MISSOURI PUBLIC SERVICE COMMISSION

AMENDED UPDATED STAFF REPORT ON

THE COST OF COMPLIANCE WITH FEDERAL ENVIRONMENTAL REGULATIONS

FILE NO. EW-2012-0065

Jefferson City, Missouri
April 3, 2014

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UPDATE TO REPORT REGARDING THE COST OF COMPLIANCE WITH FEDERAL ENVIRONMENTAL REGULATIONS

EXECUTIVE SUMMARY

The Missouri Public Service Commission (Commission) issued an order on August 20, 2011, directing the Commission Staff (Staff) to lead a working group including utility, industrial, consumer, and environmental stakeholders, to investigate and file a report regarding the cost of compliance with federal environmental regulations. Information was obtained from a variety of sources, and Staff filed its Staff Report and Recommendation to Allow File to Remain Open on May 1, 2012, and filed an Amended Staff Report and Recommendation to Allow File to Remain Open on May 2, 2012 (May 2012 Report). Based on analysis of the information provided at the time, the overall capital cost to the electric utilities and potentially their customers was estimated to be in an approximate range of $1,981,000,000 to $3,276,000,000.

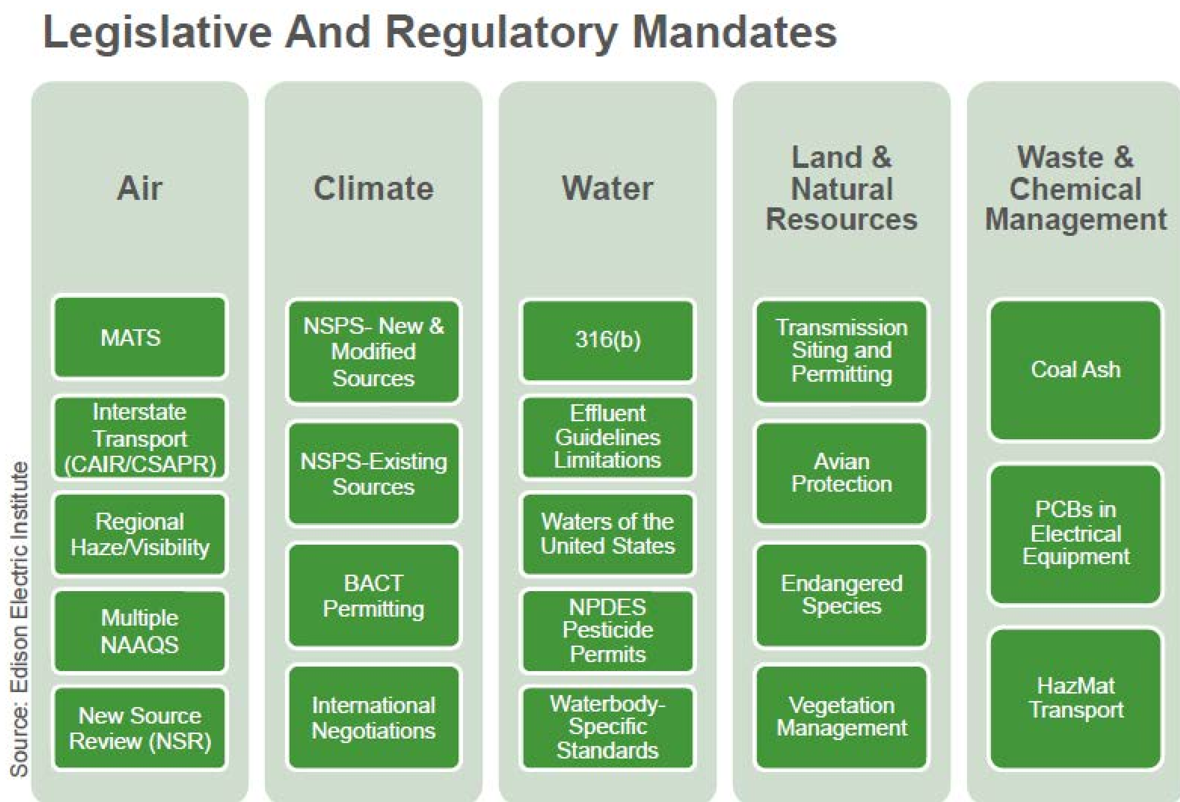
On September 24, 2013, the Commission issued an order directing Staff to update its May 2012 Report to take into account recent changes to the Clean Air Act (CAA), among other things. Staff conducted a workshop meeting (October 28, 2013), solicited comments and input from stakeholders memorialized in EFIS and solicited additional information concerning Operation and Maintenance (O&M) costs, decreases in plant efficiencies and heat rates, etc. Information was obtained from a variety of sources as detailed in the body of this updated Staff Report. Based on this current information, not including effluent or coal combustion residuals (CCR) cost estimates, the overall capital cost to the electric utilities and potentially their customers would be in the approximate range of $2,968,100,000 to $3,211,100,000. Including effluent and CCR cost estimates it would raise the total capital cost range to $4,758,130,000 to $5,001,130,000. These estimates are based on compliance with the rules that have been issued or are likely to be issued. Alternative future rules could increase this estimate or the range of the estimate. Capital costs are one component of the overall cost of compliance. O&M costs, auxiliary electric system costs and an overall decrease in plant efficiency or heat rate expressed as a reduction in overall plant electrical output to the grid are also significant and range in the millions of dollars per year.

There will be uncertainty regarding the content and costs of the Clean Air Act §111(d) standards for some time, but the Environmental Protection Agency's (EPA) timetable has been set with its proposed guidelines due in June 2014, its final guidelines due in June 2015 and State Implementation Plans (SIPs) due to the EPA in June 2016. Since 2005, the Missouri investor-owned utilities (IOUs) have collectively spent in excess of $700 million on projects that lower the amount of CO_2 emitted. This has resulted in a reduction of CO_2 emitted of approximately 4.4% for 2012 alone.

Staff recommends that the Commission allow this File to remain open. Staff anticipates the need to file supplemental information as issues are further identified and additional actions are taken by other regulatory agencies.

Note: Unless otherwise indicated information in this Report is an update to the May 2012 Report. Information has been obtained from various sources. Significant portions of this Report were obtained directly from various documents, presentations, and/or websites prepared or sponsored by Missouri utilities, utility industry organizations, regional transmission system operators, federal agencies, and others.

HISTORY[1]



The Clean Air Act

This section of the Report highlights key Environmental Protection Agency (EPA) regulations, including updates since the May 2012 Report.

The Clean Air Act (CAA) of 1970 authorized the development of comprehensive federal and state regulations to limit emissions from stationary and mobile sources. Four major regulatory programs affecting stationary sources were initiated: the National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants. The National Environmental Policy Act created the United States Environmental Protection Agency (EPA) on December 2, 1970. Major amendments to the CAA occurred in 1977 and 1990. The legal authority for federal programs regarding air pollution control is based on the 1990 Clean Air Act

[1] Entire "History" section, various sources, EPA.

Amendments. These are the latest in a series of amendments made to the CAA. This legislation modified and extended federal legal authority provided by the earlier CAA of 1963 and 1970.

In 2005, the EPA finalized the Clean Air Interstate Rule (CAIR). A 2008 court decision left the CAIR requirements in place temporarily and directed the EPA to issue a replacement rule. CAIR covered SO_2 and NO_X and affected Missouri but not Kansas. The EPA finalized the Cross State Air Pollution Rule (CSAPR) on July 6, 2011. In December 2011, a D.C. Circuit Court of Appeals ruling in *EME Homer City Generation, L.P. v. Environmental Protection Agency* stayed CSAPR and left CAIR in effect temporarily.

On August 21, 2012, the Court of Appeals made its decision in *EME Homer City Generation, L.P. v. Environmental Protection Agency*, remanding the rule back to the EPA for revisions and directing the EPA to administer CAIR rules until a valid CSAPR rule was promulgated.

On June 24, 2013, the U.S. Supreme Court agreed to hear the appeal of the D.C. Circuit, Court of Appeals' decision. Oral arguments were heard the week of December 9, 2013, with a decision expected by June 2014.

On March 15, 2005, the EPA issued the final Clean Air Mercury Rule (CAMR). CAMR established "standards of performance" limiting mercury emissions from new and existing utilities and created a market-based cap-and-trade program to reduce nationwide utility emissions of mercury in two phases. On February 8, 2008, the D.C. Circuit Court of Appeals vacated CAMR. On March 16, 2011, the EPA proposed a rule that would reduce emissions from new and existing coal- and oil-fired power plants. This proposed rule would replace the court-vacated CAMR. On December 16, 2011, the EPA issued a rule to reduce emissions of toxic air pollutants from power plants. Specifically, the Mercury and Air Toxics Standards (MATS) for power plants will reduce emissions from new and existing coal- and oil-fired electric utility steam generating units. Existing sources generally will have up to four (4) years to comply with MATS. This includes the three (3) years provided to all sources by the CAA. The EPA's analysis continues to demonstrate that this will be sufficient time for most, if not all, sources to comply. Under the CAA, state permitting authorities can also grant an additional year as needed for technology installation. The EPA expects this option to be broadly available. The final MATS rule took effect on April 16, 2012 (starting a three-year compliance period). A significant number of legal challenges have been filed against the MATS rule. The EPA issued proposed revisions to the NSPS for electric generating units (EGUs) to add a section on greenhouse gas (GHG) for new and modified facilities on March 27, 2012.

On December 14, 2012, the EPA strengthened the annual health NAAQS for fine particles by setting the annual health standard at 12 micrograms per cubic meter.

Also in December 2012, the EPA issued a final rule setting emission limits of hazardous air pollutants for new and existing boilers. These limits apply to boilers that produce steam for purposes other than electricity generation.

As part of President Obama's Climate Action Plan, the EPA was directed to reduce carbon emission from new and existing power plants. On September 20, 2013, the EPA issued proposed standards for new power plants under §111(b) of the CAA.

Section 111(b) of the CAA, also referred to as NSPS, requires new, modified, or reconstructed generation sources to meet:

- 1,000 lbs CO_2 per MWh (gross) for new large gas-fired turbines (<= 850 mmbtu/hr)
- 1,100 lbs CO_2 per MWh (gross) for new small gas-fired turbines (>850 mmbtu/hr)
- 1,050-1,100 lbs CO_2 per MWh (gross) for new coal-fired units

Section 111(d) of the CAA requires the EPA to develop guidelines that identify systems of emission reduction for greenhouse gases like CO_2 for existing coal-fired generators on or before June 1, 2014. Final guidelines are due on or before June 1, 2015. These guidelines will be implemented through a federal-state partnership in which the states will draw up state implementation plans (SIPs), which will be reviewed and accepted or rejected by the EPA on or before June 30, 2016. On October 15, 2013, the U.S. Supreme Court agreed to hear the utility sector's case against the EPA's regulation of CO_2 emission of fossil-fueled generation plants.

Coal Combustion Residuals

Congress enacted the Resource Conservation and Recovery Act of 1979 (RCRA). Subtitle C in the RCRA regulates "hazardous waste." Hazardous waste is waste that exhibits any one of four characteristics of: ignitability, corrosivity, reactivity, or toxicity. All other waste is regulated under subtitle D of the RCRA. On October 12, 1980, Congress passed the Waste Disposal Act Amendments of 1980. Included in these amendments is the Bevill amendment.

The Bevill amendment temporarily exempted "cement kiln dust waste" along with two other categories of waste from regulation under subtitle C. This amendment also required the EPA to study the effects of "cement kiln dust waste" on the environment and/or human health. The EPA issued its findings in two reports in 1993 and 2000. The EPA's findings did not support regulating CCR under subtitle C. CCRs include fly ash, bottom ash, boiler slag, and flue gas desulfurization (FGD) gypsum. As a result of the Tennessee Valley Authority's Kingston facility's coal ash spill in December 2008, the EPA began a study of the storage of CCR. On June 21, 2010, the EPA issued proposed rules. On October 29, 2013, a D.C. Federal District Court, in *Appalachian Voices v. McCarthy,* ordered the EPA to disclose to the court, within 60 days, when EPA proposes to complete its review and revision and have the final coal ash rules.

Clean Water Act

In 1948, Congress passed the Federal Water Pollution Control Act; at that time it was the first major U.S. law to address water pollution. Sweeping changes to the Federal Water Pollution Control Act occurred in 1972. As amended, the law became known as the Clean Water Act (CWA). Under the CWA, the EPA was to revise the effluent limitations every five years. In April 2013, the EPA proposed to revise the technology-based effluent limitations guidelines and standards regulation to make existing controls on discharges from steam electric power plants more stringent. This proposal sets the first federal limits on the levels of toxic metals in wastewater that can be discharged from power plants. The D.C. Circuit Court of Appeals mandated requirement calls for actions based on a consent decree between the EPA, Defenders of Wildlife, Earth Justice, Environmental Integrity Project and the Sierra Club by May 22, 2014. On April 19, 2013, the EPA issued a notice of proposed rulemaking. This rulemaking was initiated to revise the effluent limitation guidelines (ELG).

The EPA has obtained more time to finalize final standards for CWA section 316(b). Due to the federal government shutdown, the release date for the 316 (b) standards was pushed from November 2013 to January 14, 2014 preventing inclusion in this updated Report.

BACKGROUND INFORMATION

The environmental regulations that were reviewed for this Report primarily affect coal-fired generating plants. The Missouri electric utilities utilize coal-fired generating plants located in three states—Missouri, Kansas, and Arkansas. Missouri-jurisdictional generating capacity for these units is approximately 9,000 MW, while total generating capacity for these units is approximately 13,700 MW.

On a geographic basis, Missouri ranks 18^{th} in the United States for generating capacity (total net summer capacity) and net generation. On the same basis, Missouri ranks 8^{th} for SO_2 emissions, 18^{th} for NO_X emissions, and 10^{th} for carbon dioxide (CO_2) emissions. The following two charts illustrate the Missouri generating capacity (Summer 2010) and net electrical generation (2010). The total summer capacity was 21,739 MW and the total net generation was 92,313,000 MWh. These charts are developed on a geographical basis, not Missouri investor-owned utility jurisdictional basis.[2]

Due to the federal government shutdown, the release date for 2011 data from EIA was delayed from November 2013 to March 2014 preventing the Summer Capacity Chart, the Net Generation Chart, as well as the information listed above from being updated since the May 2012 Report.

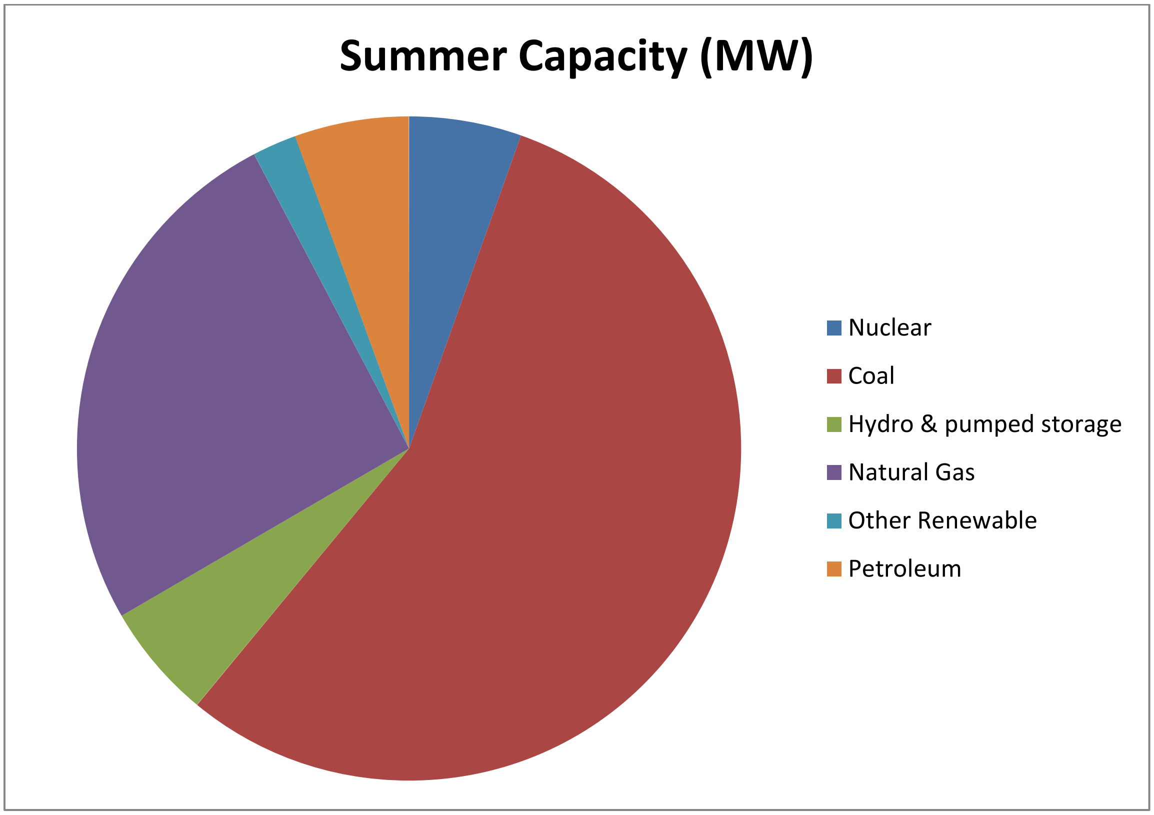


Figure 1

[2] State Electricity Profiles 2010, U.S. Energy Information Administration (EIA), January 2012.

