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December 23, 2013

The Honorable Gina McCarthy
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Missouri Public Service Commission's Comments on Section 111(d) of the Clean Air Act

Dear Administrator McCarthy:

The Missouri Public Service Commission (MoPSC), respectfully submits this letter and the attached comments to articulate its position that the Environmental Protection Agency's (EPA) guidelines, to be developed under Section 111(d) of the Clean Air Act (CAA), 42 U.S.C. § 7411, should be crafted in such a way as to allow Missouri maximum flexibility in developing performance standards that will take into account its particular circumstances.[1] The EPA's guidelines should be crafted consistent with the CAA's framework of cooperative federalism, President Barack Obama's Climate Action Plan and the President's Memorandum for the Administrator of the Environmental Protection Agency, which contemplates state primacy in developing plans to reduce carbon emissions from the power sector.

[1] In submitting these comments, the MoPSC is not offering an opinion regarding the legality of the EPA's authority to promulgate rules under Section 111(d). Further, nothing in these comments binds the MoPSC in its decisions in any future proceeding. Finally, nothing in these comments binds any other state agency.

The CAA's framework of cooperative federalism contemplates that the EPA will issue guidelines establishing a procedure, while the states will issue state implementation plans (SIPs) that define the mechanisms to meet the EPA's guidelines. The states will have the primary responsibility, through their SIPs, for determining the performance standards for satisfying the EPA's guidelines. 42 U.S.C. § 7411 (d)(1).

In directing the EPA to promulgate rules to reduce carbon emissions from existing power plants under Section 111(d) of the CAA, President Obama emphasized the necessity of involving all stakeholders, including state public service and utility commissions in crafting these guidelines. The EPA's guidelines should be developed in a way that "allow[s] the use of market based instruments, performance standards, and other regulatory flexibilities." Any such guidelines must also "ensure . . . the continued reliance on a range of energy sources and technologies." Finally, the EPA's guidelines must be "developed and implemented in a manner consistent with the provision of *reliable* and *affordable* electric power for consumers and business." *See, Memorandum on Power Sector Carbon Pollution Standards*, 2013 Daily Comp. Pres. Doc. 457 (June 25, 2013) (emphasis added).

The MoPSC, through regulation of Missouri's investor owned utilities (IOUs), ensures safe and adequate service at just and reasonable rates. The MoPSC is the state agency responsible for setting rates for the IOUs, for administering the Missouri Renewable Energy Standard (RES), Mo. Rev. Stat. § 393.1020 to 393.1030, and the Missouri Energy and Efficiency Investment Act (MEEIA), Mo. Rev. Stat. § 393.1075, as well as ensuring resource adequacy through the MoPSC's integrated resource planning process, 4 CSR 240-22.010 to 240-22.080. These comments are intended to inform the EPA regarding the composition of Missouri's IOU power generation, and the state programs that will serve to reduce carbon emissions.

Missouri's IOU's have implemented programs under the MEEIA and are adding renewable energy resources to their portfolios, in addition to retrofitting existing coal-fired power plants. These efforts have either reduced or are expected to continue to reduce greenhouse gas emissions. For instance, two Missouri IOUs' efforts under the MEEIA are expected to provide cumulative energy savings of approximately 950,000 MWhs over a three year program period, from 2013 to 2016. Since 2005, the IOUs have collectively spent in excess of $700 million on projects that reduce greenhouse gas emissions. For 2012 alone, Missouri IOUs have reduced carbon emissions by approximately 4.4 percent or 1.6 million metric tons.

The EPA's guidelines should complement and enhance the work already being done in each state. The EPA's guidelines should not frustrate or inhibit already-existing state efforts, nor inhibit future state efforts that support greenhouse gas emissions reduction. The MoPSC encourages the EPA to develop guidelines that will allow all carbon emission reducing measures

to be recognized and taken into account, whether those measures operate directly on an electric generating unit or go beyond the electric generating unit.

Sincerely,

Robert S. Kenney
Chairman

Stephen Stoll
Commissioner

William P. Kenney
Commissioner

Daniel Hall
Commissioner

GLT

Enclosures (5)

cc: Sara Parker Pauley, Director
Missouri Department of Natural Resources

Llona Weiss, Director
Missouri Department of Economic Development, Division of Energy

Karl Brooks, Regional Administrator, Region 7
U.S. Environmental Protection Agency

Missouri Public Service Commission

Comments on the Reduction of Carbon Emissions in Missouri under Section 111(d) of the Clean Air Act

December 2013

Acknowledgements

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I. Introduction

The Missouri Public Service Commission (MoPSC) has long been acutely aware of and attuned to myriad environmental regulations facing the electric power sector. To that end, in August 2011, the MoPSC opened a working docket[1] to examine the potential financial and reliability impacts on the power sector of a host of planned and potential environmental regulations. In May 2012 the MoPSC Staff issued a report of its findings. In September 2013, in anticipation of the EPA's announced plans to regulate greenhouse gases from new and existing power plants, the MoPSC instructed its staff to update its 2012 report. On December 19, 2013, the MoPSC Staff issued its updated report of its findings. All of these documents can be found in the MoPSC's Electronic Information Filing System (EFIS), at https://www.efis.psc.mo.gov.

The comments of the MoPSC demonstrate that the EPA's rules should provide Missouri maximum flexibility to develop, monitor and credit the resources that will be most effective in reducing carbon emissions. These comments contain a description of Missouri's current IOU generation mix, the IOUs' efforts that are intended to increase their renewable energy resources,[2] and the energy efficiency programs that the IOUs have implemented that will serve to reduce carbon emissions.

Like other states, many Missouri electric utilities own electric generating units that are not located in Missouri and this important geographic element should be acknowledged in the rules as it will be a factor in regional carbon emissions. Also, the lack of flexibility in developing a state implementation plan (SIP) could unnecessarily punish Missouri's utilities that have already invested in and deployed renewable energy resources and demand-side or energy efficiency programs. The EPA's proposed guidelines should allow credit for early emission reductions efforts.

II. Missouri's Regulated Electric Utilities

Missouri's four investor owned electric utilities are vertically integrated, with each utility owning and operating generation, transmission and distribution. Missouri's IOUs have transferred functional control of their transmission assets to one of two Regional Transmission Organizations (RTO): the Southwest Power Pool (SPP) or the Midcontinent Independent System Operator (MISO).

