Exhibit No.:	
Issues:	Environmental Cost Recovery Mechanism; Additional Training Dollars
Witness:	Mark C. Birk
Sponsoring Party:	Union Electric Co.
Type of Exhibit:	Direct Testimony
Case No.:	ER-2010-_____
Date Testimony Prepared:	July 24, 2009

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2010-_____

DIRECT TESTIMONY

OF

MARK C. BIRK

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

****DENOTES HIGHLY CONFIDENTIAL INFORMATION****

St. Louis, Missouri
July, 2009

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DIRECT TESTIMONY

OF

MARK C. BIRK

CASE NO. ER-2010-_____

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Mark C. Birk. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri.

Q. By whom and in what capacity are you employed?

A. I am employed by Union Electric Company d/b/a AmerenUE ("Company" or "AmerenUE") as Vice President of Power Operations.

Q. Please describe your educational background and employment experience.

A. I received my B.S.E.E. from the University of Missouri-Rolla in 1986 and my M.S.E.E. from the same institution in 1991. In 2009, I also received an MBA from Washington University in St. Louis. I am a licensed professional engineer in the State of Missouri. I began my employment with Union Electric Company in 1986 as an assistant engineer in the nuclear function. In 1989, I transferred to Union Electric's Meramec Power Plant as an electrical engineer. In 1996, I transferred to the Energy Supply Operations Group and became a Power Supply Supervisor. I became Manager of Energy Supply Operations in the spring of 2000. I became General Manager of Energy Delivery Technical Services in the fall of 2001 and Vice President of that department in 2002. I became Vice President of Ameren Energy, Inc., Ameren Corporation's short-term trading

affiliate, in the fall of 2003 and assumed my current position with AmerenUE as Vice President of Power Operations in September of 2004.

Q. Please summarize your duties and responsibilities as Vice President of Power Operations for AmerenUE.

A. I am responsible for all of the generation assets of AmerenUE, except the Callaway Nuclear Plant, which is within the responsibility of Adam C. Heflin. In addition to being chief safety officer for AmerenUE's non-nuclear generation fleet, I am also responsible for the safe, reliable and efficient operation of the plants, environmental compliance at the plants, and the design, construction management and implementation of all plant-related projects.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my testimony is to sponsor the environmental cost recovery mechanism ("ECRM") filed as a part of this rate case and to sponsor the minimum filing requirements prescribed by the Commission's ECRM rules. A specimen of the ECRM tariff filed by the Company in this case is attached hereto as Schedule MCB-E1.

In addition, my testimony will provide an update on how the Company is using the additional training dollars included by the Commission in the revenue requirement established in the last rate case.

III. BACKGROUND OF ECRMs IN MISSOURI

Q. How did the Company's request to implement an ECRM arise?

A. In 2005, the Missouri Legislature enacted legislation commonly referred to as Senate Bill ("S.B.") 179. In addition to authorizing fuel adjustment clauses, S.B. 179 also authorized rate adjustment mechanisms that allow rate adjustments outside of general rate cases for changes in environmental costs. An ECRM is such a mechanism. Now that the Commission's ECRM rules are in place,[1] and given AmerenUE's need for an ECRM as I discuss in more detail below, the Company is seeking to implement an ECRM in this case.

IV. OVERVIEW OF THE PROPOSED ECRM

Q. What is the purpose of the proposed ECRM?

A. The purpose of the proposed ECRM is to allow recovery of environmental costs (both capital costs and operations and maintenance ("O&M") expenses) arising from compliance with applicable environmental laws and regulations (collectively "environmental laws") and provide this recovery in a more timely manner than is allowed through traditional rate cases. Costs eligible for recovery through an ECRM include costs associated with projects to comply with air quality, water quality, solid waste and other environmental laws. The direct testimony of AmerenUE witness Gary S. Weiss contains a detailed discussion of the mechanics and administration of the proposed ECRM mechanism.

Q. Is AmerenUE submitting the minimum filing requirements required by the Commission's ECRM rules?

[1] The Commission's Orders of Rulemaking were published in the *Missouri Register* on July 1, 2009, and the rules will subsequently be published in the *Code of State Regulations*, to take effect 30 days thereafter.

A. Yes. Schedule MCB-E2 attached to this testimony contains information that complies with the Minimum Filing Requirements or "MFRs" outlined in the Commission's ECRM rules.

Q. What environmental costs is AmerenUE including in its ECRM?

A. Stated in general terms, AmerenUE's proposed ECRM includes capital and O&M costs for projects and operations directly related to compliance with environmental laws. These environmental laws and the forecasted expenditures to comply with them in the coming four- and twenty-year periods are detailed in AmerenUE's 2009 Environmental Compliance Plan ("ECP"), which is attached to this testimony as Schedule MCB-E3. (Submission of the ECP complies with one of the MFRs for an ECRM, as noted in Schedule MCB-E2.) The current estimated expenditures for the upcoming four-year period are approximately $**___** million in capital expenditures and $**__** million in O&M expenditures. Estimates for the upcoming 20-year period are approximately $**____** billion in capital expenditures and $**____** billion in O&M costs. I would note that the costs reflected in the ECP do not include costs that would be associated with carbon limits that may be imposed as a part of climate change legislation currently under consideration in Washington, D.C. We would expect these costs to increase substantially if such carbon legislation is adopted.

Q. Has the Company provided more specific information regarding the costs that would be included in the ECP?

A. Yes. Items (F) to (J) of the MFRs (Schedule MCB-E2) contain an account-by-account listing of environmental costs and revenues we propose for inclusion in the ECRM.

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V. NEED FOR THE ECRM MECHANISM

Q. Why is AmerenUE requesting approval of an ECRM?

A. Expenditures related to environmental compliance produce no revenues for the Company because they do not allow the Company to produce or deliver additional power to customers. However, these types of expenditures require substantial sums of cash.[2] For example, the Company is currently constructing two wet flue gas desulphurization units (wet "FGD" unit, commonly called a "scrubber") at the Sioux Plant at a cost expected to total approximately $**___** million. However, it is unlikely the Company can perfectly time a rate case to begin recovering the capital costs associated with the scrubbers at the time they go into service. This means that there will likely be a lag between the in-service date (when AFUDC[3] is traditionally no longer accrued on the Company's books) and the time when those capital costs (the Company's authorized return, depreciation and taxes associated with the project) can be recovered in rates. Without an ECRM, the regulatory lag associated with the traditional rate case process and the need to fund these kind of expenditures up-front undermines the Company's opportunity to earn a fair return on equity and harms the Company's cash flows. Indeed, in the case of a project like the Sioux scrubbers, the earnings and cash flow shortfalls total millions of dollars per month for every month between when an item of that size goes into service and when new rates can be put into place through the traditional rate case process to recover its cost. Not only does this inhibit the Company from earning its allowed return, but it also increases the Company's need to borrow funds, which ultimately results in higher costs to ratepayers.

[2] In fact, as discussed below, environmental compliance projects often reduce generating plant output.
[3] "AFUDC" stands for "allowance for funds used during construction."

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Q. Please elaborate.

A. The tight credit markets in which we are now operating have forced the Company to take the prudent step of deferring capital projects that had been planned for 2009, including major unit overhauls at the Rush Island, Labadie and Meramec Plants, totaling approximately $73 million. In fact, approximately $117 million of deferrals (both capital and O&M) at our power plants were necessitated by concerns and challenges over our ability to access the capital markets, as well as due to the significantly higher borrowing costs. The issues related to the cost of borrowing are discussed in the direct testimony of AmerenUE witness Lee R. Nickloy.

Q. How does the proposed ECRM help address these problems?

A. As I noted earlier, the proposed ECRM allows more timely recovery of environmental expenditures. This increases the Company's internal cash flows, which in turn decreases the need for external borrowings (i.e., decreases the need to borrow more money at a high cost that ultimately gets passed on to ratepayers). This then decreases the level of the Company's outstanding debt and reduces interest expense. Moreover, while I am not a credit ratings expert, as Mr. Nickloy discusses, it is my understanding that this improves the cash flow metrics that credit ratings agencies consider as part of their determination of the Company's credit rating. As I noted earlier, and as Mr. Nickloy also discusses, better credit rating metrics can substantially lower the cost of the Company's debt to the ultimate benefit of customers. These factors can have a positive ripple effect. The more timely cash flows that would be provided by the proposed ECRM would reduce the Company's need to borrow and/or improve its access to the capital markets on more favorable terms. An ECRM also improves the Company's opportunity

to earn a fair return on equity by providing earnings on projects that are placed in service, but which cannot be timely included in rate base through the traditional rate case process. It is my understanding that this is one key criterion for implementing an ECRM, as provided for in S.B. 179.

VI. ENVIRONMENTAL EXPENDITURES

Q. Please describe AmerenUE's environmental planning and its relationship to the expenditures that AmerenUE must make to comply with applicable environmental laws.

A. AmerenUE has developed a formal ECP that provides an overview of the compliance process, an overview of environmental laws and possible changes to those laws. The initial steps the Company takes to comply with environmental laws include identifying potential regulations before they are promulgated to ensure that the Company can remain in compliance as environmental requirements change. Early identification allows the Company to assess options available for compliance, conduct research into available compliance technologies, collect data and begin planning for potential future financial, labor, technical and consulting needs. The Company uses both internal and external resources to facilitate this process, including consultants and AmerenUE and Ameren Services Company personnel. An example of this type of evaluation would be a conceptual engineering study currently in progress for the Rush Island Plant. While the current ECP does not call for the installation of FGD or selective catalytic reduction ("SCR") equipment at the Rush Island Plant, conceptual studies to put the Company in the position to remain in compliance with potential future SO_2, NOx and mercury

regulations are in process, as outlined in the alternative compliance strategy contained in the ECP.

Q. Can you provide examples of potential changes in environmental laws that could impact the Company's operations?

A. The ECP divides environmental laws into four major categories—Air, Water, Solid Waste and Other. Of the group, the largest impact expected in the near term (the next four years) is related to air and water quality. Air and water quality expenditures are also expected to be very significant over the next 20 years, as are solid waste expenditures.

Examples of changes to air quality regulations that will or could very well occur include an updated Clean Air Interstate Rule ("CAIR"), a rewrite of the recently vacated Clean Air Mercury Rule ("CAMR") and climate regulation currently being debated in Congress. Water regulations that have the largest potential future impact are Sections 316a and 316b of the federal Clean Water Act, which are expected to require changes in our river intake and discharge facilities to reduce thermal impacts and fish entrainment or impingement. Thermal impacts are of particular concern at the Labadie Plant, where we have initial cost estimates of nearly $**___** million to construct cooling towers to meet potential water quality requirements.

Q. How would you characterize the environmental laws AmerenUE must follow?

A. I would characterize environmental laws as uncertain, changing and becoming stricter in nature. As an example, I would point to the recently vacated CAMR. Originally promulgated in May 2005, the CAMR was a cap and trade rule

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intended to reduce mercury emissions from coal-fired power plants. The CAMR required significant reductions of mercury, with the first phase beginning in 2010 and a second phase beginning in 2018. AmerenUE's strategy was to control mercury emissions and achieve compliance by installing various control technologies at our plants in an effort to minimize capital and O&M costs. The CAMR was vacated by the federal courts in 2008. As a result of the vacature, there are currently no mercury rules in place for AmerenUE's coal-fired units, but it is expected that new (and probably more stringent) mercury requirements will be approved.

Projects to comply with the original CAMR were two-fold, first to install mercury monitors, and second, to install control technology. We have elected to continue portions of the mercury monitor projects that were in progress to gain additional baseline data as well as to gain experience with the technology. This will allow us to more effectively and economically control mercury at our plants, and this control will almost certainly be required in the near-term. The installation of actual mercury control equipment was deferred pending the development of new rules, anticipated to be issued by the United States Environmental Protection Agency ("USEPA") by 2011. New mercury rules are expected to require the installation of Maximum Achievable Control Technology ("MACT") and are expected to include mercury and other hazardous air pollutants, including arsenic, hydrogen fluoride, hydrogen chloride and other pollutants that were not included in the now-vacated CAMR. If these more stringent requirements do arise, which is likely, the Company's previous compliance strategy (that was designed to comply with the now-vacated CAMR) will have to be modified as it would not have achieved the reductions necessary under a MACT standard. In fact, we expect that

control equipment for mercury and the other pollutants I discussed above will be necessary on all coal-fired units.

A second example relates to SO_2 and NOx limits. The CAIR rule, issued in 2005, was remanded back to the USEPA in 2008 by the same D.C. Court of Appeals that vacated the CAMR rule. A key difference in the court's approach is that it requires the emission targets contained in the remanded CAIR rule to be met while the rules are being revised. It is uncertain at this time what level of controls will ultimately be required, although our expectation is that the revised rules will be more restrictive than the remanded version. There also exists substantial uncertainty regarding how the new rules would be structured and if a cap and trade system will be allowed. These uncertainties affect our environmental compliance strategy significantly, and are discussed further in the ECP.

Q. How will mercury control requirements impact AmerenUE's costs?

A. A MACT mercury rule will have significant impacts on AmerenUE, primarily by increasing O&M expenditures. Capital costs for mercury control projects are estimated to range from $**_** million to $**_** million per unit depending on the size, fuel and configuration. To illustrate the magnitude of O&M impacts, I will discuss some of the costs detailed in the ECP. Mercury control at the Labadie Plant is projected to add nearly $**__** million annually for procurement and use of activated carbon, compared to average annual total O&M expenditures at Labadie of $**__** million for the years 2005 – 2009 (expressed in constant 2009 dollars). This is a significant step change in operating costs for the Labadie Plant. Higher annual O&M costs for Activated Carbon Injection ("ACI") materials are also projected for the Rush Island Plant ($**__**

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million) and the Meramec Plant ($**_** million). Costs for mercury compliance at the Sioux Plant will be lower as the wet FGD currently under construction will provide some co-benefit removal of mercury, along with SO_2 removal.

In addition to the costs for the ACI, existing revenue streams from the sale of fly ash will be lost because ACI contaminates the ash and prevents its sale as a cement substitute. The net result will be a loss of a revenue source from fly ash sales and added costs for ash disposal. Disposal of ash is being further complicated by limited ash pond capacities currently available as well as the likely adoption of new stricter regulations due to the failure of an ash pond dike at the Tennessee Valley Authority's Kingston Plant.

In summary, the higher O&M costs related to mercury control will be a significant step increase in environmental expenditures at the Company's generating units. This is but one example of the additional cash needs that will be required and that, in the absence of an ECRM, would increase borrowings and borrowing costs at AmerenUE, as noted earlier.

Q. You talked specifically about the impact of changes in mercury control regulations. How will a revised CAIR rule impact AmerenUE's compliance plans, its environmental compliance costs and its cash needs?

A. The CAIR rules apply to NOx and SO_2, and are already impacting AmerenUE's NOx control costs. CAIR rules required NOx reductions in 2009 and these are being achieved primarily through fleet-wide use of low-NOx burners, over-fire air, Pegasus neural net controls and Rich Reagent Injection/Selective Non-Catalytic Reduction technology at the Sioux Plant. Cost impacts are primarily O&M for the use of urea reagent at the Sioux Plant, and we expect those costs to increase an additional

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$**_** million for 2009 over 2008 levels. SO_2 reductions are required by the now-remanded CAIR (with which we must comply per the court's order, as noted earlier) in 2010. Our strategy for SO_2 compliance is to complete the wet FGD system at the Sioux Plant and utilize our SO_2 emissions allowance bank for compliance at our other units. At present, we have no plans to add scrubbers beyond the Sioux Plant, although a preliminary engineering study has been started for the Rush Island Plant based on the uncertainty of future regulations. While not yet certain, there is good reason to believe that the revised CAIR rule will require more restrictive limits and timetables in comparison to the original CAIR rule, and it is uncertain if a cap and trade regime will remain or if a command and control rule will be adopted. The latter would require significantly higher expenditures and is presented as an alternative compliance plan in the ECP.

To summarize, we are incurring costs now for the CAIR rule, primarily for NOx control, and are awaiting further information from the USEPA on the requirements that will ultimately arise from the revised CAIR rule that is required by the court's prior ruling.

Q. Does AmerenUE have the option not to comply with these rules?

A. No. AmerenUE does not have the option not to comply. Rather, it must comply with these mandated environmental requirements.

Q. Will environmental controls produce any revenue for AmerenUE?

A. No. As noted earlier, all environmental controls are non-revenue generating because they do not allow the Company to produce or deliver additional power to customers. In fact, the technologies used for air and water compliance actually

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reduce revenue due to the higher auxiliary power requirements to operate them. If FGD or SCR systems were required at the Rush Island and/or Labadie Plants, reductions in net capacity at those plants would also be expected. Another example of lost revenues is the spoiling of fly ash which renders it unsuitable as a substitute for cement due to the use of ACI to control mercury. The result will be a loss of a revenue stream of over $3 million per year of lost fly ash sales for the Rush Island and Labadie Plants combined, as well as a need to spend additional O&M dollars for ash disposal. The higher auxiliary power requirements and lost revenues will further decrease cash flows, and an ECRM mechanism will help mitigate this impact, as addressed earlier.

Q. Can you provide examples of how future environmental costs will impact O&M expenditures and why an ECRM will mitigate the cash flow impacts of having to make those expenditures?

A. Yes, the best example I can provide is what the impact of a MACT mercury rule would be. Our current projections for mercury control are incremental expenditures of approximately $**_____** million annually for the years 2014 through 2028. It is my understanding that a $**__** million increase in O&M expenditures roughly approximates to nearly a **___** basis point reduction in AmerenUE's return on equity, which demonstrates just how significant this one potential increase in O&M costs would be. Looked at another way, a step change in O&M of this magnitude would equate to approximately the maintenance cost of 3 fossil unit major overhauls per year. Our proposed ECRM would prevent this kind of significant earnings deterioration, and by allowing much faster recovery of mandated costs, the ECRM will provide cash that can be used to reduce future borrowings.

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Q. Are there other significant environmental costs facing AmerenUE?

A. AmerenUE's other largest potential environmental cost in the future is the cost of carbon reductions, as is likely to be required to address climate change, due to our high reliance on coal-fired generation. Regulations, passed by either Congress or the USEPA, have high potential to impact our operating costs in a very substantial way, for example, if we are required to purchase carbon credits for a cap and trade regime.

Q. Please summarize the basis for the Company's request for an ECRM.

A. The Company is currently incurring substantial environmental costs, including expenditures for the Sioux scrubbers, and must fund those costs up-front. These expenditures do not allow increased generation or delivery of energy, and in fact, operation of new environmental equipment often decreases plant output and reduces revenues. Reliance on traditional rate cases will not allow timely recovery of these mandated environmental costs, which will prevent the Company from having a reasonable opportunity to earn its allowed return on equity. An ECRM is by its very nature intended to provide a sufficient opportunity for the utility to earn a reasonable return on equity. Moreover, lack of an ECRM forces the Company to rely more on higher-cost (ultimately to ratepayers) external borrowings, both to fund environmental expenditures like the Sioux scrubbers until it can be reflected in rates, and to provide cash needed for other worthwhile expenditures. An ECRM will help reduce the need to rely on these higher-cost borrowings.

VII. ADDITIONAL TRAINING DOLLARS

Q. What are the "additional training dollars" discussed in this section of your testimony?

A. As discussed at pages 111 to 112 of the Commission's Report and Order in the Company's last rate case,[4] the Commission added $1.41 million to the Company's revenue requirement to fund increased training staff, and an additional $360,000 annually ($1.8 million amortized over five years) for additional capital investment in equipment and other items relating to improving training to replace skilled workers at AmerenUE. In total, this results in an addition of $1.77 million to the Company's annual revenue requirement.

Q. Please provide an update on the use of these additional funds.

A. The additional funds were reflected in the Company's rates on March 1st of this year. AmerenUE Power Operations has added staff and opened a new training center in June of this year. We are appreciative of the Commission's efforts in this area and believe the additional training dollars will bring benefits to our operating plants and our customers. At present, AmerenUE has added 8 new training supervisor positions to our staff. Our first training classes in the new facility began June 1st, and we expect the training center to be operating at 90% capacity by August 1st. At this time, over 200 classes have been scheduled by the end of 2009. We are also working with The International Union of Operating Engineers Local 148 to identify potential Instructor Aides. By February 2010, we anticipate reaching an annual level of non-capital expenditures that total the $1.41 million that was provided for training staff, and we also anticipate spending the first capital installment ($360,000) by then as well. Capital expenditures, some of which have been made, will include training equipment, aids and material, an HVAC/Refrigeration Trainer, a Rankine Cycle Generator, a milling machine,

[4] Case No. ER-2008-0318

a VFD Coal Handling Demonstrator, a Transformer/Rectifier set, Gear Demonstrators, a M/G Dynamometer and numerous other training mockups, aids and supplies.

Q. Is it possible you will not have spent all of the funds collected during the first 12 months (through February 2010) by the end of February 2010?

A. That is possible, because it was necessary for us to identify and purchase equipment and to ramp-up to full staffing for new classes once the funds were awarded by the Commission starting back in March.

Q. How will any shortfall in spending be handled?

A. If a shortfall does exist, the Company will track the difference between the $1.77 million available for the March 1, 2009 to February 1, 2010 period and will record any such shortfall as a regulatory liability. The Company's intent would be to spend additional dollars for training in the 12-month period starting on March 1, 2010 to make-up for any shortfall occurring during the first 12 month period of the program due to the initial ramp-up I described earlier, which would eliminate that regulatory liability by February 28, 2012.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case No. ER-2010-

AFFIDAVIT OF MARK C. BIRK

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Mark C. Birk, being first duly sworn on his oath, states:

1. My name is Mark C. Birk. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a AmerenUE as Vice President, Power Operations.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 16 pages, Schedules MCB-E1 through MCB-E3, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Mark C. Birk

Subscribed and sworn to before me this 24th day of July, 2009.

Amanda Tesdall
Notary Public

My commission expires:

Amanda Tesdall - Notary Public
Notary Seal, State of
Missouri - St. Louis County
Commission #07158967
My Commission Expires 7/29/2011

*RIDER ECRM
ENVIRONMENTAL COST RECOVERY MECHANISM

APPLICABILITY

This Rider is applicable to kilowatt-hours (kWh) of energy supplied to customers served by the Company under Service Classification Nos. 1(M), 2(M), 3(M), 4(M), 5(M), 6(M), 7(M), 8(M), 11(M), and 12(M).