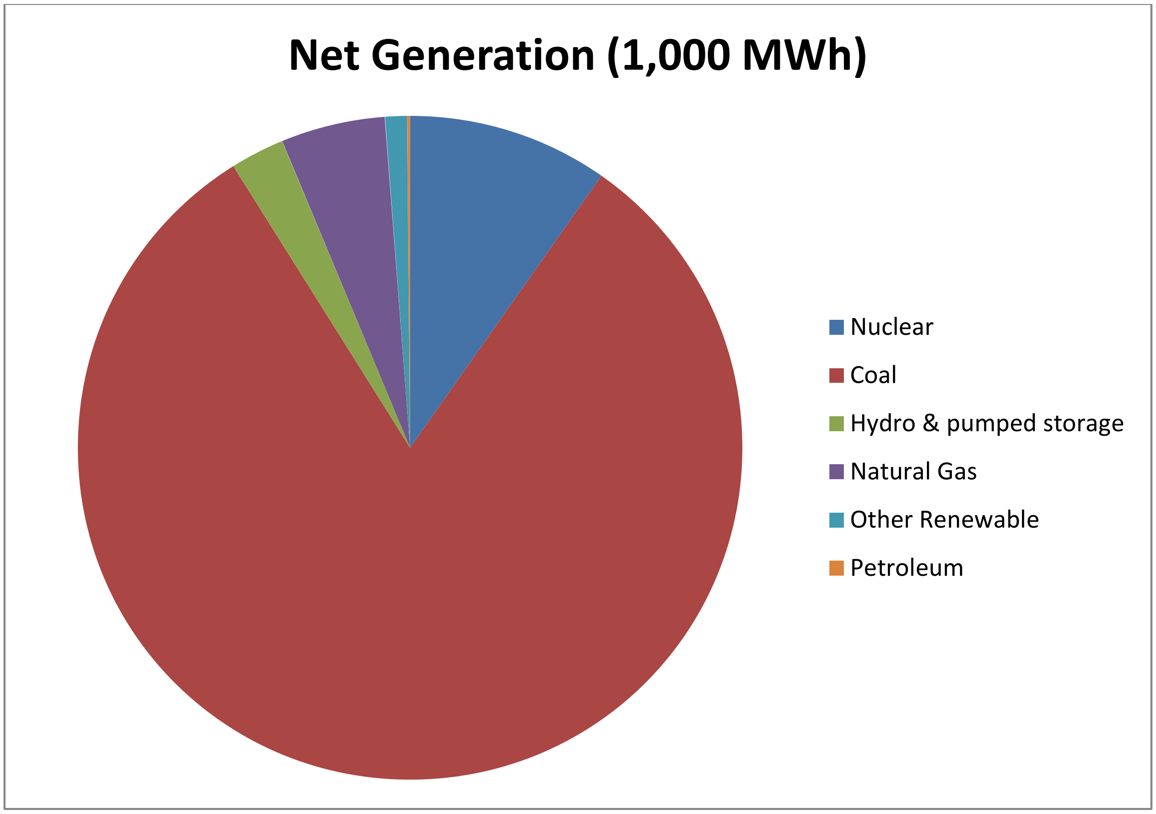
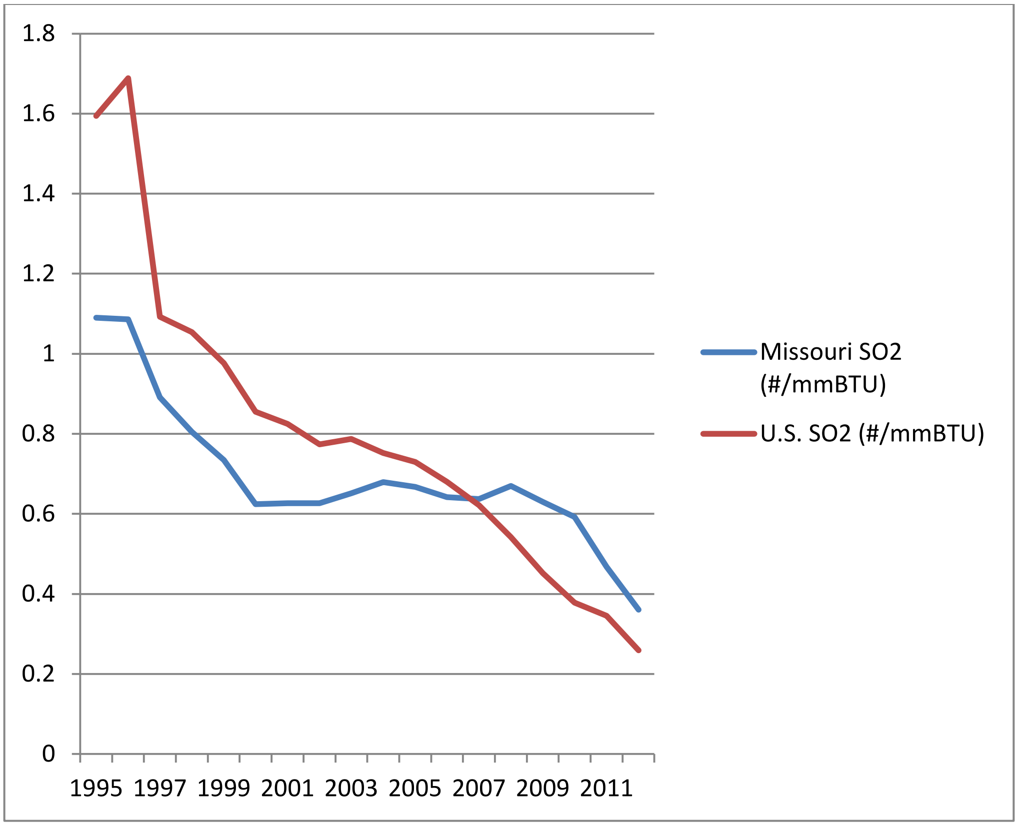


Figure 2

For a historical perspective, Missouri SO_2, NO_X, and CO_2 coal-fired generating plant emissions were compared with total United States emissions on a pound per million BTU (#/mmBTU) basis. The data analyzed was from 1995 through 2012. For 1997 through 2012, forty eight states and the District of Columbia were included. For 1995 and 1996, twenty-four and twenty-three states respectively, were included. The data for Missouri included all coal-fired generating plants physically located in Missouri. The data does not include generating plants utilized by Missouri utilities that are located outside Missouri.[3]

[3] Air Markets Program Data website, EPA.


1.8
1.6
1.4
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1
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1995
1997
1999
2001
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2009
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Missouri SO2 (#/mmBTU)
U.S. SO2 (#/mmBTU)

Figure 3

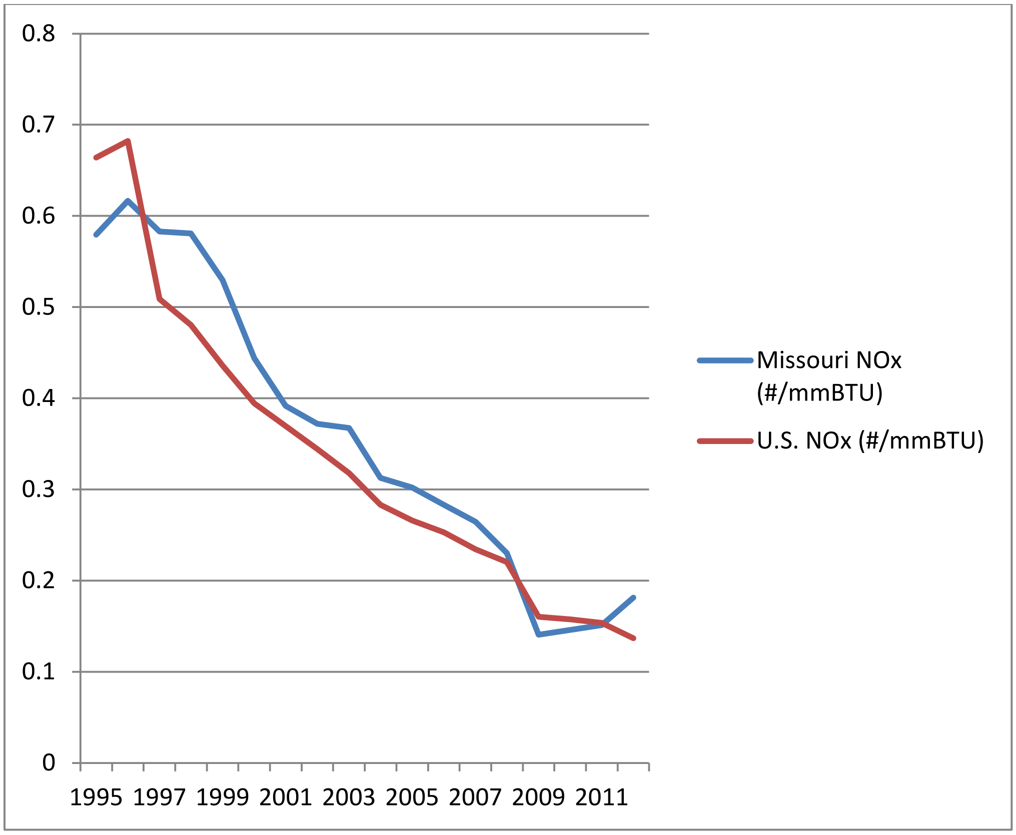

Figure 4

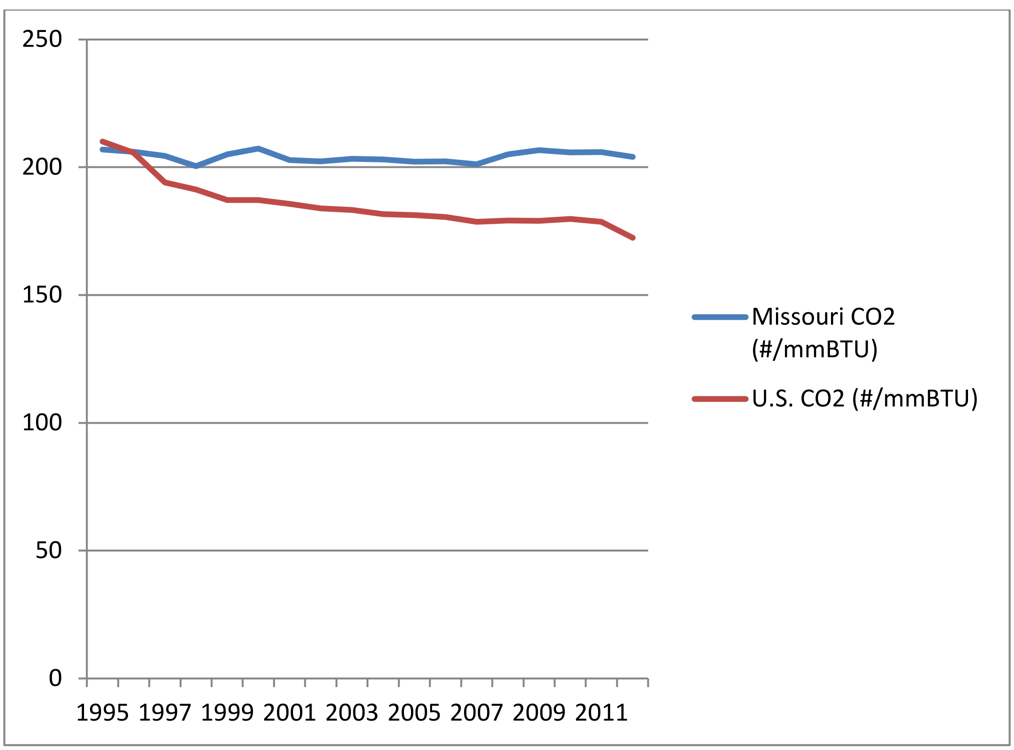

Figure 5

Utilizing approximations, the relative cost[4] of emissions control technologies is that flue gas desulfurization (FGD) costs approximately two to three times greater than the cost of a selective catalytic reduction unit (SCR) or a baghouse. Wet cooling tower costs are approximately equal to a cost of a SCR or baghouse. Activated carbon injection (ACI) for mercury control is approximately five percent of the cost of a SCR or baghouse.

Installation of all the emission controls technologies (except ACI) requires extensive construction activities and normally a generating unit outage for the tie-in of the new equipment. Significant amounts of the construction work can be accomplished without affecting generating unit operation prior to the tie-in outage. In some cases, earlier generating unit outages are utilized for preliminary construction activities in anticipation of the tie-in outage. Installation of emission control technologies can result in support equipment upgrades and modifications. Examples include, but are not limited to: new or modified chimney, upgraded electrical systems, modified or upgraded instrument and control system, or new or modified waste disposal systems. For multiple unit sites, shared common equipment can be used to support similar systems on all the units.

WORKSHOP PRESENTATIONS

At the October 28, 2013 workshop meeting, information was presented by the electric utilities and the Natural Resource Defense Council (NRDC). The individual utility and NRDC presentations are included in File No. EW-2012-0065. A follow-up request for additional information concerning applicable increases in auxiliary electrical system requirements, decreases in overall plant efficiency and additional O&M costs associated with any plant modifications required for EPA compliance was sent on November 21, 2013. Information from these presentations and the responses to the request for additional information are summarized below.

Ameren Missouri

Recent environmental upgrades provide compliance improvements. The installation of scrubbers on Sioux Units 1 and 2 and fuel switching to ultra-low sulfur coal will provide environmental benefits. Compliance plans for SO_2 include: utilization of ultra-low sulfur coal, banking SO_2 credits, and evaluation of ultra-low sulfur coal versus emissions control equipment

[4] Cost is the total capital installed cost of the technology and does not reflect any O&M costs or costs associated with loss of plant efficiency.

for 2018 and beyond. Compliance plans for NO_X include: aggressive tuning of units, additional over-fired air modifications, NO_X allowance purchases and/or swap of SO_2 for NO_X allowances, or reduction in generation. Compliance for MATS could include: electrostatic precipitator upgrades, activated carbon injection, or fuel additives. Compliance with Clean Water Act rules could include technology and biological studies, dependent on re-issued National Pollution Discharge Elimination System (NPDES) permits.

Ameren Missouri Environmental Compliance Plan – Air Quality Options

Cross State Air Pollution Rule (CSAPR) - Power Plant SO_2 / NOx Control Program

- Compliance plans for SO_2
    - Burn ultra-low sulfur coal starting in 2012
    - Evaluate additional ultra-low sulfur fuel purchases vs. emissions control equipment for compliance in 2018 and beyond
    - FGD additions at Labadie, Rush Island or Meramec could require a 1-2% increase in auxiliary electric system power requirements.
- Compliance options for NOx
    - Aggressive tuning of existing units
    - Additional separated over-fire air (SOFA) modifications on Labadie Units 1 & 3 @ $4-6 million per unit (Units 2 & 4 complete)
    - NOx credit purchases and or swap of SO_2 for NOx credits
    - Unit de-rates or reductions in generation
    - Operate Selective Non-Catalytic Reduction (SNCR) equipment with over-fire air (OFA) staging at Sioux plant $2.5-7.5million annually
    - Selective Catalytic Reduction (SCR) installation on both Sioux units capital costs of $200-$300 million with auxiliary electrical system requirements estimated to be 16 MW and an expected decrease in plant efficiency of 1.6%
    - Meramec 3 SNCR installation $7-9 million
    - Meramec 4 SNCR with new Low-NOx burners $9-11 million
- Compliance Options for Mercury (Hg) and Air Toxics (MATS)
    - Electrostatic precipitator (ESP) upgrades for particulate matter (PM) control at Labadie and Meramec by 4/16/2016 $225 - $300 million with an associated increase in auxiliary electrical system requirements of 2.2 MW for Labadie Units 1&2 and 1.8 MW for Labadie Units 3&4 and estimated decrease in plant efficiency of .36% for Labadie Units 1&2 and .30% for Labadie Units 3&4.
    - Activated Carbon Injection (ACI) for Hg control for Rush Island by 4/16/2015 and Labadie and Meramec by 4/16/2016 capital cost range of $40-50 million and O&M annual costs ranging between $20-30 million
    - Fuel additive at Sioux for Hg control by 4/16/2015 $2-3 million with yearly expenses of $2-3 million
    - PM, HCL, and Hg Continuous Emission Monitors (CEM) on all plants by 1/1/2015 $10-20 million

Clean Water Act §316(a) and §316(b)

Cooling tower additions at Labadie will require between 16 to 37 MW of auxiliary electric system power requirements with an associated decrease in plant efficiency range of .67% to 1.54%

Note: Ameren Missouri unit compliance options can be found in Appendix D.

KCP&L and GMO

Recent environmental upgrades and new generating unit construction provide compliance improvements. The installation of an SCR at LaCygne Unit 1, selective non-catalytic reduction (SNCR) on Sibley Units 1 and 2; SCR on Sibley Unit 3; SCR, scrubber, baghouse, and ACI at Iatan Unit 1; upgraded scrubbers on Jeffrey Energy Center Units 1, 2, and 3; and, SCR, scrubber, baghouse, and ACI at Iatan Unit 2 will provide environmental benefits for KCP&L and GMO. Additional compliance plans are in progress that affect these and other generating units. Compliance plans for SO_2 include: scrubber installations, fuel switching, and reduction in generation. Compliance plans for NO_X include: installation of SCR, installing low-NO_X burners, reduction in generation, and increasing emission reductions from existing SCRs and SNCRs. Compliance plans for MATS could include: ACI, ESP upgrades, baghouse installation, dry sorbent injection, and fuel switching.