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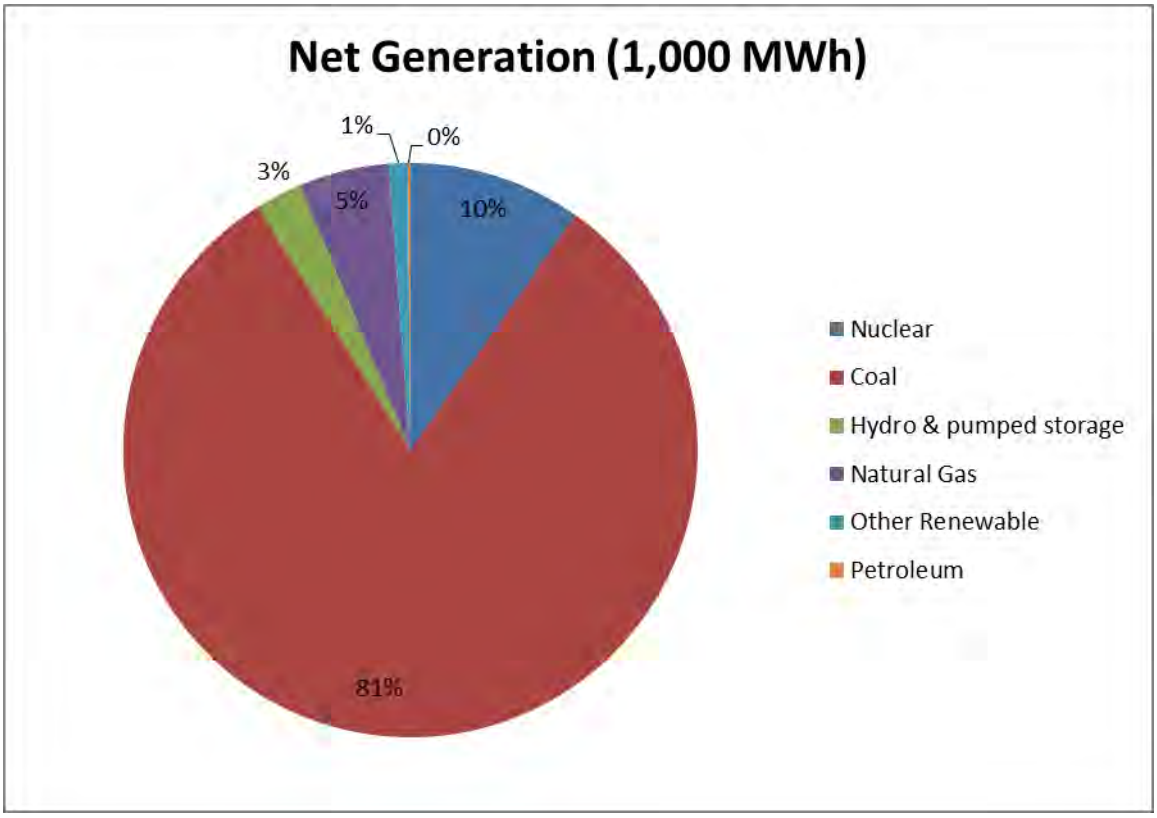
[1] *See, generally,* Docket No. EW-2012-0065, *In the Matter of an Investigation of the Cost to Missouri's Electric Utilities Resulting from Compliance with Federal Environmental Regulations,* accessible at https://www.efis.psc.mo.gov/mpsc

[2] "Renewable energy resources" is defined as electric energy produced from wind, solar thermal sources, photovoltaic cells and panels, dedicated crops grown for energy production, cellulosic agricultural residues, plant residues, methane from landfills, from agricultural operations, or from wastewater treatment, thermal depolymerization or pyrolysis for converting waste material to energy, clean and untreated wood such as pallets, hydropower (not including pumped storage) that does not require a new diversion or impoundment of water and that has a nameplate rating of ten megawatts or less, fuel cells using hydrogen produced by one of the above-named renewable energy sources, and other sources of energy not including nuclear that become available after November 4, 2008, and are certified as renewable by rule by the department. (Mo. Rev. Stat. § 393.1025)

A. Electric Utility Generation Mix in Missouri

Missouri's IOU electric generation mix is predominately coal with approximately 81 percent of production by coal-fired plants.[3] As is demonstrated below, Missouri IOUs are exploring ways to diversify their fleets through the use of natural gas, nuclear, wind, solar, hydroelectric generation and landfill gas. Additionally, Missouri's IOUs are increasing other generation substitutes, such as demand response and energy efficiency. Missouri law requires each IOU to obtain targeted renewable energy standards, which ultimately will reduce dependence on coal fired generation. The MoPSC monitors resource adequacy through an integrated resource planning process. But this process does not mandate any specific fuel choice in the IOUs' generation mix. Through its regulations, the MoPSC requires that the IOUs, on a predetermined time schedule, present their integrated resource plans to the Commission for review and stakeholder input.



[3] *See* http://www.eia.gov/state/?sid=MO&CFID=11683014&CFTOKEN=6dbebadd895da3e6-24CF265A-25B3-1C83-543A14991FD45D82&jsessionid=843010c8f48cb3de55c835f6b4a60217a62a#tabs-4

1. Investor-owned utilities
    a. Union Electric Company d/b/a Ameren Missouri (Ameren Missouri)[4]
        i. 76% Coal
        ii. 14% Nuclear
        iii. 4% Renewables[5]
        iv. 1% Gas

    b. The Empire District Electric Company, Inc. (Empire)[6]
        i. 56% Coal
        ii. 27% Gas
        iii. 16% Wind
        iv. 1% Hydropower

    c. Kansas City Power & Light and KCP&L Greater Missouri Operations[7,8]
        i. 83% Coal
        ii. 14% Nuclear
        iii. 2% Gas
        iv. 1% Wind

2. Municipal electric utilities[9,10]
    a. Coal
    b. Natural gas combined heat and power
    c. Natural gas combined cycle
    d. Wind
    e. Landfill gas
    f. Solar

3. Rural electric cooperatives[11]
    a. 75% Coal
    b. 14% Natural gas
    c. 5% Hydropower
    d. 5% Wind
    e. 1% Purchased power

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[4] "Ameren Missouri Company Overview and SMR Planning". Scott Bond, Director Nuclear Development. February 2013. http://www.researchcaucus.org/schedule/2013/25Feb2013/Bond-Ameren-MO-Presentation.pdf Page 3.

[5] Includes wind and hydropower.

[6] EDE – Environmental Update Presentation, page 6, filed October 29, 2013, EFIS Doc. No. 30, Docket No. EW-2012-0065

[7] Collectively KCP&L/GMO

[8] Great Plains Energy 2012 Annual Report, page 7. KCP&L and GMO are wholly owned direct subsidiaries of Great Plains Energy, page 6.

[9] *See* Appendix A

[10] Information on the percentage of generation mix in the municipal electric utility portfolio is not publicly available.

