal combusion rule, wastewater discharge standards, and the remaining new air quality requirements. The utility estimates compliance costs at $500 million, which could result in a 100 percent rate increase.

Earnie Lehman, President and General Manager, Midwest Energy, provided written testimony expressing his concerns about rising costs and threats to service reliability that result from CSAPR, MATS, and proposed rules for greenhouse gas emissions. Midwest Energy does not own coal-fired generation, although it purchases the output of such generation from Westar. Mr. Lehman described the risk of rapidly rising costs of energy production due to increased capital investment to maintain current output, add new capacity, and minimize capacity derating, as well as increased operating costs. He also described the risk of transmission disruptions by accelerated deployment of emissions control equipment, because outages at facilities will be extended as they upgrade equipment, and outages at multiple generating facilities will likely overlap because of the short time to complete required changes, all reducing generating resources from the grid.

Lana Ellis, Senior Research Economist, KCC, described the Commission's processes by which utilities subject to KCC jurisdiction can request recovery for costs incurred to comply with environmental mandates: a general rate case, a predetermination proceeding, and automatic recovery of environmental compliance expenditures. Automatic mechanisms include the Environmental Cost Recovery Rider, which allows for a true-up for over/under recovery of capital costs of environmental upgrades, and the Energy Cost Adjustment (ECA), which allows recovery of certain operating costs such as fuel, purchased

power, and related commodities. The ECA changes periodically to reflect changes in fuel costs, and will allow recovery of emission allowances.

Bob Glass, Chief of Economics and Rates, KCC, provided additional information on the ECA as a mechanism for investor owned utilities to recover costs associated with purchase of sulfur dioxide emission allowances. ECA's vary from monthly to quarterly adjustments, with an annual audit by the KCC serving as the basis for the true-up. ECA's are valuable to utilities when prices are volatile, and the initial markets for sulfur dioxide and nitrogen oxide allowances are expected to be marked by volatility.

Tom Gross, Air Monitoring and Planning Chief, Bureau of Air, Kansas Department of Health and Environment (KDHE), discussed gaps in air monitoring sites in western Kansas, noting that most air quality monitoring is conducted in areas with large populations. Mr. Gross reviewed the major elements of CSAPR: it affects power plant emissions that contribute to ozone or fine particle pollution in down-wind states, it covers nitrogen oxides and sulfur dioxide, the final rule was signed in July 2011. He provided a table showing Kansas utilities' 2010 actual sulfur dioxide emissions and their CSAPR revised allowances. Westar's Jeffrey and Lawrence generating facilities, and Sunflower's Holcomb facility all have more than adequate allowances. However, the following facilities have shortages, some very significant: Westar-Tecumseh, KCP&L-LaCygne, Empire-Riverton, and BPU.

The EPA provided written materials to the Committee describing the health benefits expected to be achieved as a result of CSAPR, MATS, and the RICE rule. CSAPR is expected to help avoid tens of thousands of premature deaths and illnesses such as non-fatal heart attacks, acute bronchitis, respiratory symptoms, and aggravated asthma. It also will lead to improvements in visibility in national and state parks, and increased protection for sensitive ecosystems. The EPA estimates the final rule will yield annual health and environmental benefits valued at $120 to $280 billion in 2014, which it says far outweighs the estimated annual costs of CSAPR. MATS, which will limit mercury, acid gases and other toxic pollution from power plants and reduce particle pollution, is projected to prevent hundreds of thousands of illnesses and up to 17,000 premature deaths each year, with health benefits of $59 to $140 billion in 2016. The RICE rule, by 2013, is expected to avoid up to 314 premature deaths, hundreds of cases of acute bronchitis, hundreds of non-fatal heart attacks, 2,000 cases of aggravated asthma and more than 100,000 instances of acute respiratory symptoms. The EPA estimates the value of these benefits to range from $1.5 to $3.5 billion in 2013, which outweighs the costs by at least $500 million and up to $2.5 billion.