- Current estimate of capital expenditures (exclusive of Allowance for Funds Used During Construction (AFUDC) and property taxes) to comply with current final environmental regulations where the timing is certain is approximately $700 million.
    - The actual cost of compliance with any existing, proposed or future laws and regulations may be significantly different from the cost estimate provided.
    - Current estimate of approximately $700 million of capital expenditures reflects costs to install environmental equipment at KCP&L's LaCygne Units 1 and 2 by June 2015 to comply with the Best Available Retrofit Technology (BART) rule and environmental upgrades at other coal-fired generating units through 2016 to comply with the Mercury and Air Toxics Standards (MATS) rule.
    - In September 2011, KCP&L commenced construction of the LaCygne environmental retrofit projects and, as of June 30, 2013, had incurred

approximately $311 million of cash expenditures, which is included in the approximate $700 million estimate above.

Other capital projects at coal-fired generating units for compliance with the CAA and the CWA based on proposed or final environmental regulations where the timing is uncertain could be approximately $600 to $800 million. However, these other projects are less certain and the timeframe cannot be estimated and therefore are not included in the approximately $700 million estimated cost of compliance discussed above.

Note: Current projects for KCP&L and GMO can be found in Appendix D.

Empire

Recent environmental upgrades and new generating unit construction provide compliance improvements. The installation of an SCR at Asbury; SCR, scrubber, baghouse, and ACI at Iatan Unit 1; SCR, scrubber, baghouse, and ACI at Iatan Unit 2; and, SCR, scrubber, baghouse, and ACI at Plum Point Unit 1 will provide environmental benefits for Empire. Compliance plans for SO_2 include: scrubber installation, fuel switching, and retirement of units. Compliance plans for MATS could include: scrubber installation, baghouse installation, ACI, fuel switching, and retirement of generating units.

Multiple Rules Applicable to Empire Compliance – Air Quality

- Mercury Air Toxic Standards (MATS)
- Clean Air Interstate Rule (CAIR)
- Cross State Air Pollution Rule (CASPR)
- Regional Haze
- National Ambient Air Quality Standards (NAAQS)
- Coal Combustion Residuals (CCR)
- Clean Water Act (CWA) §316(b)
- Several rules not finalized at this time / full impact still unknown

Environmental Compliance Plan -

- Transition Riverton Units 7 and 8 from coal to natural gas – Completed in September of 2012
- Retrofit Asbury Unit 1 with scrubber, baghouse and ACI
    - Expected completion – Early 2015

    - Expected cost - \$112 - \$130 million
    - Expected decrease in overall plant efficiency is approximately 4% or 6.7 MW with an annual value of \$1.05 million per year
    - Additional annual fixed costs are estimated to be \$6.4 million per year and variable O&M costs are estimated to be \$3.82 per MWh
    - Retrofitted Asbury Unit 1 with SCR in 2008 at cost of approximately \$32 million
- Retire Asbury Unit 2 – End of 2013
- Riverton Unit 12 conversion to combined cycle
    - Expected completion – Mid-2016
    - Expected cost - \$165 -\$175 million
- Retire Riverton Units 7, 8 and 9 when Riverton 12 combined cycle is completed – Mid-2016
- Iatan 1 (Empire's share ~\$62 million), Iatan 2 and Plum Point constructed or retrofitted with SCR, Scrubber, Baghouse and ACI

Green House Gas (GHG) NSPS for New Sources

- Proposed on March 27, 2012 and re-proposed September 20, 2013
- Limits CO2 to 1,000 lbs/MWh for natural gas units and 1,100 lbs/MWh for coal and integrated gasification combined cycle (IGCC) units
- Riverton 12 conversion is not considered a new unit by EPA in the proposed regulation
- Estimate final version by June 30, 2014

GHG for Existing Units

- Propose guidelines to the states by June 30, 2014
- Final guidelines by June 30, 2015
- State Implementation Plans (SIPs) due to EPA by June 30, 2016
- No specified compliance date at this time
- All Empire existing fossil-fired units subject to this rule
- No information on what this rule will look like at this time

Note: Empire compliance options are included in Appendix D.

There will be uncertainty regarding the content and costs of the Clean Air Act §111(d) standards for some time, but the Environmental Protection Agency's (EPA) timetable has been set with its proposed guidelines due in June 2014, its final guidelines due in June 2015 and State Implementation Plans (SIPs) due to the EPA in June 2016. However, since 2005, the IOUs have collectively spent in excess of $700 million on projects that lower the amount of CO_2 emitted. This has resulted in a reduction of CO_2 emitted of approximately 4.4% in 2012 alone.

Note: Not all units were included in analysis resulting in the calculation CO_2 emitted. It should be also noted that the generation unit outages as well as the weather may impact how much CO_2 would be emitted year over year.

Natural Resource Defense Council

With regard to Missouri regulated generating facilities, the NRDC encouraged the Commission to consider the following process recommendations:

- Cross-agency coordination with MoDNR on State Implementation Plan and with EPA Region 7 on CAA process requirements
- Include CAA §111(d) compliance plans in state IRP process
- Compile and analyze effects of existing emissions-reducing state policies, such as Renewable Energy Standards (RES) and the Missouri Energy Efficiency Investment Act (MEEIA)
- Investigate ways to standardize compliance in regional utility affiliate service territories
- Consider and model alternative compliance mechanisms (such as mass-based standard)

WORKSHOP FOLLOW-UP COMMENTS

Following the workshop, additional comments were received from Ameren Missouri, NRDC, the Midcontinent Independent System Operator, Inc. (MISO) and the Sierra Club. The additional comments are included in File No. EW-2012-0065. Information from the comments is summarized below.

NRDC

NRDC provided a report titled: *Closing the Power Plant Carbon Pollution Loophole: Smart Ways the Clean Air Act Can Clean Up America's Biggest Climate Polluters*. In this report to the EPA, NRDC outlines its policy position with regard to CAA §111(d) as well as presents analysis to illustrate its position. If followed, NRDC concludes its policy will have the following benefits:

- NRDC's recommended CO_2 performance standards will achieve considerable emission reductions through 2020 with manageable costs to the electric power sector.[5]
- "By taking advantage of the most cost-effective emission reduction opportunities, including energy efficiency improvements and a shift to lower-emission generating units, these reductions would be achieved at an annualized compliance cost of only $14 billion, while yielding social benefits valued up to $60 billion."[6]
- The recommended approach will lower wholesale electricity costs. [5]
- Adequate electricity resources are available to assure a reliable supply as emissions standards are met. [5]

<u>Ameren Missouri</u>

On November 15, 2013, Ameren Missouri filed comments responding to NRDC statements in its workshop presentation and information NRDC filed in the docket subsequent to the workshop. Ameren Missouri notes NRDC indicated its proposal as summarized above could be implemented with minimal cost to utility consumers. In its comments, Ameren Missouri "strongly disagrees with [that] assertion" and states there will be significant rate impacts on Missouri electric utility ratepayers if NRDC's proposal is adopted. Staff requested Ameren Missouri to quantify the significant rate impacts and Staff has not receive this information to date.

On February 4th, 2014, Ameren Missouri and Staff had a conference call clarifying information previously provided by Ameren Missouri and providing some new information that Staff has used in this Report.

<u>MISO</u>

MISO submitted information from the MISO Quarterly Survey Update (2nd Quarter 2013), the Organization of MISO States (OMS)-MISO Resource Assessment Survey Update and the MISO Electric and Natural Gas Coordination Task Force (ENGCTF) Update. The quarterly survey update results, set out below, indicate that approximately 49.2 gigawatts (GW) out of 66.2 GW of coal-fired resources will be affected by environmental compliance matters.

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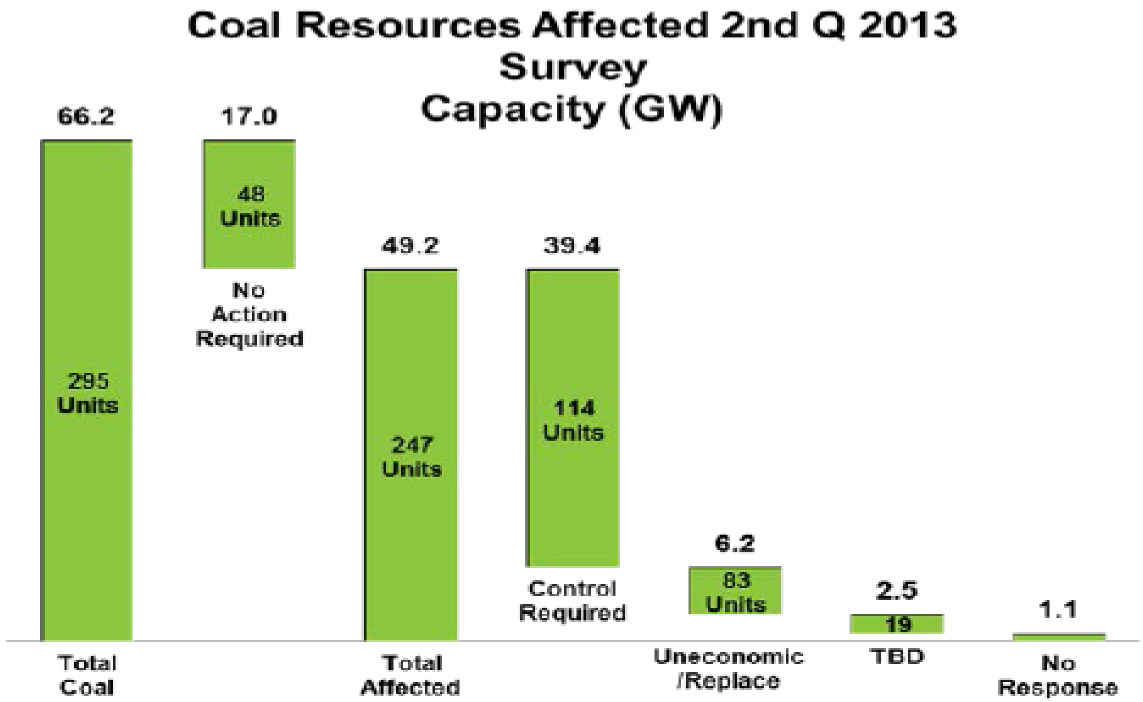
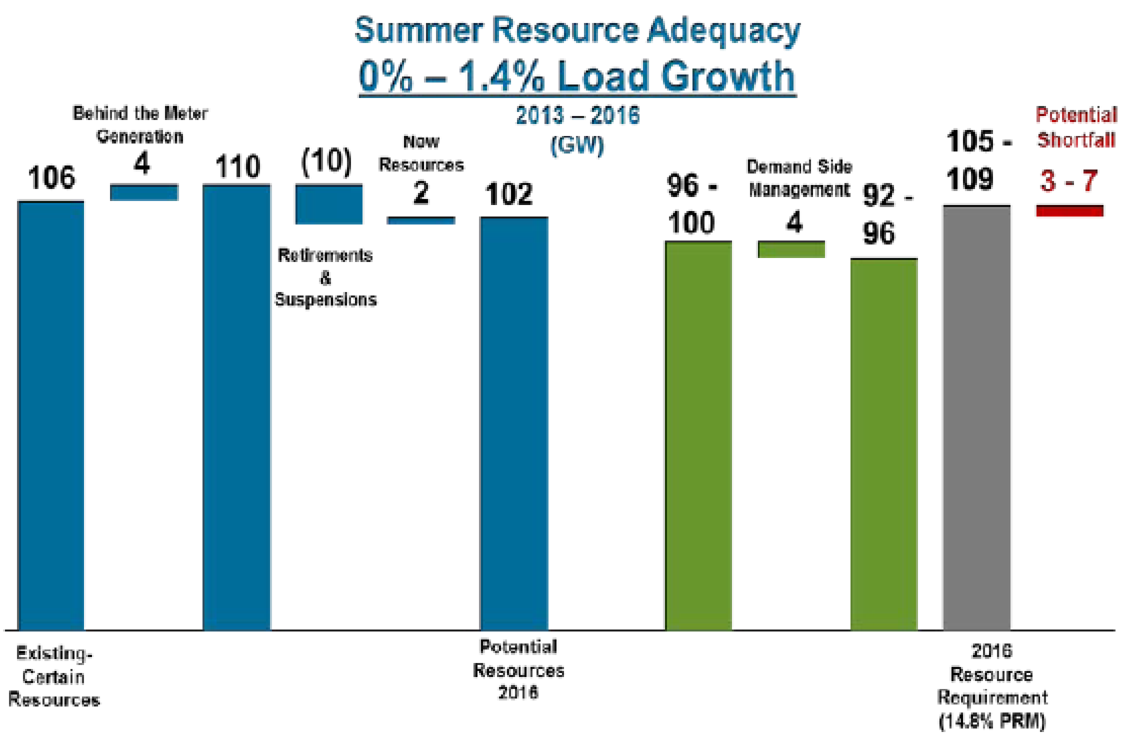
[5] Page 5, *Closing the Power Plant Carbon Pollution Loophole: Smart Ways the Clean Air Act Can Clean Up America's Biggest Climate Polluters*.
[6] Page 47, *Closing the Power Plant Carbon Pollution Loophole: Smart Ways the Clean Air Act Can Clean Up America's Biggest Climate Polluters*.



The as modeled results of the Resource Assessment survey, shown below, indicate that during the summer 2016 timeframe, a shortfall of 3-7 GW is expected.



Sierra Club

The Sierra Club submitted detailed comments regarding: current EPA activities, utility resource planning, known or potential impacts on coal-fired generating units, and recommendations regarding potential Commission actions. The Sierra Club recommends that the Commission utilize an "Integrated Environmental-Compliance Planning" approach, noting that this would address several identified "shortcomings" in the current electric utility resource planning process. Additional comments are provided that address specific aspects of the current electric utility resource planning process.

The Sierra Club provided revised tables updating compliance costs since the May 2012 Report for the coal-fired generating plants physically located in Missouri. These tables are filed in EW-2012-0065. Staff provides a summary spreadsheet that lists details regarding the coal-fired generating plants that serve Missouri investor-owned electric utility customers. This item is included in this Report as Appendix E.

Utilizing the cost estimates provided in the Sierra Club updated tables, the following capital expenditures could be required for coal-fired units to comply with existing and proposed EPA regulations.

FGD – Flue Gas Desulfurization SCR – Selective Catalytic Reduction BH – Bag House
ACI – Activated Carbon Injection CT – Wet Cooling Tower CCR—Coal Combustion Residuals

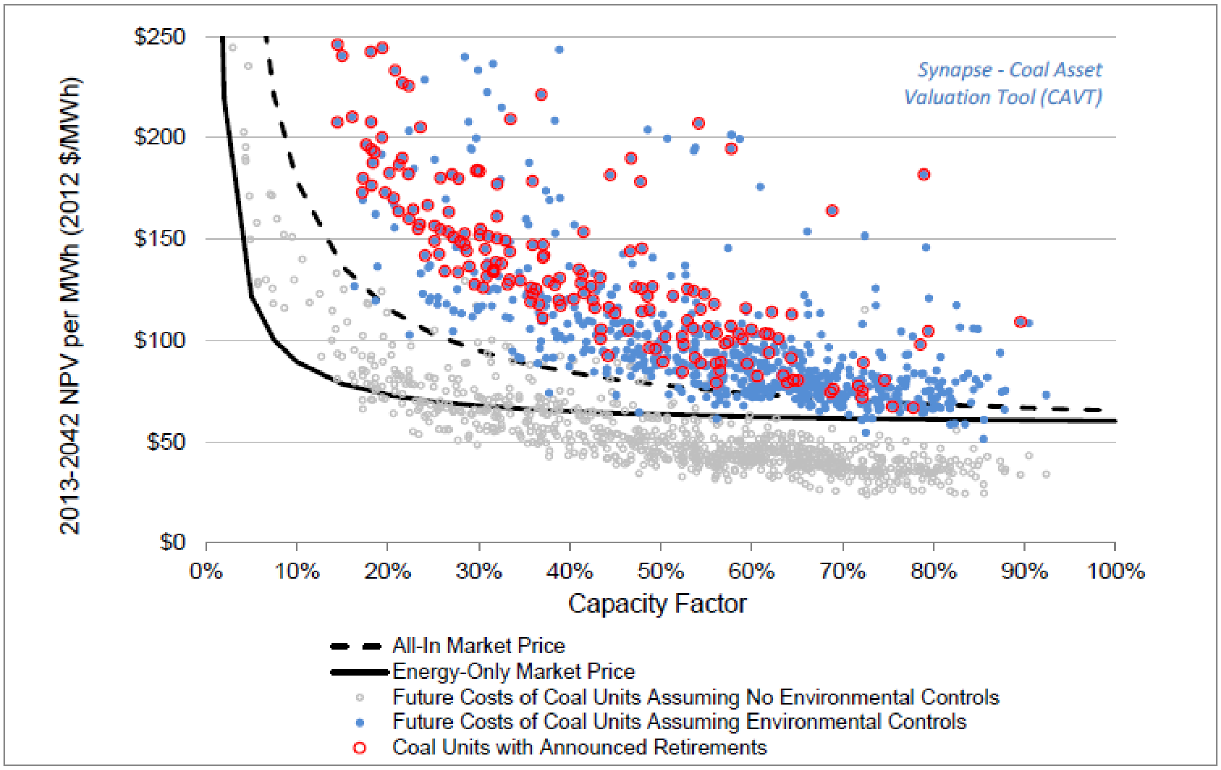
AMEREN MISSOURI					
Unit	FGD, SCR, BH & ACI	CT	CCR	Effluent	Total
Labadie 1	$467,850,000	$65,490,000	$57,450,000	$6,880,000	$597,670,000
Labadie 2	$468,270,000	$56,230,000	$57,450,000	$6,880,000	$588,830,000
Labadie 3	$497,950,000	$60,700,000	$58,450,000	$7,450,000	$624,550,000
Labadie 4	$497,970,000	$60,830,000	$58,450,000	$7,450,000	$624,700,000
Meramec 1	$165,840,000	$680,000	$52,260,000	$4,270,000	$223,050,000
Meramec 2	$165,560,000	$680,000	$52,260,000	$4,270,000	$222,770,000
Meramec 3	$289,260,000	$1,180,000	$59,920,000	$8,980,000	$359,340,000
Meramec 4	$341,220,000	$28,230,000	$63,460,000	$11,150,000	$444,060,000
Rush Island	$489,890,000	$83,580,000	$69,360,000	$14,340,000	$657,170,000