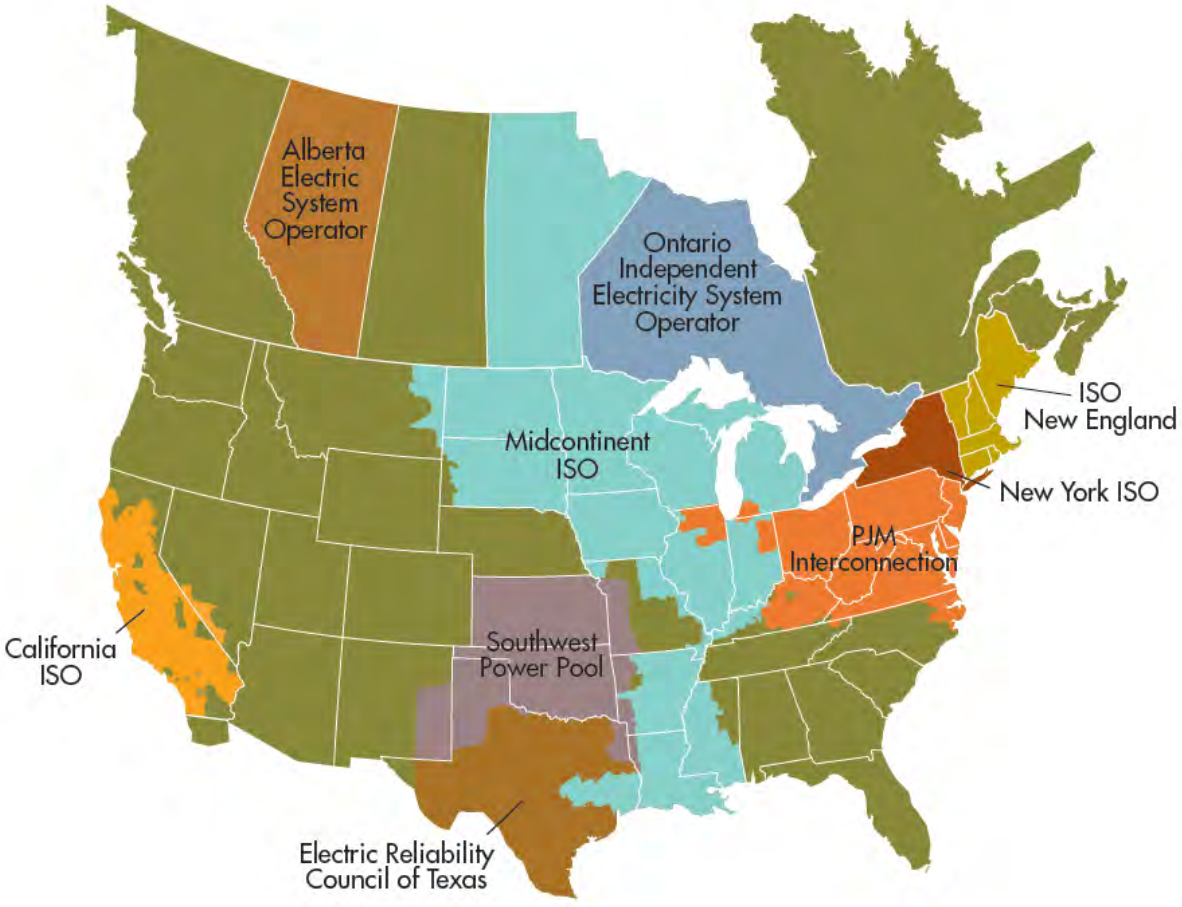
[11] Associated Electric Cooperative, Inc., 2012 Annual Report. http://www.aeci.org/docs/default-source/documents/2012-annual-report-dot-org.pdf. (Note: Associated Electric Cooperative, Inc. is part of a three-tiered system with six generation and transmission cooperatives owned by 51 distribution cooperatives in Missouri, southeast Iowa and northeast Oklahoma.)

B. Estimate of Missouri IOU Carbon Emissions

Missouri's IOUs emit approximately 48.5 million metric tons of carbon today. Other power generators in Missouri are not included in this emission estimate.

C. Regional Transmission Organizations

Missouri's IOUs participate in one of two RTOs-MISO and SPP. MISO delivers electric power across all or part of sixteen states and the Canadian province of Manitoba. SPP is responsible for ensuring reliable supplies of power and adequate transmission infrastructure in nine states. MISO participates in the next day market, while SPP's next day market is scheduled to go live in March 2014. Once both markets are operational, the dynamics of bidding power into the market will change.



MISO's modeling has identified a potential capacity shortfall of 3-7 GW as early as 2016.[12] Recognizing this potential shortfall, MISO and the Organization of MISO States (OMS)[13] jointly developed a survey to assess resource adequacy. The survey requests information on future load expectations, current resources, potential new resources, retirements, and energy efficiency/demand response programs. A zonal analysis will be presented in early 2014. When developing guidelines, the EPA should be cognizant of the fact that power flows regionally. Given that fact, states must have flexibility when they establish standards of performance for existing sources because regional solutions may be indicated. The MISO/OMS system-wide assessment will help to inform state plans.

III. Missouri Strategies to Address Carbon Emissions

Any established guidelines should provide flexibility to states to develop a SIP that establishes a performance standard based on the best system of emission reduction for that state. Over the past decade Missouri has employed a variety of strategies that either provide the framework for reducing, or actually reduce, carbon. These past and current strategies should not be ignored or preempted by stringent guidelines. A discussion follows of the strategies currently implemented in Missouri, including utility resource planning, demand-side management, renewable energy standards, energy efficiency and net metering.

A. IOU Electric Utility Resource Planning

MoPSC Rule 4 CSR 240-22.010 outlines the policy objectives for IOU electric utility resource planning. Electric utility resource planning is defined as the process by which an electric utility evaluates and chooses the appropriate mix and schedule of supply-side, demand-side, and distribution and transmission resource additions and retirements to provide the public with an adequate level, quality, and variety of end-use energy services. The planning process also includes an analysis of "special contemporary issues", or evolving new issues.

The investor-owned electric utilities are required to file with the MoPSC their resource plans every three years on April 1. The triennial filing includes, among other things, a summary of the preferred resource plan that will meet expected energy service needs for the twenty year planning horizon. The preferred resource plan must clearly show the demand-side resources and supply-side resources (both renewable and non-renewable resources), including additions and retirements for each resource type; identification of critical uncertain factors affecting the preferred resource plan; and information related to existing legal mandates and approved cost recovery mechanisms.

[12] MISO Comments, filed November 8, 2013, EFIS Doc. No. 38, Docket No. EW-2012-0065.

[13] The Organization of MISO States, Inc. is a non-profit, self-governing organization of representatives from each state with regulatory jurisdiction over entities participating in MISO. The purpose of the OMS is to coordinate regulatory oversight among the states, including recommendations to MISO, the MISO Board of Directors, the Federal Energy Regulatory Commission, other relevant government entities, and state commissions, as appropriate. (OMS Purpose Statement at http://misostates.org/)

The IOUs also file with the MoPSC, an annual update report commensurate with changing conditions since the last filing. It is the responsibility of each IOU to keep abreast of evolving electric resource planning issues and to consider and analyze those issues in a timely manner to ensure evolving regulatory, economic, financial, environmental, energy, technical or customer issues are adequately addressed in the long-term plans.

These electric resource plans are a tool that should inform any SIP. The MoPSC already has a process in place to allow Missouri IOUs and their stakeholders to analyze and employ a comprehensive strategy to resource planning, which includes the analysis of strategies to comply with environmental mandates. This tool will assist Missouri when it monitors and analyzes those measures most advantageous to reducing carbon.