Costs passed through this Environmental Cost Recovery Mechanism (ECRM) reflect differences between the actual environmental revenue requirement (factor ERR, as defined below) and the base environmental revenue requirement (factor ERRB, as defined below), calculated and recovered as provided for herein.

For the purpose of this ECRM, the Accumulation Periods, Filing Dates, and Recovery Periods for adjustments to the Company's ECRM are set forth in the following table:

Accumulation Period (AP)	Filing Date	Recovery Period (RP)
February through May	By August 1	October through September
June through January	By April 1	June through May

Accumulation Period (AP) means the historical calendar months during which environmental costs are incurred. The initial Accumulation Period shall begin on the date this Rider becomes effective and ends on the last day of January 2011. The subsequent Accumulation Periods shall be from February through May and from June through January of each succeeding year. Each subsequent Accumulation Period shall begin immediately following the end of the previous Accumulation Period.

Recovery Period (RP) means the billing months during which the difference between the actual environmental revenue requirement (factor ERR, defined below) during an Accumulation Period and the base environmental revenue requirement (factor ERRB, defined below) is applied to and reflected through retail customer billings on a per kWh basis, as adjusted for service voltage level. Each Recovery Period shall be the twelve (12) month period beginning on the first day of the month following two (2) months after the Filing Date.

The Company will make an Environmental Cost Adjustment (ECA) filing by each Filing Date, which shall be not more than two (2) months after the end of the applicable Accumulation Period as shown in the above table. The new ECA rates for which the filing is made will be applicable starting with the Recovery Period that begins following the Filing Date. All ECRM adjustment filings shall be accompanied by detailed work papers supporting the filing in an electronic format.

ECA DETERMINATION

The difference between the actual environmental revenue requirement and the base environmental revenue requirement shall be reflected as an ECA_C credit

* Indicates Addition.

***RIDER ECRM**
ENVIRONMENTAL COST RECOVERY MECHANISM (CONT'D)

or debit, stated as a separate line item on the customer's bill, and will be calculated according to the formulas below.

Any adjustment made to the applicable ECRM rate (ECA_C) shall not generate an annual amount of revenue that exceeds two and one-half percent (2.5%) of the Company's annual Missouri gross jurisdictional base rate retail revenues established in the most recent general rate proceeding. The Company shall also be able to collect any applicable gross receipts taxes, sales taxes, and other similar pass-through taxes on ECRM billing amounts and such taxes shall not be counted against the 2.5% rate adjustment cap. Any amounts not recovered by the Company under this Rider ECRM as a result of this 2.5% limitation on rate adjustments will be deferred, at a carrying cost each month equal to the Company's net of tax cost of capital (i.e., the return on rate base, or return on capital, as allowed by the Missouri Public Service Commission (Commission) in the most recent general rate proceeding), to be recovered in a subsequent Recovery Period or in the Company's next general rate proceeding if not fully recovered in a subsequent Recovery Period.

The Recovery Period rate component to reflect differences (increases or decreases) in the actual environmental revenue requirement and the environmental revenue requirement collected in retail rates during the recently-completed Accumulation Period is calculated as:

$$ECA_{(RP)} = [ERR - ((ERRB+ECA_{(B-1)}) \times S_{AP})+ DEF + I + R]/S_{RP}$$

The ECA_C rate, which will be multiplied by the voltage level adjustment factors set forth below, applicable until a subsequent ECA_C is implemented by a new filing, is calculated as:

$$ECA_C = ECA_B + ECA_{(RP)} + ECA_{(RP-1)} - ECA_{DEF}$$

where:

ECA_C = Environmental Cost Adjustment rate applicable starting with the Recovery Period following the applicable Filing Date.

ECA_B = Environmental capital cost adjustment rate determined as the difference in the environmental capital-related revenue requirement, expressed in cents per kWh at the generation level, between (i) the depreciation, taxes, and return on capital of any major capital projects whose primary purpose is to permit the Company to comply with any federal, state or local environmental law, regulation or rule as reflected on the Company's books and records as of the last day of the Accumulation Period that ended prior to the applicable Filing Date; and (ii) the depreciation, taxes, and

* Indicates Addition.

***RIDER ECRM**
ENVIRONMENTAL COST RECOVERY MECHANISM (CONT'D)

return on capital of any major capital projects whose primary purpose is to permit the Company to comply with any federal, state or local environmental law, regulation or rule as reflected in the ERRB rate approved by the Commission in the most recent general rate proceeding. This ECA_B rate, applicable starting with the Recovery Period immediately following the applicable Filing Date, shall be determined based on the difference between (i) and (ii) above, divided by the normalized kWh at the generation level as approved by the Commission in the Company's most recent general rate case proceeding.

$ECA_{(B-1)}$ = the ECA_B rate applicable during the Accumulation Period that ended prior to the applicable Filing Date, if any.

ECA_{RP} = ECA Recovery Period rate component calculated to recover under/over collection during the Accumulation Period that ended prior to the applicable Filing Date.

$ECA_{(RP-1)}$ = ECA Recovery Period rate component from the prior ECA_{RP} calculation, if any remains in effect.

ECA_{DEF} = ECA rate component for environmental costs that must be deferred as a result of the 2.5% limitation on annual rate adjustments as defined above.

ERR = Environmental revenue requirement actually incurred during the applicable Accumulation Period, which shall encompass (i) all expensed environmental costs (other than taxes and depreciation associated with capital projects) incurred during the Accumulation Period to comply with federal, state or local environmental laws, regulations or rules (to be offset by net revenues from the sale of emission allowances); and (ii) the depreciation, taxes, and return on capital incurred during the Accumulation Period for any major capital projects whose primary purpose is to permit the Company to comply with any federal, state or local environmental law, regulation or rule, as reflected on the Company's books and records during the Accumulation Period.

ERRB = The base environmental revenue requirement as determined in the Company's general rate proceeding in which the ECRM is established consisting of (i) expensed environmental costs included in factor ERR for the normalized test year, as updated or trued-up (other than taxes and depreciation) and (ii) the depreciation, taxes and return on capital for any

* Indicates Addition.

***RIDER ECRM**
ENVIRONMENTAL COST RECOVERY MECHANISM (CONT'D)

major capital projects whose primary purpose is to permit the Company to comply with any federal, state or local environmental law, regulation or rule, as reflected in the rate base approved by the Commission in the Company's general rate proceeding in which the ECRM was established. The ERRB expressed in cents per kWh at the generation level, included in the Company's retail rates, is 0.1345 cents per kWh.

DEF = Environmental costs deferred from previous periods due to the application of the 2.5% limitation on annual adjustments, with interest at a rate equal to the Company's net of tax cost of capital (i.e., the return on rate base, or return on capital as allowed by the Commission in the most recent general rate proceeding).

I = Interest applicable to (i) the difference between the actual environmental revenue requirement and the environmental revenue requirement recovered in rates; (ii) refunds due to prudence reviews and other regulatory adjustments (a portion of factor R below); and (iii) all under- or over-recovery balances created through operation of this ECRM, as determined in true-up filings provided for herein (also a portion of factor R, below). Interest shall be calculated monthly at a rate equal to the weighted average interest rate paid on the Company's short-term debt, applied to the month-end balance of items (i) through (iii) in the preceding sentence.

R = Under/over recovery,if any, from currently active and prior Recovery Periods as determined for the ECRM true up adjustments, and modifications due to adjustments ordered by the Commission, as a result of required prudence reviews or other disallowances and reconciliations, with interest as defined in item I.

S_{AP} = Supplied kWh during the Accumulation Period that ended prior to the applicable Filing Date, at the generation level.

S_{RP} = Applicable Recovery Period estimated kWh, at the generation level, subject to the ECA_{RP} to be billed.

* Indicates Addition.

*RIDER ECRM
ENVIRONMENTAL COST RECOVERY MECHANISM (CONT'D)

To determine the ECRM rates applicable to the individual Service Classifications, the ECA_C determined in accordance with the foregoing will be multiplied by the following voltage level adjustment factors:

Secondary Voltage Service	1.0789
Primary Voltage Service	1.0459
Large Transmission Service	1.0124

The ECA rates applicable to the individual Service Classifications shall be rounded to the nearest 0.001 cents, to be charged on a cents/kWh basis for each applicable kWh billed.

TRUE-UP OF ECRM

After the completion of each Recovery Period, the Company will make a true-up filing in conjunction with an adjustment to its ECRM, where applicable. The true-up filings shall be made on the first Filing Date that occurs at least two (2) months after completion of each Recovery Period. Any true-up adjustments or refunds shall be reflected in item R above, and shall include interest calculated as provided for in item I above.

True-up adjustments shall be the difference between the revenue billed and the revenue authorized for collection during the Recovery Period.

GENERAL RATE CASE/PRUDENCE REVIEWS

The following shall apply to this ECRM, in accordance with Section 386.266.4, RSMo.and applicable Commission rules governing rate adjustment mechanisms established under Section 386.266, RSMo:

The Company shall file a general rate case with the effective date of new rates to be established in such general rate case to be no later than four (4) years after the effective date of a Commission order implementing or continuing this ECRM. The four (4) year period referenced above shall not include any periods in which the Company is prohibited from collecting any charges under this ECRM, or any period for which charges hereunder must be fully refunded. In the event a court determines that this ECRM is unlawful and all moneys collected hereunder are fully refunded, the Company shall be relieved of the obligation under this ECRM to file such a rate case.

Prudence reviews of the costs subject to this ECRM shall occur no less frequently than every eighteen (18) months, and any such costs which are determined by the Commission to have been imprudently incurred shall be returned to customers with interest at the Company's short-term borrowing rate.

* Indicates Addition.

*RIDER ECRM
ENVIRONMENTAL COST RECOVER MECHANISM (CONT'D.)

Calculation of Current ECA_C Rate:

	Accumulation Period Ending:		mm/dd/yy
1.	Total Environmental Revenue Requirement (ERR)		$0
2.	Base Environmental Revenue Requirement	-	
	2.1 ERRB ($/kWh)		$0.0000
	2.2 $ECA_{(B-1)}$ ($/kWh)	+	$0.0000
	2.3 Accumulation Period Sales kWh (S_{AP})		0
3.	First Subtotal (1.-2.)		$0
4.	Deferred Environmental costs from prior periods (DEF)	+	$0
5.	Adjustment for Under / Over recovery for Prior Periods Plus Interest (I + R)	±	$0
6.	Third Subtotal		$0
7.	Estimated Recovery Period Sales kWh (S_{RP})	÷	0
8.	ECA_B		$0.0000
9.	ECA_{RP}	+	$0.0000
10.	ECA_{RP-1}	+	$0.0000
11.	ECA_{DEF}	-	$0.0000
12.	ECA_C (without Voltage Level Adjustment)		$0.0000
13.	Voltage Level Adjustment Factor		
	13.1 Secondary	x	1.0789
	13.2 Primary	x	1.0459
	13.3 Large Transmission	x	1.0124
14.	ECA_C (with voltage level adjustment)		
	14.1 Secondary		$0.0000
	14.2 Primary		$0.0000
	14.3 Large Transmission		$0.0000

* Indicates Addition.

ECRM MINIMUM FILING REQUIREMENTS[1]

(A) An example of the notice to be provided to customers as required by 4 CSR 240-20.091(2)(E);

LOCAL PUBLIC HEARING NOTICE

AmerenUE has filed tariff sheets with the Missouri Public Service Commission (PSC) that would increase the company's electric service revenues by approximately $401.5 million. Included in this amount is an increase in the level of net fuel costs that are recovered in base rates of approximately $227 million, which will have the effect of making the company's fuel adjustment clause charges lower in the future than they otherwise would have been. The request would raise a typical residential customer's bill by approximately 18%, translating to just more than an approximately $14 monthly increase, or less than fifty cents per day. The permanent rate increase request, which is subject to regulatory approval, would take effect no later than the early summer of 2010. [A portion of the rate increase was implemented by the Commission on an interim, subject to refund basis on October 1, 2009.] AmerenUE's rate filing also includes a request to continue its fuel adjustment clause in substantially its current form which would continue to allow 95% of increases or decreases in net fuel costs to be passed through to customers as a separate line item on customer's bills.

AmerenUE's filing also includes a request to implement an environmental cost recovery mechanism. An environmental cost recovery mechanism, if approved by the Commission, would allow net increases or decreases in governmentally-mandated environmental costs to be passed through to customers as a separate line item on customers' bills (either through a separate charge in the case of an increase or through a billing credit in the case of a decrease).

Public comment hearings have been set before the PSC as follows:

[To be determined by the Commission]

If you are unable to attend a live public hearing and wish to make written comments or secure additional information, you may contact the Office of the Public Counsel, P.O. Box 2230, Jefferson City, Missouri 65102, telephone (573) 751-4857, email opcservice@ded.mo.gov or the Missouri Public Service Commission, Post Office Box 360 Jefferson City, Missouri 65102, telephone 800-392-4211, email pscinfo@psc.mo.gov. The Commission will also conduct an evidentiary hearing at its offices in Jefferson City during the weeks of _____ through _____, beginning at _____ a.m. The hearings and local public hearings will be held in buildings that meet accessibility standards required by the Americans with Disabilities Act.

If a customer needs additional accommodations to participate in these hearings, please call the Public Service Commission's Hotline at 1-800-392-4211 (voice) or Relay Missouri at 711 prior to the hearing.

[1] Each item (A) …. (O) correspond to the subparagraphs in 4 CSR 240-3.162(2).

(B) An example customer bill showing how the proposed ECRM shall be separately identified on affected customers' bills in accordance with 4 CSR 240-20.091(8);

Attached hereto are two different examples of customer bills (one in the postcard format used by AmerenUE for residential customers and one in the billing format used by AmerenUE for non-residential customers), as required by 4 CSR 240-20.091(8).

See Attachments A and B hereto.

(C) Proposed ECRM rate schedules;

Attached to the testimony to which this Schedule is attached as Schedule MCB-E1 is Rider ECRM Environmental Cost Recovery Mechanism, which is the proposed rate schedule for the environmental cost recovery mechanism proposed by AmerenUE.

(D) A general description of the design and intended operation of the proposed ECRM;

As discussed in the testimony of Company witness Gary S. Weiss, AmerenUE is proposing the implementation of an Environmental Cost Recovery Mechanism or "ECRM" as defined in 4 CSR 240-20.091(1)(B). The ECRM applies to all rate classes, and would reflect increases or decreases in costs, both expense and capital, directly related to compliance with any federal, state, or local environmental law, regulation or rule according to the formula expressed in the rate schedule referred to in item (C) above. Environmental costs would be accumulated during two different Accumulation Periods, as designated in the rate schedule, and then recovered using the calculated adjustment factor (ECA as defined in the rate schedule) over two different Recovery Periods (also designated in the rate schedule). The amount to be recovered during each twelve month period may not exceed 2.5% of the Company's Missouri gross jurisdictional revenues established in the most recent general rate proceeding. The ECA would be applied to customer bills on a per kilowatt-hour (kWh) basis, as adjusted for voltage level (to take into account varying line losses at different service voltage levels).

The ECA formula includes a factor to accommodate adjustments made as a result of the true-up process or any disallowances occurring as a result of prudence reviews.

(E) A complete explanation of how the proposed ECRM is reasonably designed to provide the electric utility a sufficient opportunity to earn a fair return on equity;

AmerenUE's proposed ECRM is reasonably designed to provide AmerenUE with a sufficient opportunity to earn a fair return on equity because it permits AmerenUE to recover the full amount of substantial environmental expenditures it must incur on a more timely basis than through a traditional rate case. In a traditional rate case, regulatory lag would mean that the full amount of the costs that AmerenUE incurs to comply with environmental requirements would not be recovered, and there would be a significant lag

between the Company's incurrence of environmental costs and its recovery of a portion of those costs. The environmental expenditures addressed by the ECRM are outside of AmerenUE's control and they do not generate any incremental revenues. In fact, in most cases they result in decreased revenues. Under these circumstances, an adjustment mechanism such as an ECRM is required in order for AmerenUE to fully and timely recover these costs. Because of the magnitude of the environmental costs AmerenUE is facing in the short and long term, AmerenUE will not have a sufficient opportunity to earn its authorized return on equity unless an ECRM is approved.

(F) A complete explanation of how the proposed ECRM shall be trued-up to reflect over- or under-collections on at least an annual basis;

The ECRM will be trued-up after the end of each recovery period. The formula will be: Recoverable Revenues – Recoverable Costs = +/- Over/(Under) Recovery. Details of these components are listed below.

Recoverable Revenues: General Ledger queries and/or sales reports will detail ECRM amounts recovered from customer billings. These reports will include billing data by month, both volumes and dollars.

Recoverable Costs: Costs will be grouped into the following categories:

Environmental Capital Cost. This will reflect the difference in the environmental capital-related revenue requirement between (i) the depreciation, taxes and return on capital of any major capital projects whose primary purpose is to permit the Company to comply with any federal, state or local environmental law, regulation or rule as reflected on the Company's books and records as of the last day of the Accumulation Period that ended prior to the applicable Filing Date; and (ii) the depreciation, income taxes and return on capital of any major capital projects whose primary purpose is to permit the Company to comply with any federal, state or local environmental law, regulation or rule as reflected in the Company's base environmental revenue requirement approved by the Commission in the most recent general rate proceeding updated to reflect additional accumulated depreciation.

Environmental Operating Costs. This will include costs associated with the operation of equipment whose primary purpose is to permit the Company to comply with environmental laws, rules and regulations. Examples of these costs include reagents and chemical additives, sorbents, non-labor component and system operating costs and contractor services. Some of these costs are accumulated in an inventory account, and expensed on a weighted average cost basis as used, while others are directly expensed. A detailed accounting of all additions and adjustments to the inventory accounts for reagents, chemical additives and sorbents will be included in a reconciliation, as well as the calculation of the environmental operating expense recorded during the accounting period.

Environmental Maintenance Costs. This will include costs associated with the maintenance of equipment whose primary purpose is to permit the Company to comply with environmental laws, rules and regulations. These costs are either expensed as incurred or capitalized if maintenance activity involves component replacement. Examples of these costs include non-labor component and system maintenance costs and contractor services. A detailed accounting of all additions and adjustments to capital assets relating to environmental compliance will be included in a reconciliation, as well as the calculation of the maintenance expense recorded during the accounting period.

Emission Allowances. The cost of purchasing and using emission allowances will be included. Also the gains and losses on the sales of emission allowances will be reflected as either an offset to expense if a gain or as an additional expense if a loss.

Depreciation. This will include depreciation expense for the period for all assets identified as environmental rate base. The depreciation expenses will be based on the depreciation rates from the last general rate proceeding.

Fees. This will include fees and other expenses associated with obtaining and maintaining environmental compliance permits. These items are directly expensed in the period they are incurred.

For a more complete listing of the costs and revenues that will be included in the true-up calculations, please refer to Item (H) below, which is incorporated by reference into the explanation included in this Item (F).

(G) A complete description of how the proposed ECRM is compatible with the requirement for prudence reviews;

AmerenUE's proposed ECRM is compatible with the requirement for prudence reviews for several reasons. AmerenUE's proposed ECRM is based on actual environmental expense and capital costs, which simplifies the prudence review. Item (K) in this Schedule MCB-E2 provides detailed information on how the costs can be compared to contracts and invoices as part of the prudence review, among other things. Moreover, 4 CSR 240-20.091(5), requires the monthly filing containing information that can be used as part of the prudence review process.

(H) A complete explanation of all the costs that shall be considered for recovery under the proposed ECRM and the specific account used for each cost item on the electric utility's books and records;

Type of Cost	Inventory Major	Account Major	Description
Continuous Emission Monitors		312/344/346	Capital costs to purchase and install the continuous emission monitors.
Flue Gas Desulfurization /Scrubbers		312	Capital costs to purchase and install scrubbers.
Low NOx Burners/OFA		312/315	Capital costs to purchase and install the low Nox burners/OFA.
Precipitators		312/315/316	Capital costs to purchase and install precipitators.
Rich Reagent Injection & Selective Catalytic Reduction & Selective Non-Catalytic Reduction		312/315/316	Capital costs to purchase and install rich reagent and non-selective catalytic reduction or selective catalytic reduction.
Halogenated Activated Carbon Injection		312	Capital costs to purchase and install equipment required for activated carbon injection.
SO_3 Injection		312	Capital costs to purchase and install SO_3 injection equipment.
Carbon Capture and Sequestration		312	Capital costs to purchase and install carbon capture and sequestration facilities.
Emission Allowances	158	411	Cost of purchasing and using emission allowances. Any losses or gains incurred in selling emission allowances are also included.
Waste Water Systems		311/312/314/331/341	Capital costs to construct waste water systems.
Cooling Towers		312/323	Capital costs to construct cooling towers.
Radwaste Facilities		321/322/324/325	Capital costs to construct the radwaste facilities.
Spent Fuel Racks		322	Capital costs to purchase and install the spent fuel racks.
Fish Barrier and Return System		311/314/332	Capital costs to purchase and install fish barrier and return system.
Osage		303/333/	Capital costs to purchase and install Osage

Turbines with Dissolved O_2 Injections		334/335	turbines with dissolved O_2 injections.
Catalyst		344	Capital costs to purchase and install CO and NOx Catalyst.
Gas Turbine Combustion System		341/344	Capital costs to purchase and install gas turbine combustion system.
Fuel, Chemical and Oil Containment Dikes at CTGs		311/312/ 315/316/ 321/335/ 342/344/ 346/353/ 362/390/ 394	Capital costs to construct containment dikes at CTGs.
Substation Equipment		353/362	Capital costs to purchase and install berms, dikes, site work, piping, valves and pumps for oil spill control.
Depreciation		403	Accounts are used to track accumulated depreciation and depreciation expense, respectively for environmental-related capital assets.
Reagents and chemical additives	154	502	Products such as bromine, chlorine compounds, calcium oxides, limestone, lime, urea, ammonia, amines, dibasic acid, TMT-15 etc. that are used in pollution control processes or to enhance the result of the pollution control processes.
Sorbents	154	502	Products such as activated carbon, halogenated activated carbon, etc. that are used in the pollution control processes to reduce mercury emissions.
Non-labor component and system operating costs		502/506/ 537/539	Costs associated with operating pollution control or monitoring systems and the ancillary facilities or systems required to support or operate the pollution control or monitoring systems.
Contractor services-operations		502/506/ 537/539	Costs associated with operating pollution control or monitoring systems and the ancillary facilities or systems required to support or operate the pollution control or monitoring systems.
Non-labor component and system		510/511/ 512/542/ 543/544/	Costs associated with the maintenance of equipment whose primary purpose is to permit the Company to comply with environmental

maintenance costs		545/583/584	laws, rules and regulations.
Contractor services-maintenance		502/511/512/542/543/544/545/583/584	Costs associated with the maintenance of equipment whose primary purpose is to permit the Company to comply with environmental laws, rules and regulations.
Substation Maintenance		570/592	Inspection and maintenance of oil spill control equipment at substations.
Fees and other expenses		925	Fees and other expenses associated with obtaining and maintaining environmental compliance permits. These items are directly expensed in the period they are incurred.