AMEREN MISSOURI					
Unit	FGD, SCR, BH & ACI	CT	CCR	Effluent	Total
1					
Rush Island 2	$489,960,000	$78,360,000	$69,360,000	$14,340,000	$652,020,000
Sioux 1	$93,110,000	$67,470,000	$69,040,000	$14,340,000	$243,960,000
Sioux 2	$93,110,000	$63,480,000	$69,040,000	$14,340,000	$239,970,000
Total	$4,059,990,000	$566,910,000	$736,500,000	$114,690,000	$5,478,090,000

EMPIRE					
Unit	FGD, SCR, BH & ACI	CT	CCR	Effluent	Total
Asbury 1	$144,010,000	$0	$86,210,000	$26,860,000	$257,080,000
Total	$144,010,000	$0	$86,210,000	$26,860,000	$257,080,000

KCPL/GMO					
Unit	FGD, SCR, BH & ACI	CT	CCR	Effluent	Total
Hawthorn 5	$4,030,000	$50,440,000	$90,450,000	$28,670,000	$173,590,000
Iatan 1	$0	$82,950,000	$67,330,000	$12,690,000	$162,970,000
Iatan 2	$0	$0	$73,030,000	$15,980,000	$89,010,000
Lake Road 6/4	$174,790,000	$410,000	$89,810,000	$28,670,000	$293,680,000
Montrose 1	$212,540,000	$270,000	$60,320,000	$9,560,000	$282,690,000
Montrose 2	$212,540,000	$260,000	$60,320,000	$9,560,000	$282,680,000
Montrose 3	$212,560,000	$280,000	$60,320,000	$9,560,000	$282,720,000
Sibley 1	$81,760,000	$220,000	$50,010,000	$3,010,000	$135,000,000
Sibley 2	$76,350,000	$210,000	$49,590,000	$2,740,000	$128,890,000
Sibley 3	$281,320,000	$39,150,000	$81,220,000	$22,930,000	$424,620,000
Total	$1,255,890,000	$174,190,000	$682,400,000	$143,370,000	$2,255,850,000
TOTALS	**$5,459,890,000**	**$741,100,000**	**$1,505,110,000**	**$284,920,000**	**$7,991,020,000**

The Sierra Club provided a Synapse Energy Economics Inc. study titled “2013 Carbon Dioxide Price Forecast” and a Synapse Energy Economics Inc. study titled “Forecasting Coal Unit Competitiveness.” The chart below illustrates the as modeled results of the “Forecasting Coal Unit Competitiveness” study.



UTILITY/CORPORATE 10-K and 10-Q INFORMATION

Companies annually file an "Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934" (a/k/a Form 10-K) as well as file quarterly reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. For the electric utilities, the 10-K reports were filed in February 2013 and the most recent 10-Q reports were as of September 2013. The 10-K and 10-Q Reports were reviewed for pertinent information. Excerpts and paraphrased portions of the September 2013 10-Q are included in Appendices A through C, identified by the filing company. Some information is repetitive or not specifically applicable to the Missouri jurisdiction, but is included for completeness.

From the information provided in the utility/corporate 10-K and 10-Q reports, the environmental-related capital expenditure estimates are provided below. These estimates involve different time frames, dependent on the utility. All of the utilities noted that uncertainty exists regarding potential regulations associated with water intake structures (impingement and entrainment), thermal discharges, and coal combustion residuals. This uncertainty could result in financial and operational consequences for a number of generating units.

Environmental-related Capital Expenditure Estimates

Ameren Missouri: $1,115,000,000 to $1,340,000,000 from 2013 through 2022

Great Plains Energy: $1,000,000,000 from 2013 through 2020

Empire District Electric: $112,000,000 to $130,000,000 from 2012 through 2015

Total: $2,227,000,000 to $2,470,000,000 from 2013 through 2022

ELECTRIC UTILITY RESOURCE PLANNING TRIENNIAL COMPLIANCE FILING AND ANNUAL UPDATE REPORTS

In accordance with 4 CSR 240-22.080, Filing Schedule, Filing Requirements, and Stakeholder Process (Electric Utility Resource Planning), Ameren Missouri, Empire, KCP&L and GMO submit triennial compliance filings and annual update reports that take all EPA compliance issues into consideration in their long range planning.

CONCLUSIONS

The current and pending EPA regulations have the potential to significantly impact the electrical generating capacity of Missouri. This Report primarily focuses on the coal-fired generating units that serve the Missouri customers of investor-owned utilities. Appendix E lists those coal-fired generating units. Other generating units such as natural gas-fired and nuclear may be impacted by these regulations to a lesser extent and are not addressed in this Report.

Estimated costs of compliance for known EPA regulations were taken from the company/corporate SEC filings. As stated in the "Utility 10-K and 10-Q Information" section of this Report those capital costs were $2,227,000,000 to $2,470,000,000 from 2012 through 2022. For proposed or anticipated regulations, detailed estimates were not provided in the company/corporate 10-Q reports. Retrofit of cooling towers to meet possible cooling water regulations could be an additional capital cost. Since that cost information was not specified in the company/corporate 10-Q reports, capital cost estimates for cooling towers from Sierra Club information would be a total of $741,100,000. Combining the company/corporate 10-Q information with the Sierra Club estimates for cooling towers, the range for additional capital costs due to regulatory compliance would be $2,968,100,000 to $3,211,100,000. Adding in the cost estimates for effluent limitation and CCR from the Sierra Club would add an additional $284,920,000 and $1,505,110,000, respectively. (Note: The Sierra Club information does not include data for LaCygne Units 1 and 2 or Jeffrey Energy Center Units 1, 2, and 3. Cooling tower information would only be applicable for LaCygne since Jeffrey Energy Center utilizes cooling towers at present.) Combining the company/corporate 10-Q information with the Sierra Club estimates for cooling towers, effluent, and CCR, the range for additional capital costs due to regulatory compliance would be $4,758,130,000 to $5,001,130,000.

Appendix A

Ameren Missouri

Environmental Matters

We are subject to various environmental laws and regulations enforced by federal, state, and local authorities. From the beginning phases of siting and development to the ongoing operation of existing or new electric generation, transmission and distribution facilities and natural gas storage, transmission and distribution facilities, our activities involve compliance with diverse environmental laws and regulations. These laws and regulations address emissions, impacts to air, land, and water, noise, protected natural and cultural resources (such as wetlands, endangered species and other protected wildlife, and archeological and historical resources), and chemical and waste handling. Complex and lengthy processes are required to obtain and renew approvals, permits, or licenses for new, existing or modified facilities. Additionally, the use and handling of various chemicals or hazardous materials (including wastes) require release prevention plans and emergency response procedures.

In addition to existing environmental laws and regulations, including the Illinois MPS that applies to AER's coal-fired energy centers in Illinois, the EPA is developing regulations that will have a significant impact on the electric utility industry. These regulations could be particularly burdensome for certain companies, including Ameren, Ameren Missouri, and AER, that operate coal-fired energy centers. Significant new rules proposed or promulgated since the beginning of 2010 include the regulation of greenhouse gas emissions from new energy centers; revised national ambient air quality standards for fine particulates, SO_2, and NOx emissions; the CSAPR, which would have required further reductions of SO_2 emissions and NOx emissions from energy centers; a regulation governing management of CCR and coal ash impoundments; the MATS, which require reduction of emissions of mercury, toxic metals, and acid gases from energy centers; revised NSPS for particulate matter, SO_2, and NOx emissions from new sources; new effluent standards applicable to discharges from steam-electric generating units; and new regulations under the Clean Water Act that could require significant capital expenditures such as new water intake structures or cooling towers at our energy centers. The EPA is expected to propose CO_2 limits for existing fossil fuel-fired electric generation units in the future. These new and proposed regulations, if adopted, may be challenged through litigation, so their ultimate implementation as well as the timing of any such implementation is uncertain, as evidenced by the CSAPR being vacated and remanded back to the EPA by the United States Court of Appeals for the District of Columbia Circuit in August 2012. Although many details of these future regulations are unknown, the combined effects of the new and proposed environmental regulations may result in significant capital expenditures and increased operating costs over the next five to ten years for Ameren, Ameren Missouri and AER. Compliance with these environmental laws and regulations could be prohibitively expensive. If they are, these regulations could require us to close or to significantly alter the operation of our energy centers, which could have an adverse effect on our results of operations, financial position, and liquidity, including the impairment of long-lived assets. Failure to comply with environmental laws and regulations might also result in the imposition of fines, penalties, and injunctive measures.

The estimates in the tables below contain all of the known capital costs to comply with existing environmental regulations, including the CAIR, and our assessment of the potential impacts of the MATS and of the EPA's proposed regulation for CCR as of September 30, 2013. In addition, the estimates assume that CCR will continue to be regarded as nonhazardous. The estimates do not include the impacts of regulations proposed by the EPA under the Clean Water Act in March 2011 regarding cooling water intake structures or the impact of the effluent standards applicable to steam-electric generating units that the EPA proposed in April 2013, as the technology requirements ultimately to be selected in these final rules are not yet known. The estimates shown in the tables below could change significantly depending upon a variety of factors including:

- Ameren's divestiture of its Merchant Generation business;
- additional or modified federal or state requirements;
- further regulation of greenhouse gas emissions;
- revisions to CAIR or reinstatement of CSAPR;
- delays or accelerations of rulemaking and implementation by the EPA or state agencies;
- new national ambient air quality standards, new standards intended to achieve national ambient air quality standards, or changes to existing standards for ozone, fine particulates, SO_2, and NO_X emissions;
- additional or new rules governing air pollutant transport;
- regulations or requirements under the Clean Water Act regarding cooling water intake structures or effluent standards;
- finalized regulations reclassifying CCR as being hazardous or imposing additional requirements on the management of CCR;
- new limitations or standards under Clean Water Act applicable to discharges from steam-electric generating units;
- new technology;
- changes in expected power prices;
- variations in costs of material or labor; and
- alternative compliance strategies or investment decisions.

Continuing Operations:

	2013	2014 - 2017	2018 - 2022	Total
AMO[(a)]	$ 105	$ 215 - $ 260	$ 795 - $ 975	$ 1,115 - $ 1,340

(a) Ameren Missouri's expenditures are expected to be recoverable from ratepayers.

Discontinued Operations:

	2013	2014 - 2017	2018 - 2022	Total
Genco[(a)]	$ 30	$ 100 - $ 125	$ 220 - $ 270	$ 350 - $ 425
AERG	5	20 - 25	20 - 25	45 - 55
Total[(b)]	$ 35	$ 120 - $ 150	$ 240 - $ 295	$ 395 - $ 480

(a) Includes estimated costs of approximately $20 million annually, excluding capitalized interest, from 2013 through 2017 for construction of two scrubbers at the Newton energy center.

(b) Assumes the Merchant Generation facilities are owned by Ameren.

The following sections describe the more significant environmental laws and rules that affect or could affect our operations.

Clean Air Act

Both federal and state laws require significant reductions in SO2 and NOx emissions that result from burning fossil fuels. In March 2005, the EPA issued regulations with respect to SO_2 and NOx emissions (the CAIR). The CAIR requires generating facilities in 28 states, including Missouri and Illinois, and the District of Columbia, to participate in cap-and-trade programs to reduce annual SO_2 emissions, annual NOx emissions, and ozone season NOx emissions.

In December 2008, the United States Court of Appeals for the District of Columbia Circuit remanded the CAIR to the EPA for further action to remedy the rule's flaws, but allowed the CAIR's cap-and-trade programs to remain effective until they are replaced by the EPA. In July 2011, the EPA issued the CSAPR as the CAIR replacement. On December 30, 2011, the United States Court of Appeals for the District of Columbia Circuit issued a stay of the CSAPR. In August 2012, the United States Court of Appeals for the District of Columbia Circuit issued a ruling that vacated the CSAPR in its entirety, finding that the EPA exceeded its authority in imposing the CSAPR's emission limits on states. In March 2013, the EPA and certain environmental groups filed an appeal of the Court of Appeals' remand of CSAPR to the United States Supreme Court. The United States Supreme Court has agreed to consider the appeal and is expected to issue a ruling on the appeal during its current term, which ends in June 2014. The EPA will continue to administer the CAIR until a new rule is ultimately adopted or the United States Supreme Court overturns the decision to vacate the CSAPR.

In December 2011, the EPA issued the MATS under the Clean Air Act, which require emission reductions for mercury and other hazardous air pollutants, such as acid gases, toxic metals, and particulate matter by setting emission limits equal to the average emissions of the best performing 12% of existing coal and oil-fired electric generating units. Also, the standards require reductions in hydrogen chloride emissions, which were not regulated previously, and for the first time require continuous monitoring systems for hydrogen chloride, mercury, and particulate matter. The MATS do not require a specific control technology to achieve the emission reductions. The MATS will apply to each unit at a coal-fired power plant; however in certain cases, emission compliance can be achieved by averaging emissions from similar electric generating units at the same power plant. Compliance is required by April 2015 or, with a case-by-case extension, by April 2016. Ameren Missouri's Labadie and Meramec energy centers requested and were granted extensions to April 2016 to comply with the MATS.

Separately, in December 2012, the EPA issued a final rule that made the national ambient air quality standard for fine particulate matter more stringent. States must develop control measures designed to reduce the emission of fine particulate matter below required levels to achieve compliance with the new standard. Such measures may or may not apply to energy centers but could require reductions in SO_2 and NOx emissions. States are required to demonstrate compliance with the rule by 2020, or 2025 if an extension of time to achieve compliance is granted. Ameren Missouri and AER are currently evaluating the new standard while the states of Missouri and Illinois develop their attainment plans.

In September 2011, the EPA announced that it was implementing the 2008 national ambient air quality standards for ozone. The EPA is required to revisit these standards for ozone again in 2013. The states of Illinois and Missouri will be required to develop attainment plans to comply with the 2008 ambient air quality standards for ozone, which could result in additional emission control requirements for power plants by 2020. Ameren, Ameren Missouri and AER continue to assess the impacts of these new standards.

In July 2013, the EPA issued a final rule designating portions of the United States, including parts of Illinois and Missouri, as nonattainment for the national ambient air quality standard for SO_2. The designations became effective in October 2013, and the states must develop plans in the next 18 months to reduce emissions so that they can achieve the ambient air quality standards within five years. Ameren, Ameren Missouri and AER are assessing the impact of this designation.

Ameren Missouri's current environmental compliance plan for air emissions from its energy centers includes burning ultra-low-sulfur coal and installing new or optimizing existing pollution control equipment. In July 2011, Ameren Missouri contracted to procure significantly greater volumes of lower-sulfur-content coal than Ameren Missouri's energy centers had historically burned, which allowed Ameren Missouri to eliminate or postpone capital expenditures for pollution control equipment. In 2010, Ameren Missouri completed the installation of two scrubbers at its Sioux energy center to reduce SO_2 emissions. Currently, Ameren Missouri's compliance plan assumes the installation of two scrubbers, mercury control technology, and precipitator upgrades at multiple energy centers within its coal-fired fleet during the next 10 years. However, Ameren Missouri is currently evaluating its operations and options to determine how to comply with the MATS and other recently finalized or proposed EPA regulations.

In September 2012, the Illinois Pollution Control Board granted AER a variance to extend compliance dates for SO_2 emission levels contained in the MPS through December 31, 2019, subject to certain conditions described below. The Illinois Pollution Control Board approved AER's proposed plan to restrict its SO_2 emissions through 2014 to levels lower than those previously required by the MPS to offset any environmental impact from the variance. The Illinois Pollution Control Board's order also included the following provisions:

A schedule of milestones for completion of various aspects of the installation and completion of the scrubber projects at Genco's Newton energy center; the first milestone relates to the completion of engineering design by July 2015 while the last milestone relates to major equipment components being placed into final position on or before September 1, 2019.

A requirement for AER to refrain from operating the Meredosia and Hutsonville energy centers through December 31, 2020; however, this restriction does not impact Genco's ability, or Ameren’s ability after the divestiture of New AER occurs, to make the Meredosia energy center available for any parties that may be interested in repowering one of its units to create an oxy-fuel combustion coal-fired energy center designed for permanent carbon dioxide capture and storage.