B. Renewable Energy Standards Applicable to Investor Owned Utilities

Missouri's Renewable Energy Standard (RES), Mo. Rev. Stat. §§ 393.1020 to 393.1030, includes a requirement for all IOUs to generate or purchase electricity generated from renewable energy resources. The portfolio requirement provides that electricity from renewable energy resources constitutes the following portions of each electric utility's sales:

(1) No less than two percent for calendar years 2011 through 2013;
(2) No less than five percent for calendar years 2014 through 2017;
(3) No less than ten percent for calendar years 2018 through 2020; and
(4) No less than fifteen percent in each calendar year beginning in 2021.

At least two percent of each portfolio requirement is required to be derived from solar energy, unless exempted from this requirement.

A regulated utility may comply with the standard in whole or in part by purchasing renewable energy credits (RECs). Each kilowatt-hour of eligible energy generated in Missouri counts as 1.25 kilowatt-hours for purposes of compliance with the RES.[14]

State law mandates that renewable energy facilities shall not cause undue adverse air, water, or land use impacts, including impacts associated with the gathering of generation feedstocks.[15] If any amount of fossil fuel is used with renewable energy resources, only the portion of electrical output attributable to renewable energy resources can be used to fulfill the RES. Methane generated from the anaerobic digestion of farm animal waste and thermal depolymerization or pyrolysis for converting waste material to energy are renewable energy resources for purposes of the statute.[16]

[14] *See* Mo. Rev. Stat § 393.1030.1.
[15] *See* Mo. Rev. Stat § 393.1030.4.
[16] *See* Mo. Rev. Stat § 393.1030.4-5.

MoPSC Rule 4 CSR 240-20 sets the definitions, structure, operation and procedures for IOU compliance with the RES. Each IOU is required to file with the MoPSC, a RES compliance report on the status of the utility's compliance with the law.[17]

Public versions of the RES Compliance Reports for 2011 and 2012 are available on the MoPSC website.[18] *See* Appendix B for a summary of the 2012 Compliance Reports.

Mo. Rev. Stat § 393.1030 also requires each IOU to make available to its retail customers, a solar rebate for new or expanded solar electric systems sited on customers' premises, up to a maximum of twenty-five kilowatts per system measured in direct current that is confirmed operational by the electric utility.[19] Ameren Missouri, Kansas City Power & Light (KCP&L) and KCP&L Greater Missouri Operations (GMO) have solar rebate programs that will further contribute to carbon reduction.

It is critically important that any EPA guidelines not inhibit state renewable energy standards. The Missouri IOUs' annual compliance plans and reports demonstrate that efforts are being made to introduce renewables into the generation mix. Carbon emissions have been and should continue to be reduced by generation diversification through renewable energy. Future IOU RES compliance plans will provide Missouri another resource to monitor progress toward implementing those measures that it is uniquely positioned to decide will be most advantageous for meeting the carbon emission requirements in the State.

Since 2005, the IOUs have collectively spent in excess of $700 million on projects that reduce greenhouse gas emissions. For 2012 alone, Missouri IOUs have reduced carbon emissions by approximately 4.4 percent or 1.6 million metric tons.[20] The efforts of the IOUs to date demonstrate that Missouri should be provided maximum flexibility to develop, monitor and credit those resources that will be most effective in meeting goals to reduce carbon while considering the capabilities of the generation fleet within the state. Each state regulatory body is uniquely situated to monitor, review and advance the policy of carbon emissions and should retain the opportunity to manage resources and establish the state's standard of performance in a way that can meet the goals of the EPA.

C. Missouri Energy Efficiency Investment Act (MEEIA)

Mo. Rev. Stat. § 393.1075, provides:

> 3. It shall be the policy of the state to value demand-side investments equal to traditional investments in supply and delivery infrastructure and allow recovery of all reasonable and prudent costs of delivering cost-effective demand-side programs. In support of this policy, the commission shall:

[17] *See* Rule 4 CSR 240-20.80
[18] *See* http://psc.mo.gov/Electric/Renewable_Energy_Standard_Compliance_Reports
[19] *See* Mo. Rev. Stat. § 393.1030.3.
[20] These numbers are an aggregate of highly confidential, commercially sensitive data provided by the IOUs.

(1) Provide timely cost recovery for utilities;
(2) Ensure that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances utility customers' incentives to use energy more efficiently; and
(3) Provide timely earnings opportunities associated with cost-effective measurable and verifiable efficiency savings.

The MoPSC is responsible for approving demand-side programs under the MEEIA with the goal of achieving all cost-effective demand-side savings. Cost recovery for MEEIA programs is not permitted unless the programs result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers.

Four MoPSC rules provide the framework to implement MEEIA, which allow IOUs to recover their costs while providing financial incentives and timely earning opportunities associated with cost-effective demand-side savings.[21] The rules address demand-side programs and set forth the requirements and procedures for filing and processing applications to approve, modify or discontinue programs. The IOUs are required to file applications to modify demand-side programs when there is a twenty percent or more variance in the total program budget or if program design changes significantly.

IOU programs must go through an evaluation, measurement and verification (EM&V) process to evaluate the utility's program delivery and oversight. The EM&V process estimates and/or verifies the estimated actual energy and demand savings, utility lost revenue, cost effectiveness and other effects of demand-side programs. The MoPSC has an independent contractor that reviews the work of each IOU EM&V contractor. Stakeholder meetings are held to review the progress of IOU demand-side programs.

Two IOUs currently have MEEIA programs that were implemented in early 2013, but it is noteworthy that energy efficiency programs existed in Missouri prior to implementation of MEEIA. Additional MEEIA filings are expected in the next few months. The utilities that have not yet filed under MEEIA offer similar energy efficiency programs.

Examples of residential MEEIA programs include: incentives paid to retail partners to discount the price on high efficiency lighting products; high efficiency water heater, window air conditioner and smart strip rebates and incentives; diagnostics/tune-ups, retrofits and replacement upgrades for air conditioners, heat pumps and cooling systems; refrigerator recycling; home energy performance assessments, direct installs and cost effective follow-up measures; incentives for construction of Energy Star® homes; and energy savings to low income qualifying customers. There are also commercial and industrial programs. The IOUs are also evaluating the appropriateness of implementing demand response programs.

[21] *See* Rules 4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093 and 4 CSR 240-20.094.

Ameren Missouri MEEIA Filing[22]

Ameren Missouri's MEEIA plan is a 3-year plan that consists of 11 demand-side programs. Most programs were implemented in January 2013, and are estimated to have a cumulative annual energy savings of approximately 793,000 MWh during the third program year.

GMO MEEIA Filing[23]

GMO's MEEIA plan is a 3-year plan that consists of 15 demand-side programs. Most programs were implemented in January 2013, and are estimated to have a cumulative annual energy savings of approximately 155,000 MWh and cumulative annual capacity savings of approximately 73 MW during the third program year.

Implementation of MEEIA in Missouri has resulted in over 217.5 MWh cumulative energy savings to date.