In addition, there may be items that cannot be identified at this time which, if required by environmental law or regulation, will be assigned to the appropriate account.

(I) A complete explanation of all of the costs, both capital and expense, incurred to comply with any current federal, state or local environmental law, regulation or rule that the electric utility is proposing be included in base rates and the specific account used for each cost item on the electric utility's books and records;

Type of Cost	Account Major	Description
Continuous Emission Monitors	312/344/346	Capital costs to purchase and install the continuous emission monitors.
Flue Gas Desulfurization/Scrubbers	312	Capital costs to purchase and install scrubbers
Low NOx Burners/OFA	312/315	Capital costs to purchase and install the low Nox burners/OFA.
Precipitators	312/315/316	Capital costs to purchase and install precipitators.
Rich Reagent Injection & Selective Catalytic Reduction & Selective Non-Catalytic Reduction	312/315/316	Capital costs to purchase and install rich reagent and non-selective catalytic reduction or selective catalytic reduction.
Halogenated Activated Carbon Injection	312	Capital costs to purchase and install equipment required for activated carbon injection.
SO3 Injection	312	Capital costs to purchase and install SO_3 injection equipment.
Carbon Capture and Sequestration	312	Capital costs to purchase and install carbon capture and sequestration facilities.
Emission Allowances	411	Cost of purchasing and using emission allowances. Any losses or gains incurred in selling emission allowances are also included.

Waste Water Systems	311/312/ 314/331/ 341	Capital costs to construct waste water systems.
Cooling Towers	312/323	Capital costs to construct cooling towers.
Radwaste Facilities	321/322 /324/325	Capital costs to construct the radwaste facilities.
Spent Fuel Racks	322	Capital costs to purchase and install the spent fuel racks.
Fish Barrier and Return System	311/314/ 332	Capital costs to purchase and install fish barrier and return system.
Osage Turbines with Dissolved O_2 Injections	303/333/ 334/335	Capital costs to purchase and install Osage turbines with dissolved O_2 injections.
Catalyst	344	Capital costs to purchase and install CO and NOx Catalyst.
Gas Turbine Combustion System	341/344	Capital costs to purchase and install gas turbine combustion system.
Fuel, Chemical and Oil Containment Dikes at CTGs	311/312 /315/316/ 321/335 /342/344/ 346/353 /362/390/ 394	Capital costs to construct containment dikes at CTGs.
Substation Equipment	353/362	Capital costs to purchase and install berms, dikes, site work, piping, valves and pumps for oil spill control.
Depreciation	403	Accounts are used to track accumulated depreciation and depreciation expense, respectively for environmental-related capital assets.
Reagents and chemical additives	502	Products such as bromine, chlorine compounds, calcium oxides, limestone, lime, urea, ammonia, amines, dibasic acid, TMT-15 etc. that are used in pollution control processes or to enhance the result of the pollution control processes.
Sorbents	502	Products such as activated carbon, halogenated activated carbon, etc. that are used in the pollution control processes to reduce mercury emissions.
Non-labor component and system operating costs	502/506/ 537/539	Costs associated with operating pollution control or monitoring systems and the ancillary facilities or systems required to support or operate the pollution control or monitoring systems.

Contractor services-operations	502/506/537/539	Costs associated with operating pollution control or monitoring systems and the ancillary facilities or systems required to support or operate the pollution control or monitoring systems.
Non-labor component and system maintenance costs	510/511/512/542/543/544/545/583/584	Costs associated with the maintenance of equipment whose primary purpose is to permit the Company to comply with environmental laws, rules and regulations.
Contractor services-maintenance	510/511/512/542/543/544/545/583/584	Costs associated with the maintenance of equipment whose primary purpose is to permit the Company to comply with environmental laws, rules and regulations.
Substation Maintenance	570/592	Inspection and maintenance of oil spill control equipment at substations.
Fees and other expenses	925	Fees and other expenses associated with obtaining and maintaining environmental compliance permits. These items are directly expensed in the period they are incurred.

(J) A complete explanation of all the revenues that shall be considered in the determination of the amount eligible for recovery under the proposed ECRM and the specific account where each such revenue item is recorded on the electric utility's books and records;

Emission Allowances	411-008	Gains on sales of emission allowances.

(K) A complete explanation of any feature designed into the proposed ECRM or any existing electric utility policy, procedure, or practice that can be relied upon to ensure that only prudent costs shall be eligible for recovery under the proposed ECRM;

In addition to keeping books and records relating to environmental costs in accordance with Generally Accepted Accounting Principles and the Uniform System of Accounts, AmerenUE employs a number of policies, procedures and practices, including the use of internal audits where appropriate, to ensure the prudency of such costs. Described below are relevant policies, procedures and practices.

Accounting

In order to ensure proper accounting for material and labor costs, the following procedures and practices are in place.

Capital Work. All capital work, including environmental projects, requires special

authorization before proceeding; this is called the Work Order authorization process. Depending on the dollar amount involved and other factors, these Work Orders may be authorized by Managers, Vice Presidents or at higher levels in the organization. Before being routed for approval, accounting is entered in the system by the originating departments. The accounting is then verified/approved by a corporate plant accounting group to ensure accuracy. The approved accounting is then used for the various expenditures authorized by the Work Order.

Maintenance Expense Work. Maintenance work associated with environmental equipment at the plants is managed by our Computerized Maintenance Management System called EMPRV. Each time work is to be done on a system, an electronic job called a Job Requisition (JR) will be generated. Each JR is approved/authorized by an appropriate management employee. Before approving, each of these jobs must have a piece of equipment/location associated with it. This equipment/location automatically adds the appropriate accounting to the job. When this job is worked the accounting on the Job Requisition is automatically used to ensure accuracy.

Procurement of Material and Services

To ensure prudency in the procurement of material and services, the process is managed by our corporate Supply Services function. The purchase request will follow several different paths depending on cost, whether it is considered a stock item at one of Ameren's storerooms or if it is for services/construction. The following will describe some of the larger dollar item procedures/processes.

Construction/Service Contracts. The general process involved with construction/service contracts is to bid, negotiate, analyze and award the contract. An engineer typically develops specifications and drawings for bidding based on the valid requirements of the requesting department. The purchasing department coordinates obtaining the bids for the job. The bids are analyzed both by purchasing and the engineer/requesting department in order to determine the best overall bid. During this process meetings may be held with the bidders to obtain clarification of their bid. In order to ensure that the process was appropriately handled, both representatives from purchasing and the requesting department must approve the selection before a contract can be awarded.

Material Procurement. Larger dollar material procurement is handled in a similar way as the Construction/Services Contracts. These purchase requests are bid, negotiated, analyzed and awarded. Purchasing use various best practices (i.e. Electronic Data Interchange (EDI), Electronic Commerce, systems contracts, delivery/receiving programs, joint utility purchasing, etc.) resulting in reduced costs and improved availability.

Strategic Sourcing Department. When the procurement process involves high dollars or is complex in nature, the corporate Strategic Sourcing department is generally consulted. This group creates value by considering all supply chain costs associated with an item or service, not just with its purchase price. Beyond the purchase price, Strategic Sourcing

decisions incorporate storage, distribution, use and disposal of goods in addition to the impact of quality and service to internal Ameren business processes.

(L) For each of the major categories of costs that the electric utility seeks to recover through its proposed ECRM, a complete explanation of the specific rate class cost allocations and rate design used to calculate the proposed environmental revenue requirement and any subsequent ECRM rate adjustments during the term of the proposed ECRM;

The proposed ECRM applies the adjustment factor—ECA—to all of AmerenUE's Missouri electric retail customers (*see* Schedule No. *5* - Schedule of Rates for Electric Service customers). To the extent environmental costs are included in base rates, the rate design approved by the Commission in the rate case in which the ECRM is approved will apply. With regard to the proposed ECRM amount in base rates, a level of *0.1345* cents per kilowatt-hour at the generation level is included in Rider ECRM as filed. Adjustments to the rates for each class will be performed in accordance with the formula reflected in Rider ECRM and will be reflective of changes in the factors included in the formula versus the values used to determine the ECRM amount in base rates. The adjustments reflect a calculation of the ECA based on the test year revenue requirement which reflects net capital additions, operating and maintenance costs and any revenues received consistent with the factors included in the ECA formula in Rider ECRM. Actual customer ECA adjustments will be applied to all retail billings for electric service on a per kilowatt-hour basis, as adjusted for losses based on the customers' service voltage (secondary, primary, large transmission service).

(M) A complete explanation of any change in business risk to the electric utility resulting from implementation of the proposed ECRM in setting the electric utility's allowed return in any rate proceeding, in addition to any other changes in business risk experienced by the electric utility;

The implementation of an environmental cost recovery mechanism (the proposed ECRM) would allow AmerenUE to pass through to its customers increases and decreases in environmental costs without the need for a costly and time-consuming rate proceeding. However, expenditures related to environmental compliance produce no revenues for the Company, but they require substantial sums of cash. Indeed, environmental investments at power plants often reduce revenues by consuming additional auxiliary power that cannot be delivered to retail customers or sold off-system. Any risk-mitigating impact the ECRM is offset by the risk-enhancing impact of substantial required environmental investment.

Also, as explained in the direct testimony of Dr. Roger Morin, any effect that the ECRM could have on the Company's risk profile is already reflected in the capital market data of the comparable companies. Most electric utilities in the industry are under some form of adjustment clause/cost recovery/rider mechanisms. The approval of adjustment clauses, ROE incentives, riders, trackers, forward test years, and cost recovery mechanisms by regulatory commissions is widespread in the utility business and is already largely embedded in financial data, such as bond rating and business risk scores. While adjustment clauses, riders, and cost tracking mechanisms may mitigate (on an

absolute basis but not on a relative basis) a portion of the risk and uncertainty related to the day-to-day management of a regulated utility's operations, there are other significant factors to consider that work in the reverse direction for AmerenUE, namely, a huge capital spending program requiring external financing, weak financial metrics in its bond rating class, and heightened regulatory risk that offset the presence of the ECRM, including significant regulatory lag due to the use of a historical test year in Missouri, and the absence of CWIP in rate base.

(N) The electric utility's environmental compliance plan including a complete description of---

1. The electric utility's long-term environmental compliance planning process;

2. The analysis performed to develop the electric utility's environmental compliance plan; and

3. If the environmental compliance plan is inconsistent with the electric utility's electric utility's most recent resource plan filing, a detailed explanation of why such inconsistencies exist;

The Company's 2009 Environmental Compliance Plan is attached to the testimony to which this Schedule MCB-E2 is attached as Schedule MCB-E3.

(O) Authorization for the commission staff to release the previous five (5) years of historical surveillance reports submitted to the commission staff by the electric utility to all parties to the case.

The Company hereby authorizes the Commission Staff to release the previous five (5) years of historical surveillance reports submitted to the Commission Staff to all parties in the case.

AmerenUE P.O. BOX 66529 ST. LOUIS, MO 63166-6529

PRES RDG	PREV RDG	USE	READING	RATE	AMOUNT
08280	06695	1585	ACTUAL	1M SH	144.04
RIDER FAC ADJUSTMENT					1.58
RIDER ECRM ADJUSTMENT					1.58
ST LOUIS CITY MUNI TAX					6.00
AMOUNT DUE ON	07/25				153.20

FIRST CLASS MAIL
U.S. POSTAGE
PAID 1 OUNCE
ST LOUIS, MO
PERMIT NO. 2859

Service at:	1010 ABC STREET, UNIT 1F		
Service from	05/29 to 06/29/09	Days	31
Last Payment	06/29/09		$78.07
Acct. No	12345-67890	Bill Date	07/15/09

RETURN THIS STUB WITH PAYMENT TO:
AmerenUE
P.O. BOX 66529
ST. LOUIS, MO 63166-6529

Acct. No. **12345-67890**

AMT DUE	$153.20
Due By	07/25
Delinquent After	08/05

JOHN DOE
1010 ABC STREET, UNIT 1F
SAINT LOUIS, MO 63104

Attachment A

Ameren UE
Connecting Missouri

Please Return This Portion With Your Payment

AMOUNT DUE	DUE DATE
$8,337.89	July 24, 2009
AMOUNT PAYABLE AFTER DUE DATE	**ACCOUNT NUMBER**
$8,462.96	12345-67890

Amount Enclosed $ _____

ABC MARKET
1010 ABC STREET
CHESTERFIELD, MO 63006

AmerenUE
P. O. Box 66301
St. Louis, MO 63166-6301

60600000 00123456789000 000008337890 000008337890

Keep This Portion For Your Records

ACCOUNT NUMBER	12345-67890
NAME	ABC MARKET
SERVICE AT	1010 ABC STREET CHESTERFIELD, MO 63006

BILL DATE	July 14, 2009

TOTAL AMOUNT DUE BY	July 24, 2009	$8,337.89
AMOUNT PAYABLE AFTER DUE DATE		$8,462.96

Payment received on Jun 22, 2009 $6,852.52

TYPE OF READING	METER NUMBER	SERVICE FROM TO	NO. DAYS	METER READING PREVIOUS	METER READING PRESENT	READING DIFFERENCE	METER MULTIPLIER	THERM FACTOR	USAGE	R D
Total kWh	11111111	06/09-07/10	31	45840.0000	46999.0000	1159.0000	80.0000		92720.0000	A
Peak kW	11111111	06/09-07/10	31	0.0000	2.7500	2.7500	80.0000		220.0000	A

SUMMARY

	Service To			Service To	
Total kWh	07/10/2009	92720.0000	Peak kW	07/10/2009	220.0000
Total Billing Demand	07/10/2009	220.0000			
Billing Demand	07/10/2009	220.0000			

METERED ELECTRIC SERVICE BILLING

Rate 3M LGS - General Service			Service From	06/09/2009 to 07/10/2009	
Demand Charge	220.0 KW	@	$3.78000000	$831.60	
Base Energy Chg / Hours Used	33,000.0 KWH	@	$0.08090000	$2,669.70	
Base Energy Chg / Hours Used	44,000.0 KWH	@	$0.06090000	$2,679.60	
Base Energy Chg / Hours Used	15,720.0 KWH	@	$0.04100000	$644.52	
Customer Charge				$72.26	
Rider FAC Adjustment	92,720.0 KWH	@	$0.00100000	$92.72	
Rider ECRM Adjustment	92,720.0 KWH	@	$0.00100000	$92.72	
Total Service Amount					$7,083.12
Missouri State SalesTax				$299.26	
Missouri Local Sales Tax				$254.99	
Creve Coeur Annex Municipal Charge				$700.52	
Total Tax Related Charges					$1,254.77

Current Amount Due	$8,337.89
Prior Amount Due	$0.00
Total Amount Due	$8,337.89

A late payment charge of 1.5% will be addedfor any unpaid balance on all accounts after the due date.

Ameren UE

P. O. Box 66301
St. Louis, MO 63166
1-877-4AMEREN
www.ameren.com

2009 AmerenUE
Environmental Compliance Plan

Non-Proprietary Version

NP

Schedule MCB-E3

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APPENDIX

* * * * *

EXECUTIVE SUMMARY

Environmental compliance planning at AmerenUE is a dynamic and robust process. Consequently, this Environmental Compliance Plan (ECP) will continue to change as conditions and environmental laws, rules and regulations change. AmerenUE management uses the experience of both internal and external resources to develop a plan that ensures the company will prudently meet regulatory requirements. By using this expertise, the planning process ensures AmerenUE will not only maintain compliance with new and existing regulations, but also considers likely environmental and operating constraints that the company will face in the future.

AmerenUE is subject to various environmental laws and regulations enforced by federal, state (Missouri and Illinois) and local authorities. In addition, possible future environmental initiatives are identified that may affect the power industry and specifically AmerenUE if future environmental legislation would become law. The identified environmental laws and regulations provide the basis for the twenty (20)-year forecast of environmental compliance investments and the detailed four (4)-year plan contained in the ECP, and include air, water, solid waste, and other environmental projects. The ECP assumes that the Meramec Plant is retired by 2022 which is consistent with the most recent AmerenUE Integrated Resource Plan (IRP) (developed in 2007 and filed in early 2008).

The forecast of expenditures in the ECP are based on current environmental regulations that would apply for the period 2009-2028 and on current cost estimates. Given the length of the forecast period, the likelihood of changes in environmental laws and regulations, and the uncertainty surrounding labor and materials costs in the future, these forecasts could change substantially but represent AmerenUE's best estimate of these costs as of the preparation of this ECP.

The largest single category of forecasted expenditures reflected in the ECP consists of capital investments relating to air quality issues at the Company's generating units. Based on the analysis presented in the 2009 *AmerenUE Twenty (20)-Year Environmental Compliance Strategy Air Analysis Report* [AmerenUE Air Analysis Report (see Appendix A)], the company's compliance plan for major air quality issues at its generating plants is to utilize the installation of Wet Flue Gas Desulfurization (WFGD) emission control equipment for sulfur dioxide (SO_2) reduction at Sioux 1 & 2 and to also utilize [redacted]; to use [redacted] 2009-2028 and to operate the Sioux 1 & 2 Rich Reagent Injection/Selective Non-Catalytic Reduction (RRI/SNCR) systems as needed for compliance with NO_x-related regulations; and to [redacted] and to use [redacted] for compliance with mercury-related regulations.

In addition to addressing air-related issues, water, solid waste, and other environmental projects are included in the twenty (20)-year environmental investment forecast.

The total estimated cost for the AmerenUE twenty (20)-year environmental compliance plan is approximately [redacted], including approximately [redacted] for capital investments and approximately [redacted] for O&M expenses. The following is a summary of the forecasted cost of twenty (20)-year environmental compliance plan:

ITEM	ESTIMATED TOTAL COST ($)
Air Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]

NP

ITEM	ESTIMATED TOTAL COST ($)
Water Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Solid Waste Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Other Projects Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]

AmerenUE's four (4)-year environmental plan is based on current environmental regulations covering the period 2009-2012. There may be additional costs due to future environmental requirements which cannot be quantified at this time. The total estimated cost for the AmerenUE four (4)-year environmental compliance plan is approximately [redacted], including approximately [redacted] for capital investments and approximately [redacted] for O&M expenses. The following is a summary of the forecasted cost of the four (4)-year environmental compliance plan (these figures are included in the figures provided for in the 20-year environmental compliance forecast table, above):

ITEM	ESTIMATED TOTAL COST
Air Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Water Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Solid Waste Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Other Projects Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]

In both the twenty (20)-year and four (4)-year environmental compliance plans, the remaining total estimated capital investments associated with the Sioux 1 & 2 WFGD is approximately [redacted]. This includes, an opening balance (capital expenditures through 2008) of approximately [redacted] and approximately [redacted] of capital investments projected from 2009-2012.

The environmental controls identified in the most recent AmerenUE IRP (developed in 2007 and filed in early 2008) are [redacted]. This is because this ECP is based upon more recent information than the prior IRP. The table below summarizes the differences:

NP

Control Equipment	IRP	ECP
SO_2		
WFGD – Sioux 1 & 2	2010	2011
Mercury		
HACI – Meramec 3 & 4	2015	[redacted]
HACI – Rush Island 1 & 2	2015	[redacted]
HACI – Labadie 1 & 2	2015	[redacted]
HACI – Labadie 3 & 4	2015	[redacted]
[redacted]	[redacted]	[redacted]

Possible future air environmental laws may have a significant impact on AmerenUE's air environmental compliance strategy. AmerenUE's alternative compliance plan for major air quality issues based on its current knowledge of potential future environmental regulations at its generating plants is to utilize the installation of WFGD emission control equipment for SO_2 reduction at Sioux 1 & 2, [redacted] from 2009-2028 and to operate the Sioux 1 & 2 RRI/SNCR systems as needed for compliance with NO_x-related regulations and to [redacted] for compliance with mercury-related regulations. The total estimated capital investments for the twenty (20)-year period associated with alternative air compliance environmental projects is approximately [redacted]. The total estimated O&M for the twenty (20)-year period associated with the abovementioned alternative future air environmental projects is approximately [redacted].

This ECP meets the corporate goal of environmental stewardship, demonstrates environmental leadership though innovative solutions and technologies where possible, reflects prudent compliance with environmental laws, rules and regulations, taking into account operating contingencies, and is developed to be as cost-effective as possible. In meeting these criteria, this ECP is designed to operate in the interest of both the company's ratepayers and shareholders.

In addition, expenditures in this plan are subject to the approval of the Company's Board of Directors {note that is the Ameren board who approves vs. the UE board} on an annual basis, not on a multi-year basis as reflected in the four and twenty year forecasts included in the plan. At this time, the board has not approved any of these expenditures and consequently, these forecasts may change before ultimately being approved.

* * * * *

1.0 INTRODUCTION

This ECP provides information regarding AmerenUE's environmental compliance planning process, an overview of environmental laws, rules and regulations governing operations at AmerenUE facilities, possible future environmental initiatives, a twenty (20)-year forecast of environmental compliance investments and expenditures, a four (4)-year environmental compliance plan, and also provides a comparison of the ECP with the Company's most recent IRP filing as it relates to environmental projects.

This ECP is comprised of the following sections:

Section 1.0 - Introduction
This section presents the outline of the ECP.

Section 2.0 – Environmental Compliance Planning Process
This section presents the process for developing a preferred plan for compliance with environmental regulations for AmerenUE.

Section 3.0 – Overview of Environmental Laws Governing Operations at AmerenUE Facilities
This section presents the major federal, state and local environmental laws regarding air, water, solid waste, and other environmental areas that govern the operation of AmerenUE facilities.