Under the MPS, AER is required to reduce mercury, NOx and SO_2 emissions with declining limits that started in 2009 for mercury and in 2010 for NOx and SO_2. The final NOx limit became effective in 2012. The final mercury limit will become effective in 2015 and the final SO_2 limit will become effective by the end of 2019. The Illinois Pollution Control Board's September 2012 variance gives AER additional time for economic recovery and related power price improvements necessary to support scrubber installations and other pollution controls at some of AER's energy centers. To comply with the MPS and other air emissions laws and regulations, AER is installing equipment designed to reduce its emissions of mercury, NOx, and SO_2. AER has installed three scrubbers at two energy centers. Two additional scrubbers are being constructed at the Newton energy center. AER will continue to review and adjust its compliance plans in light of evolving outlooks for power and capacity prices, delivered fuel costs, emission standards required under environmental laws and regulations, and compliance technologies, among other factors.

Environmental compliance costs could be prohibitive at some of Ameren's, Ameren Missouri's and AER's energy centers as the expected return from these investments, at current market prices for energy and capacity, might not justify the required capital expenditures or their continued operation, which could result in the impairment of long-lived assets.

Emission Allowances

The Clean Air Act created marketable commodities called emission allowances under the acid rain program, the NOx budget trading program, and the CAIR. Environmental regulations, including those relating to the timing of the installation of pollution control equipment, fuel mix, and the level of operations will have a significant impact on the number of allowances required for ongoing operations. The CAIR uses the acid rain program's allowances for SO_2 emissions and created annual and ozone season NOx allowances. Ameren and Ameren Missouri expect to have adequate allowances for 2013 to avoid needing to make external purchases to comply with these programs.

Greenhouse Gas Regulation

State and federal authorities, including the United States Congress, have considered initiatives to limit greenhouse gas emissions. Potential impacts from any such legislation or regulation could vary, depending upon proposed CO_2 emission limits, the timing of implementation of those limits, the method of distributing any allowances, the degree to which offsets are allowed and available, and provisions for cost-containment measures, such as a "safety valve" provision that provides a maximum price for emission allowances. As a result of our fuel portfolio, our emissions of greenhouse gases vary among our energy centers, but coal-fired power plants are significant sources of CO_2. The enactment of a law that restricts emissions of CO_2 or requires energy centers to purchase allowances for CO_2 emissions could result in a significant rise in rates for electricity and thereby household costs. The burden could fall particularly hard on electricity consumers and upon the economy in the Midwest because of the region's reliance on electricity generated by coal-fired power plants. Natural gas emits about half as much CO_2 as coal when burned to produce electricity. Therefore, greenhouse gas regulations could cause the conversion of coal-fired power plants to natural gas, or the construction of new natural gas-fired plants to replace coal-fired power plants. As a result, economy wide shifts to natural gas as a fuel source for electricity generation also could affect the cost of heating for our utility customers and many industrial processes that use natural gas.

In December 2009, the EPA issued its "endangerment finding" under the Clean Air Act, which stated that greenhouse gas emissions, including CO_2, endanger human health and welfare and that emissions of greenhouse gases from motor vehicles contribute to that endangerment. In March 2010, the EPA issued a determination that greenhouse gas emissions from stationary sources, such as power plants, would be subject to regulation under the Clean Air Act effective the beginning of 2011. As a result of these actions, we are required to consider the emissions of greenhouse gases in any air permit application.

Recognizing the difficulties presented by regulating at once virtually all emitters of greenhouse gases, the EPA issued the "Tailoring Rule," which established new higher emission thresholds beginning in January 2011, for regulating greenhouse gas emissions from stationary sources, such as power plants. The rule requires any source that already has an operating permit to have greenhouse-gas-specific provisions added to its permit upon renewal. Currently, all Ameren energy centers have operating permits that, when renewed, may be modified to address greenhouse gas emissions. The Tailoring Rule also provides that if projects performed at major sources result in an increase in emissions of greenhouse gases over an applicable annual threshold, such projects could trigger permitting requirements under the NSR programs and the application of best available control technology to address greenhouse gas emissions. New major sources are also required to obtain such a permit and to install the best available control technology if their greenhouse gas emissions exceed the applicable emissions threshold. In June 2012, the United States Court of Appeals for the District of Columbia Circuit upheld the Tailoring Rule. Industry groups and a coalition of states filed petitions in April 2013 requesting that the United States Supreme Court review the circuit court's decision upholding the Tailoring Rule. In October 2013, the United States Supreme Court granted the petition agreeing to consider whether the Clean Air Act authorizes the EPA to regulate emissions of greenhouse gases from stationary sources, including power plants, as a result of the EPA's determination to regulate greenhouse gas emissions from motor vehicles. A ruling is expected in 2014.

In June 2013, the Obama Administration announced that it had directed the EPA to set CO_2 emissions standards for both new and existing power plants. The EPA proposed revised CO_2 emissions regulations for new electricity generating units in September 2013. The proposed standards would establish separate emissions limits for new natural gas-fired plants and new coal-fired plants. In addition, the Obama Administration had directed the EPA to propose a CO_2 emissions standard for existing power plants by June 2014 and to finalize such standard by June

2015. Currently, the Ameren Companies are unable to predict the outcome or impacts of such future regulations.

Recent federal court decisions have considered the application of common law causes of action, such as nuisance, to address alleged damages resulting from greenhouse gas emissions. In March 2012, the United States District Court for the Southern District of Mississippi dismissed the Comer v. Murphy Oil lawsuit, which alleged that CO_2 emissions from several industrial companies, including Ameren Missouri, Genco and AERG, created atmospheric conditions that intensified Hurricane Katrina, thereby causing property damage. In May 2013, the dismissal of the lawsuit was affirmed by the United States Court of Appeals for the Fifth Circuit.

Future federal and state legislation or regulations that mandate limits on the emission of greenhouse gases would likely result in significant increases in capital expenditures and operating costs, which, in turn, could lead to increased liquidity needs and higher financing costs. These compliance costs could be prohibitive at some of our energy centers as the expected return from these investments, at current market prices for energy and capacity, might not justify the required capital expenditures or their continued operation, which could result in the impairment of long-lived assets. To the extent Ameren Missouri requests recovery of these costs through rates, its regulators might delay or deny timely recovery of these costs. As a result, mandatory limits on the emission of greenhouse gases could have a material adverse impact on Ameren's and Ameren Missouri's results of operations, financial position, and liquidity.

NSR and Clean Air Litigation

The EPA is engaged in an enforcement initiative to determine whether coal-fired power plants failed to comply with the requirements of the NSR and NSPS provisions under the Clean Air Act when the plants implemented modifications. The EPA's inquiries focus on whether projects performed at power plants triggered various permitting requirements and the installation of pollution control equipment.

Commencing in 2005, Genco received a series of information requests from the EPA pursuant to Section 114(a) of the Clean Air Act. The requests sought detailed operating and maintenance history data with respect to Genco's Coffeen, Hutsonville, Meredosia, Newton, and Joppa energy centers and AERG's E.D. Edwards and Duck Creek energy centers. In August 2012, Genco received a Notice of Violation from the EPA alleging violations of permitting requirements including Title V of the Clean Air Act. The EPA contends that projects performed in 1997, 2006, and 2007 at Genco's Newton energy center violated federal law. Ameren believes its defenses to the allegations at Genco described in the Notice of Violation are meritorious. A recent decision by the United States Court of Appeals for the Seventh Circuit held that similar claims older than five years were barred by the statute of limitations. If not reversed or overturned, this decision may provide an additional defense to the allegations in the Newton energy center Notice of Violation. Ameren is unable to predict the outcome of this matter.

Following the issuance of a Notice of Violation in January 2011, the Department of Justice on behalf of the EPA filed a complaint against Ameren Missouri in the United States District Court for the Eastern District of Missouri. The EPA's complaint, as amended in October 2013, alleges that in performing projects at its Rush Island coal-fired energy center in 2007 and 2010, Ameren Missouri violated provisions of the Clean Air Act and Missouri law. In January 2012, the district court granted, in part, Ameren Missouri's motion to dismiss various aspects of the EPA's penalty claims. The EPA's claims for unspecified injunctive relief remain. Trial in this matter is currently scheduled for January 2015. Ameren Missouri believes its defenses are meritorious and will defend itself vigorously. However, there can be no assurances that it will be successful in its efforts.

Ultimate resolution of these matters could have a material adverse impact on the future results of operations, financial position, and liquidity of Ameren and Ameren Missouri. A resolution could result in increased capital expenditures for the installation of pollution control equipment, increased operations and maintenance expenses, and penalties. We are unable to predict the ultimate resolution of these matters or the costs that might be incurred.

Clean Water Act

In March 2011, the EPA announced a proposed rule applicable to cooling water intake structures at existing power plants that have the ability to withdraw more than 2 million gallons of water per day from a body of water and use at least 25% of that water exclusively for cooling. Under the proposed rule, affected facilities would be required either to meet mortality limits for aquatic life impinged on the plant's intake screens or to reduce intake velocity to a specified level. The proposed rule also requires existing power plants to meet site-specific entrainment standards or to reduce the cooling water intake flow commensurate with the intake flow of a closed-cycle cooling system. The final rule is scheduled to be issued in November 2013, with compliance expected within eight years thereafter. All coal-fired, nuclear, and combined cycle energy centers at Ameren, Ameren Missouri and AER with cooling water systems are subject to this proposed rule. The proposed rule did not mandate cooling towers at existing facilities, as other technology options potentially could meet the site-specific standards. The final rule could have an adverse effect on our results of operations, financial position, and liquidity if its implementation requires the installation of cooling towers or extensive modifications to the cooling water systems at our energy centers.

In April 2013, the EPA announced its proposal to revise the effluent limitation guidelines applicable to steam electric generating units under the Clean Water Act. Effluent limitation guidelines are national standards for wastewater discharges to surface water that are based on the effectiveness of available control technology. The proposed revision targets wastewater streams associated with fluegas desulfurization (i.e. scrubbers), fly ash, bottom ash, fluegas mercury control, CCR leachate from landfills and impoundments, nonchemical metal cleaning, and gasification of fuels. The EPA's proposal identifies several alternatives for addressing these waste streams, including best management practices for CCR impoundments. The EPA's proposed rule raised several compliance options that would prohibit effluent discharges of certain, but not all, waste streams and impose more stringent limitations on certain components in wastewater discharges from power plants. If enacted as proposed, Ameren Missouri and AER would be subject to the revised limitations beginning as early as July 1, 2017, but no later than July 1, 2022. We are reviewing the proposed rule and evaluating its potential impact on our operations if enacted as proposed. The EPA expects to issue a final rule in 2014.

Remediation

We are involved in a number of remediation actions to clean up hazardous waste sites as required by federal and state law. Such statutes require that responsible parties fund remediation actions regardless of their degree of fault, the legality of original disposal, or the ownership of a disposal site. Ameren Missouri and Ameren Illinois have each been identified by the federal or state governments as a potentially responsible party (PRP) at several contaminated sites.

As part of the transfer of generation assets by our rate-regulated utility operations in Illinois to Genco in May 2000 and to AERG in October 2003, Ameren Illinois' predecessor companies contractually agreed to indemnify Genco and AERG for claims relating to pre-existing environmental conditions at the transferred sites. The plant transfer agreements between both Genco and Ameren Illinois and AERG and Ameren Illinois will be amended as part of the transaction agreement for Ameren to divest New AER to IPH. The agreements will specify that Medina Valley will assume any environmental liabilities associated with the Meredosia and Hutsonville energy centers. The agreements will also specify that Genco and AERG will no longer be indemnified by Ameren Illinois with respect to the environmental liabilities associated with Genco's Newton and Coffeen energy centers and AERG's E.D. Edwards and Duck Creek energy centers. See Note 2 - Divestiture Transactions and Discontinued Operations for additional information regarding Ameren's divestiture of New AER.

As of September 30, 2013, Ameren Illinois owned or was otherwise responsible for 44 former MGP sites in Illinois. These sites are in various stages of investigation, evaluation, remediation, and closure. Based on current estimated plans, Ameren Illinois could substantially conclude remediation efforts at most of these sites by 2018. The ICC permits Ameren Illinois to recover remediation and litigation costs associated with its former MGP sites from its electric and natural gas utility customers through environmental adjustment rate riders. To be recoverable, such costs must be prudently and properly incurred. Costs are subject to annual review by the ICC.

As of September 30, 2013, Ameren Missouri has one remaining former MGP site for which remediation is scheduled. Remediation is complete at the other Ameren Missouri former MGP sites. Ameren Missouri does not currently have a rate rider mechanism that permits it to recover from utility customers remediation costs associated with MGP sites.

The following table presents, as of September 30, 2013, the estimated obligation to complete the remediation of these former MGP sites.

	Estimate		Recorded
	Low	High	Liability(a)
Ameren	$ 251	$ 337	$ 251
Ameren Missouri	5	6	5
Ameren Illinois	246	331	246

(a) Recorded liability represents the estimated minimum probable obligations, as no other amount within the range was a better estimate.

The scope and extent to which these former MGP sites are remediated may increase as remediation efforts continue. Considerable uncertainty remains in these estimates as many factors can influence the ultimate actual costs, including site specific unanticipated underground structures, the degree to which groundwater is encountered, regulatory changes, local ordinances, and site accessibility. The actual costs may vary substantially from these estimates.

Ameren Illinois utilized an off-site landfill, which Ameren Illinois did not own, in connection with its operation of the Coffeen energy center prior to the formation of Genco. While not currently mandated, Ameren Illinois may be required to perform certain remediation activities associated with that landfill. As of September 30, 2013, Ameren Illinois estimated the obligation related to the cleanup at $0.5 million to $6 million. Ameren Illinois recorded a liability of $0.5 million to represent its estimated minimum obligation for this site, as no other amount within the range was a better estimate. Ameren Illinois is also responsible for the cleanup of a landfill, underground storage tanks, and a water treatment plant in Illinois. As of September 30, 2013, Ameren Illinois recorded a liability of $0.8 million to represent its estimate of the obligation for these sites.

Ameren Missouri has responsibility for the investigation and potential cleanup of two waste sites in Missouri as a result of federal agency mandates. One of the cleanup sites is a former coal tar distillery located in St. Louis, Missouri. In 2008, the EPA issued an administrative order to Ameren Missouri pertaining to this distillery operated by Koppers Company or its predecessor and successor companies. Ameren Missouri is the current owner of the site, but Ameren Missouri did not conduct any of the manufacturing operations involving coal tar or its byproducts. Ameren Missouri, along with two other PRPs, is currently performing a site investigation. As of September 30, 2013, Ameren Missouri estimated its obligation at $2 million to $5 million. Ameren Missouri recorded a liability of $2 million to represent its estimated minimum obligation, as no other amount within the range was a better estimate. Ameren Missouri's other active federal agency-mandated cleanup site in Missouri is a site in Cape Girardeau. Ameren Missouri was a customer of an electrical equipment repair and disposal company that previously operated a facility at this site. A trust was established in the early 1990s by several businesses and governmental agencies to fund the investigation and cleanup of this site, which was completed in 2005. Ameren Missouri anticipates that this trust fund will be sufficient to complete the remaining adjacent off-site cleanup, and it therefore has no recorded liability at September 30, 2013, for this site.

Ameren Missouri also has a federal agency mandate to complete an investigation for a site in Illinois. In 2000, the EPA notified Ameren Missouri and numerous other companies, including Solutia, that former landfills and lagoons in Sauget, Illinois, may contain soil and groundwater contamination. These sites are known as Sauget Area 2. From about 1926 until 1976, Ameren Missouri operated an energy center adjacent to Sauget Area 2. Ameren Missouri currently owns a parcel of property that was once used as a landfill. Under the terms of an Administrative Order on Consent, Ameren Missouri joined with other PRPs to evaluate the extent of potential contamination with respect to Sauget Area 2.

The Sauget Area 2 investigations overseen by the EPA have been completed. The results have been submitted to the EPA, and a record of decision is expected in 2014. Once the EPA has approved the proposed site remedies, it will begin negotiations with various PRPs regarding implementation. Over the last several years, numerous other parties have joined the PRP group. In addition, Pharmacia Corporation and Monsanto Company have agreed to assume the liabilities related to Solutia's former chemical waste landfill in Sauget Area 2. As of September 30, 2013, Ameren Missouri estimated its obligation related to Sauget Area 2 at $0.3 million to $10 million. Ameren Missouri recorded a liability of $0.3 million to represent its estimated minimum obligation, as no other amount within the range was a better estimate.

In December 2012, Ameren Missouri signed an administrative order with the EPA and agreed to investigate soil and groundwater conditions at an Ameren Missouri owned substation in St.

Charles, Missouri. As of September 30, 2013, Ameren Missouri estimated the obligation related to the cleanup at $1.6 million to $4.5 million. Ameren Missouri recorded a liability of $1.6 million to represent its estimated minimum obligation for this site, as no other amount within the range was a better estimate.

Our operations or those of our predecessor companies involve the use of, disposal of, and in appropriate circumstances, the cleanup of substances regulated under environmental laws. We are unable to determine whether such practices will result in future environmental commitments or will affect our results of operations, financial position, or liquidity.