Other Efficiency Efforts

From 2009 through 2012, the Missouri Department of Economic Development, Division of Energy[24] administered a number of energy efficiency programs in the industrial, agriculture and residential sectors using American Recovery and Reinvestment Act (ARRA) funding. The industrial and residential programs (other than low-income weatherization) were administered by the Division of Energy's implementation contractor, Shaw Environmental & Infrastructure, Inc. The programs achieved deemed energy savings of 165,873,458 kWhs, which resulted in a 138,441 metric ton reduction in carbon emissions equivalent. Verified savings totaled 155,088,969 kWhs and an annual 129,440 metric ton carbon emission equivalent reduction.[25] An additional 177,564.48 metric ton equivalent of potential carbon emission reductions were identified in energy audits for industrial customers.[26]

D. IOU Missouri Potential Studies

The MEEIA rules also provide detailed requirements for conducting current market potential studies[27] including requirements for: 1) use of primary research, 2) updating the potential study no less frequently than every four years, 3) review by stakeholders of required documentation, and 4) identification and discussion of the twenty-year baseline energy and demand forecasts. Through potential studies, IOUs and stakeholders consider the potential for generation diversification.

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[22] For information on Ameren Missouri's programs; http://www.ameren.com/sites/aue/UEfficiency/Pages/home.aspx

[23] For information on GMO's programs; http://www.kcpl.com/save-energy-and-money

[24] The Missouri Department of Economic Development, Division of Energy "assists, educates and encourages Missourians to advance the efficient use of diverse energy resources to provide for a healthier environment and to achieve greater energy security for future generations." The Division of Energy was transferred to the Missouri Department of Economic Development from the Missouri Department of Natural Resources in August 2013.

[25] Internal Report prepared by Shaw Environmental & Infrastructure, Inc., for the Missouri Department of Natural Resources – through their Division of Energy (now under the Department of Economic Development) for their Energize Missouri programs on September 2012. Page 102.

[26] *Id*. at page 11.

[27] *See* Rules 4 CSR 240-3.164(2)(A), 4 CSR 240-22.050(2)-(4).

E. IOU Net Metering (to Support Distributed Generation)

Mo. Rev. Stat. § 386.890 and MoPSC Rule 4 CSR 240-20.065 establish and implement the Net Metering and Easy Connection Act by setting forth standards for interconnection of qualified net metering units, that have a generating capacity of 100 kW or less, with the distribution systems of electric utilities. Retail electric suppliers are required to make net metering available to customer-generators on a "first-come, first-served" basis until the total rated generating capacity of net metering systems equals five percent of the utility's single-hour peak load during the previous year unless the electric suppliers' regulating or governing body increases the total rated generating capacity. The most recent IOU reports indicate generating capacity from net metering at approximately 15.4 MW, with a total estimated 3,627 MWhs received from customer-generators.

This information is useful in informing a SIP and state review of progress toward achieving carbon reductions since customer-generators provide an alternative, clean energy source to traditional electric generation. Solar panels and small wind turbines are popular sources of distributed generation through net metering. Distributed generation sources also can use natural gas-fired microturbines or reciprocating engines which use hot exhaust for space or water heating.

IV. Recognized and Anticipated Carbon Reductions

The EPA guidelines should provide the states the flexibility to recognize emission reduction efforts to date. There should be flexibility to allow utilities to acknowledge carbon reductions across their entire fleet, not just within a state. For instance, some generating facilities that serve Missouri customers are located in Kansas, Arkansas, Nebraska and Iowa. There must also be consideration and allowance for annual load growth resulting from economic development and increases to population. State growth and progress should not be impeded by stringent, inflexible guidelines.

It has been suggested, in the President's Climate Action Plan, that 2005 be considered a baseline year, from which carbon reductions would be measured. Since 2005, the IOUs have collectively spent in excess of $700 million on projects that reduce carbon emissions. For 2012 alone, Missouri IOUs have reduced carbon emissions by approximately 4.4 percent or 1.6 million metric tons.[28] These reductions should be recognized by allowing flexibility in establishing any baseline.

A. Recognized Efficiencies in Missouri's IOU Generation Fleet

Ameren Missouri has realized efficiencies through its addition of wind farms located in northeast Iowa, the Maryland Heights Renewable Energy Center, MEEIA programs, solar projects, its Callaway nuclear plant, hydro-electric generation (including generation at the Keokuk Hydro-electric Generation Station in Iowa), and its program to utilize refined coal in order to lower costs and reduce emissions.

[28] These numbers are an aggregate of highly confidential, commercially sensitive data provided by the IOUs.

Empire has completed several projects since 2005 that have either directly or indirectly reduced carbon emissions. Some examples include installation of gas temperature sensors at a coal-fired facility and 20-year wind contracts with windfarms located in Kansas. In addition to plant improvements, Empire has multiple demand-side energy efficiency programs not offered under MEEIA. According to its resource plan, Riverton units 7 and 8 have been converted from operation on coal to full operation on natural gas. The last coal was burned at Riverton in September 2012. An analysis of system losses indicated improved percentages in the amount of line losses on Empire's transmission and distribution system when compared to 2005. Empire estimates it has reduced its total metric tons of carbon by 5.5 percent since 2005.

KCP&L/GMO projects that reduce carbon emissions include the Wolf Creek nuclear generating station (located in Kansas), the Iatan Unit 2 generating facility, added wind generation through windfarm projects in Kansas, enhanced customer energy efficiency and refined coal projects. GMO has currently effective MEEIA programs and KCP&L has energy efficiency programs offered outside of MEEIA.

Not all IOU activities have been quantified to date as to the anticipated carbon reduction or associated cost of compliance, but some of the projects have reduced carbon by over 1.6 million metric tons at an estimated cost in excess of $700 million.

B. What Reductions Can Missouri's IOUs Achieve from Plants?

According to Ameren Missouri,[29] Meramec Units 1-4, which total approximately 833 MW, could be retired by 2020, but the integrated resource plan also recognizes that environmental regulations could speed up or delay the retirement.

By 2016, Empire plans a turbine retrofit at its Asbury plant[30] resulting in a 5.5 percent carbon reduction and conversion of Riverton Unit 12 from a simple cycle combustion turbine to a combined cycle unit[31] for a 24.5 percent reduction. These improvements will cost an estimated $185 to $195 million.[32]

KCP&L/GMO have planned retirements at Montrose 1 in 2016 and Montrose 2 & 3 in 2021.[33] In 2012, the Montrose Station's carbon production was approximately 2 million metric tons.[34] Sibley Units 1 and 2 are planned for retirement in 2023.[35] In 2012, the Sibley Units produced approximately 254,000 metric tons of carbon.[36]

[29] Ameren Missouri 2013 Integrated Resource Plan Annual Update Report, Non-proprietary Version, Page 12. Case No. EO-2013-0424. March 15, 2013.
[30] The Empire District Electric Company Integrated Resource Plan Volume 1, Non-proprietary Version. Page 14. Case No. EO-2013-0547. July 1, 2013.
[31] *Id*. at pages 16-17.
[32] *See* Appendix C
[33] Kansas City Power & Light Company Integrated Resource Plan 2013 Annual Update, Non-proprietary Version, pages 7-10. Case No. EO-2013-0537. June 20, 2013.
[34] *See* Appendix D
[35] KCP&L Greater Missouri Operations Company Integrated Resource Plan 2013 Annual Update, Non-proprietary version, pages 7-10. Case No. EO-2013-0538. June 20, 2013.
[36] *See* Appendix D