Section 4.0 – Possible Future Environmental Initiatives
This section presents a summary of possible future environmental initiatives that will affect the power industry and AmerenUE specifically regarding air, water, solid waste, and other environmental areas.

Section 5.0 – Twenty (20)-Year Forecast of Environmental Compliance Investments and Expenditures
This section presents the twenty (20)-year forecast of environmental investments and expenditures from 2009-2028 regarding air, water, solid waste, and other environmental areas, including a summary of those investments and expenditures.

Section 6.0 – Four (4)-Year Detailed Environmental Compliance Plan
This section presents the detailed four (4)-year environmental compliance strategy from 2009-2012 regarding air, water, solid waste, and other environmental areas, including a summary of those investments and expenditures.

Section 7.0 – Comparison of AmerenUE Environmental Compliance Plan to February 2008 Integrated Resource Plan
This section presents the differences between the ECP and the February 2008 IRP. In addition, this section identifies the impact of possible future air environmental laws may have on the air environmental compliance strategy and future IRP efforts.

* * * * *

2.0 ENVIRONMENTAL COMPLIANCE PLANNING PROCESS

The process of developing a preferred plan for compliance with environmental regulations for AmerenUE involves a number of divisions within AmerenUE and Ameren Services Company (AMS). In developing a compliance plan for a regulation which will require significant financial and/or labor resources, preliminary planning begins at a very early stage-usually well before the regulation is promulgated. This allows the company to begin assessing various compliance options, conduct research into technologies, collect preliminary monitoring data, possibly conduct pilot projects, and begin planning for potential future financial, labor, technical and consulting needs.

It is important to note that throughout the planning process, the primary divisions identified below are in constant contact and communication. Early on, each division identifies the individuals with the expertise needed to be involved to address the particular regulatory, technical, and financial requirements of the subject regulation. Frequent conversations allow each division to stay apprised of any new information, developments or changing circumstances which could influence a preferred strategic approach.

The following is a very brief synopsis of the responsibilities of the primary departments involved in the environmental compliance planning process. A more detailed description of each department's activities in the process is provided in the following sections.

The AMS Environmental Services Department (ESD) is responsible for defining the regulatory requirements. AmerenUE's Power Operations Services (POS) and Energy Delivery Technical Services (EDTS) groups are responsible for identifying pollution control technologies and costs. Ameren Energy Fuels and Services (AFS) provides fuel options, costs and characteristics. The AMS Treasury/Finance group evaluates cost impacts relative to overall AmerenUE cash flow and integration with other capital and operations and maintenance (O&M) requirements. The AMS Corporate Planning Department then assimilates and analyzes the information from all these groups to develop compliance options. Thereafter, AmerenUE management reviews and refines these options, and makes decisions on a preferred approach, often keeping the flexibility to adjust the plan as conditions and requirements change. Because financial support from Ameren Corporation will be necessary to implement the ECP, the Ameren Corporation Executive Leadership Team (ELT) then ratifies the plan.

2.1 Primary Departments Involved in the Environmental Compliance Planning Process

2.1.1 Environmental Services Department (ESD) (AMS)

The process of developing a compliance plan to meet new environmental regulatory requirements begins with the ESD. The ESD uses a number of information sources to keep apprised of potential and developing environmental regulations and legislation. At both a national and state level, Ameren Corporation is a member of a number of industry organizations and regulatory groups which focus solely on environmental legislation and regulations facing the electric utility industry. The ESD staff works with these industry groups and directly with local, state and federal environmental regulators to keep abreast of and influence new and developing environmental requirements.

At the earliest indication that a developing environmental regulatory program could potentially effect AmerenUE's operations, the ESD issues a summary of the pending requirements for compliance, such as emission targets and timetables. This summary is provided to AmerenUE and AMS management who will become affected by, or be part of, the planning and/or implementation of the compliance strategy. Working groups are established with individuals from each department for this purpose. In the case of an obvious major regulation, such as the Clean Air Interstate Rule (CAIR), teams are assembled and work to evaluate numerous compliance options long before the final rule is issued.

The ESD is also responsible for collecting and reporting compliance data from the AmerenUE operating departments, such as stack emissions and water quality data. As such, the ESD is the source of the environmental data used in developing baseline information on emissions and tracking emission credits, which form the basis for determining the degree of emissions control or monitoring systems required.

2.1.2 Power Operations Services (POS) (AmerenUE)

POS provides project management, quality control, and environmental systems management for AmerenUE. From an environmental compliance planning perspective, POS has several major functions. These include identification of pollution control and monitoring technologies and associated costs, assessing the resources needed to operate such systems, assessing the feasibility of various pollution control options for individual generating units and installation of the pollution control and monitoring systems.

Once emission control and monitoring requirements have been identified, POS begins the process of researching and evaluating various hardware options, vendors and suppliers of pollution control and monitoring equipment that can satisfy the regulatory requirements. Often, POS will use external consulting services (such as architectural and engineering firms with broad experience in pollution control) to assist in the identification of pollution control options and costs. Through their expertise on technologies, and their knowledge of site specific generating unit designs in the AmerenUE system, POS develops a number of options for meeting the emission control requirements. With the help of outside resources and current industry data, costs are estimated for each technology option.

The POS group also works with AmerenUE generation management to determine power supply needs and outage schedules, to develop recommendations on the timing of the installation of control equipment.

2.1.3 Energy Delivery Technical Services (EDTS) (AmerenUE)

EDTS provides project management and design, quality control, inspection and maintenance of environmental systems for Energy Delivery AmerenUE. From an environmental compliance planning perspective, EDTS has several major functions. These include identification of pollution control and monitoring technologies and associated costs, assessing the resources needed to operate such systems, assessing the feasibility of various pollution control options for electrical substations and facilities and installation of the pollution control and monitoring systems.

Once pollution control and monitoring requirements have been identified, EDTS begins the process of researching and evaluating various hardware options, vendors and suppliers of pollution control and monitoring equipment that can satisfy the regulatory requirements.

2.1.4 Ameren Energy Fuels and Services (AFS) (AMS)

AFS continuously monitors supply options and costs for coal, gas, oil, and alternative fuels. AFS works for AmerenUE to procure these fuel supplies consistent with meeting environmental regulations and operating requirements. AFS works closely with POS to ensure technology options under consideration in the environmental compliance planning are feasible with the fuel supply. For instance, dry scrubbing technology for SO_2 emissions removal prohibits the ability to use moderate to high sulfur coals, which could prevent AmerenUE from using lower cost fuel supplies in the future if dry scrubbing technology is installed on a particular unit.

AFS also monitors the market for emission credits, and executes the contracts for the trading and transfer of emission allowances. In addition, AFS is responsible for handling coal combustion by-products.

AFS is also responsible for contracting renewable generation.

2.1.5 Treasury/Finance (AMS) and Business Planning and Controllers (AmerenUE)

These finance groups are involved in the environmental compliance planning process by evaluating the cost impacts of compliance options relative to overall AmerenUE cash flow and how the timing of expenditures can be integrated with other capital and O&M requirements. While deadlines for compliance are established by regulation, the timing of major capital expenditures may be constrained by the ability to finance such projects relative to other monies necessary to provide a continuous and reliable source of electricity and gas to customers.

These groups also review the total cost of compliance to ensure budgets are reconciled to the future operating requirements and develop financial disclosures consistent with expected expenditures.

2.1.6 Corporate Planning (AMS)

The analysis underlying the environmental compliance planning process is performed by the Strategic Initiatives Department within Corporate Planning. Information from all of the above departments is assimilated for analysis. Additional information from Corporate Planning, AmerenUE, and outside sources is acquired for use in analysis such as forecasted heat input for each generating unit and SO_2 and NO_x allowance price forecasts. Ameren's Corporate Economic Value Added (EVA) Model is often used to determine the cost of the various compliance strategies.

The Strategic Initiatives Department compiles all the underlying information and the results of their analyses into presentations, reports or spreadsheets that describe various compliance strategies. These materials are presented to AmerenUE management and then provided to the ELT, if necessary.

In addition, the Strategic Initiatives Department conducts research and pilot studies of emission control measures. The Strategic Initiatives Department works closely with the Electric Power Research Institute (EPRI), universities and other consortiums to keep abreast and help foster the development of commercial technologies that hold the promise of cost-effective emission controls. The observations and results from the research and pilot studies coordinated under Corporate Planning are presented to AmerenUE management and then to the ELT.

2.1.7 AmerenUE Management

The compliance strategies are presented to the senior management of the affected AmerenUE operating group, and the senior management of AmerenUE. This sometimes leads to further refinement and the examination of additional options. AmerenUE management ultimately determines the preferred compliance strategy. Since market conditions, materials supply, emission allowance prices, regulatory actions and other industry or company actions may materially change over the course of the planning process, contingencies and alternatives are usually considered. AmerenUE management periodically requests the preferred compliance strategy be reviewed to determine if any conditions have changed to suggest a change to the preferred compliance strategy. However, once the strategy begins to be implemented, such contingencies and alternatives become limited.

2.1.8 Shareholder Support

For major compliance plans that would likely involve financial support from Ameren Corporation, such as for large investments related to CAIR, presentations are made to the ELT at several stages in the process. Since all of the groups within the Ameren Corporation family of companies identified above are represented by the ELT, these meetings provide an opportunity to ensure all factors are being considered and all the appropriate resources are being used in the plan development. Once AmerenUE management makes its decision on appropriate compliance plans that implicate funding from Ameren Corporation, the plan is reviewed and ratified by the ELT.

2.2 Planning Process Coordination

The Vice President of Environmental Services, Corporate Planning and AmerenUE meet periodically to ensure the planning is progressing properly. The staffs of the primary departments meet on a continuous basis, from the early stages until a preferred plan has been developed by AmerenUE. Additional resources are used as necessary, such as personnel from the Legal Department, Risk Management, Government Affairs, and Corporate Communications, to ensure the process considers all relevant information, and all appropriate departments are engaged in the process.

2.3 Summary

Environmental compliance planning at AmerenUE is a dynamic and robust process. AmerenUE management uses the experience of both internal and external resources to develop a plan that ensures the company will prudently meet regulatory requirements. By using this expertise, the planning process ensures AmerenUE will not only maintain compliance with new and existing regulations, but also considers likely environmental and operating constraints that the company will face in the future. Ultimately, compliance plans meet the corporate goal of environmental stewardship, demonstrates environmental leadership though innovative solutions and technologies where possible, provides a compliance margin to allow for operating contingencies, and are developed to be as cost-effective as possible. In meeting these criteria, the plan is designed to protect the company's ratepayers and shareholders.

In addition, expenditures in this plan are subject to the approval of the Company's Board of Directors {note that is the Ameren board who approves vs. the UE board} on an annual basis, not on a multi-year basis as reflected in the four and twenty year forecasts included in the plan. At this time, the board has not approved any of these expenditures and consequently, these forecasts may change before ultimately being approved.

* * * * *

3.0 OVERVIEW OF ENVIRONMENTAL LAWS GOVERNING OPERATIONS AT AMERENUE FACILITIES

AmerenUE is subject to various environmental laws and regulations enforced by federal, state (Missouri and Illinois) and local authorities. This section identifies the major federal environmental laws governing the operations of AmerenUE facilities. The State of Missouri, State of Illinois, and local authorities also have environmental laws and/or ordinances which are intended to implement various provisions of the federal statutes. Significant provisions of these acts affecting the power industry are provided.

Major Air Environmental Laws
Clean Air Act (1970, 1977, 1990)
Acid Rain Program
Clean Air Interstate Rule (CAIR)

Major Water Environmental Laws
Clean Water Act (1977; Federal Water Pollution Control Amendments, 1972)
Safe Drinking Water Act (1974, as amended)

Major Solid Waste Environmental Laws
Resource Conservation and Recovery Act (RCRA-1976)
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund 1980), Superfund Amendments and Reauthorization Act (SARA-1986)
Toxic Substances Control Act (TSCA-1976)
Emergency Planning & Community Right-To-Know Act (EPCRA-1986)

Other Environmental Laws
National Environmental Policy Act of 1969 (NEPA)
National Historic Preservation Act (1966)
Endangered Species Act (ESA-1973)
Migratory Bird Treaty Act (1918, as amended)
Bald and Golden Eagle Protection Act (1940, as amended)
Rivers and Harbors Act (1899)
Local Ordinances

3.1 Major Air Environmental Laws

3.1.1 Clean Air Act (1970, 1977, 1990)

The Clean Air Act (CAA) established Ambient Air Quality Standards for SO_2, NO_x, particulate matter (PM), fine particulate matter (PM 2.5), ozone, carbon monoxide (CO) and lead. Ambient standards are evaluated on a 5 year cycle. More stringent ambient standards continue to be developed through this process. Ambient Standards are protected through emission limits, ambient air monitoring, and air quality modeling conducted by each State as part of State Implementation Plans (SIP). Areas are designated as Attainment or Nonattainment with each pollutant. Nonattainment areas are subject to increased pollution control measures.

The CAA also established:

- New Source Performance Standards (NSPS) for determining the pollution control requirements for new sources, including existing sources that become subject to new source requirements due to a "modification" as defined by the statute and relevant rules;
- requirements to permit new pollution sources

and ensure air quality is not deteriorated;
- National Emission Standards for Hazardous Air Pollutants (NESHAPS) for control of asbestos and other hazardous substances;
- New Source Review (NSR) programs, including the Prevention of Significant Deterioration (PSD) program, which impose control requirements on new and modified major sources to protect ambient air quality. These programs do not apply to various actions at existing major sources, including routine repair & replacement of equipment, and changes which do not increase emissions;
- Maximum Achievable Control Technology (MACT) Standards for hazardous air pollutants; and
- The Acid Rain Program.

3.1.2 Acid Rain Program

The Acid Rain Program established a national cap-and-trade program for SO_2 emissions from generating units, established NO_x emission limits for different boiler types, i.e., tangential fired vs cyclone fired units, and required the installation of Continuous Emissions Monitors (CEM) on all coal-fired power plants to measure SO_2, NO_x, oxygen (O_2) and carbon dioxide (CO_2) on a continuous basis.

The Acid Rain Program required a SO_2 emissions cap of 15,000,000 tons in 1995 reduced to 10,000,000 tons in 2000. In addition, generating units were issued thirty (30) years of SO_2 allowances (1 allowance = 1 ton of SO_2 emissions). The SO_2 allowances can be bought, sold, traded, or banked. Three percent of the SO_2 allowances were held back and available for purchase at an annual USEPA SO_2 auction.

3.1.3 Clean Air Interstate Rule (CAIR)

The CAIR established a new lower cap-and-trade program on SO_2 and seasonal NO_x emissions from generating units, as well as a new cap and trade program for annual NOx emissions. For SO_2 emissions, CAIR established a cap of 5,000,000 tons nationally by 2010 and a cap of 3,500,000 million tons by 2015. CAIR has a two phase program for NO_x emissions; where NO_X emissions are capped annually, and seasonally at the NO_x SIP call level, in phase 1 and about 25% lower in phase 2. Prior to CAIR, the NO_x SIP Call had created a seasonal NOx emission cap and trade program for twenty-two (22) eastern states including eastern Missouri. The NO_x SIP Call set a very low ozone season cap on NO_x emissions by state and created NO_x allowances for that ozone season (May – September).

3.1.4 Other Clean Air Act Provisions

Section 126 of the CAA allows downwind states to file petitions against upwind states to control emissions in order to achieve attainment with ambient air quality standards.

The Regional Haze Rule is another provision of the CAA. The goal of the Regional Haze Rule is to set visibility equivalent to natural background levels by 2064 in Class I areas. In addition, the Regional Haze Rule is the basis for Best Available Retrofit Technology (BART) rule setting SO_2 & NO_x control requirements for power plants in each state.

The USEPA is in the process of establishing a mercury MACT standard for utility boilers – rule expected by 2011; mercury emission controls are possible by 2014. Section 4.1.3 provides additional information regarding possible future mercury initiatives.

3.2 Major Water Environmental Laws

3.2.1 Clean Water Act (Amended 1972)

The Clean Water Act (CWA) establishes pollutant specific water quality standards for various water bodies and groundwater. In addition, the CWA includes provisions to prevent degradation of higher quality waters. This includes a regulatory program covering Total Maximum Daily Load (TMDL) of

"pollutants" allowed into waters of the state. Protection of water resources for industrial facilities typically occurs through the National Pollutant Discharge Elimination System (NPDES) permit process. Technology and water quality based effluent limitations are applied to ensure water quality standards are met. In order to meet permit conditions it may be necessary to modify operations or install additional water pollution control equipment to meet a pollutant specific water standard.

3.2.1.1 Clean Water Act, Section 316 (a) Thermal Discharges

Section 316 (a) of the CWA requires limitations on thermal discharges from power plants and other industrial sources. Power plant cooling water discharges are regulated by USEPA and the Missouri Department of Natural Resources (MODNR) through the NPDES permit program. Thermal effluent permit limitations and/or state water quality temperature standards may require the installation of technology - such as cooling towers, cooling lakes or separate discharge streams.

3.2.1.2 Clean Water Act, Section 316 (b) Entrainment and Impingement of Aquatic Organisms

Section 316 (b) of the CWA was established to protect fish and other aquatic habitat from detrimental impacts associated with industrial sources. At power plants–aquatic organisms can be impinged and entrained within cooling water intake structures/piping and condenser systems. USEPA and MODNR establish rules to limit adverse impacts associated with cooling water intake structure operation through the NPDES permit process. Rules can take the form of performance and/or design criteria, or the utilization of specific control technologies. The impingement and entrainment of threatened or endangered species at a cooling water intake structure can also result in the need for additional operational and physical changes.

3.2.1.3 Clean Water Act-Wetlands

Construction projects involving "dredge and fill" (earth disturbance) within identified wetlands/streams can require mitigation, based on the total number of acres impacted. Mitigation involves establishment of replacement wetlands at a ratio of anywhere from 1:1 up to 4:1.

3.2.1.4 Clean Water Act-Spill Prevention Control and Countermeasures (SPCC) Program

The CWA requires spill prevention plans and containment systems be developed for substations and other electrical equipment installations where 1,320 gallons of oil or more in aggregate are present and there is potential for discharge into surface water. These USEPA rules have been revised to clarify that electrical equipment is subject to these rules and are currently scheduled to become final in July 2009. AmerenUE has about 650 substations in Missouri that may be subject to these rules. AmerenUE has developed a program to assess the risk of oil spills to surface waters for these locations.

3.2.2 Safe Drinking Water Act (1974)

The Safe Drinking Water Act was established to protect the quality of drinking water. The Safe Drinking Water Act establishes monitoring frequency and standards for contaminants and requires public notifications and corrective actions when standards are exceeded. The state agency (MODNR) has primacy to establish regulations and enforce compliance.

3.3 Major Solid Waste Environmental Laws

3.3.1 Resource Conservation and Recovery Act (RCRA - 1976)

RCRA regulates generation, transportation, treatment, storage and disposal of hazardous wastes including solvents, lead, mercury, acids, caustics, and other chemicals; regulates Underground Storage Tanks; and regulates the management of used oil. Currently, RCRA provides guidance on the proper management of solid wastes which includes coal combustion products (i.e. ash disposal).

3.3.2 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA - 1980), Superfund Amendments Reauthorization Act (SARA - 1986)

CERCLA initially established as a tax on the petroleum and chemical industries, then SARA was added to increase the trust fund from $1.6 to $8.5 billion. The fund is used to respond to major chemical/petroleum accidents and cleanup historic hazardous waste sites. CERCLA requires release reporting for chemicals that are released into the environment that exceed listed reportable quantities in any twenty-four (24) hour period. In addition, CERCLA required that former sites where hazardous waste had been disposed to be identified. The USEPA identifies major sites for cleanup actions and places sites with highest risk on the National Priorities List (NPL). CERCLA established joint and several liability for certain categories of entities, such as owners and operators of property upon which hazardous substances are located. Such strict liability can extend to successor companies. Companies that did business with cleanup site owners can also considered potentially responsible parties (PRPs).

AmerenUE has environmental clean-up liabilities under CERCLA for the clean-up of ten (10) former coal gas manufacturing facilities [manufactured gas plant (MGP) sites] in Missouri. In addition, AmerenUE has environmental clean up liabilities under CERCLA for the clean-up of various other types of sites. These liabilities generally result from sending oil-filled electrical equipment with polychlorinated biphenyls (PCBs) to contractors that have caused releases in the course of their business and can not pay for cleaning up their property; and substations built on former landfills and industrial sites that represent environmental concerns. Additional details regarding AmerenUE's CERCLA sites are provided in Section 5.3.

3.3.3 Toxic Substances Control Act (TSCA - 1976)

TSCA established regulations to track 75,000 industrial chemicals in the workplace and requires manufacturers to perform hazard assessments related to their products. Also, TSCA requires specific labeling, inspection, storage, spill cleanup, and disposal requirements for PCBs greater than 50 parts per million (ppm).

3.3.4 Emergency Planning & Community Right-To-Know Act (EPCRA - 1986)

EPCRA was established to help communities protect public health & safety from chemical hazards. EPCRA set up State and Local Emergency Planning and Response Agencies and requires that chemical inventory reports be filed by covered facilities with the local fire department as well as local and state emergency response agencies identifying the locations of hazardous oil and listed chemicals above threshold quantities. EPCRA requires annual Toxic Release Inventory (TRI) report for each covered facility which exceeds reporting thresholds for various chemical constituents that are released into the environment.

3.4 Other Environmental Laws

3.4.1 National Environmental Policy Act of 1969 (NEPA)

NEPA was established to provide requirements for federal agencies issuing permits/licenses to ensure full review and disclosure of environmental risks involved in construction and operation of facilities-including cultural resources under the National Historic Preservation Act (NHPA) and threatened and endangered species under the Endangered Species Act (ESA). NEPA compliance is required for major construction projects including new generating plants and new gas pipelines or transmission lines. A full Environmental Impact Statement (EIS) is triggered if construction activity will be permitted by a Federal Agency *and* is deemed to have a significant impact on the environment. An Environmental Assessment (EA) is required for less significant construction.

3.4.2 National Historic Preservation Act (1966)

This Act established measures to ensure historic properties [significant landmarks, structures or buildings, and prehistoric (archeological) sites] are adequately safeguarded and protected, or mitigated for, from new construction activities.