Ash Management

There has been activity at both state and federal levels regarding additional regulation of CCR. In May 2010, the EPA announced proposed new regulations regarding the regulatory framework for the management and disposal of CCR, which could affect future disposal and handling costs at our energy centers. Those proposed regulations include two options for managing CCRs under either solid or hazardous waste regulations, but either alternative would allow for some continued beneficial uses, such as recycling of CCR without classifying it as waste. As part of its proposal, the EPA is considering alternative regulatory approaches that require coal-fired power plants either to close surface impoundments, such as ash ponds, or to retrofit such facilities with liners. Existing impoundments and landfills used for the disposal of CCR would be subject to groundwater monitoring requirements and requirements related to closure and postclosure care under the proposed regulations. The EPA announced that its April 2013 proposed revisions to the effluent limitations applicable to steam electric generating units would apply to ash ponds and CCR management and that it intended to align this proposal with the CCR rules proposed in May 2010. Additionally, in January 2010, the EPA announced its intent to develop regulations establishing financial responsibility requirements for the electric generation industry, among other industries, and it specifically discussed CCR as a reason for developing the new requirements. Ameren, Ameren Missouri and AER are currently evaluating all of the proposed regulations to determine whether current management of CCR, including beneficial reuse, and the use of the ash ponds should be altered. Ameren, Ameren Missouri and AER are evaluating the potential costs associated with compliance with the proposed regulation of CCR impoundments and landfills, which could be material, if such regulations are adopted.

The Illinois EPA has issued violation notices with respect to groundwater conditions existing at Genco’s ash pond systems. AER filed a proposed rulemaking with the Illinois Pollution Control Board which, if approved, would provide for the systematic and eventual closure of ash ponds. In October 2013, the Illinois EPA filed a proposed rulemaking with the Illinois Pollution Control Board. AER has stayed its rulemaking efforts to allow the Illinois EPA proposed rulemaking to proceed. The rulemaking process could take several years to complete. During the first quarter of 2013, Genco and AERG revised their ARO fair value estimates relating to their ash ponds to reflect expected retirement dates.

Appendix B

Great Plains Energy and Kansas City Power & Light Company

Environmental Matters

Great Plains Energy and KCP&L are subject to extensive federal, state and local environmental laws, regulations and permit requirements relating to air and water quality, waste management and disposal, natural resources and health and safety. In addition to imposing continuing compliance obligations and remediation costs, these laws, regulations and permits authorize the imposition of substantial penalties for noncompliance, including fines, injunctive relief and other sanctions. The cost of complying with current and future environmental requirements is expected to be material to Great Plains Energy and KCP&L. Failure to comply with environmental requirements or to timely recover environmental costs through rates could have a material effect on Great Plains Energy's and KCP&L's results of operations, financial position and cash flows.

Great Plains Energy's and KCP&L's current estimate of capital expenditures (exclusive of Allowance for Funds Used During Construction (AFUDC) and property taxes) to comply with current final environmental regulations where the timing is certain is approximately $700 million. The actual cost of compliance with any existing, proposed or future laws and regulations may be significantly different from the cost estimate provided.

The current estimate of approximately $700 million of capital expenditures reflects costs to install environmental equipment at KCP&L's La Cygne Nos. 1 and 2 by June 2015 to comply with the Best Available Retrofit Technology (BART) rule and environmental upgrades at other coal-fired generating units through 2016 to comply with the Mercury and Air Toxics Standards (MATS) rule.

In September 2011, KCP&L commenced construction of the La Cygne projects and at September 30, 2013, had incurred approximately $344 million of cash capital expenditures, which is included in the approximate $700 million estimate above.

Great Plains Energy and KCP&L estimate that other capital projects at coal-fired generating units for compliance with the Clean Air Act and Clean Water Act based on proposed or final environmental regulations where the timing is uncertain could be approximately $600 million to $800 million for Great Plains Energy, which includes approximately $350 million to $450 million for KCP&L. However, these other projects are less certain and the timeframe cannot be estimated and therefore are not included in the approximately $700 million estimated cost of compliance discussed above.

The Companies expect to seek recovery of the costs associated with environmental requirements through rate increases; however, there can be no assurance that such rate increases would be granted. The Companies may be subject to materially adverse rate treatment in response to competitive, economic, political, legislative or regulatory factors and/or public perception of the Companies' environmental reputation.

The following discussion groups environmental and certain associated matters into the broad categories of air and climate change, water, solid waste and remediation.

Clean Air Act and Climate Change Overview

The Clean Air Act and associated regulations enacted by the Environmental Protection Agency (EPA) form a comprehensive program to preserve and enhance air quality. States are required to establish regulations and programs to address all requirements of the Clean Air Act and have the flexibility to enact more stringent requirements. All of Great Plains Energy's and KCP&L's generating facilities, and certain of their other facilities, are subject to the Clean Air Act.

Clean Air Interstate Rule (CAIR) and Cross-State Air Pollution Rule (CSAPR)

The CAIR requires reductions in SO2 and NOx emissions in 28 states, including Missouri, accomplished through statewide caps. Great Plains Energy's and KCP&L's fossil fuel-fired plants located in Missouri are subject to CAIR, while their fossil fuel-fired plants in Kansas are not.

In July 2008, the U.S. Court of Appeals for the D.C. Circuit (D.C. Circuit Court) vacated CAIR in its entirety and remanded the matter to the EPA to promulgate a new rule consistent with its opinion. In December 2008, the court issued an order reinstating CAIR pending EPA's development of a replacement regulation on remand. In July 2011, the EPA finalized the CSAPR to replace the currently-effective CAIR. The CSAPR required states within its scope to reduce power plant SO2 and NOx emissions that contribute to ozone and fine particle nonattainment in other states. Compliance with the CSAPR was scheduled to begin in 2012. Multiple states, utilities and other parties, including KCP&L, filed requests for reconsideration and stays with the EPA and/or the D.C. Circuit Court. In August 2012, the D.C. Circuit Court issued its opinion in which it vacated the CSAPR and remanded the rule to the EPA to revise in accordance with its opinion. The D.C. Circuit Court directed the EPA to continue to administer the CAIR until a valid replacement is promulgated.

Best Available Retrofit Technology Rule

The EPA BART rule directs state air quality agencies to identify whether visibility-reducing emissions from sources subject to BART are below limits set by the state or whether retrofit measures are needed to reduce emissions. BART applies to specific eligible facilities including KCP&L's La Cygne Nos. 1 and 2 in Kansas; KCP&L's Iatan No. 1, in which GMO has an 18% interest, and KCP&L's Montrose No. 3 in Missouri; GMO's Sibley Unit No. 3 and Lake Road Unit No. 6 in Missouri; and Westar Energy, Inc.'s (Westar) Jeffrey Unit Nos. 1 and 2 in Kansas, in which GMO has an 8% interest. Both Missouri and Kansas have approved BART plans.

KCP&L has a consent agreement with the Kansas Department of Health and Environment (KDHE) incorporating limits for stack particulate matter emissions, as well as limits for NOx and SO2 emissions, at its La Cygne Station that will be below the presumptive limits under BART. KCP&L further agreed to use its best efforts to install emission control technologies to reduce those emissions from the La Cygne Station prior to the required compliance date under BART, but in no event later than June 1, 2015. In August 2011, KCC issued its order on KCP&L's predetermination request that would apply to the recovery of costs for its 50% share of the environmental equipment required to comply with BART at the La Cygne Station. In the order, KCC stated that KCP&L's decision to retrofit La Cygne was reasonable, reliable, efficient and prudent and the $1.23 billion cost estimate is reasonable. If the cost for the project is at or below the $1.23 billion estimate, absent a showing of fraud or other intentional imprudence, KCC stated that it will not re-evaluate the prudency of the cost of the project. If the cost of the project exceeds the $1.23 billion estimate and KCP&L seeks to recover amounts exceeding the estimate, KCP&L will bear the burden of proving that any additional costs were prudently incurred. KCP&L's 50% share of the estimated cost is $615 million. KCP&L began the project in September 2011.

Mercury and Air Toxics Standards Rule

In December 2011, the EPA finalized the MATS rule that will reduce emissions of toxic air pollutants, also known as hazardous air pollutants, from new and existing coal- and oil-fired electric utility generating units with a capacity of greater than 25 MWs. The rule establishes numerical emission limits for mercury, particulate matter (a surrogate for non-mercury metals) and hydrochloric acid (a surrogate for acid gases). The rule establishes work practices, instead of numerical emission limits, for organic air toxics, including dioxin/furan. Compliance with the rule would need to be achieved by installing additional emission control equipment, changes in plant operation, purchasing additional power in the wholesale market or a combination of these and other alternatives. The rule allows three to four years for compliance.

Industrial Boiler Rule

In December 2012, the EPA issued a final rule that would reduce emissions of hazardous air pollutants from new and existing industrial boilers. The final rule establishes numeric emission limits for mercury, particulate matter (as a surrogate for non-mercury metals), hydrogen chloride (as a surrogate for acid gases) and carbon monoxide (as a surrogate for non-dioxin organic hazardous air pollutants). The final rule establishes emission limits for KCP&L's and GMO's existing units that produce steam other than for the generation of electricity. The final rule does not apply to KCP&L's and GMO's electricity generating boilers, but would apply to most of GMO's Lake Road boilers, which also serve steam customers, and to auxiliary boilers at other generating facilities. The rule allows three to four years for compliance.

New Source Review

The Clean Air Act's New Source Review program requires companies to obtain permits and, if necessary, install control equipment to reduce emissions when making a major modification or a change in operation if either is expected to cause a significant net increase in regulated emissions.

In 2010, Westar settled a lawsuit filed by the Department of Justice on behalf of the EPA and agreed to install a selective catalytic reduction (SCR) system at one of the three Jeffrey Energy Center units by the end of 2014. The Jeffrey Energy Center is 92% owned by Westar and operated exclusively by Westar. GMO has an 8% interest in the Jeffrey Energy Center and is generally responsible for its 8% share of the facility's operating costs and capital expenditures. Westar has estimated the cost of this SCR at approximately $240 million. Depending on the NOx emission reductions attained by that SCR and attainable through the installation of other controls at the other two units, the settlement agreement may require the installation of a second SCR system on one of the other two units. Westar has informed the EPA that they believe that the terms of the settlement can be met through the installation of less expensive NOx reduction equipment rather than a second SCR system and they plan to complete this project in 2014. GMO expects to seek recovery of its share of these costs through rate increases; however, there can be no assurance that such rate increases would be granted.

SO2 NAAQS

In June 2010, the EPA strengthened the primary National Ambient Air Quality Standard (NAAQS) for SO2 by establishing a new 1-hour standard at a level of 0.075 ppm and revoking the two existing primary standards of 0.140 ppm evaluated over 24 hours and 0.030 ppm evaluated over an entire year. In July 2013, the EPA designated a part of Jackson County, Missouri, which is in the Companies' service territory, as a nonattainment area for the new 1-hour SO2 standard. The Missouri Department of Natural Resources (MDNR) will now develop and submit their plan to the EPA to return the area to attainment of the standard, which may include stricter controls on certain industrial facilities.

Particulate Matter (PM) NAAQS

In December 2012, the EPA strengthened the annual primary NAAQS for fine particulate matter (PM2.5). With the final rule, the EPA provided recent ambient air monitoring data for the Kansas City area indicating it would be in attainment of the revised fine particle standard. States will now make recommendations to designate areas as meeting the standards or not meeting them with the EPA making the final designation.

Climate Change

The Companies are subject to existing greenhouse gas reporting regulations and certain greenhouse gas permitting requirements. Management believes it is possible that additional federal or relevant state or local laws or regulations could be enacted to address global climate change. At the international level, while the United States is not a current party to the international Kyoto Protocol, it has agreed to undertake certain voluntary actions under the non-binding Copenhagen Accord and pursuant to subsequent international discussions relating to climate change, including the establishment of a goal to reduce greenhouse gas emissions. International agreements legally binding on the United States may be reached in the future. Such new laws or regulations could mandate new or increased requirements to control or reduce the emission of greenhouse gases, such as CO_2, which are created in the combustion of fossil fuels. The Companies' current generation capacity is primarily coal-fired and is estimated to produce about one ton of CO_2 per MWh, or approximately 25 million tons and 19 million tons per year for Great Plains Energy and KCP&L, respectively.

Legislation concerning the reduction of emissions of greenhouse gases, including CO_2, is being considered at the federal and state levels. The timing and effects of any such legislation cannot be determined at this time. In the absence of new Congressional mandates, the EPA is proceeding with the regulation of greenhouse gases under the existing Clean Air Act.
In June 2013, United States President Barack Obama announced a climate action plan and issued a presidential memorandum to address one element of the plan which is to reduce power plant carbon pollution. The memorandum directs the EPA to:

> (1) Issue a new proposal addressing new units no later than September 20, 2013, and finalize the rule in a timely fashion;
> (2) Issue proposed carbon pollution standards, regulations or guidelines, as appropriate, for modified, reconstructed and existing power plants by no later than June 1, 2014;

(3) Issue final standards, regulations or guidelines, as appropriate, for modified, reconstructed and existing power plants by no later than June 1, 2015;

(4) Include in the guidelines addressing existing power plants a requirement that states submit to the EPA the implementation plans by no later than June 30, 2016; and

(5) Engage with states, leaders in the power sector and other stakeholders on issues related to the rules.

In September 2013, the EPA proposed new source performance standards for emissions of CO_2 for new affected fossil-fuel-fired electric utility generating units. This action pursuant to the Clean Air Act would, for the first time, set national limits on the amount of CO_2 that power plants built in the future can emit. The proposal would not apply to Great Plains Energy's and KCP&L's existing units including modifications to those units. The EPA withdrew its previous new unit proposal issued in March 2012.

Greenhouse gas legislation or regulation has the potential of having significant financial and operational impacts on Great Plains Energy and KCP&L, including the potential costs and impacts of achieving compliance with limits that may be established. However, the ultimate financial and operational consequences to Great Plains Energy and KCP&L cannot be determined until such legislation is passed and/or regulations are issued. Management will continue to monitor the progress of relevant legislation and regulations.

Laws have been passed in Missouri and Kansas, the states in which the Companies' retail electric businesses are operated, setting renewable energy standards, and management believes that national clean or renewable energy standards are also possible. While management believes additional requirements addressing these matters will possibly be enacted, the timing, provisions and impact of such requirements, including the cost to obtain and install new equipment to achieve compliance, cannot be reasonably estimated at this time.

A Kansas law enacted in May 2009 required Kansas public electric utilities, including KCP&L, to have renewable energy generation capacity equal to at least 10% of their three-year average Kansas peak retail demand by 2011 increasing to 15% by 2016 and 20% by 2020. A Missouri law enacted in November 2008 required at least 2% of the electricity provided by Missouri investor-owned utilities (including KCP&L and GMO) to their Missouri retail customers to come from renewable resources, including wind, solar, biomass and hydropower, by 2011, increasing to 5% in 2014, 10% in 2018, and 15% in 2021, with a small portion (estimated to be about 2 MW for each of KCP&L and GMO) required to come from solar resources.

KCP&L and GMO project that they will be compliant with the Missouri renewable requirements, exclusive of the solar requirement, through 2023 for KCP&L and 2018 for GMO. KCP&L and

GMO project that the acquisition of solar renewable energy credits will be sufficient for compliance with the Missouri solar requirements for the foreseeable future. KCP&L also projects that it will be compliant with the Kansas renewable requirements through 2015.

Clean Water Act

The Clean Water Act and associated regulations enacted by the EPA form a comprehensive program to restore and preserve water quality. Like the Clean Air Act, states are required to establish regulations and programs to address all requirements of the Clean Water Act, and have the flexibility to enact more stringent requirements. All of Great Plains Energy's and KCP&L's generating facilities, and certain of their other facilities, are subject to the Clean Water Act.

In March 2011, the EPA proposed regulations pursuant to Section 316(b) of the Clean Water Act regarding cooling water intake structures pursuant to a court approved settlement. KCP&L generation facilities with cooling water intake structures would be subject to a limit on how many fish can be killed by being pinned against intake screens (impingement) and would be required to conduct studies to determine whether and what site-specific controls, if any, would be required to reduce the number of aquatic organisms drawn into cooling water systems (entrainment). The EPA agreed to finalize the rule by November 2013. Although the impact on Great Plains Energy's and KCP&L's operations will not be known until after the rule is finalized, it could have a significant effect on Great Plains Energy's and KCP&L's results of operations, financial position and cash flows.

KCP&L holds a permit from the MDNR covering water discharge from its Hawthorn Station. The permit authorizes KCP&L to, among other things, withdraw water from the Missouri River for cooling purposes and return the heated water to the Missouri River. KCP&L has applied for a renewal of this permit and the EPA has submitted an interim objection letter regarding the allowable amount of heat that can be contained in the returned water. Until this matter is resolved, KCP&L continues to operate under its current permit. KCP&L cannot predict the outcome of this matter; however, while less significant outcomes are possible, this matter may require KCP&L to reduce its generation at Hawthorn Station, install cooling towers or both, any of which could have a significant impact on KCP&L's results of operations, financial position and cash flows. The outcome could also affect the terms of water permit renewals at KCP&L's Iatan Station and at GMO's Sibley and Lake Road Stations.

In April 2013, the EPA proposed to revise the technology-based effluent limitations guidelines and standards regulation to make the existing controls on discharges from steam electric power plants more stringent. The proposal sets the first federal limits on the levels of toxic metals in wastewater that can be discharged from power plants. The new requirements for existing power plants would be phased in between 2017 and 2022. The EPA is under a consent decree to take final action on the proposed rule by May 2014.