Other Electric and Gas Utility Issues

Matt Sterling, Assistant Revisor, Office of the Revisor of Statutes, briefed the Committee on KSA 66-1233, which authorized electric and natural gas utilities to recover prudent expenditures for security measures reasonably required to protect the utility's generation and transmission assets. The statute originally was set to sunset July 1, 2004, but the sunset date was extended twice, most recently to July 1, 2011. The provisions of the act are now expired.

Leo Haynos, Chief of Gas Operations and Pipeline Safety, KCC, discussed the Energy and Utilities section of the Kansas Response Plan. The Plan is the State's emergency response plan and is under the authority of the Office of the Adjutant General, Division of Emergency Management (KDEM) but the KCC is assigned duties in the Energy and Utilities portion of the Plan. Mr. Haynos said the role of the KCC in emergency management is mainly concerned with preparedness. They require the utilities under KCC jurisdiction to plan for emergencies, but leave the execution of the plans to the utilities. During recovery from an emergency, the KCC provides information and ensures that regulations governing day-to-day operations do not hamper recovery. Representatives of Empire Electric, KCP&L, Sunflower, Westar, and KEPCo briefly described their companies' emergency preparedness plans.

Colin Hansen, Executive Director, Kansas Municipal Utilities, provided information about the rates and tariffs for customers living outside the corporate limits of a city with a municipally owned and operated electric utility. Rates are

established locally, and many charge the same rate for residents inside and outside the city limits. Most municipal utilities transfer some portion of their receipts to the city's general fund, to assist with providing necessary public services. He stated that electric customers outside corporate city limits may pay a very low percentage of their bill for a transfer that supports city services, but that the customer also benefits from proximity to the city.

The Committee received testimony from Patti Petersen-Klein, Executive Director, KCC, on a draft bill that would require the KCC to make a decision on a application for certificate of public convenience within 180 days after receiving the application. Currently there is no statutory time frame for a decision. The KCC expressed support for the 180-day limit, and the Committee voted to introduce the draft bill in the 2012 Session.

Wind and Transmission Development

Kimberly Svaty, The Wind Coalition, provided an update on Kansas wind energy. Kansas currently has nine operating projects representing 1,072 megawatts (MW) of installed generation, and is ranked 14th nationally in overall wind power production. Another eight projects, comprising an additional 1,388 MW of generation, are under development and expected to be in-service by the end of 2012. She provided descriptions of all 17 projects and noted that the new projects represent $2.7 billion in new capital investment, several thousand new construction jobs, and more than 100 permanent jobs. Since 2009, seven companies has announced wind component manufacturing facilities in Kansas, including a wind tower base production facility in Newton, a nacelle production facility in Hutchinson, a nacelle cover manufacturing facility in Junction City, a distribution facility for wind turbine and tower component parts in Lenexa, a wind tower manufacturing facility in Ottawa, a composite turbine manufacturing facility in Newton, and a logistics and distribution center for component parts in Wichita. When fully operational, the facilities are expected to create at least 1,200 new jobs in Kansas.

Matt Sterling, Assistant Revisor, Office of the Revisor of Statutes, briefed the Committee on the State's tax incentives for renewable energy. Kansas offers a property tax exemption for property used to generate electricity using renewable energy resources or technologies. In addition, for tax years 2007 through 2011, the State offered tax credits for a qualified investment in construction of a facility that generates electricity from renewable means, and for a qualified investment in storage and blending equipment used for petroleum-based fuel and biofuel. Kansas also allows an income tax deduction for amortization of the costs of a new renewable electric facility, and for costs of a waste heat utilization system at an electric generation facility.