3.4.3 Endangered Species Act (ESA - 1973)

ESA was established to protect rare and endangered species and their habitats from adverse impacts resulting from construction projects or other activities. Under NEPA, federally permitted projects must undergo review by United States Fish and Wildlife Service (USFWS) for assessment of potential impacts. Coordination with the state agency (Missouri Department of Conservation) and compliance with their regulations is also applicable.

3.4.4 Migratory Bird Treaty Act (1918)

Under this Act, all native birds are fully protected from "take," including their eggs and nests and parts (e.g. feathers), except for game species for which seasons/limits are established. The Act established penalties/fines for violations. USFWS is the primary federal agency with authority to enforce.

3.4.5 Bald and Golden Eagle Protection Act (1940)

This Act established full protection from "take" for the Bald and the Golden Eagle, including their nests and eggs and parts (e.g., feathers). The Act established penalties/fines for violations. USFWS is the primary federal agency with authority to enforce.

3.4.6 Rivers and Harbors Act (1899)

Under this Act, construction projects that cross navigable waterways (e.g., electric/gas transmission lines) must apply for a permit from the United States Army Corps of Engineers (USACE) under Section 10 of the Rivers and Harbors Act. Review of impacts under NHPA, ESA, CWA etc. are required under NEPA, should a Section 10 permit be required.

3.4.7 Local Ordinances

AmerenUE facilities are subject to many local environmental ordinances. For example, St. Louis County has a local noise ordinance which restricts noise from commercial or industrial operations to the surrounding environment. Construction activities, equipment specifications and noise attenuations are sometimes required to meet these standards.

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4.0 POSSIBLE FUTURE ENVIRONMENTAL INITIATIVES

This section includes a summary of possible future environmental initiatives that would affect the power industry if certain future potential environmental legislation or regulation would become law. The information included below has been prepared in good faith and there is no assurance or certainty regarding the future of the identified environmental initiatives or their potential requirements.

4.1 Possible Future Air Environmental Initiatives

4.1.1 Global Climate Initiatives

Future initiatives regarding greenhouse gas emissions and global warming are actively being considered in the U.S. Congress. On June 26, 2009, the United States House of Representatives passed the American Clean Energy and Security Act of 2009 (ACES). This legislation was introduced by Representatives Henry Waxman (D-CA) and Edward Markey (D-MA). The cap and trade portion of the bill requires electric utilities to cut 2005 CO_2 emissions 17% by 2020, 42% by 2030, and 83% by 2050. ACES requires electric utilities, large-industrial sources and other entities that emit 25,000 tons or more per year of CO_2-equivalents to have tradable federal allowances for each ton emitted into the atmosphere. ACES is estimated to cover over 85% of the United States emissions of greenhouse gases (GHGs). ACES allocates allowances to the electric utility sector based on historical emissions and retail sales. In addition ACES contains a provision allowing emitting sources to use certified offsets (reductions in CO2 emissions) from reductions made by sources in sectors not covered by the bill. However, the total quantity of offsets allowed in any year cannot exceed 2 billon tons, split evenly between domestic and international offsets. In addition, after 2017 entities that seek to use international offsets to meet their compliance obligation must submit 5 tons of offset credits for every 4 tons of emissions being offset. The bill also includes a Renewable Energy Standard that requires utilities to increase renewable energy generation to 20% by 2020.

The United States Senate has begun the hearing process to enact climate legislation. This process is expected to take place through mid September. The Senate would then vote on the bill in the fall. It is unknown how similar this bill will be to ACES.

While we cannot predict the date of enactment or the requirements of any climate change legislation, it is likely that some form of federal greenhouse gas legislation will become law during the Obama administration. If and when adopted, future climate change legislation are expected to have a significant impact on AmerenUE operations.

With regard to greenhouse gas regulation under existing law, in April 2007, the U.S. Supreme Court issued a decision that the USEPA had the authority to regulate CO_2 and other greenhouse gases from automobiles as "air pollutants" under the CAA. This decision was a result of a Bush Administration ruling denying a waiver request by the state of California to implement such regulations. The Supreme Court sent the case back to the USEPA, which must conduct a rulemaking process to determine whether greenhouse gas emissions contribute to climate change "which may reasonably be anticipated to endanger public health or welfare." In April 2009, the USEPA issued a proposed finding that greenhouse gases contribute to air pollution that may endanger public health or welfare. The USEPA plans to take comments on its proposed findings and hold hearings. It is anticipated that the endangerment finding may, if not changed by legislation, pave the way for states to regulate greenhouse gas emissions from automobiles. It could also set in motion the process of establishing regulatory emission limitations for new or modified power plants and other industrial sources of greenhouse gasses. This endangerment finding is expected to be final by the end of 2009. However, specific regulations governing power plants

and other sources would be developed in subsequent rulemakings and may be preempted by federal legislative actions.

4.1.2 Revised CAIR Initiatives

Much of the recent compliance planning for SO_2 and NO_X controls on the AmerenUE system has been based on the need to comply with the federal CAIR rule, which was issued final in 2005. Challenges to this rule ultimately resulted in the rule being remanded by a Federal Court to the USEPA. That Federal Court made it clear that certain provisions in the rule, such as the use of Clean Air Act Acid Rain SO_2 emission allowances, may not be used for compliance purposes. USEPA will likely issue a proposed new rule in 2009 or 2010, if it is not superseded by new Federal legislation. Any new restrictions on power plant SO_2 and NO_X emissions are likely to be more stringent than in the existing CAIR rule, especially after 2015. In addition, unless USEPA establishes a new emissions trading program in its revised rule, it is likely additional SO_2 and NO_x controls will be required on the AmerenUE power plants beyond current budget projections, as addressed further in Sections 5, 6 and 7, below.

4.1.3 Mercury and Other Hazardous Air Pollution Initiatives

USEPA had promulgated a Clean Air Mercury Rule (CAMR), which defined the mercury monitoring and control requirements for coal-fired power plants over the next ten years. In 2008, the rule was vacated by a Federal Court and remanded to USEPA. In 2009, the USEPA dropped its challenge to the court decision. The new Administration is planning to replace the CAMR rule with a MACT standard for mercury and possibly other hazardous air pollution emissions from power plants by 2011. A MACT standard essentially requires the application of the most effective demonstrated pollution reduction equipment commercially viable. It is unclear whether the planned technology for mercury control - namely Activated Carbon Injection - will be acceptable as MACT control for power plants. If it is not, then Flue Gas Desulfurization (FGD) or other technology may be required on all power plants in the 2015-2017 timeframe. USEPA is signaling that it will develop MACT standards for other hazardous air pollutants, such as metals, acids and organics, for power plant emissions. The additional standards may be issued along with or as part of the mercury MACT rulemaking. It is unclear at this time what additional technology, if any, will be required to control such emissions.

4.2 Possible Future Solid Waste Environmental Initiatives

4.2.1 Ash Pond Initiatives

The Tennessee Valley Authority (TVA) ash pond failure in December 2008 has the potential to change the company's management of ash and other coal-combustion products because it has refocused Congress and USEPA's attention on ash. In 2000, USEPA considered classifying ash as a hazardous waste, but decided to classify it as non-hazardous and intended to prepare guidance for State regulations. The electric industry had been working since that time to provide the Agency with information it wanted without additional regulation through the development of a plan that would include voluntary installation of groundwater monitoring at plants. Now, USEPA is preparing to propose regulations, possibly by the end of 2009, and one proposal that the Agency is said to be considering could include classifying ash as a hazardous waste when operations significantly violate new requirements. A hazardous waste classification for ash, even temporarily, could end most if not all beneficial uses for ash due to the potential user's avoidance of materials that have uncertain regulatory status. It is possible that the proposal could also include requiring closure of ash ponds within some time frame (environmental groups have called for ash pond closure in 2 years) and removal of ash to landfills. The company has begun building landfills to replace filled ponds, but some are only in the early planning phase and early closure of ponds would result in significant expenditures, in the tens of millions of dollars per site, to deal with the loss of those pond assets, changes to schedules, as well as possible modifications to the plants.

4.2.2 Ash Pond Closure Initiatives

Historically, coal ash has typically been wet sluiced into ash ponds. Ash ponds are permitted as a waste water treatment device under the Missouri water permit program and are subject to closure requirements when they are excluded from the water permit process. Ash pond closures may require an evaluation of groundwater conditions and the development of a closure plan that includes an impervious cap and vegetative cover. Sub-surface water conditions may warrant the installation of a groundwater collection and treatment system and/or the acquisition of additional properties. Long term monitoring of groundwater conditions and the integrity of the cap and vegetation may be required. Since there are no specific regulations regarding the requirements for ash pond closures, costs for closures remain uncertain. It is possible that permanent closures could cost millions of dollars at each power plant, and ongoing O&M costs could be in the hundreds of thousands of dollars per site annually.

4.3 Possible Future Clean Water Regulatory Initiatives

4.3.1 Clean Water Act, Section 316 (a) Thermal Discharges

Thermal discharges – Power plant cooling water discharges are regulated by USEPA and MODNR through the NPDES permit program. Currently the State of Missouri and the USEPA are working on new NPDES permits for AmerenUE power plants. Early indications suggest there may be difficulties in meeting revised thermal effluent permit limitations and/or state water quality temperature standards. If these limitations cannot be met, a variance may be sought through section 316 (a) of the CWA, or the facility may be required to install a cooling tower(s). The pursuit of a 316 (a) variance would require environmental field studies focused on aquatic impacts coupled with an evaluation of hydrologic/thermal modeling of cooling water plume characteristics. If a 316 (a) variance demonstration is not successful, existing power plants could be required to reduce generation under certain operating conditions, or undertake infrastructure retro-fits to accommodate the installation of cooling towers. Cooling tower retro-fits will require substantial engineering, design and construction, including possible replacement of condensers. Property acquisition may be necessary at some locations. Cooling tower installations would increase parasitic load requirements and decrease overall plant efficiency.

4.3.2 Clean Water Act, Section 316 (b) Entrainment and Impingement of Aquatic Organisms

The USEPA is in the process of revising Section 316 (b) regulations as a result of court challenges to the rule which culminated in a Supreme Court decision in December of 2008. The rules are designed to limit adverse impacts associated with cooling water intake structure operation through the NPDES permit process. Rules can take the form of performance and/or design criteria, or the utilization of specific control technologies. Control technologies may include the replacement and utilization of a different traveling screen design or other totally different technology. Modified traveling screen designs may incorporate the use of “fine mesh” screens with a low pressure spray wash system to return large and small aquatic organisms to the water body downstream of the intake structure. They may also require the installation of specialized fish collection systems (fish baskets) on the bottom of each traveling screen section. Regulatory agencies may require extensive environmental sampling/testing/studies to demonstrate compliance with performance standards. In order to reduce water approach velocities, and subsequent impingement and entrainment, it may also be necessary to modify and expand the physical size of the intake structure. USEPA may also have the discretion to mandate cooling tower retro-fits at all existing plant sites. The impingement and entrainment of threatened or endangered species at a cooling water intake structure can also result in the need for operational and physical modifications up to and including cooling tower retro-fits.

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5.0 TWENTY (20)-YEAR FORECAST OF ENVIRONMENTAL COMPLIANCE INVESTMENTS AND EXPENDITURES

This section describes the AmerenUE twenty (20)-year forecast of environmental compliance investments and expenditures for air, water, solid waste, and other environmental compliance projects. In addition, this section documents the supporting information that was used to develop AmerenUE's twenty (20)-year forecast. The preparation of AmerenUE's twenty (20)-year environmental forecast was a collaborative effort among numerous subject matter experts within the company. This plan is based on current environmental regulations and assumes that the Meramec Plant is retired in 2022 which is consistent with the most recent AmerenUE IRP (developed in 2007 and filed in early 2008).

Table 1 contains the AmerenUE twenty (20)-year forecast for air, water, solid waste, and other environmental projects from 2009-2028. The twenty (20)-year forecast includes both capital expenditures and O&M costs.

5.1 Air Environmental Strategy

The 2009 *AmerenUE Twenty (20)-Year Environmental Compliance Strategy Air Analysis Report* (AmerenUE Air Analysis Report) provides a comprehensive analysis that was used by AmerenUE management to determine the current strategy for SO_2, NO_x and mercury at its generating units. Appendix A contains the AmerenUE Air Analysis Report.

Table 1 contains the twenty (20)-year forecast for air environmental projects, which comply with air environmental regulations at the coal-fired power plants. The total estimated capital investments for the twenty (20)-year period associated with air environmental projects is approximately [redacted]. The following sections describe the environmental compliance plan by air pollutant.

5.1.1 SO_2 Compliance Plan

AmerenUE developed a SO_2 compliance strategy for environmental compliance with the CAA, the Acid Rain Program, and CAIR at its coal-fired power plants. Various SO_2 compliance strategies were evaluated and the results are presented in Appendix A. Based on the analysis presented in the AmerenUE Air Analysis Report, AmerenUE's compliance plan for SO_2 is to complete the installation of WFGD emission control equipment for SO_2 reduction at Sioux 1 & 2 and to [redacted] 2009-2028. [redacted]. In addition, for the reasons discussed in more detail in Section 7.2.1, pre-engineering costs associated with FGD emission control studies at Rush Island and Labadie are included to prepare for the possibility that CAIR rules will become significantly more stringent. [redacted]

Control Equipment and Units	Schedule (Year, In Service Date)
WFGD – Sioux 1 & 2	2011

Table 1 contains the twenty (20)-year forecast of capital investments for SO_2 compliance. The total estimated cost for the twenty (20)-year forecast relating to SO_2 compliance is approximately [redacted], including approximately [redacted] and

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approximately [redacted] pre-engineering studies for scrubbers at Labadie and Rush Island.

The total estimated capital investments associated with the Sioux 1 & 2 WFGD is approximately [redacted]. This includes, an opening balance (capital expenditures through 2008) of approximately [redacted] and approximately [redacted] of capital investments projected from 2009-2012.

5.1.2 NO_x Compliance Plan

AmerenUE developed a NO_x compliance strategy for environmental compliance with the CAA, the Acid Rain Program, and CAIR at coal-fired power plants. Various potential NO_x compliance strategies were evaluated and the results are presented in Appendix A. Based on the NO_x analysis presented in the AmerenUE Air Analysis Report, AmerenUE's compliance plan for NO_x is [redacted] to operate the Sioux 1 & 2 Rich Reagent Injection/Selective Non-Catalytic Reduction (RRI/SNCR) systems as needed. [redacted]

Table 1 presents the twenty (20)-year forecast of capital investments for NO_x compliance. The total estimated cost for the twenty (20)-year forecast relating to NO_x compliance is approximately [redacted], including approximately [redacted] and approximately [redacted]

5.1.3 Mercury Compliance Plan

As presented in Section 4.1.3, USEPA promulgated the CAMR which defined the mercury monitoring and control requirements for coal-fired power plants. However, the rule was vacated by the Federal Courts and remanded to USEPA in 2008. The USEPA dropped their challenge to the court decision in 2009. The USEPA is planning to replace the CAMR rule with a MACT standard for mercury emissions from power plants by 2011. A MACT standard requires the application of the most effective pollution reduction equipment commercially available. It is unclear whether the planned technology for mercury control - namely HACI - will be acceptable as MACT control for power plants. If it is not, then FGD or other technology may be required on all power plants in the 2015-2017 timeframe. It is unclear at this time what additional technology, if any, will be required to control such emissions.

Due to the uncertainty in the final regulations, AmerenUE's compliance plan for mercury includes the [redacted] when MACT standards would apply. The details regarding the mercury strategy are presented in Appendix A. [redacted]

Control Equipment and Units	Schedule (Year, Operation Date)
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 1 presents the twenty (20)-year forecast of capital investments for mercury compliance. The total estimated cost for the twenty (20)-year forecast relating to mercury compliance is approximately [redacted], including approximately [redacted] for total capital investments.

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5.1.4 Miscellaneous Air Projects

In addition to the SO_2, NO_x, and mercury projects, AmerenUE performs other air projects that are required due to environmental regulations. [redacted] Table 1 presents the twenty (20)-year forecast of capital investments for miscellaneous air projects. The total capital investment for the twenty (20)-year forecast for other miscellaneous air projects is approximately [redacted]

5.2 Water Environmental Compliance Plan

Table 1 presents the twenty (20)-year forecast of capital investments for water environmental projects, including potable water projects, CWA, Section 316 (a) projects, CWA, Section 316 (b) projects, river level projects, groundwater and NPDES monitoring projects at Callaway Nuclear Plant, groundwater monitoring projects at AmerenUE landfills, and compliance projects at the hydroelectric plants at the AmerenUE facilities from 2009-2028. The estimated capital investments for water environmental projects over the 2009-2028 period are approximately [redacted].

5.3 Solid Waste Environmental Compliance Plan

Table 1 presents the twenty (20)-year forecast of capital investments for solid waste environmental projects, including landfill activities, miscellaneous clean up sites, and sewage treatment plant activities from 2009-2028. The estimated capital investments for solid waste environmental projects are approximately [redacted].

5.3.1 Landfill Activities

The coal combustion products (i.e. fly ash and gypsum material) generated at AmerenUE facilities is disposed of in accordance with RCRA. However, much of the fly ash that is generated from Labadie Plant, Rush Island Plant, and Meramec Plant will be sold to others from 2009-2013. The Company anticipates that mercury MACT regulations will require that [redacted] to be used to control mercury emissions at the coal-fired power plants beginning [redacted]. At that time, it is anticipated that the fly ash will no longer be saleable as it will contain higher levels of mercury and carbon and will be disposed of in an approved landfill. The estimated capital investments for total landfill activities over the 2009-2028 period is approximately [redacted].

5.3.2 Ash Pond Activities

As a result of the TVA ash pond failure, USEPA likely will be proposing new regulations for the handling and storage of coal combustion wastes, including ash. It is anticipated that new rules would require dry ash handling and storage. As a result, [redacted] million in O&M costs are expected over the next 20 years for ash pond closures and [redacted] million in capital costs for dry ash conversion and water treatment facilities at existing coal-fired power plants.

5.3.3 Miscellaneous Cleanup Sites

AmerenUE has environmental clean up liabilities under CERCLA for the clean up of various types of sites. These liabilities generally result from sending oil filled electrical equipment with PCBs to contractors that have caused releases in the course of their business and can not pay for cleaning up their property; and substations built on former landfills and industrial sites that represent environmental concerns. Most of these costs are expected to be incurred in the next four years with lesser amounts beyond this based on the progress of agency negotiations, litigation and future additional work required. The estimated twenty (20)-year forecast for expenditures relating to miscellaneous cleanup site activities is approximately [redacted].

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5.3.3.1 Sauget Landfill

AmerenUE owned an industrial landfill in the Village of Sauget, Illinois that received waste from Monsanto and other industries. This property is part of a multi-site cleanup effort under a USEPA order. Site investigation and risk assessment phases have been completed. Remedial options are being developed. AmerenUE is one of a group of parties funding this work which is expected to cost [redacted]. AmerenUE's final share of the cleanup costs is unknown; but is expected to be [redacted] based on past and projected costs. The estimated twenty (20)-year forecast of expenditures relating to the Sauget Landfill Site is approximately [redacted].

5.3.3.2 Substations on Former Landfills

AmerenUE has built substations on three sites in St. Louis that were formerly municipal landfills. One site investigation has recently been completed under an order with the USEPA and costs including future monitoring are expected to [redacted]. Preliminary investigations are underway at the other two sites so total costs are unknown. The estimated twenty (20)-year forecast of expenditures relating to the three substations on landfill sites is approximately [redacted].

5.3.3.3 Spill Response

AmerenUE incurs environmental costs associated with the clean up of oil spills from electrical equipment that may be contaminated with PCBs. These costs vary based on severe weather such as ice storms, high winds, tornados, etc. but typically are [redacted] per year. The estimated twenty (20)-year forecast of expenditures relating to the spill response projects is approximately [redacted].

5.3.3.4 Due Diligence Costs

AmerenUE performs due diligence environmental investigations and sometimes incurs cleanup costs associated with former owners of properties during the course of buying and selling property. These costs vary based on the number and scope of the properties but generally are [redacted] per year. The estimated twenty (20)-year forecast or expenditures relating to environmental due diligence projects is approximately [redacted].

5.3.3.5 Miscellaneous Costs

AmerenUE incurs costs associated with the management of underground storage tanks, poles, used oil, paint waste, solvents, etc. in the course of normal business. These costs have not been compiled but are expected to be [redacted] per year. The estimated twenty (20)-year forecast of expenditures relating to the miscellaneous management of other solid waste environmental projects is approximately [redacted].

5.3.4 Sewage Treatment Plant Projects

AmerenUE incurs costs associated with the management of sewage treatment plant projects at some of the power plants. The estimated capital investments for the miscellaneous management of the sewage plant projects are approximately [redacted].

5.4 Other Environmental Projects

Table 1 presents the twenty (20)-year forecast for other environmental projects, including NHPA projects and avian protection projects from 2009-2028. The estimated twenty (20)-year forecast of capital investments for other environmental projects over the 2009-2028 period are approximately [redacted].

5.4.1 National Historic Preservation Act

Major construction projects (power plants & transmission lines) that encounter significant cultural or historical resources may be required to alter design to avoid such resources, accommodate schedule delays, or mitigate the impacts (i.e., recover and document the resources) prior to moving forward with

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the project. Full mitigation efforts are rare but can run [redacted] per site. The estimated twenty (20)-year forecast of expenditures for the NHPA projects is approximately [redacted].

5.4.2 Avian Protection Program

Raptors and other migratory birds are protected by several Federal statutes, including the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Transmission and distribution lines, as well as other electrical equipment such as in substations, can pose a hazard to these birds. AmerenUE has recorded a number of electrocutions of bald eagles and hawks since 2002 which have been recorded with the USFWS. Most electrocutions occur from the raptors making contact with multiple conductors on distribution lines via their large wing span. Ameren has developed an Avian Protection Plan (APP) at the request of the USFWS to increase the separation or cover the conductors on distribution poles to reduce the risk of avian electrocutions in identified "high risk" areas of our service territory. Because of the extensive service territory and accompanying large number of miles of distribution service facilities (e.g., poles/lines), and the costs to reconfigure, the scope of proactive retrofits could potentially [redacted] annually. The estimated twenty (20)-year forecast of expenditures relating to the avian protection projects is approximately [redacted].