The proposal includes a variety of options to reduce pollutants that are discharged into waterways by coal ash, air pollution control waste and other waste from steam electric power plants. Depending on the option, the proposed rule would establish new or additional requirements for wastewaters associated with the following processes and byproducts at certain KCP&L and GMO stations: flue gas desulfurization, fly ash, bottom ash, flue gas mercury control, combustion residual leachate from landfills and surface impoundments, and non-chemical metal cleaning wastes.

The EPA also announced its intention to align this proposal with a related rule for coal combustion residuals (CCRs) proposed in May 2010 under the Resource Conservation and Recovery Act (RCRA). The EPA is considering establishing best management practices requirements that would apply to surface impoundments containing CCRs. The cost of complying with the proposed rules has the potential of having a significant financial and operational impact on Great Plains Energy and KCP&L. However, the financial and operational consequences to Great Plains Energy and KCP&L cannot be determined until the final regulation is enacted.

Solid Waste

Solid and hazardous waste generation, storage, transportation, treatment and disposal is regulated at the federal and state levels under various laws and regulations. In May 2010, the EPA proposed to regulate CCRs under the RCRA to address the risks from the disposal of CCRs generated from the combustion of coal at electric generating facilities. The EPA is considering two options in this proposal. Under the first option, the EPA would regulate CCRs as special wastes under subtitle C of RCRA (hazardous), when they are destined for disposal in landfills or surface impoundments. Under the second option, the EPA would regulate disposal of CCRs under subtitle D of RCRA (non-hazardous). The Companies use coal in generating electricity and dispose of the CCRs in both on-site facilities and facilities owned by third parties. The cost of complying with the proposed CCR rule has the potential of having a significant financial and operational impact on Great Plains Energy and KCP&L. However, the financial and operational consequences to Great Plains Energy and KCP&L cannot be determined until an option is selected by the EPA and the final regulation is enacted.

Appendix C

The Empire District Electric Company

Environmental Matters

We are subject to various federal, state, and local laws and regulations with respect to air and water quality and with respect to hazardous and toxic materials and hazardous and other wastes, including their identification, transportation, disposal, record-keeping and reporting, as well as remediation of contaminated sites and other environmental matters. We believe that our operations are in material compliance with present environmental laws and regulations. Environmental requirements have changed frequently and become more stringent over time. We expect this trend to continue. While we are not in a position to accurately estimate compliance costs for any new requirements, we expect any such costs to be material, although recoverable in rates.

Electric Segment

The Federal Clean Air Act (CAA) and comparable state laws regulate air emissions from stationary sources such as electric power plants through permitting and/or emission control and related requirements. These requirements include maximum emission limits on our facilities for sulfur dioxide (SO_2), particulate matter, nitrogen oxides (NOx) and hazardous air pollutants including mercury. In the future they will include limits on greenhouse gases (GHG) such as carbon dioxide (CO_2).

Permits

Under the CAA we have obtained, and renewed as necessary, site operating permits, which are valid for five years, for each of our plants. As stated above, on July 11, 2013, we received the Air Emission Source Construction Permit necessary to begin construction on the Riverton 12 Combined Cycle Conversion project.

Compliance Plan

In order to comply with forthcoming environmental regulations, Empire is taking actions to implement its compliance plan and strategy (Compliance Plan). While the Cross State Air Pollution Rule (CSAPR — formerly the Clean Air Transport Rule, or CATR) that was set to take effect on January 1, 2012 was stayed in late December 2011 then vacated in August 2012 by the District of Columbia Circuit Court of Appeals, the Mercury Air Toxics Standard (MATS) was signed by the Environmental Protection Agency (EPA) Administrator on December 16, 2011 and became effective on April 16, 2012. MATS requires compliance by April 2015 (with flexibility for extensions for reliability reasons). Our Compliance Plan largely follows the preferred plan presented in our 2010 Integrated Resource Plan (IRP) and is further supported by our recent IRP filing. As described above under New Construction, we have begun the installation of a scrubber, fabric filter, and powder activated carbon injection system at our Asbury plant. The addition of this air quality control equipment is expected to be completed by early 2015 at a cost ranging from $112.0 million to $130.0 million, excluding AFUDC. Construction costs through

September 30, 2013 were \$43.2 million for 2013 and \$73.5 million for the project to date, excluding AFUDC. The addition of this air quality control equipment will require the retirement of Asbury Unit 2, a steam turbine currently rated at 14 megawatts that is used for peaking purposes.

In September 2012, we completed the transition of our Riverton Units 7 and 8 from operation on coal to operating completely on natural gas. Riverton Units 7 and 8, along with Riverton Unit 9, a small combustion turbine that requires steam from Unit 7 or 8 for start-up, will be retired upon the conversion of Riverton Unit 12, a simple cycle combustion turbine, to a combined cycle unit. This conversion is currently scheduled to be completed in mid-2016 at a cost estimated to range from \$165 million to \$175 million, excluding AFUDC. This amount is included in our updated five-year capital expenditure plan disclosed in our 2013 third quarter 10-Q. Construction costs, consisting of pre-engineering and site preparation activities thus far, through September 30, 2013 were \$5.3 million for 2013 and \$5.9 million for the project to date, excluding AFUDC.

SO2 Emissions

The CAA regulates the amount of SO_2 an affected unit can emit. Currently SO_2 emissions are regulated by the Title IV Acid Rain Program and the Clean Air Interstate Rule (CAIR). On January 1, 2012, CAIR was to have been replaced by the Cross-State Air Pollution Rule (CSAPR). But, as discussed above, CSAPR was subsequently vacated, and CAIR will remain in effect until the EPA develops a valid replacement.

On October 5, 2012, the Department of Justice, on behalf of the EPA, requested that the Court of Appeals grant a request for a re-hearing of CSAPR. On January 24, 2013, the request was denied by the Court of Appeals and on March 29, 2013, the EPA petitioned the United States Supreme Court (the Supreme Court) to review the D.C. Circuit Court's decision. On June 24, 2013 the Supreme Court agreed to review the D.C. Circuit court's decision with a hearing date set for December 6, 2013 and a decision expected by June 30, 2014. In the meantime, both the Title IV Acid Rain Program and CAIR will remain in effect.

The Mercury Air Toxics Standards (MATS), discussed further below, was signed on December 16, 2011, and will affect SO_2 emission rates at our facilities. In addition, the compliance date for the revised SO_2 National Ambient Air Quality Standards (NAAQS) is August of 2017; this could also affect SO_2 emissions at our facilities. The SO2 NAAQS is discussed in more detail below.

Title IV Acid Rain Program:

Under the Title IV Acid Rain Program, each existing affected unit has been allocated a specific number of emission allowances by the U.S. Environmental Protection Agency (EPA). Each allowance entitles the holder to emit one ton of SO_2. Covered utilities, such as Empire, must have emission allowances equal to the number of tons of SO_2 emitted during a given year by each of their affected units. Allowances in excess of the annual emissions are banked for future use. In 2012, our SO_2 emissions exceeded the annual allocations. This deficit was covered by our banked allowances. We estimate our Title IV Acid Rain Program SO_2 allowance bank plus annual allocations will be more than our projected emissions through 2017. Long-term compliance with this program will be met by the Compliance Plan detailed above along with possible procurement of additional SO_2 allowances. We expect the cost of compliance to be fully recoverable in our rates.

CAIR:

In 2005, the EPA promulgated CAIR under the CAA. CAIR generally calls for fossil-fueled power plants greater than 25 megawatts to reduce emission levels of SO_2 and/or NOx in 28 eastern states and the District of Columbia, including Missouri, where our Asbury, Energy Center, State Line and Iatan Units No. 1 and No. 2 are located. Kansas was not included in CAIR and our Riverton Plant was not affected. Arkansas, where our Plum Point Plant is located, was included for ozone season NOx but not for SO_2.

In 2008, the U.S. Court of Appeals for the District of Columbia vacated CAIR and remanded it back to EPA for further consideration, but also stayed its vacatur. As a result, CAIR became effective for NOx on January 1, 2009 and for SO_2 on January 1, 2010 and required covered states to develop State Implementation Plans (SIPs) to comply with specific SO_2 state-wide annual budgets.

SO_2 allowance allocations under the Title IV Acid Rain Program are used for compliance in the CAIR SO_2 Program. For our Missouri units, beginning in 2010, CAIR required the SO_2 allowances to be utilized at a 2:1 ratio and, beginning in 2015, will require the SO_2 allowances to be utilized at a 2.86:1 ratio. As a result, based on current SO_2 allowance usage projections, we expect to have sufficient allowances to take us through 2017.

In order to meet CAIR requirements for SO_2 and NOx emissions (NOx is discussed below in more detail) and as a requirement for the air permit for Iatan 2, a Selective Catalytic Reduction system (SCR), a Flue-Gas Desulfurization (FGD) scrubber system and baghouse were installed at our jointly-owned Iatan 1 plant and a SCR was placed in service at our Asbury plant in 2008. Our jointly-owned Iatan 2 and Plum Point plants were originally constructed with the above technology.

CSAPR- formerly the Clean Air Transport Rule:

On July 6, 2010, the EPA published a proposed CAIR replacement rule entitled the Clean Air Transport Rule (CATR). As proposed and supplemented, the CATR included Missouri and Kansas under both the annual and ozone season for NOx as well as the SO2 program while Arkansas remained in the ozone season NOx program only. The final CATR was released on July 7, 2011 under the name of the CSAPR, and was set to become effective January 1, 2012. However, as mentioned above, the District of Columbia Circuit Court of Appeals vacated CSAPR on August 21, 2012, and the EPA has subsequently petitioned the Supreme Court to review the D.C. Circuit Court's decision. On June 24, 2013 the Supreme Court agreed to review the D.C. Circuit court's decision, which is set to occur December 6, 2013. The CAIR will be in effect until a valid replacement is developed by the EPA.

When it was published, the final CSAPR required a 73% reduction in SO2 from 2005 levels by 2014. The SO2 allowances allocated under the EPA's Title IV Acid Rain Program could not be used for compliance with CSAPR but would continue to be used for compliance with the Title IV Acid Rain Program. Therefore, new SO2 allowances would be allocated under CSAPR and retired at one allowance per ton of SO2 emissions emitted. Based on current projections, we would receive more SO2 allowances than would be emitted. Long-term compliance with this Rule will be met by the Compliance Plan detailed above along with possible procurement of additional SO2 allowances. We anticipate compliance costs associated with CAIR or its subsequent replacement to be recoverable in our rates.

Mercury Air Toxics Standard (MATS):

The MATS standard was fully implemented and effective as of April 16, 2012, thus requiring compliance by April 16, 2015 (with flexibility for extensions for reliability reasons). The MATS regulation does not include allowance mechanisms. Rather, it establishes alternative standards for certain pollutants, including SO_2 (as a surrogate for hydrogen chloride (HCI)), which must be met to show compliance with hazardous air pollutant limits (see additional discussion in the MATS section below).

SO2 National Ambient Air Quality Standard (NAAQS):

In June 2010, the EPA finalized a new 1-hour SO_2 NAAQS which, for areas with no ambient SO_2 monitor, originally required modeling to determine attainment and non-attainment areas within each state. In April 2012, the EPA announced that it is reconsidering this approach. The modeling of emission sources was to have been completed by June 2013 with compliance with the SO_2 NAAQS required by August 2017. Because the EPA is reconsidering the compliance determination approach for areas without ambient SO_2 monitors, the compliance time-frame may be pushed back. Draft guidance for 1-hour SO_2 NAAQS has been published by the EPA to assist states as they prepare their SIP submissions. The EPA is also planning a rulemaking called the Data Requirements Rule (DRR) to address some of the 1-hour SO_2 NAAQS implementation program elements. It is likely that coal-fired generating units will need scrubbers to be capable of meeting the new 1-hour SO_2 NAAQS. In addition, units will be required to include SO_2 emissions limits in their Title V permits or execute consent decrees to assure attainment and future compliance.

NOx Emissions

The CAA regulates the amount of NOx an affected unit can emit. As currently operated, each of our affected units is in compliance with the applicable NOx limits. Currently, revised NOx emissions are limited by the CAIR as a result of the vacated CSPAR rule and by ozone NAAQS rules (discussed below) which were established in 1997 and in 2008.

CAIR:

The CAIR required covered states to develop SIPs to comply with specific annual NOx state-wide allowance allocation budgets. Based on existing SIPs, we had excess NOx allowances during 2012 which were banked for future use and will be sufficient for compliance through at least the end of 2017. The CAIR NOx program also was to have been replaced by the CSAPR program January 1, 2012 but because the D.C. Circuit Court vacated CSAPR and the case is being re-heard by the Supreme Court, CAIR will remain in effect until the EPA develops a valid replacement.

CSAPR:

As published, the CSAPR would have required a 54% reduction in NOx from 2005 levels by 2014. The NOx annual and ozone season allowances that were allocated and banked under CAIR could not be used for compliance under CSAPR. New allowances would have been issued under CSAPR. However, as discussed above, CSPAR was vacated by the District of Columbia Circuit Court of Appeals on August 21, 2012 and the case is set to be re-heard by the Supreme Court on December 6, 2013.

Ozone NAAQS:

Ozone, also called ground level smog, is formed by the mixing of NOx and Volatile Organic Compounds (VOCs) in the presence of sunlight. On January 6, 2010, to protect public health, the EPA proposed to lower the primary NAAQS for ozone to a range between 60 and 70 ppb and to set a separate secondary NAAQS for ozone to protect sensitive vegetation and ecosystems.

On September 2, 2011, President Obama ordered the EPA to withdraw proposed air quality standards lowering the 2008 ozone standard pending the CAA 2013 scheduled reconsideration of the ozone NAAQS (the normal 5 year reconsideration period). States moved forward with area designations based on the 2008 75 ppb standard using 2008-2010 quality assured monitoring data. Our service territory is designated as attainment, meaning that it is in compliance with the standard.

A revised Ozone NAAQS is expected to be proposed by the EPA early 2014 and is anticipated to be between 60 and 70 ppb.

PM NAAQS:

Particulate matter (PM) is the term for particles found in the air which comes from a variety of sources. On January 15, 2013, the EPA finalized the PM 2.5 primary annual standard at 12 ug/m(3) (micrograms per cubic meter of air). States are required to meet the primary standard in 2020.

The standard should have no impact on our existing generating fleet because the PM 2.5 ambient monitor results are below the required level. However, the proposed standards could impact future major modifications/construction projects that require a Prevention of Significant Deterioration (PSD) permit.

Mercury Air Toxics Standard (MATS)

In 2005, the EPA issued the Clean Air Mercury Rule (CAMR) under the CAA. It set limits on mercury emissions by power plants and created a market-based cap and trade system expected to reduce nationwide mercury emissions in two phases. New mercury emission limits for Phase 1 were to go into effect January 1, 2010. On February 8, 2008, the U.S. Court of Appeals for the District of Columbia vacated CAMR. This decision was appealed to the U.S. Supreme Court which denied the appeal on February 23, 2009.

The EPA issued Information Collection Requests (ICR) for determining the National Emission Standards for Hazardous Air Pollutants (NESHAP), including mercury, for coal and oil-fired electric steam generating units on December 24, 2009. The ICRs included our Iatan, Asbury and Riverton plants. All responses to the ICRs were submitted as required. The EPA ICRs were intended for use in developing regulations under Section 112(r) of the CAA maximum achievable emission standards for the control of the emission of hazardous air pollutants (HAPs), including mercury. The EPA proposed the national mercury and air toxics standards (MATS) in March 2011, which became effective April 16, 2012. MATS establishes numerical emission limits to reduce emissions of heavy metals, including mercury (Hg), arsenic, chromium, and nickel, and acid gases, including HCl and hydrogen fluoride (HF). For all existing and new coal-fired electric utility steam generating units (EGUs), the proposed standard will be phased in over three years, and allows states the ability to give facilities a fourth year to comply. On March 28, 2013, the EPA finalized updates to certain emission limits for new power plants under the MATS. The new standards affect only new coal and oil-fired power plants that will be built in the future. The update does not change the final emission limits or other requirements for existing power plants. On June 25, 2013, the startup, shutdown portion of the MATS was proposed for reconsideration in order to better define startup and shutdown periods (instances when the emission unit is on but the pollution control equipment is not in full operation) that will be excluded from emissions averaging for compliance purposes.

The MATS regulation of HAPs in combination with CSAPR is the driving regulation behind our Compliance Plan and its implementation schedule. We expect compliance costs to be recoverable in our rates.

Greenhouse Gases

Our coal and gas plants, vehicles and other facilities, including EDG (our gas segment), emit CO_2 and/or other Greenhouse Gases (GHGs) which are measured in Carbon Dioxide Equivalents (CO_2e).

On September 22, 2009, the EPA issued the final Mandatory Reporting of Greenhouse Gases Rule under the CAA which requires power generating and certain other facilities that equal or exceed an emission threshold of 25,000 metric tons of CO_2e to report GHGs to the EPA annually commencing in September 2011. EDE and EDG’s GHG emissions for 2011 and 2012 have been reported as required to the EPA.