Representative from several wind development companies testified that the Kansas property tax exemption was a key driver in their companies' decisions to build wind projects in the state. The Committee heard from Frank Constanza, TradeWind Energy; Dean Baumgardner, Wind Capital Group; Rorik Peterson, EDP Renewables, and Karl Pierce, BP Wind. Mr. Pierce stated that without the property tax exemption, the price for electricity they offer would be 30 percent higher. The Committee also heard from three County Commissioners – Carla Pence, Harper County; Carol Voran, Kingman County; and Liz Hendricks, Elk County. Commissioner Pence described costs that will be incurred by her county related to the wind development, including road and bridge work, emergency medical services during construction, and long-term fire protection for turbines and transmission lines in an area with a high volume of oil and gas wells. Harper County is in the process of negotiating a Payment In Lieu of Taxes (PILOT) agreement with the developer, but she noted these are voluntary agreements at the goodwill of the developer. In the absence of a PILOT, they support tax policy that would allow county government to recover the costs of providing infrastructure services. Commissioner Voran noted that counties are affected in different ways by wind projects, and they should be allowed to negotiate PILOT payments that directly benefit them. Kingman County supports the property tax exemption. Commissioner Hendricks described the favorable nature of Elk County's PILOT, and noted it provides a significant impact for one of the poorest counties in the State. She noted that due to the Governor's Tallgrass Heartland

initiative, there will be no additional wind development in the county.

Carl Huslig, President, ITC Great Plains, updated the Committee on the progress of the company's transmission projects. ITC is building the Kansas portion of a 345 kilovolt (kV) transmission line from Spearville to Axtell Nebraska. Sometimes referred to as the KETA Project, this line will be fully in service by the end of 2012. ITC also is building the Spearville-Mineola-Medicine Lodge portion of the Kansas Y-Plan, a dual 345kV line that will aid in moving western Kansas wind power to the east. It is expected to be in service by the end of 2014. Dave Peck, Project Manager, Westar Energy reported that the company's Rosehill to Sooner 345kV line will be completed in March 2012. Westar is a 50% partner in Prairie Wind Transmission, which is constructing the eastern and southern portions (Wichita-Medicine Lodge-Oklahoma border) of the Kansas Y-Plan. Those sections are 108 miles long, are estimated to cost $220 million, and are expected to be in service by the end of 2014. Mark Lawlor, Director of Development, Clean Line Energy Partners, described the company's Grain Belt Express Project, a high-voltage direct current line that will run from approximately Spearville to near St. Louis, Missouri. The company estimates nearly $7 billion will be invested in new wind farms due to the construction of this line.

Jon Hummell, Director of Operations, Office of the Governor, discussed Governor Brownback's Tallgrass Heartland initiative, which is intended to protect a tallgrass prairie area in the Flint Hills from commercial wind development. He provided a map of the project area, and noted it represented a voluntary agreement. Wind farms in the Tallgrass Heartland area with existing power purchase agreements would continue, but would not be expanded. Necessary electric transmission would be allowed. He discussed the Governor's Road Map for Wind Energy Policy, which includes encouraging commercial wind energy and transmission projects, an “all of the above” policy with regard to energy sources, and protection of the Flint Hills through the Tallgrass Heartland initiative while also developing eco-tourism in the area.

Kimberly Svaty, the Wind Coalition, provided a summary of the recent Kansas Supreme Court ruling on the Zimmerman vs. Wabaunsee County case, in which a group of landowners challenged the County's prohibition on industrial wind turbines in the County, while allowing small, private use turbines. The Supreme Court held that the Wabaunsee County regulations are reasonable, do not constitute a taking, and do not violate the Commerce Clause because of disparate treatment among states. However, the Court sent the case back to the district court for determination of whether the impact on interstate commerce excessively outweighs the local benefits.

Renewable Portfolio Standards

Jaime Stamatson, Senior Research Economist, KCC, explained that under Kansas' Renewable Energy Standards (RES) enacted in 2009, investor-owned and cooperatively-owned utilities are required, beginning in 2011, to meet a percentage of their peak demand from renewable resources. The criteria is at least 10 percent from renewable resources from 2011 – 2015, at least 15 percent from 2016 – 2019, and at least 20 percent from 2020 forward. Renewable energy capacity built in Kansas after January 1, 2000 is given an extra 10 percent capacity rating toward compliance. Renewable energy credits may be used to meet compliance requirements in 2011, 2016, 2020 and any other years the KCC allows. All utilities subject to the RES met the requirement for 2011.