KCP&L/GMO may convert Lake Road Unit 4/6 from coal to natural gas for an estimated carbon per year reduction of 196,000 metric tons.[37]

KCP&L/GMO state that since carbon capture and sequestration for coal-based generation is not yet commercially viable, the only way for KCP&L/GMO to reduce carbon in any significant manner would be to reduce coal generation. For KCP&L/GMO to sufficiently reduce generation several coal plants would need to be retired. Others would have to run on reduced generation. The estimated net cost to comply through coal reduction would be approximately $92 million, absent any increase in wholesale market prices due to regional coal plant retirements.[38]

V. Conclusion

When it comes to energy, each state is unique; each with differing energy resources, resource planning processes, and energy efficiency programs. Each state is situated differently as to what action has been taken to reduce carbon emissions; some states have had programs targeted at reducing greenhouse gas emissions in place for several years, other states have programs just underway, while others may have none. It is important that the rules are crafted in a way that will allow each state, despite its differences, to develop and implement a plan that can meet targets. A feasible plan is mindful of cost and resource adequacy and should therefore give appropriate credit for actions already taken and underway to reduce greenhouse gas emissions.

[37] *Id.*
[38] *Id.*

MPUA
Missouri Public Utility Alliance

November 20, 2013

Ms. Natelle Dietrich
Director of Tariff, Safety, Economic, and Engineering Analysis
Missouri Public Service Commission
200 Madison Street, PO Box 360
Jefferson City, MO 65102-0360

Via Email to: natelle.dietrich@psc.mo.gov

Dear Ms. Dietrich:

Thank you for your email of November 14, 2013 enquiring about the preparation of municipal utilities to comply with President's Climate Action Plan. As you aware municipal utilities are locally regulated by their elected city councils or boards of aldermen (*Relevant Electric Retail Regulatory Authorities)*. These answers are provided in the form of general information and not as a specific legal response to the information request you sent. We are pleased to try to be helpful.

It is the position of Missouri's municipal utilities that section 111(d) authorizes the United States Environmental Protection Agency to only develop guidelines for certain classes for pollutants, not specific limits. This same position was recently voiced by Rebecca Weber, EPA Region 7 Director of the Air and Waste Management Division. Whether carbon dioxide alone or as part of a related group of substances generally referred to as greenhouse gases (GHG) meet the definition for regulation under section 111(d) is, and will continue to be, the subject of judicial challenges.

To date, EPA has not **published** New Source Performance Standards for future fossil fueled power plants in the Federal Register and only recently concluded listening sessions conducted around the nation, including in Lenexa, KS, to secure public input on proposed standards for existing power plants. Without a detailed regulatory matrix of requirements, processes and timelines it is difficult to predict impacts and responses.

Missouri's municipal utilities are closely monitoring the regulatory activity. The Missouri Public Utility Alliance (MPUA) along with some larger municipal utilities have been actively engaged in discussions with senior management at the Missouri Department of Natural Resources on regulatory features that need to be included. EPA Administrator Gina McCarthy, herself a former

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administrator, has publically said that the agency will be seeking advice on regulatory frameworks from state environmental agencies. Additionally MPUA provided verbal and written testimony at the November public listening session in Lenexa.

Missouri's municipal utilities have a proven record of responding to the priorities of their citizen owners and are including lower emission electric energy sources where they can be cost justified. Since 2005 MPUA and its member utilities have added a windfarm, two natural gas-fired combined heat and power facilities, one combined cycle natural gas plant, one landfill gas plant, and one solar powered facility with two additional units either under construction or under contract. Additionally the coal portion of our portfolio has shifted from older less efficient plants to a fleet of plants that are among the lowest emitting plants in the nation both for CO2 and all other regulated pollutants. All of these steps have been taken without statutory mandates at the federal or state level.

Additionally our larger utilities have demand response and energy efficiency programs. The City of Independence was recently recognized for starting a two year project to replace all of their conventional city street lights with LED lights significantly reducing power demands.

I hope this provides some background on the steps that municipalities are taking to respond to the evolving public interest in this field.

In the meantime, municipal officials and MPUA will carefully monitor development of proposed regulations on CO2 emission from existing power plants and craft their responses once concrete targets have been established by the State of Missouri.

Thank you for the opportunity to share our viewpoints. If there are any questions, please don't hesitate to contact me at fgilzow@mpu.org or by phone at 573-445-3279.

Sincere regards,

H. Floyd Gilzow
Vice President of Governmental and Environmental Regulations
Missouri Public Utility Alliance

Summary of Missouri 2012 RES Compliance Reports

Ameren Missouri RES Compliance[1]

- Keokuk Hydro-electric Generation Station
  - Located on the Mississippi River in Keokuk, Iowa
  - 15 separate generators
  - Nameplate ratings from 7.2 to 8.8 MWs
  - Generation output for CY 2012 was 754,125 MWhs
  - Retired 632,197 RECs to meet the non-solar RES requirements
- Pioneer Prairie Wind Farm I LLC
  - Located in Northeast Iowa
  - 15 year power purchase agreement
  - 102.3 MWs of nameplate generation from 62 turbines
  - Retired 88,023 RECs to meet the non-solar RES requirements
- Various PV solar technologies at the Ameren Missouri headquarters building
  - Located in St. Louis, Missouri
  - Approximately 104 kW generational output
  - Full generational output consumed at the headquarters building representing approximately 0.4 percent of the total electric consumption at the building.
- Maryland Heights Renewable Energy Center
  - Methane gas produced by the IESI Landfill in Maryland Heights, Missouri
  - 3 solar 4.9 MW Mercury 50 gas turbines produce electricity
  - Generational output for CY 2012 was 37,450 MWh
- Retired 14,698 S-RECs acquired from third party brokers[2]

The Empire District Electric Company[3]

- Elk River Windfarm, LLC (now owned by Iberdrola Renewables)
  - Located in Butler County, KS
  - 20-year contract
  - 150 MW energy generated
  - Annual generation estimated at approximately 550,000 MWhs
- Cloud County Windfarm, LLC (now owned by EDP Renewables North America, LLC)
  - Located in Cloud County, KS
  - 105 MW Phase 1 Meridian Way Wind Farm
  - Annual generation estimated at approximately 330,000 MWhs
- Ozark Beach Hydroelectric Project
  - Located in Taney County, Missouri
  - 4 generators with individual nameplate ratings of 4 MW each
  - Generated 57,806 MWh in 2012
  - Retired 64,381 RECs

[1] See: http://psc.mo.gov/Electric/Renewable_Energy_Standard_Compliance_Reports
[2] Includes S-RECs from Western Renewable Energy Generation Information System, Ameren customers, generation from the headquarters solar installations.
[3] See: http://psc.mo.gov/Electric/Renewable_Energy_Standard_Compliance_Reports

KCP&L Greater Missouri Operations Company[4]