On December 7, 2009, responding to a 2007 U.S. Supreme Court decision that determined that GHGs constitute "air pollutants" under the CAA, the EPA issued its final finding that GHGs threaten both the public health and the public welfare. This "endangerment" finding did not itself trigger any EPA regulations, but was a necessary predicate for the EPA to proceed with regulations to control GHGs. Since that time, a series of rules including the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (Tailoring Rule) have been issued by the EPA. Several parties have filed petitions with the EPA and lawsuits have been filed challenging these rules. On June 26, 2012, the D.C. Circuit Court issued its opinion in the principal litigation of the EPA GHG rules (Endangerment, the Tailoring Rule, GHG emission standards for light-duty vehicles, and the EPA's rule on reconsideration of the PSD Interpretive Memorandum). The three-judge panel upheld the EPA's interpretation of the Clean Air Act provisions as unambiguously correct. This opinion solidifies the EPA's position that the CAA requires PSD and Title V permits for major emitters of greenhouse gases, such as Empire. Our ongoing projects are currently being evaluated for the projected increase or decrease of CO_2e emissions as required by the Tailoring Rule.

As the result of an agreement to settle litigation pending in the U.S. Court of Appeals, on April 13, 2012, the EPA proposed a Carbon Pollution Standard for new power plants to limit the amount of carbon emitted by electric utility generating units (EGUs). In light of the more than 2.5 million comments received by the EPA, this standard was rescinded, and a re-proposal of standards of performance for affected fossil fuel-fired EGUs was issued on September 20, 2013 as required by President Obama. The proposed rule sets separate standards for natural gas-fired combustion turbines and for fossil fuel-fired utility boilers. Limiting CO_2 output to 1,000 or 1,100 pounds per megawatt hour based on size and fuel type, the standards apply only to new EGUs. It is expected that most new natural gas-fired combined cycle units will meet the new standard. The EPA believes fossil-fuel fired boilers can meet the standard through efficient technology or some level of carbon capture and sequestration, but the high cost, technical feasibility, and long term liability of stored carbon are issues that have not been resolved and limit this option for Empire and all electric utilities.

The proposal would not apply to existing units including modifications such as those required to meet other air pollution standards which are currently being undertaken at our Asbury facility and at the Riverton facility with the conversion of simple cycle Unit 12 to combined cycle. In response to President Obama's June 25, 2013 memorandum to the EPA Administrator, the EPA is engaging states and stakeholders in a process to identify approaches to establish carbon pollution standards for currently operating power plants.

President Obama's memorandum to the EPA Administrator requested the EPA issue proposed carbon pollution standards, regulations, or guidelines for modified, reconstructed, and existing power plants by no later than June 1, 2014; issue final standards, regulations, or guidelines, for modified, reconstructed, and existing power plants by no later than June 1, 2015; and include in the guidelines addressing existing power plants a requirement that states submit to the EPA implementation plans by no later than June 30, 2016. As of October 15, 2013, the U.S. Supreme Court agreed to review an appeals court decision that said the EPA could regulate greenhouse gas emissions from fixed sources based on a previous decision based on greenhouse emissions from cars.

In addition, a variety of proposals have been and are likely to continue to be considered by Congress to reduce GHGs. Proposals are also being considered in the House and Senate that would delay, limit or eliminate the EPA's authority to regulate GHGs. At this time, it is not possible to predict what legislation, if any, will ultimately emerge from Congress regarding control of GHGs.

Certain states have taken steps to develop cap and trade programs and/or other regulatory systems which may be more stringent than federal requirements. For example, Kansas is a participating member of the Midwestern Greenhouse Gas Reduction Accord (MGGRA), one purpose of which is to develop a market-based cap and trade mechanism to reduce GHG emissions. The MGGRA has announced, however, that it will not issue a CO2e regulatory system pending federal legislative developments. Missouri is not a participant in the MGGRA.

The ultimate cost of any GHG regulations cannot be determined at this time. However, we expect the cost of complying with any such regulations to be recoverable in our rates.

Water Discharges

We operate under the Kansas and Missouri Water Pollution Plans that were implemented in response to the Federal Clean Water Act (CWA). Our plants are in material compliance with applicable regulations and have received necessary discharge permits.

The Riverton Units 7 and 8 and Iatan Unit 1, which utilize once-through cooling water, were affected by regulations for Cooling Water Intake Structures issued by the EPA under the CWA Section 316(b) Phase II. The regulations became final on February 16, 2004. In accordance with these regulations, we submitted sampling and summary reports to the Kansas Department of Health and Environment (KDHE) which indicate that the effect of the cooling water intake structure on Empire Lake's aquatic life is insignificant. KCP&L, who operates Iatan Unit 1, submitted the appropriate sampling and summary reports to the Missouri Department of Natural Resources (MDNR).

In 2007 the United States Court of Appeals for the Second Circuit remanded key sections of these CWA regulations to the EPA. As a result, the EPA suspended the regulations and revised and signed a pre-publication proposed regulation on March 28, 2011. The EPA has secured an additional year to finalize the standards for cooling water intake structures under a modified settlement agreement. Following a recent court approved delay, the EPA is now obligated to finalize the rule by November 4, 2013. We will not know the full impact of these rules until they are finalized. If adopted in their present form, we expect regulations of Cooling Water Intake Structures issued by the EPA under the CWA Section 316(b) to have a limited impact at Riverton. The retirement of units 7 and 8 is scheduled in 2016. A new intake structure design and cooling tower will be constructed as part of the Unit 12 conversion at Riverton. Impacts at Iatan 1 could range from flow velocity reductions or traveling screen modifications for fish handling to installation of a closed cycle cooling tower retrofit. Our new Iatan Unit 2 and Plum Point Unit 1 are covered by the proposed regulation but were constructed with cooling towers, the proposed Best Technology Available. We expect them to be unaffected or minimally impacted by the final rule.

Surface Impoundments

We own and maintain coal ash impoundments located at our Riverton and Asbury Power Plants. Additionally, we own a 12% interest in a coal ash impoundment at the Iatan Generating Station and a 7.52% interest in a coal ash impoundment at Plum Point. On April 19, 2013, the EPA signed a notice of proposed rulemaking to revise its wastewater effluent limitation guidelines and standards under the CWA for coal-fired power plants. The proposal calls for updates to operating permits beginning in July 2017. Once the new guidelines are issued, the EPA and states would incorporate the new standards into wastewater discharge permits, including permits for coal ash impoundments. We do not have sufficient information at this time to estimate additional costs that might result from any new standards. All of our coal ash impoundments are compliant with existing state and federal regulations.

On June 21, 2010, the EPA proposed a new regulation pursuant to the Federal Resource Conservation and Recovery Act (RCRA) governing the management and storage of Coal Combustion Residuals (CCR). In the proposal, the EPA presents two options: (1) regulation of CCR under RCRA subtitle C as a hazardous waste and (2) regulation of CCR under RCRA subtitle D as a non-hazardous waste. The public comment period closed in November 2010. It is anticipated that the final regulation will be published in 2014. We expect compliance with either option as proposed to result in the need to construct a new landfill and the conversion of existing ash handling from a wet to a dry system(s) at a potential cost of up to $15 million at our Asbury and Riverton Power Plants. This preliminary estimate will likely change based on the final CCR rule and its requirements. We expect resulting costs to be recoverable in our rates.

On September 23, 2010 and on November 4, 2010 EPA consultants conducted on-site inspections of our Riverton and Asbury coal ash impoundments, respectively. The consultants performed a visual inspection of the impoundments to assess the structural integrity of the berms surrounding the impoundments, requested documentation related to construction of the impoundments, and reviewed recently completed engineering evaluations of the impoundments and their structural integrity. In response to the inspection comments, the recommended geotechnical studies have been completed and new flow monitoring devices and settlement monuments at both coal ash impoundments have been installed. As a result of the transition from coal to natural gas, closure of the Riverton impoundment is in progress in compliance with KDHE Bureau of Waste Management regulations. We expect to complete the closure by late 2013. The final design for additional recommendations that will improve safety for slope stability at the Asbury impoundment is under review. We have received preliminary approval by the MDNR for the site permitting of a new utility waste landfill adjacent to the Asbury plant. Additionally, the work plan for the detailed site investigation (DSI) to include geologic and hydrologic investigations has been approved by the MDNR Division of Geology and Land Survey. Construction of the new landfill is expected in 2016.

Appendix D

Ameren Missouri			
Unit	Environmental Driver	Compliance Option	Estimated Capital Cost (Millions)
Labadie 1	CSAPR/CAIR	SOFA Mods	$4.2
	MATS	ESP for PM control	$85
	MATS	ACI	$5
	MATS	PM, HCL, Hg CEM	See Labadie Common
Labadie 2	MATS	ESP for PM control	$90
	MATS	ACI	$6
	MATS	PM, HCL, Hg CEM	See Labadie Common
Labadie 3*	CSAPR/CAIR	Additional SOFA Mods	$4.5
	MATS	ESP upgrade for PM control	$24
	MATS	ACI	$6
	MATS	PM, HCL, Hg CEM	See Labadie Common
Labadie 4*	MATS	ESP for PM control	$24
	MATS	ACI	$5
	MATS	PM, HCL, Hg CEM	See Labadie Common
Labadie Common	MATS	PM, HCL, Hg CEM	$6
	CSAPR/CAIR	FGD retrofit study	$3.7
	NAAQS-SO2	SO2 Ambient Air Monitors	$0.8
Meramec 1**	MATS	Convert to Natural Gas	tbd
Meramec 2**	MATS	Convert to Natural Gas	tbd
Meramec 3	MATS	ACI	$6
	MATS	PM, HCL, Hg CEM	See Meramec Common
Meramec 4	MATS	ESP	$9
	MATS	PM, HCL, Hg CEM	See Meramec Common
	MATS	ACI	$5
Meramec Common	MATS	PM, HCL, Hg CEM	$5
Rush Island 1*	MATS	ACI	$4
	MATS	PM, HCL, Hg CEM	See Rush Common
Rush Island 2*	MATS	ACI	$4
	MATS	PM, HCL, Hg CEM	See Rush Common
Rush Island Common	CSAPR/CAIR/NAAQS	FGD retrofit study	$10
	CSAPR/CAIR/NAAQS	FGD Electrical	$8
	MATS	PM, HCL, Hg CEM	$4
Sioux 1	MATS	PM, Hg CEM	See Sioux Common
	MATS	FGD Mercury additives	$1.4
Sioux 2	MATS	PM, Hg CEM	See Sioux Common
	MATS	FGD Mercury additives	$1.4

Ameren Missouri			
Unit	Environmental Driver	Compliance Option	Estimated Capital Cost (Millions)
Sioux Common	MATS	PM, Hg CEM	$1.8
Total			**$323.8**

Note: Estimates based on January 2014 forecast.

*Two wet Scrubbers at either Rush Island Units 1 & 2 or Labadie Units 3 & 4 are options for environmental compliance. This cost is approximately $777 Million.
**Meramec gas conversion costs in development and not currently in 2014 forecast.

Empire		
Unit	Compliance Option	Estimated Capital Cost (Millions)
Asbury Unit 1	Scrubber, BH, ACI	$112 -- $130
	SCR (2008 install)	~ $32
Asbury Unit 2	Retire end of 2013	
Riverton Unit 7*	Transition unit from coal to natural gas (2012 completion date) Retire Mid-2016	
Riverton Unit 8*	Transition unit from coal to natural gas (2012 completion date) Retire Mid-2016	
Riverton Unit 9*	Retire Mid-2016	
Riverton Unit 12	Conversion to Combined Cycle Mid-2016	$165 -- $175
Iatan 1 (Empire's Share)	SCR, Scrubber, BH and ACI	~$62
Iatan 2	SCR, Scrubber, BH and ACI (2010 completion date)	Included in cost of new plant
Plum Point	SCR, Scrubber, BH and ACI (2010 completion date)	Included in cost of new plant
Total		$371 -- $399

Note: Estimates came from Empire District Electric Environmental Regulations Overview, October 28, 2013 PowerPoint Presentation for the Staff Workshop

*Riverton retirement costs in development.

KCP&L/GMO			
Unit	Environmental Driver	Compliance Option	Estimated Capital Cost (Millions)
La Cygne 1 & 2 (KCP&L's share)	BART and MATS compliance equipment	Unit 2 SCR; BH and Scrubber for both units.	$615
Jeffrey (GMO's share)	New Source Review permitting program	SCR	$19.2
Total			$634.2

Note: Estimated cost came from GPE 10-Q SEC filing as of September 2013.

TOTAL ESTIMATED EXPENDITURES: $1.329 -- $1.357 Billion

Appendix E

Plant Name	Boiler ID	Generator ID	Generator Nameplate Capacity (MW)	Missouri Jurisdictional Capacity (MW)	Initial Operation	Utility	State	Cooling Water	Cooling Water Source	Furnace Type	NOX Control	SO2 Control	Particulate Control	HG Control
Asbury	1	1	213	188	1970	Empire	MO	CT	Well	Cycl	SCR	*	Precip *	*
Hawthorn	5A	5	594	341	2001	KCP&L	MO	OT	River	Wall	SCR	Scrubber	Baghouse	**
Iatan	1	1	726	499	1980	KCP&L (70%), GMO (18%), Empire (12%)	MO	OT	River	Wall	SCR	Scrubber	Baghouse	ACI
Iatan	2	2	850	510	2010	KCP&L (54.71%), GMO (18%), Empire (12%)	MO	CT	Well	Tang	SCR	Scrubber	Baghouse	ACI
Jeffrey Energy Center	1	1	720	58	1978	GMO (8%)	KS	CT	Lake	Tang	*	Scrubber	Precip	
Jeffrey Energy Center	2	2	720	58	1980	GMO (8%)	KS	CT	Lake	Tang	*	Scrubber	Precip	
Jeffrey Energy Center	3	3	720	58	1983	GMO (8%)	KS	CT	Lake	Tang		Scrubber	Precip	
Labadie	1	1	574	574	1970	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	*Precip	**
Labadie	2	2	574	574	1971	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	*Precip	**
Labadie	3	3	621	621	1972	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	*Precip	**
Labadie	4	4	621	621	1973	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	*Precip	**
LaCygne	1	1	893	256	1973	KCP&L (50%)	KS	OT	Lake	Cycl	SCR	*	Scrubber*	*
LaCygne	2	2	685	197	1977	KCP&L (50%)	KS	OT	Lake	Wall	*	*	Precip*	*
Lake Road	6	4	90	90	1966	GMO	MO	OT	River	Cycl		LSC	Precip	
Meramec	1	1	138	138	1953	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	Precip	**
Meramec	2	2	138	138	1954	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	Precip	**
Meramec	3	3	289	289	1959	Ameren Missouri	MO	OT	River	Wall	OFA/LNB	ULSC	Precip	**
Meramec	4	4	359	359	1961	Ameren Missouri	MO	OT	River	Wall	OFA/LNB	ULSC	Precip	**
Montrose	1	1	188	108	1958	KCP&L	MO	OT	Lake	Tang		LSC	Precip	
Montrose	2	2	188	108	1960	KCP&L	MO	OT	Lake	Tang	*	LSC	Precip	
Montrose	3	3	188	108	1964	KCP&L	MO	OT	Lake	Tang	*	LSC	Precip	
Plum Point	1	1	665	88	2010	Empire (50 MW ownership, 50 MW PPA)	AR	CT	River	Wall	SCR	Scrubber	Baghouse	ACI
Rush Island	1	1	621	621	1976	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	Precip	**
Rush Island	2	2	621	621	1977	Ameren Missouri	MO	OT	River	Tang	OFA/LNB	ULSC	Precip	**
Sibley	1	1	55	55	1960	GMO	MO	OT	River	Cycl	SNCR	LSC	Precip	
Sibley	2	2	50	50	1962	GMO	MO	OT	River	Cycl	SNCR	LSC	Precip	
Sibley	3	3	419	419	1969	GMO	MO	OT	River	Cycl	SCR	LSC	Precip	
Sioux	1	1	550	550	1967	Ameren Missouri	MO	OT	River	Cycl	OFA/RRI SNCR	Scrubber	Precip	Scrubber
Sioux	2	2	550	550	1968	Ameren Missouri	MO	OT	River	Cycl	OFA/RRI SNCR	Scrubber	Precip	Scrubber
			13,618	8,844										

* Installation of control equipment

** Planning installation of control equipment

OFA = Overfire Air   LNB = Low NOX Burners   SCR = Selective Catalytic Reduction   SNCR = Selective Noncatalytic Reduction   RRI = Rich Reagent Injection   LSC = Low Sulfur Coal   ULSC = Ultra Low Sulfur Coal   ACI = Activated Carbon Injection   OT = Once Through   CT = Cooling Tower

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of an Investigation of the Cost to Missouri's Electric Utilities Resulting from Compliance with Federal Environmental Regulations	))))	Case No. EW-2012-0065

AFFIDAVIT OF RANDY S. GROSS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Randy S. Gross, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that he has participated in the preparation of the accompanying Staff Report, and the facts therein are true and correct to the best of his knowledge and belief.

Randy S. Gross

Subscribed and sworn to before me this 3rd day of April, 2014.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 03, 2014
Commission Number: 10942086

Susan L. Sundermeyer
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of an Investigation of the Cost to Missouri's Electric Utilities Resulting from Compliance with Federal Environmental Regulations	))))	Case No. EW-2012-0065

AFFIDAVIT OF SHAWN E. LANGE

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Shawn E. Lange, employee of the Staff of the Missouri Public Service Commission, being of lawful age and after being duly sworn, states that he has participated in the preparation of the accompanying Staff Report, and the facts therein are true and correct to the best of his knowledge and belief.

Shawn E. Lange
Shawn E. Lange

Subscribed and sworn to before me this 3rd day of April, 2014.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 03, 2014
Commission Number: 10942086

Susan L. Sundermeyer
Notary Public