5.5 Summary

AmerenUE's twenty (20)-year forecast of expenditures for environmental compliance forecast is based on current environmental regulations. The following is a summary of the twenty (20)-year forecast of expenditures for environmental compliance:

ITEM	ESTIMATED TOTAL COST
Air Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Water Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Solid Waste Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Other Projects Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]

The total estimated cost for the AmerenUE twenty (20)-year environmental compliance plan is approximately [redacted], including approximately [redacted] for capital investments and approximately [redacted] for O&M expenses.

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6.0 FOUR (4)-YEAR DETAILED ENVIRONMENTAL COMPLIANCE PLAN

This section describes the AmerenUE four (4)-year detailed environmental compliance plan that contains an estimated four (4)-year detailed forecast of air, water, solid waste, and other environmental projects. In addition, this section documents the supporting information that was used to develop AmerenUE's four (4)-year environmental compliance plan. This plan is based on current environmental regulations and presents the details for the years 2009-2012 that are included in the twenty (20)-year forecast of expenditures discussed earlier.

Table 2 contains the AmerenUE four (4)-year forecast for air, water, solid waste, and other environmental projects from 2009-2012. The four (4)-year environmental compliance plan forecast includes both capital expenditures and O&M costs.

6.1 Air Environmental Strategy

Table 2 contains the four (4)-year forecast of air environmental projects, which comply with air environmental regulations at the coal-fired power plants. The total estimated capital investments for the four (4)-year period associated with air environmental projects is approximately [redacted]. The following sections describe the environmental compliance plan by air pollutant.

6.1.1 SO_2 Compliance Plan

Over the next four (4) years, AmerenUE plans to complete the installation of WFGD units at Sioux 1 & 2 and conduct pre-engineering studies regarding possible FGD activities at Rush Island and Labadie, as addressed further in Section 7.2.1. [redacted]

Table 2 contains the four (4)-year forecast of capital investments for SO_2 compliance. The total estimated cost for the four (4)-year forecast for SO_2 strategy is approximately [redacted], including approximately [redacted] for capital investments during this period to complete the installation of WFGD emission control equipment at Sioux 1 & 2.

The total estimated capital investments associated with the Sioux 1 & 2 WFGD is approximately [redacted]. This includes, an opening balance (capital expenditures through 2008) of approximately [redacted] and approximately [redacted] of capital investments projected from 2009-2012.

6.1.2 NO_x Compliance Plan

Over the next four (4) years, AmerenUE plans to implement a NO_x compliance strategy that consists of operating the Sioux 1 & 2 RRI/SNCR units as needed. [redacted]

Table 2 presents the four (4)-year forecast of capital investments for NO_x compliance. The total estimated cost for the four (4)-year forecast for NO_x strategy is approximately [redacted].

6.1.3 Mercury Compliance Plan

Due to the uncertainty in the final regulations for mercury (addressed earlier), AmerenUE's compliance plan for mercury includes the installation of [redacted]

Table 2 presents the four (4)-year forecast of capital investments for mercury compliance. The total estimated investment for the four (4)-year forecast for the mercury strategy is approximately [redacted].

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6.1.4 Miscellaneous Air Projects

Over the next four (4) years, the group of miscellaneous air projects includes [redacted]

Table 2 presents the four (4)-year forecast of capital investments for miscellaneous air projects. The total capital investment for the four (4)-year forecast for other miscellaneous air projects is approximately [redacted].

6.2 Water Environmental Compliance Plan

Table 2 presents the four (4)-year forecast for water environmental projects, including potable water projects, CWA, Section 316 (a) projects, CWA, Section 316 (b) projects, river level projects, groundwater and NPDES monitoring projects at Callaway Nuclear Plant, and compliance projects at the hydroelectric plants at the AmerenUE facilities from 2009-2012. The estimated capital investments for water environmental projects over the 2009-2012 period are approximately [redacted].

6.3 Solid Waste Environmental Compliance Plan

Table 2 presents the four (4)-year forecast for solid waste environmental projects, including landfill activities, miscellaneous clean up sites, and sewage treatment plant activities from 2009-2012. O&M costs associated with the assessment and monitoring of groundwater around ash ponds and landfills will be [redacted]. The estimated capital investments for solid waste environmental projects are approximately [redacted].

6.4 Other Environmental Projects

Table 2 presents the four (4)-year forecast for other environmental projects, including NHPA projects and avian protection projects from 2009-2012. The estimated capital investments for other environmental projects over the 2009-2018 period are approximately [redacted].

6.5 Summary

AmerenUE's four (4)-year environmental compliance forecast is based on current environmental regulations. Given the length of the forecast period, the likelihood of changes in environmental laws and regulations, and the uncertainty surrounding labor and materials costs in the future, these forecasts could change substantially but represent AmerenUE's best estimate of these costs as of the preparation of this ECP. The following is a summary of the four (4)-year environmental compliance forecast:

ITEM	ESTIMATED TOTAL COST
Air Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Water Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]
Solid Waste Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]

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ITEM	ESTIMATED TOTAL COST
Other Projects Environmental Compliance Plan	
Capital Investments	[redacted]
O&M Expenses	[redacted]

The total estimated cost for the AmerenUE four (4)-year environmental compliance plan is approximately [redacted], including approximately [redacted] for capital investments and approximately [redacted] for O&M expenses.

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7.0 COMPARISON OF AMERENUE ENVIRONMENTAL COMPLIANCE PLAN TO FEBRUARY 2008 INTEGRATED RESOURCE PLAN

This section identifies the differences between the ECP under current environmental regulations and the most recent IRP. The AmerenUE IRP was filed with the MOPSC on February 5, 2008 and is available to all parties and also publicly available at www.ameren.com. In addition, this section identifies the impact that possible future air environmental laws may have on the air environmental compliance strategy.

7.1 Current Environmental Regulations

7.1.1 Air Environmental Strategy

The air emissions environmental controls identified in the IRP are similar but not identical to those presented in the 2009 AmerenUE ECP. This is because this ECP is based upon more recent information than the prior IRP. The table below summarizes the differences:

Control Equipment	IRP	ECP
SO_2		
WFGD – Sioux 1 & 2	2010	2011
Mercury		
HACI – Meramec 3 & 4	2015	[redacted]
HACI – Rush Island 1 & 2	2015	[redacted]
HACI – Labadie 1 & 2	2015	[redacted]
HACI – Labadie 3 & 4	2015	[redacted]
[redacted]	[redacted]	[redacted]

NOTES:
1. WFGD – wet flue gas desulfurization
2. HACI – halogenated activated carbon injection

[redacted]

7.1.1.1 SO_2 Compliance Plan

Based on the current CAA, the Acid Rain Program, and the CAIR, the AmerenUE Air Analysis Report contained in Appendix A suggests that the least cost plan is [redacted] from 2009-2028. In addition, the SO_2 compliance strategy includes some additional costs for pre-engineering studies associated with potential FGD emission control technologies at Rush Island and Labadie. [redacted]

The IRP shows WFGD systems at Sioux Plant in 2010 and no other SO_2 controls during the planning period (2007-2026). The ECP shows the in-service date for Sioux Plant in 2011. The in-service date for the scrubber for the Sioux Plant was extended to address liquidity problems created by the financial crisis that began in 2008, while maintaining compliance to meet environmental regulations.

7.1.1.2 NO_x Compliance Plan

The last IRP shows no additional NO_x control installations for AmerenUE during the planning period reflected in that IRP. It does assume operation of the RRI/SNCR systems at Sioux on a year around basis beginning in 2009. [redacted] RRI/SNCR at Sioux 1 & 2 units, as needed.

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The analysis supporting the ECP shows the least cost plan to be one [redacted]

7.1.1.3 Mercury Compliance Plan

As described in Section 4.1.3, USEPA promulgated the CAMR which defined the mercury monitoring and control requirements for coal-fired power plants. However, the rule was vacated by a Federal Court and remanded to USEPA in 2008. The USEPA dropped its challenge to the court decision in 2009. The USEPA is planning to replace the CAMR rule with a MACT standard for mercury emissions from power plants by 2011. A MACT standard essentially requires the application of the most effective pollution reduction equipment commercially available. It is unclear whether the planned technology for mercury control - namely HACI - will be acceptable as MACT control for power plants. If it is not, then FGD or other technology may be required on all power plants in the 2015-2017 timeframe. It is unclear at this time what additional technology, if any, will be required to control such emissions.

The IRP shows HACI systems to be installed on the Labadie, Meramec and Rush Island units in 2015. The ECP shows [redacted] The IRP used a model which simulated every fifth year. Thus, it could install mercury control technology in 2010, 2015, 2020 or 2025. In addition, FGD was assumed to not require FA to enhance mercury removal. Thus given the limitations of the model and technologies evaluated for the IRP, [redacted].

AmerenUE research and testing has shown the effectiveness of mercury control technologies to be very unit dependent. Each boiler has different removal characteristics depending on such things as unburned carbon and the presence of an SO_3 injection system. Therefore, the use of generic costs and performance information (as was done for the prior IRP) is a less accurate indicator of actual AmerenUE unit performance. In addition, [redacted] In addition, much of the Hg cost and performance information was developed after the assumptions for the IRP were finalized in mid-2007.

The vacatur of the CAMR occurred after the last IRP was prepared. Given the more recent information described above and the continuing uncertainty surrounding the vacatur of the CAMR, it is likely that the mercury compliance plan in this ECP as well as the next IRP will have to be revised further. AmerenUE will continue to monitor this issue and will revise this ECP regarding mercury if necessary once the USEPA and the courts provide a clear direction on how to proceed.

7.1.2 Water, Solid Waste, and Other Projects Included in the Environmental Compliance Plan

The IRP did not include water, solid waste, and other environmental compliance projects during the planning period (2007-2026). The ECP does include water, solid waste, and other environmental compliance projects for coal-fired power plants during the planning period. The ECP is based on current environmental regulations. There may be additional costs due to future environmental regulations which cannot be quantified at this time. Therefore, AmerenUE plans to update the ECP periodically to accurately capture the impact of future environmental regulations and allow AmerenUE to maintain a current environmental compliance plan.

7.2 Impact of Possible Future Air Environmental Regulations

Possible future air environmental laws may have a significant impact on AmerenUE's air environmental compliance strategy. Therefore, it is prudent for AmerenUE to be proactive and consider the impact that possible future air environmental regulations may have on the future long term air environmental compliance plan.

7.2.1 SO_2 Compliance Plan

As mentioned in Section 7.1.1.1, AmerenUE's ECP relating to SO_2 emission is to install WFGD units at Sioux 1 & 2 by 2011 [redacted] 2009-2028. In addition, this ECP calls for including some additional costs for pre-engineering studies associated with FGD emission control at Rush Island and Labadie as a prudent planning step in the event that revised CAIR rules, which have been remanded to the USEPA, impose much stricter limits on emissions in the next few years. In addition, there is a material risk (perhaps it is probable) that CAIR limits will become more stringent, and because the ECP's [redacted] It is in fact uncertain whether allowances will be a compliance method if new CAIR regulations or other emission initiatives are adopted. For these reasons, AmerenUE's management determined that it was prudent to continue pre-engineering for additional controls and Labadie and Rush Island as part of the ECP.

If more stringent limits are imposed, an alternative long-term strategy for SO_2 –related compliance is summarized below:

Control Equipment and Units	Schedule (Year, In Service Date)
WFGD – Sioux 1 & 2	2011
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

This alternative strategy puts AmerenUE in a position to comply if the material risk of more stringent CAIR limits becomes law, [redacted] AmerenUE will continue to carefully review this strategy periodically and make changes where warranted to develop the most balanced and prudent compliance plan.

7.2.2 NO_x Compliance Plan

As mentioned in Section 7.1.1.2, this ECP [redacted] RRI/SNCR at Sioux 1 & 2 units, as needed and [redacted]. As described in Section 4.1.2, it is likely that NO_x limits will be more stringent with the new regulations. Thus, AmerenUE plans to review this strategy periodically and make changes where warranted to develop the best plan for UE's customers.

7.2.3 Mercury Compliance Plan

As mentioned in Section 7.1.1.3, this ECP [redacted]. As described in Section 4.1.3, the USEPA is planning to replace the CAMR rule with a MACT standard for mercury emissions from power plants by 2011. If additional scrubbers are required for revised CAIR

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then [redacted] to control mercury emissions.

The vacatur of the CAMR occurred after the prior IRP was prepared. However, given the more recent information described above and the continuing uncertainty surrounding the vacatur of the CAMR, it is likely that the mercury compliance plan in this ECP will have to be revised further. AmerenUE will continue to monitor this issue and will revise this ECP regarding mercury if necessary once the USEPA and the courts provide a clear direction on how to proceed.

7.2.4 Summary of Potential Costs Associated with an Alternative Future Air Environmental Compliance Plan

Possible future air environmental laws may have a significant impact on AmerenUE's air environmental compliance strategy. AmerenUE's alternative compliance plan for major air quality issues based on potential future environmental regulations at its generating plants is to utilize the installation of WFGD emission control equipment for SO_2 reduction at Sioux 1 & 2, plus [redacted] to operate the Sioux 1 & 2 RRI/SNCR systems as needed for compliance with NO_x-related regulations and [redacted] for compliance with mercury-related regulations.

Table 3 contains the twenty (20)-year forecast for the above-mentioned possible future air environmental regulations. The total estimated capital investments for the twenty (20)-year period associated with air environmental projects is approximately [redacted]. The total estimated O&M for the twenty (20)-year period associated with the above-mentioned alternative future air environmental projects is approximately [redacted].

AmerenUE will continue to monitor the development of these revised rules and update the ECP accordingly.

* * * * *

Tables 1-3
are
HIGHLY CONFIDENTIAL
in their entirety
and have been omitted

APPENDIX A

2009 AmerenUE
Environmental Compliance Strategy
Air Analysis Report

2009 AmerenUE
Environmental Compliance Strategy
Air Analysis Report

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* * * * *

1.0 INTRODUCTION

In February 2009, AmerenUE requested that the Strategic Initiatives Department within the Corporate Planning Department perform an updated analysis of its current environmental compliance strategy. The analysis would review the current compliance strategy for AmerenUE to comply with environmental regulations associated with its power plant air emissions. This study provides an analysis of various air compliance strategies to meet the current Clean Air Interstate Rule (CAIR) compliance requirements associated with its sulfur dioxide (SO_2) and nitrogen oxides (NO_x) emissions. In addition, the study describes mercury (Hg) emissions control equipment required to meet potential mercury Maximum Achievable Control Technology (MACT) standards. Since CAIR was remanded by the Federal Court in December 2008, there is the potential to be more stringent SO_2 and NO_x regulations emerging. As a result, two more stringent environmental requirements were considered as alternative CAIR scenarios. One scenario was a more aggressive cap-and-trade regulation. The other scenario was a rate limit based compliance/regulation without trading of allowances. The results from these analyses are compiled in this document entitled the *2009 AmerenUE Environmental Compliance Strategy Air Analysis Report* (AmerenUE Air Analysis Report). The AmerenUE Air Analysis Report utilizes the preferred plan in the business as usual case from the AmerenUE Integrated Resource Plan (IRP) (February 2008) for projected operation of AmerenUE resources to develop the emission forecasts during the study period.

Optional Strategies:

SO_2 – Current CAIR Scenario: [redacted] Alternative CAIR Scenarios: 1) More aggressive cap-and-trade scenario and 2) Rate limit scenario.

NO_x - Current CAIR Scenario: [redacted] Alternative CAIR Scenarios: 1) More aggressive cap-and-trade scenario and 2) Rate limit scenario.

Hg MACT Strategy - [redacted]

The purpose of this AmerenUE Air Analysis Report is to provide AmerenUE sufficient information for development of a long term air environmental compliance plan.

2.0 BACKGROUND INFORMATION

The following paragraphs describe some of the data and methods used in the analysis.

2.1 Economic Value Added (EVA) Model

The corporate EVA model is an Excel based model that incorporates all capital, operation and maintenance (O&M), allowances for funds used during construction (AFUDC), depreciation and tax elements in an economic analysis of projects. The EVA model Version 2009-Revision 02-11-2009 was used for the SO_2 and NO_x analyses.

EVA is mathematically calculated annually over the study period, as follows:

	Revenues
Less:	Operating Costs
Less:	Book Depreciation
Less:	Taxes (Actual cash taxes)
=	Net Operating Profit After Tax (NOPAT)
Less:	[Net Capital x Capital Charge Rate (%)]
=	Economic Value Added (EVA)

The annual EVA values, calculated using the above formula, are each discounted back to present values at the beginning of the study period. The capital charge rate is used as the discount rate in this present value calculation process. The present values of the annual EVAs are summed on a cumulative, year-by-year basis over the economic life of the project.

Metric – Minimize NPVRR

The key metric for choosing the best strategy is the net present value of revenue requirements (NPVRR). This value should be minimized. The NPVRR is the present value over the economic life of all the projects which make up the strategy. These values do not include revenues from electricity sales, as it would be common to all strategies.

2.2 Allowance Price Forecasts

Under the Acid Rain Program, the United States Environmental Protection Agency (USEPA) allocated SO_2 and seasonal and annual NO_x allowances to each applicable generator across the nation. Due to the on and off again nature of the CAIR, the market prices of SO_2 and seasonal and annual NO_x allowances have been very volatile as shown in Figures 1-3. The figures highlight the potential risk of relying on the allowance market for compliance with environmental regulations.

The status of air regulations is uncertain. A number of regulations have been either remanded or vacated by the federal courts and there are pending regulations. Thus, there is a risk associated with developing a compliance strategy which is the least cost for current regulations because the current compliance strategy may be insufficient for future regulations. Therefore, the AmerenUE Air Analysis Report considers two alternative air regulations as separate scenarios along with compliance strategies for these scenarios for AmerenUE's consideration.

Figure 1

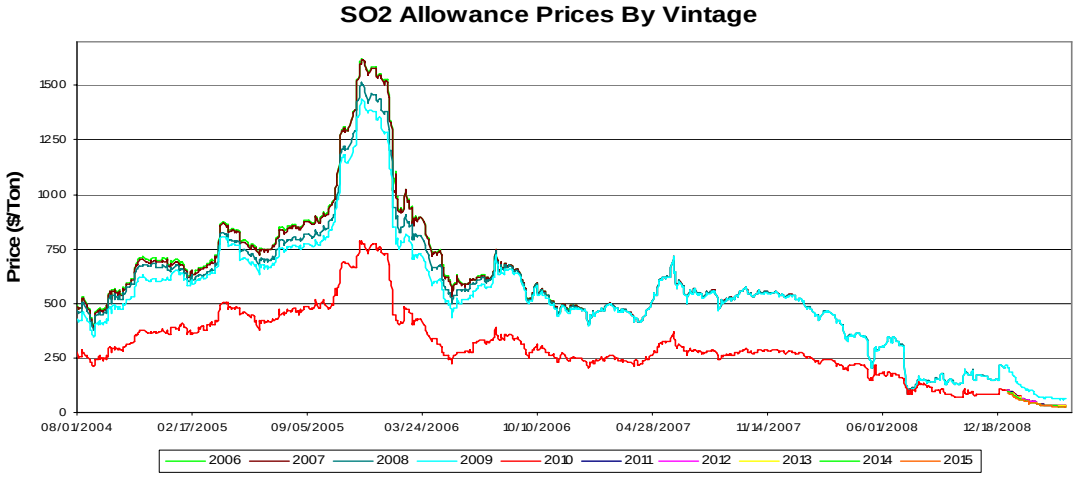


Figure 2

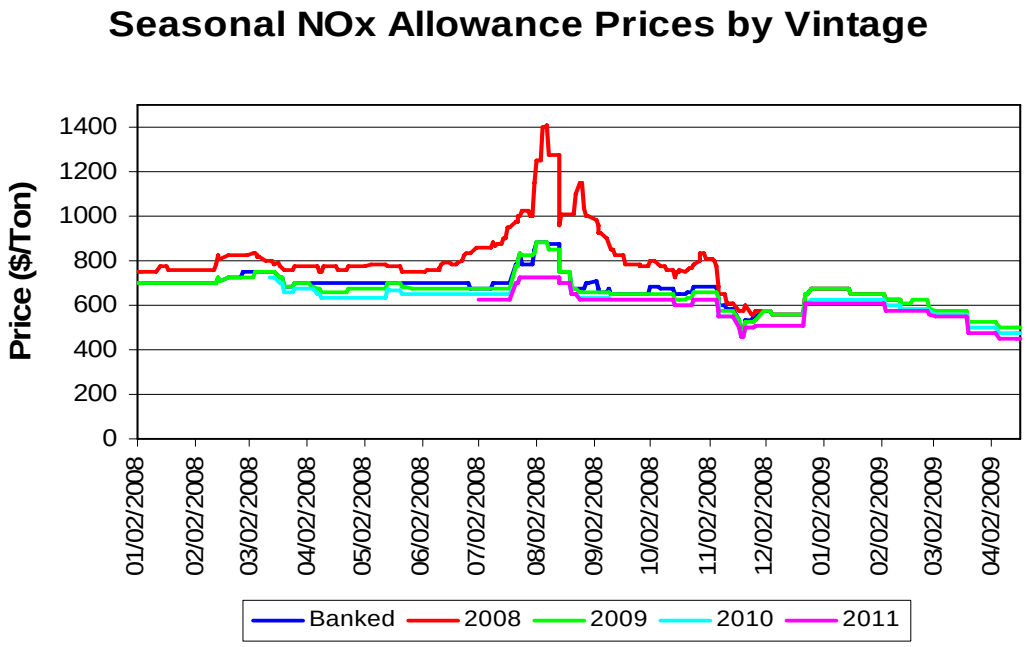
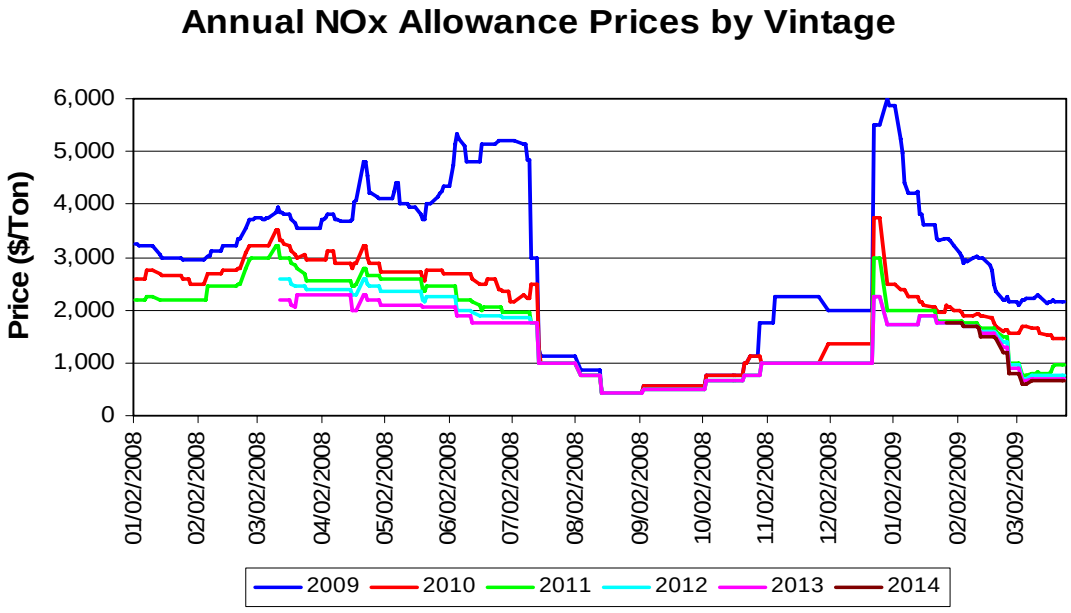


Figure 3



Many utilities have begun and completed construction of a number of scrubbers for SO_2 emissions control and selective catalytic reduction (SCRs) for NO_x emission control in anticipation of CAIR taking effect in the 2009-2010 time period. As a result, the current allowance price forecast incorporates these projects along with the uncertainty around the applicability of the regulations in the longer term. The USEPA has issued an advisory warning for companies transacting allowances that once a replacement rule to CAIR is finalized there is no guarantee that allowances will continue to be usable for compliance or that they will continue to have value in the future. Table 1 contains allowance price forecasts as of March 24, 2009 which were used for this analysis. (Since March 24, 2009, annual and seasonal NO_x prices have significantly declined.)