- Gray County Wind Energy
  - Located in Montezuma, Kansas
  - Purchased power agreement
  - 157,698 MWh
- Ensign Wind
  - Located in Gray County, Kansas
  - 26,713 MWh
- St. Joseph Landfill Gas
  - Located in St. Joseph, Missouri
  - 3,000 MWh
- RECs and S-RECs
  - Retired 158,374 RECs retired to meet non-solar RES
  - Acquired 3,600 S-RECs from 3Degrees Group
  - Retired 3,232 S-RECs

Kansas City Power & Light Company[5]

- Spearville I Wind Farm
  - Located in Spearville, Kansas
  - 156,367 MWh
- Spearville II Wind Farm
  - Located in Spearville, Kansas
  - 81,904 MWh
- Paseo Solar
  - Located in Kansas City, Missouri
  - 95 MWh
- Spearville 3, LLC Wind Farm
  - Located in Spearville, Kansas
  - Purchased power agreement
  - 43,875 MWh
- Cimarron II Renewable Energy Company, LLC
  - Located in Gray County, Kansas
  - Purchased power agreement
  - 130,936 MWh
- RECs and S-RECs
  - Retired 168,182 RECs from Spearville I and II
  - Acquired 3,900 S-RECs from 3Degrees Group
  - Retired 3,433.5 S-RECs

[4] Id.
[5] Id.

The Empire District Electric Company, Inc.
Informal Discovery Response - Section 111(d) of the Clean Air Act

Informal Discovery – Section 111(d) of the Clean Air Act

Please clearly indicate when information is highly confidential so we treat the information accordingly.

Information included in this report may not be all-inclusive, and should be considered a work in progress. Specific data can be gathered as requested and verified with additional time.

1. President Obama's Climate Action Plan identifies 2005 as the baseline year to which America should reduce its greenhouse gas emission by 17% by 2020. Does the utility agree that 2005 should be the baseline year? If not, what year should be the appropriate baseline year for comparing/measuring CO2 emissions and reductions? Please explain.

This is a complex question that is difficult to answer. In other regulations (i.e., CSAPR and CAIR) the baseline was established using three years of historic emissions data. For PSD permitting the "look back" period to determine baseline emissions includes developing an average over multiple years to account for variability in operation. The approach for determining the baseline for CO2 emissions needs to include the highest historic CO2 levels possible in order to appropriately calculate true emission reductions. Regardless of the approach taken to determine baseline CO2 emissions it would be prudent for EPA to allow credit for projects that have had an impact on reducing CO2 emissions prior to the established baseline period as these reductions of CO2 are ongoing.

The baseline period should not be later than 2005.

2. Please explain the utility's understanding of how the 17% reduction in greenhouse gas emissions by 2020 is to be measured and the understanding used throughout your answers (i.e., regional, percentage by state, percentage by specific generating source, etc.)

There is a great deal of uncertainty about the best approach to measure reductions. It is a very complex issue and becomes even more complex when one considers regional transmission organizations (RTO) and next day markets where dispatching for each electric generating unit (EGU) will be done by the respective RTO. For Empire, this new market is expected to go-live in 2014. Due to this major change in how EGUs will be dispatched the EPA should delay developing its CO2 regulation for existing units until after the next day market program has been in effect for a period of time.

In addition, conversations with EPA indicate 17% is the target for the nation, not solely the responsibility of the utilities. The reductions will impact other departments such as DOT, USDA and Department of the Interior. It is important that the solution for the reductions of one sector, such as electric vehicles for the DOT, does not become the responsibility of another sector.

Although the initial reduction will be a certain percentage for the utility sector, there must be concession within the regulation to allow for annual load growth. EPA should not implement a rule that could penalize communities for economic growth and progress.

Some mechanism must be included in the final regulation to allow credit for a company's fleet-wide CO2 reductions that take place across state lines, i.e. reductions at the Asbury plant are in Missouri, and

reductions at the Riverton plant are in Kansas. The overall CO2 burden reduction for Empire should transcend state boundaries. As a result, emission requirements should be set by fleet average or some other means versus an individual unit. This would not only transcend state lines but also effectively integrate renewable energy and other efficiency gains as GHG solutions.

3. What specifically has the utility done from 2005 to date to reduce CO2 emissions? Please provide the costs associated with the measures with any and all supporting documentation, including but not limited to workpapers.

Empire has completed several projects since 2005 that have resulted in either direct or indirect reductions of CO2 emissions. These projects range from the installation of gas temperature sensors at a coal-fired facility to the execution of 20-year contracts for wind energy. In total, the costs associated with these projects are in excess of $165M. This number does not include plant improvements at our jointly-owned Iatan Power Station (see KCPL response) that include a complete turbine retrofit. .

In addition to plant improvements, Empire has multiple demand-side energy efficiency programs available to its customers in each state it serves. Also, a summary of Empire's latest "Analysis for System Losses" report indicates each year has shown improved percentages in the amount of line losses on Empire's transmission and distribution system when compared to 2005.

4. What amount of CO2 reduction has the utility realized from the actions taken in number 3 above? How was the amount of reduction determined? Please provide any and all documentation that supports the calculation, including by not limited to workpapers.

Since 2005 Empire has reduced its total tons of CO2 by 6%. More accurately, Empire's CO2 intensity (CO2lbs/KWh) has decreased by a total of 18 %. The amount of CO2 reduction gained by Empire's wind purchase power agreements and hydro generation are obvious when the CO2 intensity is considered.

5. By plant or generating source, what is the utility's CO2 emission today?

		EDE CO2 by Source tons CO2							
Year	Asbury	Riverton	Energy Center	State Line 60%	Iatan 12%	Plum Point 7.52%	Plum Point PPA	Spot Purchase	TOTAL
2012	1,447,182.2	289,070.5	57183.9	522265.12	1465288.4	371,797.7	278,758.8	233,591.54	4,665,138.2

Empire's 2012 CO2 emission profile is shown above from generation and purchased power.

6. What actions is the utility planning on taking to further reduce CO2 emissions?

Empire will implement two major efficiency projects by mid-2016 that will greatly reduce CO2 emissions in the future. These projects include a turbine retrofit at the Asbury facility and the conversion at Riverton unit 12 from a simple cycle combustion turbine to a combined cycle unit. These improvements will cost an estimated $185 to $195M.

7. What is the utility's anticipated CO2 reduction from the actions identified in number 6 above? Please provide any and all documentation that supports the calculation, including but not limited to workpapers.

Empire estimates the turbine retrofit project at Asbury will reduce CO2 emission rate (lbs/Gross MWh) by 6% and the conversion to combined cycle at Riverton to reduce CO2 emission rate (lbs/Gross MWh) by an additional 27%.

8. If available, please provide the incremental costs the utility anticipates will be necessary to spend per source for each percentage of CO2 emissions reduced up to 17% below the 2005 emission level. Please provide any and all documentation that supports the calculation, including but not limited to workpapers. If the Company has partial data up to a certain percentage, please provide what is available.

We are unable to develop this number in the time allowed, but will provide as required

9. If possible, please quantify, by facility, CO2 emissions produced by the utility's combustion of biomass.

No information available. EDE does not combust biomass.

10. Besides installing emissions controls, using renewable energy sources or increasing demand side management, has the utility considered any other non-traditional programs to achieve credit for emission reductions (i.e., planting trees, purchasing equipment for Concentrated Animal Feeding Operations (CAFOs) to reduce methane emissions for reduction credits, etc.)