Bob Glass, Chief of Economics and Rates, KCC, discussed the costs and effects to ratepayers of an RES. Kansas regulations require the affected utilities to submit an annual report regarding compliance, which includes calculation of the percentage increase in revenue requirements and retail utility rates resulting from compliance with the RES that year. KCP&L and Westar reported rate impacts of 1 percent and 1.7 percent, respectively. The remaining utilities did not add any renewable sources, so had no increases resulting from compliance. Dr. Glass stated most states rely on wind to meet a RES. In states with lots of forests biomass would be cost competitive with wind, and geothermal is relatively cheap in the western states. Methane from landfills is cheap, but limited in quantity. He explained the levelized cost of generation as a metric for comparing different types of generation. The

levelized cost calculation considers investment and installation cost, operations and maintenance costs, fuel cost, life of the generating unit, and energy generated by the unit. Levelized costs comparisons indicate the cost of wind is less than the cost of generation from new coal, natural gas, or nuclear facilities. Comparing wind to existing generation gives a different result.

Cindy Lash, Principal Analyst, Legislative Research Department, provided a map showing the 29 states that have a RES, and the RES standards of each. She summarized the results of four broad studies of the cost effects of a RES on ratepayers. In 2007, the Lawrence Berkeley National Lab reviewed the cost effects of 28 different policies across the country, and in 2008 the Lab reviewed cost effects of 26 State-level RES policies. Results varied, as did the RES policies, but overall there was little evidence of a sizable impact on cost. In many cases it was one percent or less. A 2009 report by the Department of Energy's Energy Information Administration estimated the cost effect of a nationwide "25 percent by 2025" RES in proposed federal legislation. They concluded it would not affect national energy prices until 2020, and the peak effect would by a 2.7 – 2.9 percent increase. A Heritage Foundation study issued in 2010 evaluated a more stringent national RES that would require 3 percent renewal energy for 2012, 15 percent by 2020, and 37.5 percent by 2035. The study concluded that by 2035, electricity prices would rise by 36 percent for residential consumers and by 60 percent for commercial consumers.

Energy Tax Incentives

Cindy Lash, Principal Analyst, Legislative Research Department, provided the Committee with the Kansas Department of Revenue's memo entitled *Current Tax-Related Energy Incentives,* which includes a thorough description of the nature of, and qualifications for, each incentive. She also provided a table that briefly summarizes the incentives by type, indicates whether they benefit renewable or non-renewable energy sources, and lists any known fiscal effects. In general, the incentives can be classified as severance tax exemption, income tax credits, income tax deductions, sales tax exemptions, special incentive funds for production, and property tax exemptions. The number of incentive programs is fairly evenly divided between renewable and non-renewable energy sources. Ms. Lash also provided a table highlighting property tax, sales tax, and income tax incentives in Kansas and nearby states for commercial wind development.

Innovative Landfill Programs

Bill Bider, Waste Management Bureau Director, KDHE, described changes in waste management in Kansas. From 2006 to 2010, there has been a gradual decline in the amount of Kansas-generated municipal solid waste deposited in landfills, and a gradual increase in the amount of waste recycled. Single-stream recycling (which does not require recyclable items to be separated by type) is being used in Johnson County and in South Central Kansas. Composting is diverting about 150,000 tons of material per year from landfills. Seven landfills are recovering and using landfill gas – putting it in a pipeline, converting it to electricity, or using it directly. Several companies are involved in direct combustion of waste (wood, tires, hazardous waste) on site to generate energy. Some other innovative waste management strategies in use include a biomass gasifier, asphalt shingle recycling, scrubber sludge from power plants used as a soil amendment, and lime sludge from water treatment plants used on agricultural fields. Mr. Bider also described how debris from the tornado that struck Joplin and Reading has been handled.