Table 1

Commodity Price Information - 3/24/2009			
		NOx	
Year	SO_2 Price - $/Ton	Annual Price - $/Ton	Seasonal Price - $/Ton
2009	65	2,150	525
2010	35	1,475	500
2011	34	950	475
2012	33	750	--
2013	32	700	--
2014	31	650	--
2015	25	--	--

Due to the uncertainty of the future of regulations allowing for a cap and trade format and the continued control technology installations, it is likely that allowance prices will remain at these low price levels beyond the last year quoted for the respective commodity as long as they are usable compliance tools. The analysis continued the last shown price for the remaining years of the study period.

An alternative approach to estimate allowance prices is one based on the cost to operate emission control technology. For SO_2 it would be a scrubber and for NO_x it would be a SCR. The costs which have been included for the development of a cost to operate the emission control technology are the fixed costs, e.g. manning costs and maintenance costs, the variable costs, e.g. water, limestone, ammonia, other consumables and disposal of waste products, and the auxiliary power consumption of the equipment. The data was provided by the AmerenUE Project Operation Services (POS) group based on information provided by outside consultants in a January 2009 report. The operation of the emission control technology results in a reduction in emissions. Those costs and emission reductions are related to achieve an annual effective cost of removal. Table 2 contains the costs developed assuming a Powder River Basin (PRB) fuel using this alternative approach. We assumed that allowance prices would increase at three (3) percent per year beyond the last year quoted for the respective commodity.

Table 2

Cost to Remove SO_2 & NO_x with Emission Control Technology Assuming a PRB Fuel		
Year	SO_2 Price - $/Ton	NO_x (Annual and Seasonal) Price - $/Ton
2013	[redacted]	[redacted]
2014	[redacted]	[redacted]
2015	[redacted]	[redacted]
2016	[redacted]	[redacted]
2017	[redacted]	[redacted]
2018	[redacted]	[redacted]
2019	[redacted]	[redacted]
2020	[redacted]	[redacted]
2021	[redacted]	[redacted]
2022	[redacted]	[redacted]
2023	[redacted]	[redacted]
2024	[redacted]	[redacted]
2025	[redacted]	[redacted]
2026	[redacted]	[redacted]
2027	[redacted]	[redacted]
2028	[redacted]	[redacted]

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Ameren Corporation has discussions on a regular basis with various consulting firms about movements in the emission allowance markets. Through service agreements with numerous organizations, such as PIRA Energy Group and Power & Energy Analytic Resources (PEAR), Ameren Corporation is able to obtain estimates of forecasts of future allowance price forecasts and that information is shared with AmerenUE. Due to all of the uncertainty around the SO_2 and NO_x allowance markets, most consultants have been reluctant to take a position on the direction of allowance prices. However, Ameren Corporation has obtained one forecast of SO_2 and NO_x prices through 2025. The consultant had many qualifiers on the forecast regarding the future changes in the regulations that would move these prices. Table 3 contains the estimate provided by that consultant.

Table 3

Consultant Emission Outlook (2007 $)		
Year	SO_2 Price - $/Ton	Annual and Seasonal NO_x Price - $/Ton
2015	[redacted]	[redacted]
2020	[redacted]	[redacted]
2025	[redacted]	[redacted]

Ameren Corporation felt this forecast was based on a number of assumptions which resulted in an unrealistically high allowance price forecast. For example the forecast assumed a national renewable portfolio standard (RPS) would be enacted, national greenhouse gas (GHG) regulations with cap and trade provisions, higher energy efficiency standards, more aggressive replacement rules to CAIR, and lower long term capital and operating costs for scrubbers and SCRs. Most of these outcomes would tend to reduce the need and use of coal based generation or create lower price pressure on allowances. As a result, it was decided to adjust the consultant's forecast for inflation and to equally weight it with the cost to remove emissions with emission control technology. This weighted forecast provides a high end range while not being unrealistically high. Table 4 contains the resulting weighted forecast.

Table 4

Weighted Cost of Control Technology Assuming a PRB Fuel and Consultant Forecast - SO_2 & NO_x		
Year	SO_2 Price - $/Ton	NO_x (Annual and Seasonal) Price - $/Ton
2013	[redacted]	[redacted]
2014	[redacted]	[redacted]
2015	[redacted]	[redacted]
2016	[redacted]	[redacted]
2017	[redacted]	[redacted]
2018	[redacted]	[redacted]
2019	[redacted]	[redacted]
2020	[redacted]	[redacted]
2021	[redacted]	[redacted]
2022	[redacted]	[redacted]
2023	[redacted]	[redacted]
2024	[redacted]	[redacted]
2025	[redacted]	[redacted]
2026	[redacted]	[redacted]
2027	[redacted]	[redacted]
2028	[redacted]	[redacted]

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For the environmental compliance planning analysis work two forecasts were considered as possible prices for emission allowances, the "commodity price" and the "cost to remove with control technology" forecasts. The "weighted cost of control technology and consultant forecast" was used for one of the scenarios where more aggressive emission caps were assumed but with a cap and trade system remaining in effect.

3.0 SO_2 ANALYSIS

This section provides the results from the analysis of various air compliance strategies to meet the current CAIR compliance requirements associated with its SO_2 emissions. Since CAIR was remanded by the Federal Court in December 2008, there is the potential for more stringent SO_2 regulations emerging. As a result, two more stringent environmental requirements were considered as alternative CAIR scenarios. One scenario was a more aggressive cap-and-trade regulation. The other scenario was a rate limit based compliance/regulation without trading of allowances.

3.1 Current CAIR Scenario

3.1.1 Strategies

For this analysis, we developed four strategies consisting of purchasing SO_2 emission allowances as necessary for compliance and the installation of WFGD SO_2 emissions control technology under various schedules. While this is not an exhaustive list of possible strategies, it does represent a portfolio of strategies which can provide AmerenUE management with a magnitude of the impact of moving between various strategies over time. Table 5 presents the various SO_2 strategies.

Table 5

Control Equipment	SO_2 Strategies (WFGD In Service Date)			
	[redacted]	Alternative Schedule 1	Alternative Schedule 2	Alternative Schedule 3
SO_2 under Current CAIR				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
WFGD – Sioux 1 & 2	2011	2011	2011	2011
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

3.1.2 Assumptions

Since AmerenUE revenues would be common to all strategies, revenues were not included for any strategy. Costs were the only items included in the EVA model, therefore the results produced negative EVAs. For all control technologies, we modeled a 30-year economic life. However, if the control technologies extended operation beyond that period; O&M costs were continued. The SO_2 allowance bank was zeroed out each year beginning in 2013 and any annual SO_2 allowance shortfall/surplus was monetized to allow for comparison across strategies throughout the study. The SO_2 allowance bank is assumed to remain at the same level every year beyond 2028 for this analysis. Below are the general assumptions used for the SO_2 analysis:

- The Meramec Plant is assumed to be retired beginning in 2022, which is consistent with the AmerenUE IRP (February 2008)
- The study period was 2013 through 2051
- [redacted] A 6-year planning and construction schedule was assumed typical for WFGD installation; [redacted]

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- The SO_2 emission rate was provided by Ameren Energy Fuels and Services (AFS): [redacted] pound per million British Thermal Units (lb/mmBtu) (stack emission rate)
- The capital expenditures, O&M costs, and auxiliary power requirements were provided by POS (March 2009)
- The capital expenditures were obtained from AmerenUE studies conducted by consultants dated January 2009
- Auxiliary power and capacity costs were obtained from Corporate Planning (Auxiliary Power Prices 3/30/09, Capacity costs 4/2/09); these costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)
- All strategies utilize the current commodity SO_2 allowance price forecast (Table 1)

3.1.3 Inputs

Inputs to the analysis consisted of capital expenditures, O&M costs, and auxiliary power requirements for the various control technologies, along with allowance purchases and/or sales as described below. Escalation rates, financial ratios and costs of debt and equity, and depreciation methods used were the values contained in the corporate EVA model for AmerenUE. Typical values are shown below in Table 6.

Table 6

	Rates Used in EVA/NPV Analyses		Rates Used in Revenue Requirements Analyses		Rates Used for AFUDC Calculations	
Long-Term Debt Ratio & Interest Rate	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Common Equity Ratio & Return on Common Equity	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Weighted-Average After-Tax Cost of Capital		[redacted]		[redacted]		[redacted]

Composite Income Tax Rate	38.389%
Ad Valorem (Property) Tax Rate	1.80%
Tax-to-Book Ratio (Of Initial Capital Investment)	Varies

Depreciation Schedule for 60% of capital	5-Year SL (Labadie and Sioux) 7-Year SL (Rush Island)
Depreciation Schedule for 40% of capital	20-Year MACRS

Escalation Rate	[redacted]

3.1.4 Allocations, Allowance Purchases and Sales

The allocations to AmerenUE, along with emission rates and the removal efficiency of the control technology installed, were used to develop the cumulative allowance banks for the strategies considered. AmerenUE is projected to have an SO_2 allowance bank of about [redacted] tons as of the end of [redacted]. In this analysis, the end of year bank is maintained at a net zero position during the study period. This is necessary to compare the economics of various strategies that result in differing emission positions. Any purchases or sales shown in this Air Analysis Report were undertaken to make all strategies identical in their annual emission position and does not represent AmerenUE's plan to transact.

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3.1.5 Positions

Figure 4 shows the AmerenUE SO_2 emission positions under four different strategies previously described in Section 3.1.1 from 2013 to 2028.

Figure 4

Meramec Plant retired in 2022.

3.1.6 Technologies

The analysis considered [redacted]. Installation of WFGD on both units at Sioux Plant is in progress and was assumed to be operational by January 1, 2011 for this analysis for all strategies. Figure 5 shows the capital costs of [redacted] in dollars per kilowatt ($/kW) for a common [redacted] in service date. These costs were provided by POS and were obtained from AmerenUE studies conducted by outside consultants dated January 2009. Table 7 shows the annual O&M costs for these technologies.

Figure 5

Table 7
SO_2 Control Technology Annual O&M Costs

Technology	Total O&M Cost	Station Service Cost	Station Service (kW)
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

3.1.7 Controls vs. Allowance Purchase Costs

Figure 6 shows the levelized cost [redacted] along with the levelized cost [redacted]. [redacted] In isolation, Figure 6 [redacted]

Figure 6

3.1.8 Strategies and Results

Table 8 and Figure 7 show the net present value of revenue requirements (NPVRR) for the four strategies evaluated. (WFGD at Sioux Plant is common to all options considered.) The NPVRR values are the net present value of the streams of annual EVAs and the NPVRR values are rounded to nearest $100,000. The [redacted]

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Table 8

Strategy	NPVRR, $
SO_2 under Current CAIR	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Figure 7

3.1.9 Sensitivity Analysis

3.1.9.1 SO_2 Emission Rates

The fuel contracts for AmerenUE coal plants do not extend through the entire study period. As a result, a sensitivity analysis was conducted for SO_2 emission rates assuming current CAIR cap and trade rules are in place and using the average historical SO_2 emission rates from 2006-2008 in lieu of the AFS forecasted SO_2 emission rate of [redacted] lb/mmBtu (stack emission rate) which is representative of PRB fuel that is generally available for purchase from the Powder River Basin in large quantities. The following historical SO_2 emission rates were used in the emission position tables beginning in 2010: [redacted] lb/mmBtu (Labadie and Meramec), [redacted] lb/mmBtu (Rush Island), and [redacted] lbs/mmBtu (Sioux). The difference is an [redacted] of approximately [redacted] tons of SO_2 emissions.

For this sensitivity analysis, we developed the same four strategies consisting of [redacted] The [redacted] presented in Table 5 are the same using historical SO_2

emission rates, with the exception of [redacted]

The NPVRR values calculated using the historical SO_2 emission rates compared to AFS SO_2 emission rates were [redacted] with the exception of [redacted]. Under the [redacted], the historical SO_2 emission rates compared to AFS SO_2 emission rates was approximately [redacted].

3.1.9.2 Allowance Price Forecast

A sensitivity analysis was conducted for SO_2 allowance prices assuming current CAIR cap and trade rules are in place and using the variable cost to remove SO_2 allowance price forecast (Table 2) in lieu of the current commodity price forecast (Table 1). For this sensitivity analysis, we developed the same four strategies consisting of [redacted] as presented in Table 5.

Evaluations with the use of either AFS or historical SO_2 emission rates resulted in NPVRR values that were calculated using the variable cost to remove SO_2 allowance price forecast compared to current commodity price forecast were [redacted].

3.1.9.3 Emission Impact if Meramec Plant is Not Retired, but Continues to Operate through the Study Period

An impact assessment was made on the SO_2 emissions assuming current CAIR cap and trade rules are in place and Meramec Plant operates beyond 2021 in lieu of retirement by 2022. If Meramec Plant continues to operate, then the SO_2 emissions would increase by approximately [redacted] tons/year. That is approximately equivalent to the amount of SO_2 that [redacted]. The economic impact of continuing to operate Meramec Plant beyond 2021 from a SO_2 point of view would be [redacted]. AmerenUE would need to [redacted]. However, should the cap and trade structure of the environmental regulations be eliminated, the economic impact would be more significant and possibly [redacted].

3.2 Potential Alternative CAIR Scenarios

Since CAIR was remanded by the Federal Court in December 2008, there is the potential for more stringent SO_2 regulations emerging. Due to the uncertainty of USEPA's replacement for the current CAIR, two more stringent environmental compliance scenarios were considered: 1) a more aggressive cap-and-trade scenario and 2) a rate limit scenario. The following sections provide the analysis under these scenarios for SO_2.

3.2.1 More Aggressive Cap-and-Trade Scenario

3.2.1.1 Strategies

For this analysis, we developed three strategies consisting of [redacted] to meet a SO_2 cap based on a thirty (30) percent reduction of SO_2 emissions below the current CAIR 2015 levels beginning in 2013. Table 9 presents the various SO_2 strategies that were evaluated.

Table 9

Control Equipment	SO_2 Strategies (WFGD In Service Date)		
	[redacted]	Alternative Schedule 1	Alternative Schedule 2
SO_2 under CAIR Phase II (Cap-and-Trade Scenario)			
[redacted]	[redacted]	[redacted]	[redacted]
WFGD – Sioux 1 & 2	2011	2011	2011
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

3.2.1.2 Assumptions

Since AmerenUE revenues would be common to all strategies, revenues were not included for any strategy. Costs were the only items included in the EVA model, therefore the results produced negative EVAs. For all control technologies, we modeled a 30-year economic life. However, if the control technologies extended operation beyond that period; O&M costs were continued. The SO_2 allowance bank was zeroed out each year beginning in 2013 and any SO_2 allowance shortfall/surplus was monetized to allow for comparisons across strategies. The SO_2 allowance bank is assumed to remain the same level every year beyond 2028 for this analysis. Below are the general assumptions used for the SO_2 analysis:

- The Meramec Plant is assumed to be retired beginning in 2022, which is consistent with the AmerenUE IRP (February 2008)
- The study period was 2013 through 2051
- [redacted] A 6-year planning and construction schedule was assumed typical for WFGD installation; [redacted]
- The SO_2 emission rate was provided by AFS: [redacted] lb/mmBtu (stack emission rate)
- The capital expenditures, O&M costs, and auxiliary power requirements were provided by POS (March 2009)
- The capital expenditures were obtained from AmerenUE studies conducted by consultants dated January 2009
- Auxiliary power and capacity costs were obtained from Corporate Planning (Auxiliary Power Prices 3/30/09, Capacity costs 4/2/09); these costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)
- All strategies utilize the weighted cost of control technology SO_2 allowance price forecast (Table 4)

3.2.1.3 Inputs

Inputs to the analysis consisted of capital expenditures, O&M costs, and auxiliary power requirements for the control technologies, along with allowance purchases and/or sales as described below. Escalation rates, financial ratios and costs of debt and equity, and depreciation methods used were the values contained in the corporate EVA model for AmerenUE. Typical values are shown in Table 6.

3.2.1.4 Allocations, Allowance Purchases and Sales

The allocations to AmerenUE, along with emission rates and removal efficiency of the control technology installations, were used to develop the cumulative allowance banks for the various strategies considered. AmerenUE is projected to have a SO_2 allowance bank of about [redacted] tons as of the end of [redacted]. In this analysis, the end of year bank is maintained at a net zero position during the study period. This is

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necessary to compare the economics of various strategies that result in differing emission positions. Any purchases or sales shown in this Air Analysis Report were undertaken to make all strategies identical in their annual emission position and does not represent AmerenUE's plan to transact.

3.2.1.5 Positions

Figure 8 shows the AmerenUE SO_2 emission positions under three different strategies previously described in Section 3.2.1.1 from 2013 to 2028.

Figure 8

Meramec Plant retired in 2022.

3.2.1.6 Technologies

As presented in the SO_2 analysis under current CAIR, the SO_2 strategies considered were [redacted]. Installation of WFGD at Sioux Plant is common to all strategies. Figure 5 shows the capital costs of [redacted] in $/kW. These costs were provided by POS and were obtained from AmerenUE studies conducted by outside consultants dated January 2009. Table 7 shows the annual O&M costs for these technologies.

3.2.1.7 Controls vs. Allowance Purchase Costs

As presented in the SO_2 analysis under current CAIR, Figure 6 shows the levelized cost [redacted] along with the levelized cost [redacted]. The green line presents the weighted cost of control technology SO_2 allowance price forecast (Table 4). [redacted]

3.2.1.8 Strategies and Results

Table 10 and Figure 9 show the NPVRR for the three options considered. The NPVRR values are the net present value of the streams of annual EVAs and the NPVRR values are rounded to nearest $100,000. The [redacted]

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Table 10

Strategy	NPVRR, $
SO_2 under CAIR Phase II (Cap-and-Trade Scenario)	
[redacted]	[redacted]
Alternative Schedule 1	[redacted]
Alternative Schedule 2	[redacted]

Figure 9

3.2.1.9 Sensitivity Analysis

3.2.1.9.1 SO_2 Emission Rates

A sensitivity analysis was conducted for SO_2 emission rates under the CAIR Phase II cap-and-trade scenario using the average historical SO_2 emission rates from 2006-2008 in lieu of the AFS forecasted SO_2 emission rate of [redacted] lb/mmBtu (stack emission rate). The following historical SO_2 emission rates were used in the emission position tables beginning in 2010: [redacted] lb/mmBtu (Labadie and Meramec), [redacted] lb/mmBtu (Rush Island), and [redacted] lbs/mmBtu (Sioux).

For this sensitivity analysis, we developed the same three strategies consisting of [redacted] as presented in Table 9. The [redacted] presented in Table 9 are the same using historical SO_2 emission rates.

The NPVRR values calculated using the historical SO_2 emission rates compared to AFS SO_2 emission rates were [redacted].

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3.2.1.9.2 Emission Impact if Meramec Plant is Not Retired, but Continues to Operate through the Study Period

An impact assessment was made on the SO_2 emissions under the CAIR Phase II cap-and-trade scenario and Meramec Plant operates beyond 2021 in lieu of retirement by 2022. If Meramec Plant continues to operate, then the SO_2 emissions would increase by approximately [redacted] tons/year. That is approximately equivalent to the amount of SO_2 that [redacted]. The economic impact of continuing to operate Meramec Plant beyond 2021 from a SO_2 point of view would be [redacted]. AmerenUE would need to [redacted]. However, should the cap and trade structure of the environmental regulations be eliminated, the economic impact would be more significant and possibly [redacted].

3.2.2 Rate Limit Scenario

3.2.2.1 Strategies

For this analysis, we developed two strategies consisting of the installation of WFGD SO_2 emissions control technology to meet a rate limit of 0.42 lb/mmBtu of SO_2 emissions in 2013 and beyond. Table 11 presents the SO_2 compliance schedules under the CAIR Phase II rate limit scenario.