2005 – 2010, Empire participated in the Rio Bravo climate action program reforestation project in Belize.

2011-current, Empire participated in activities before and after the Joplin tornado which resulted in a concentrated tree-planting reforestation effort in the community.

Beginning in 2011, Empire partnered with other MO utilities in the Shallow Carbon Sequestration Demonstration project.

Empire has explored multiple biomass fuel options (solid-waste fuel pellets, torrified wood , nut shells, treated wood waste, etc.) and several technology options for CO2 utilization, but none have proven to be economically feasible under current conditions.

Kansas City Power & Light and KCP&L Greater Missouri Operations Informal Discovery Response - Section 111(d) of the Clean Air Act

Please clearly indicate when information is highly confidential so we treat the information accordingly.

1. President Obama's Climate Action Plan identifies 2005 as the baseline year to which America should reduce its greenhouse gas emission by 17% by 2020. Does the utility agree that 2005 should be the baseline year? If not, what year should be the appropriate baseline year for comparing/measuring CO2 emissions and reductions? Please explain.

Response: *KCP&L and KCP&L GMO continue to review this matter and are not ready to provide a baseline recommendation. The Companies believe that state plans, and the EPA guidelines, should allow for the recognition of actions taken prior to implementation of the existing source greenhouse gas (GHG) standard. In addition, a longer baseline period (three or four years) may be sought.*

KCP&L and KCP&L GMO believe that credit should be received for changes in the composition of our generating fleets and other actions taken before the existing source GHG standards are finalized that have the effect of reducing GHG emissions associated with providing electric service (e.g., plant retirements and repowerings, investments in zero-emitting generation such as nuclear uprates, investments to comply with state renewable energy standards or to improve heat rates, etc.). In particular, EPA should ensure that its approach to best system of emission reduction allows states to include early emissions reductions activities in compliance plans.

To further complicate the recommendation, the baseline selection is also impacted by the standard of compliance. KCP&L and KCP&L GMO believe that EPA should allow states to convert a rate-based (lbs CO2/MWh) standard to a mass-based (annual tons of CO2) standard, or vice-versa, but not mandate either one. In addition, states should be allowed to consider alternatives to either a rate or mass standard which could include a technology or efficiency standard.

2. Please explain the utility's understanding of how the 17% reduction in greenhouse gas emissions by 2020 is to be measured and the understanding used throughout your answers (i.e., regional, percentage by state, percentage by specific generating source, etc.)

Response: *A representative from KCP&L and KCP&L GMO has recently met with officials from EPA Region VII on two occasions in Missouri and Kansas and asked that question. The EPA officials in attendance were unable to answer the question but requested our input. We provided the following initial response. The President's Climate Action Plan set a U.S. GHG emissions reduction goal of 17 percent below 2005 emissions by 2020. Under the Clean Air Act, this goal cannot be the technical basis for emissions guidelines. This goal, however, may be informative of EPA's thinking with respect to existing source performance standards. The Companies believe*

that the power sector should not have to make more than its equitable share of economy-wide reductions. The Companies believe that GHG reductions achieved to date should be recognized in the rule.

3. What specifically has the utility done from 2005 to date to reduce CO2 emissions? Please provide the costs associated with the measures with any and all supporting documentation, including but not limited to workpapers.

Response: *In addition to continuing to participate in the operation of Wolf Creek Generating Station which does not emit CO2 from its generation, KCP&L and KCP&L GMO have:*

- Constructed and operate the high efficiency Iatan Unit 2 generating facility
- Added wind generation
- Enhanced customer energy efficiency

The costs associated with these measures are included in Table 1.

4. What amount of CO2 reduction has the utility realized from the actions taken in number 3 above? How was the amount of reduction determined? Please provide any and all documentation that supports the calculation, including by not limited to workpapers.

Response: *Please see attached Table 2.*

5. By plant or generating source, what is the utility's CO2 emission today?

Response: *Please see attached Table 3.*

6. What actions is the utility planning on taking to further reduce CO2 emissions?

Response: *Per the KCP&L and GMO 2013 Annual IRP Updates, over the next several years the companies may retire Montrose Station (Units 1, 2 and 3) along with Sibley Units 1 & 2. The IRP Update indicates the following retirement dates:*

Montrose 1:	*2016*
Montrose 2 and 3:	*2021*
Sibley 1 & 2:	*2023*

Lake Road Unit 4/6 may be converted from coal to natural gas.

Additional wind energy resources and DSM actions are planned, however this would not significantly reduce KCP&L and GMO CO2 production as coal generation levels would remain generally unchanged.

7. What is the utility's anticipated CO2 reduction from the actions identified in number 6 above? Please provide any and all documentation that supports the calculation, including but not limited to workpapers.

Response: *For 2012, the Montrose Station CO_2 production was approximately 2.2 million tons. Sibley Units 1 & 2 produced approximately 280,000 tons. If the CO2 emission rate of Lake Road 4/6 were cut in half due to the conversion to natural gas, an additional 216,000 tons reduction per year would be achieved.*

8. If available, please provide the incremental costs the utility anticipates will be necessary to spend per source for each percentage of CO2 emissions reduced up to 17% below the 2005 emission level. Please provide any and all documentation that supports the calculation, including but not limited to workpapers. If the Company has partial data up to a certain percentage, please provide what is available.

Response: *Given that carbon capture and sequestration for coal-based generation is not yet commercially viable, the only way to reduce CO2 in any significant quantity is to reduce coal generation.*

For KCP&L and GMO to reduce generation in sufficient quantity to meet a 17% reduction target, several coal plants would be retired. These include Montrose 1, 2 and 3, Sibley 1 and 2 and Lake Road Unit 4/6. In addition LaCygne 1 would only run during three summer months and Sibley 3 would reduce generation during the spring and fall season.

Below is the approximate annual cost for GPE customers:

Annual Production Cost Increase:	*$46.7 million (fuel, purchased power, off-system sales)*
Replacement Capacity Cost (579 MW):	*$53.1 million (annual carrying costs)*
New Capacity Firm Gas Service (579 MW):	*$28.1 million (annual costs)*
Total Cost Increase:	*$127.9 million*
Retired Plant O&M Savings:	*$36.0 million*
Net Cost Increase:	*$91.9 million*

Please note these costs do not include any impact from higher wholesale market prices (and associated impact on purchased power costs) due to regional coal plant retirements.

9. If possible, please quantify, by facility, CO2 emissions produced by the utility's combustion of biomass.

Response: *KCP&L and KCP&L GMO do not combust any biomass in their electricity generating units.*

10. Besides installing emissions controls, using renewable energy sources or increasing demand side management, has the utility considered any other non-traditional programs to achieve credit for emission reductions (i.e., planting trees, purchasing equipment for Concentrated Animal Feeding Operations (CAFOs) to reduce methane emissions for reduction credits, etc.)

Response: *No significant additional emission reductions are currently planned beyond increased renewable generation, DSM activities and potential coal plant retirements.*