Table 11

Control Equipment	SO_2 Strategies (WFGD In Service Date)	
	Compliance Option 1	Compliance Option 2
SO_2 under CAIR Phase II (Rate Limit Scenario)		
WFGD – Sioux 1 & 2	2011	2011
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

3.2.2.2 Assumptions

Since, AmerenUE revenues would be common to all strategies, revenues were not included for any strategy. Costs were the only items included in the EVA model, therefore the results produced negative EVAs. The SO_2 allowance bank was not evaluated under the rate limit scenario, because compliance is achieved by meeting the rate limit. For all control technologies, we modeled a 30-year economic life. However, if the control technologies extended operation beyond that period; O&M costs were continued. Below are the general assumptions used for the SO_2 analysis:

- The Meramec Plant is assumed to be retired beginning in 2022, which is consistent with the AmerenUE IRP (February 2008)
- The study period was 2013 through 2051
- [redacted] A 4-year planning and construction schedule was assumed for WFGD installation [redacted]
- The SO_2 emission rate was provided by AFS: [redacted] pound per million British Thermal Units (lb/mmBtu) (stack emission rate)
- The capital expenditures, O&M costs, and auxiliary power requirements were provided by POS (March 2009)
- The capital expenditures were obtained from several AmerenUE studies conducted by consultants dated January 2009
- Auxiliary power and capacity costs were obtained from Corporate Planning (Auxiliary Power Prices 3/30/09, Capacity costs 4/2/09); these costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)

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3.2.2.3 Inputs

Inputs to the analysis consisted of capital expenditures, O&M costs, and auxiliary power requirements for the control technologies. Escalation rates, financial ratios and costs of debt and equity, and depreciation methods used were the values contained in the corporate EVA model for AmerenUE. Typical values are shown in Table 6.

3.2.2.4 Technologies

As presented in Section 3.1.6, the SO_2 strategies considered [redacted]. Installation of WFGD at Sioux Plant is common to both strategies. Figure 5 shows the capital costs of [redacted] in $/kW. These costs were provided by POS and were obtained from AmerenUE studies conducted by outside consultants dated January 2009. Table 7 shows the annual O&M costs for these technologies.

3.2.2.5 Strategies and Results

Table 12 and Figure 10 show the NPVRR for the two strategies considered. The NPVRR values are the net present value of the streams of annual EVAs. Compliance Option 2 rate limit scenario, which includes the SO_2 controls for Sioux and [redacted]

Table 12

Strategy	NPVRR, $
SO_2 under CAIR Phase II (Rate Limit Scenario)	
Compliance Option 1 [redacted]	[redacted]
Compliance Option 2 [redacted]	[redacted]

Figure 10

3.2.2.6 Sensitivity Analysis

3.2.2.6.1 Emission Impact if Meramec Plant is Not Retired, but Continues to Operate through the Study Period

An impact assessment was made on the SO_2 emissions under the CAIR Phase II rate limit scenario and Meramec Plant operates beyond 2021 in lieu of retirement by 2022. If Meramec Plant continues to operate, then the SO_2 emissions would increase by approximately [redacted] tons/year. That is the approximately equivalent to the amount of SO_2 that [redacted]. In this sensitivity, there would be [redacted]

3.3 SO_2 Analysis Summary

As previously mentioned, various SO_2 air compliance strategies were evaluated to meet the current CAIR compliance requirements. Since CAIR was remanded by the Federal Court in December 2008, there is the potential for stringent SO_2 regulations emerging. As a result, two more stringent environmental compliance strategies were considered under an alternative CAIR scenario. One scenario was a more aggressive cap-and-trade regulation. The other scenario was a rate limit based compliance/regulation without trading of allowances. Table 13 provides a summary of the various WFGD schedules and NPVRR results under the potential strategies from the SO_2 analysis.

Table 13

Control Equipment/ Economic Analysis Results	SO_2 Strategies (WFGD In Service Date) - AFS Forecasted SO_2 Emission Rate					
	[redacted]	Alternative Schedule 1 (Current CAIR and Cap-and-Trade Scenarios)	Alternative Schedule 2 (Current CAIR and Cap-and-Trade Scenarios)	Alternative Schedule 3 (Current CAIR Scenario)	Compliance Option 1 (Rate Limit Scenario)	Compliance Option 2 (Rate Limit Scenario)
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
WFGD – Sioux 1 & 2	2011	2011	2011	2011	2011	2011
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Current CAIR NPVRR (2013-2051)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
More Aggressive CAIR Phase II, Cap-and-Trade NPVRR (2013-2051)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
CAIR Phase II, Rate Limit NPVRR (2013-2051)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

4.0 NO_X ANALYSIS

This section provides the results from the analysis of various air compliance strategies to meet the current CAIR compliance requirements associated with its NO_x emissions. Since CAIR was remanded by the Federal Court in December 2008, there is the potential for more stringent NO_x regulations emerging. As a result, two more stringent environmental compliance strategies were considered under an alternative

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CAIR scenario. One scenario was a more aggressive cap-and-trade regulation. The other scenario was a rate limit based compliance/regulation without trading of allowances.

4.1 Current CAIR Scenario

4.1.1 Strategies

AmerenUE has lowered its emissions at Labadie and Rush Island through the installation of low NO_x burners and optimizing their performance. As a result, AmerenUE's NO_x emissions are among the lowest in the United States for units without installed SCRs. Therefore, two strategies were developed [redacted]. Table 14 presents the two NO_x strategies.

Table 14

Control Equipment	NO_x Strategies (In Service Date)	[redacted]
NO_x under Current CAIR		
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
RRI/SNCR – Sioux 1 & 2	[redacted]	[redacted]

4.1.2 Assumptions

For this analysis, two strategies for [redacted]. Since AmerenUE revenues would be common to all strategies, revenues were not included for any strategy. Costs were the only items included in the EVA model, therefore the results produced negative EVAs. For all control technologies, we modeled a 30-year economic life. The NO_x allowance bank was zeroed out each year beginning in 2013 and any NO_x allowance shortfall/surplus was monetized to allow for comparisons between the two strategies. Because annual and seasonal NO_x emission rates will be the same, we assumed that the least cost plan for compliance with annual requirements would also be the least cost plan for compliance with seasonal requirements. The annual and seasonal NO_x allowance banks are assumed to remain at the same level every year beyond 2028 for this analysis. Below are the general assumptions used for the NO_x analysis:

- The Meramec Plant is assumed to be retired beginning in 2022 which is consistent with the AmerenUE IRP (February 2008)
- The study period was 2013 through 2042
- The capital expenditures, O&M costs, and auxiliary power requirements were provided by POS (March 2009)
- The capital expenditures were obtained from AmerenUE studies conducted by consultants dated January 2009
- Auxiliary power and capacity costs were obtained from Corporate Planning; these costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)
- All strategies utilize the seasonal and annual current commodity NO_x allowance price forecast (Table 1)

4.1.3 Inputs

Inputs to the analysis consisted of capital expenditures, O&M costs, and auxiliary power requirements for the various control technologies, along with allowance purchases and/or sales as described below. Escalation rates, financial ratios and costs of debt and equity, and depreciation methods used were the values contained in the corporate EVA model for AmerenUE. Typical values are shown in Table 6.

4.1.4 Allocations, Allowance Purchases and Sales

As mentioned in Section 2.2, the USEPA has allocated NO_x allowances to each applicable generator for both the seasonal and annual NO_x programs. The seasonal and annual NO_x allocations, along with the removal rates of the controls installations, were used to develop the cumulative allowance banks for the strategies considered. If the RRI/SNCR systems operate at Sioux 1 & 2 starting in 2010, [redacted]. In this analysis, the end of year bank is maintained at a net zero position during the study period.

4.1.5 Positions

Figures 11 and 12 show the AmerenUE seasonal and annual NO_x emission positions under two strategies from 2013 to 2028.

Figure 11

Meramec Plant retired in 2022.

Figure 12

Meramec Plant retired in 2022.

4.1.6 Technologies

[redacted] were considered for the [redacted]. Figure 13 shows the capital costs of these technologies in $/kW. These costs were provided by POS and were obtained from AmerenUE studies conducted by outside consultants dated January 2009. (RRI/SNCR – rich reagent injection/selective non-catalytic reduction – systems are already installed on the Sioux units and as a result were not included in Figure 13.) Table 15 shows the annual O&M costs for these technologies.

Figure 13

Table 15
NO_x Control Technology Annual O&M Costs

Technology	Total O&M Cost	Station Service Cost	Station Service (kW)
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
RRI/SNCR - Sioux 1 & 2	[redacted]	N/A	N/A

4.1.7 Controls vs. Allowance Purchase Costs

Figure 14 shows the levelized cost for [redacted] along with the levelized cost [redacted]

Figure 14

4.1.8 Strategies and Results

Table 16 and Figure 15 show the NPVRR for the two strategies considered. The NPVRR values are the net present value of the streams of annual EVAs and the NPVRR values are rounded to nearest $100,000. Strategy 1, which [redacted]

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[redacted]

Table 16

Strategy	NPVRR, $
NO_x under Current CAIR	
[redacted]	[redacted]
[redacted]	[redacted]

Figure 15

4.1.9 Sensitivity Analysis

4.1.9.1 Allowance Price Forecast

A sensitivity analysis was conducted on the NO_x allowance prices assuming current CAIR using the variable cost to remove NO_x allowance price forecast (Table 2) in lieu of the current commodity price forecast (Table 1). For this sensitivity analysis, the same two strategies were used consisting of [redacted] as presented in Table 14.

The NPVRR values calculated using the variable cost to remove NO_x allowance price forecast compared to current commodity price forecast were [redacted].

4.1.9.2 Emission Impact if Meramec Plant is Not Retired, but Continues to Operate through the Study Period

An impact assessment was made on the NO_x emissions assuming current CAIR cap and trade rules are in place and Meramec Plant operates beyond 2021 in lieu of retirement by 2022. If Meramec Plant continues to operate, then the annual NO_x emissions would increase by approximately [redacted] tons/year.

That is the approximately equivalent to the amount of NO_x [redacted]. If Meramec Plant continues to operate, then the seasonal NO_x emissions would increase by approximately [redacted] tons/year. That is the approximately equivalent to the amount of NO_x [redacted]. The economic impact continuing to operate Meramec Plant beyond 2021 from a NO_x point of view would be [redacted].

4.2 Potential Alternative CAIR Scenarios

Since CAIR was remanded by the Federal Court in December 2008, there is the potential for more stringent NO_x regulations emerging. Due to the uncertainty of USEPA's replacement for CAIR, two more stringent environmental compliance scenarios were considered: 1) a more aggressive cap-and-trade scenario and 2) a rate limit scenario. The following sections provide the analysis under these scenarios for NO_x.

4.2.1 More Aggressive Cap-and-Trade Scenario

4.2.1.1 Strategies

For this analysis, we developed two strategies consisting of [redacted] to meet a NO_x cap based on a thirty (30) percent reduction of NO_x emissions below 2015 levels beginning in 2013. Table 17 presents the various NO_x strategies.

Table 17

Control Equipment	NO_x Strategies (In Service Date)	
	[redacted]	[redacted]
NO_x under CAIR Phase II (Cap-and-Trade Scenario)		
[redacted]		

4.2.1.2 Assumptions

For this analysis, two strategies for NO_x control technologies and schedules were developed. Since AmerenUE revenues would be common to all strategies, revenues were not included for any strategy. Costs were the only items included in the EVA model, therefore the results produced negative EVAs, based on the various cost components modeled. For all control technologies, we modeled a 30-year economic life. The NO_x allowance bank was zeroed out each year beginning in 2013 and any annual and seasonal NO_x allowance shortfall/surplus were monetized to allow for comparisons across strategies. Because annual and seasonal NO_x emission rates will be the same, we assumed that the least cost plan for compliance with annual requirements would also be the least cost plan for compliance with seasonal requirements. The annual and seasonal NO_x allowance banks are assumed to remain at the same level every year beyond 2028 for this analysis. Below are the general assumptions used for the NO_x analysis:

- The Meramec Plant is assumed to be retired beginning in 2022 which is consistent with the AmerenUE IRP (February 2008)
- The study period was 2013 through 2042

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- The capital expenditures, O&M costs, and auxiliary power requirements were provided by POS (March 2009)
- The capital expenditures were obtained from AmerenUE studies conducted by consultants dated January 2009
- Auxiliary power and capacity costs were obtained from Corporate Planning; these costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)
- All strategies utilize the seasonal and annual weighted cost of control technology NO_x allowance price forecast (Table 4)

4.2.1.3 Inputs

Inputs to the analysis consisted of capital expenditures, O&M costs, and auxiliary power requirements for the control technologies, along with allowance purchases and/or sales. Escalation rates, financial ratios and costs of debt and equity, and depreciation methods used were the values contained in the corporate EVA model for AmerenUE. Typical values are shown in Table 6.

4.2.1.4 Allocations, Allowance Purchases and Sales

As mentioned above, the USEPA has allocated NO_x allowances to each applicable generator for both the seasonal and annual NO_x programs. The seasonal and annual NO_x allocations, along with emission rates and controls installations, were used to develop the cumulative allowance banks for the various strategies considered. AmerenUE will [redacted]. In this analysis, the end of year bank is maintained at a net zero position during the study period.

4.2.1.5 Positions

Figures 16 and 17 show the AmerenUE seasonal and annual NO_x emission positions under two strategies from 2013 to 2028.

Figure 16

Meramec Plant retired in 2022.

Figure 17

Meramec Plant retired in 2022.

4.2.1.6 Technologies

As presented in the NO_x analysis under current CAIR, we considered [redacted]. (RRI/SNCR – rich reagent injection/selective non-catalytic reduction – systems are already installed on the Sioux units.) Figure 13 shows the capital costs of these technologies in $/kW. Table 15 shows the annual O&M costs for these technologies.

4.2.1.7 Controls vs. Allowance Purchase Costs

As presented in the NO_x analysis under current CAIR, Figure 14 shows the levelized cost [redacted] along with the levelized cost [redacted]. The cyan line presents the weighted cost of control technology NO_x allowance price forecast (Table 4). [redacted]

4.2.1.8 Strategies and Results

Table 18 and Figure 18 show the NPVRR for the two strategies considered. The NPVRR values are the net present value of streams of annual EVAs and the NPVRR values are rounded to the nearest $100,000. [redacted]

Table 18

Strategy	NPVRR, $
NO_x under CAIR Phase II (Cap-and-Trade Scenario)	
[redacted]	[redacted]
[redacted]	[redacted]

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Figure 18

4.2.1.9 Sensitivity Analysis

4.2.1.9.1 Emission Impact if Meramec Plant is Not Retired, but Continues to Operate through the Study Period

An impact assessment was made on the NO_x emissions under the CAIR Phase II cap-and-trade scenario and Meramec Plant operates beyond 2021 in lieu of retirement by 2022. If Meramec Plant continues to operate, then the annual NO_x emissions would increase by approximately [redacted] tons/year. That is the approximately equivalent to the amount of NO_x that [redacted]. If Meramec Plant continues to operate, then the seasonal NO_x emissions would increase by approximately [redacted] tons/year. That is the approximately equivalent to the amount of NO_x that [redacted]. The economic impact of continuing to operate Meramec Plant beyond 2021 from a NO_x point of view would be [redacted]

4.2.2 Rate Limit Scenario

4.2.2.1 Strategy

For this analysis, we developed one strategy consisting of the [redacted] to meet a rate limit of 0.12 lb/mmBtu of NO_x emissions beginning in 2013. Table 19 presents the NO_x compliance schedule under the CAIR Phase II rate limit scenario.

Table 19

Control Equipment	NO_x Strategy (In Service Date) Rate Limit Self-Compliant Schedule
NO_x under CAIR Phase II (Rate Limit Scenario)	
[redacted]	[redacted]

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4.2.2.2 Assumptions

For this analysis, one strategy for NO_x control technologies was developed. Since AmerenUE revenues would be common to all strategies, revenues were not included for any strategy. Costs were the only items included in the EVA model, therefore the results produced negative EVAs. For all control technologies, we modeled a 30-year economic life. The NO_x allowance bank was not evaluated under the rate limit scenario, because compliance is achieved by meeting the rate limit. Below are the general assumptions used for the NO_x analysis:

- The Meramec Plant is assumed to be retired beginning in 2022 which is consistent with the AmerenUE IRP (February 2008)
- The study period was 2013 through 2042
- The capital expenditures, O&M costs, and auxiliary power requirements were provided by POS (March 2009)
- The capital expenditures were obtained from AmerenUE studies conducted by consultants dated January 2009
- Auxiliary power and capacity costs were obtained from Corporate Planning; these costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)

4.2.2.3 Inputs

Inputs to the analysis consisted of capital expenditures, O&M costs, and auxiliary power requirements for the control technologies. Escalation rates, financial ratios and costs of debt and equity, and depreciation methods used were the values contained in the corporate EVA model for AmerenUE. Typical values are shown in Table 6.

4.2.2.4 Technologies

As presented in Section 4.1.6, we considered [redacted]. (RRI/SNCR – rich reagent injection/selective non-catalytic reduction – systems are already installed on the Sioux units.) Figure 13 shows the capital costs of these technologies in $/kW. Table 15 shows the annual O&M costs for these technologies.

4.2.2.5 Strategy and Results

Table 20 shows the NPVRR for the strategy considered. The NPVRR values are the net present value of streams of annual EVAs and the NPVRR values are rounded to the nearest $100,000.

Table 20

Strategy	NPVRR, $
NO_x under CAIR Phase II (Rate Limit Scenario)	
[redacted]	[redacted]

4.2.2.6 Sensitivity Analysis

4.2.2.6.1 Emission Impact if Meramec Plant is Not Retired, but Continues to Operate through the Study Period

An impact assessment was made on the NO_x emissions under the CAIR Phase II rate limit scenario and Meramec Plant operates beyond 2021 in lieu of retirement in 2022. If Meramec Plant continues to operate, then the annual NO_x emissions would increase by approximately [redacted] tons/year. That is approximately equivalent to the amount of NO_x that [redacted]. If Meramec Plant continues to operate, then the seasonal NO_x emissions would increase by approximately [redacted] tons/year. That is the approximately equivalent to the amount of NO_x that [redacted]

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[redacted]. In this sensitivity, there would [redacted]

4.3 NO_x Analysis Summary

As previously mentioned, various NO_x air compliance strategies were evaluated to meet the current CAIR compliance requirements. Since CAIR was remanded by the Federal Court in December 2008, there the potential for more stringent NO_x regulations emerging. As a result, two more stringent environmental compliance strategies were considered under an alternative CAIR scenario. One scenario was a more aggressive cap-and-trade regulation. The other scenario was a rate limit based compliance/regulation without trading of allowances. Table 21 provides a summary of the various installation schedules and NPVRR results under the potential strategies from the NO_x analysis.

Table 21

Control Equipment/ Economic Analysis Results	NO_x Strategies (In Service Date)			
	[redacted]	[redacted]	**Self-Compliant Schedule** (Cap-and-Trade Scenario)	**Self-Compliant Schedule** (Rate Limit Scenario)
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
RRI/SNCR – Sioux 1 & 2	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Current CAIR NPVRR (2013-2049)	[redacted]	[redacted]	[redacted]	[redacted]
More Aggressive CAIR Phase II, Cap-and-Trade NPVRR (2013-2049)	[redacted]	[redacted]	[redacted]	[redacted]
CAIR Phase II, Rate Limit NPVRR (2013-2049)	[redacted]	[redacted]	[redacted]	[redacted]

5.0 MERCURY ANAYLSIS

USEPA had promulgated a Clean Air Mercury Rule (CAMR) which defined the mercury monitoring and control requirements for coal-fired power plants. In 2008, the rule was vacated by Federal Courts and remanded to USEPA. In 2009, the USEPA dropped their challenge to the court decision. The new Administration is likely to replace the CAMR rule with a Maximum Achievable Control Technology (MACT) standard for mercury and possibly other hazardous air pollution emissions from power plants by 2011. It is unclear whether the planned technology for mercury control - namely HACI - will be acceptable as MACT control for power plants. If it is not, then Flue Gas Desulfurization (FGD) or other technology might be required on all power plants in the 2015-2017 timeframe. USEPA is signaling that they will likely develop MACT standards for other hazardous air pollutants, such as metals, acids and organics, for power plant emissions. The additional standards may be issued along with mercury MACT rulemaking. It is unclear at this time what additional technology, if any, will be required to control such emissions.

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5.1 Strategy and Technologies

[redacted] were considered as possible compliance technologies. Also, the mercury removal co-benefits of FGD systems were included. Due to the uncertainty in the final regulations, AmerenUE management has previously decided on a mercury compliance plan that includes the installation of [redacted]. Once the final rules are issued, this plan would be reevaluated based on the final rules. Table 22 is the mercury strategy installation schedule:

Table 22

Control Equipment and Units	Schedule (Year, In Service Date)
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	

5.2 Assumptions and Inputs

For this mercury analysis, only one strategy was evaluated consisting of the mercury control technologies in Table 22. Since there was only one strategy considered and the technologies can be installed quickly, the EVA model was not used. Below are the general assumptions and inputs used for the mercury analysis:

- Analysis covers a 20-year time period (2009-2028)
- The Meramec Plant is retired beginning in 2022
- Sioux Plant [redacted]
- The capital expenses (CBS Report 3/05/2009) and O&M costs were provided by POS
- O&M costs were escalated at the USGDP Implicit Price Deflator of 2.59% (2007)
- HACI O&M costs at Labadie and Rush Island [redacted]
- HACI results in loss of fly ash sales revenues beginning in [redacted] of approximately [redacted]/year
- Total costs were rounded to the nearest $100,000

5.3 Results

Table 23 shows the total capital expenditures and O&M costs for these technologies over the period from 2009 to 2028.

Table 23

ITEM	ESTIMATED TOTAL COST ($)
20-Year Mercury Environmental Compliance Plan (2009-2028)	
Capital Investments	[redacted]
O&M Expenses	[redacted]
TOTAL	[redacted]

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A key observation is that mercury control technologies are much more O&M intensive than either SO_2 or NO_x control technologies.

5.4 Mercury Analysis Summary

Due to the uncertainty in the final CAMR, AmerenUE management has decided on a mercury compliance plan that includes the installation of [redacted] Table 24 provides a summary of the [redacted] and NPVRR results under the potential strategies from the SO_2 analysis.

Table 24

Control Equipment/ Economic Analysis Results	Mercury Strategy (In Service Date) Anticipated Compliance Plan
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Total Cost (2009-2028), Capital Expenses and O&M Expenses	[redacted]

* * * * *