

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In The Matter of a Determination of Special)	
Contemporary Resource Planning Issues to be)	
Addressed by Ameren Missouri in its Next)	File No. EO-2012-0039
Triennial Compliance Filing or Next Annual)	
Update Report)	

The Natural Resources Defense Council, Sierra Club, Renew Missouri, Mid-Missouri Peaceworks, and Great Rivers Environmental Law Center (collectively, “NRDC”), pursuant to 4 CSR 240-22.080(4), provide the following comments regarding the special contemporary issues for future consideration and analysis by Ameren Missouri that NRDC identified in their September 15, 2011 filing in this matter.

I. BACKGROUND

As with utilities throughout the country, Ameren is at a crossroads, and the direction it takes will be of critical importance to the costs paid by ratepayers, job creation, and electric system reliability. The company operates an aging coal fleet that will likely experience declining performance and/or the need for increasing levels of capital expenditures just to keep operating. At the same time, the cost of importing coal into Missouri is likely to continue to go up, while energy efficiency, demand side management, renewable resources, and natural gas combined cycle are less costly or cost competitive alternatives to coal. Meanwhile, there is a series of long-overdue environmental standards that will require the installation of modern pollution controls on virtually any coal unit that intends to continue operating for more than a few more years.

Faced with these circumstances, utilities throughout the country are evaluating whether to keep existing coal units operating or to retire those units and invest in other alternatives. In

many cases, those utilities are announcing their intent to retire their aging coal units. For example, a December 2010 survey of studies evaluating the amount of coal plant retirements expected found estimates ranging from 10 GW to 75 GW of coal capacity will be retired between now and 2020.¹ And, as listed in Exhibit B to these comments, more than 27.5 GW of coal plant retirements have already been announced by utilities throughout the country.

NRDC urges the Commission to use the Electric Utility Resource Planning process and other tools at its disposal to ensure that the decision of whether to retire or continue investing in each of Ameren's aging coal units is made on the basis of a comprehensive and objective analysis of what approaches will minimize the present worth of long-run utility costs and maximize the public interest. That means carefully evaluating the energy demand that Ameren needs to serve; assessing the full capital, environmental, operation and maintenance, and fuel costs facing each Ameren coal unit; and comparing such costs on an equal basis to satisfying the energy needs of Ameren's ratepayers through energy efficiency, demand side management, and cleaner supply side resources. Because Ameren and its shareholders profit from selling more electricity and expanding the utility's rate base, Ameren's interest will be in keeping its existing coal units running as long as possible. Doing so, however, will often not be the least cost approach for Ameren's ratepayers and, therefore, it is up to the Commission to ensure that Ameren's ratepayers are protected as the utility decides whether to retire or spend more money on each of its aging coal units.

II. AMEREN'S AGING COAL FLEET

As we enter the second decade of the 21st Century, Ameren continues to rely on coal units that were built in the 1950s, 1960s, and 1970s for most of its energy production. Ameren

¹ Exhibit A, Brattle Group, "Potential Coal Plant Retirements under Emerging Environmental Regulations."

acknowledges that it is heavily dependent on plants that are reaching the end of their useful lives, stating in its 2011 Integrated Resource Plan (“IRP”) filing that:

Across the nation and our region, large coal-fired plants that provide most of our power are growing older. The average age of Missouri’s large plants is 40 years, and that’s at least middle age for a power plant. These plants will not operate forever.

(IRP at ES-4). In fact, the units at Ameren’s oldest coal plant, Meramec, are between 50 and 58 years old. Its youngest coal unit, at Rush Island, is more than 33 years old, while units at the Sioux plant are more than 40 years old, and those at Labadie are 38–41 years old. It is in the best interest of the ratepayers to determine now, before more money is spent on these aging units, how long, from both a technical and an economic perspective, such units should be expected to continue operating.

The increasing age of Ameren’s coal units supports the need to analyze two of the special contemporary issues that NRDC identified. First, Ameren should be required to assess the condition of each of its existing coal-fired generating units, and to use the results of such assessments and experience throughout the industry to determine reasonably expected remaining lives for each unit. Such assessments will provide Ameren and the Commission with a reasonable estimate of the latest date by which, from a technical standpoint, existing coal unit capacity will need to be replaced, and an estimate of the maximum number of years over which the cost of additional spending on Ameren’s aging units could be spread in determining whether such spending is the lowest cost option for ratepayers.

Second, given the aging nature of its coal units, Ameren should be required to evaluate the annual capital and operating and maintenance costs that would be needed to keep each Ameren unit operating for the rest of the unit’s reasonably expected remaining life, and assessing the expected performance of each unit as it ages. It is logical to assume that as a coal unit ages it will face the need for more capital investments in order to maintain its performance and/or the

unit will experience declining performance. Such likely increased costs and/or declining performance is directly relevant to the question of whether retirement or additional investments in Ameren's aging coal units is the least cost option and, therefore, the Commission should require an evaluation of these issues for each of Ameren's coal units.

III. CHANGING FUEL COSTS

A second set of special contemporary issues that should be evaluated is fundamental changes regarding fuel markets that are projected to lead to a continued increase in the price of coal and continued low natural gas prices. Such changes fundamentally alter the economics of whether ratepayers should have to pay to keep Ameren's aging coal units operating, or whether those units should be retired and natural gas combined cycle plants used to the extent necessary to replace that capacity as increasing energy efficiency, demand side management, and renewable resources are brought online.

With regards to coal, utilities in Missouri exported \$1.13 billion of Missouri ratepayer money in 2008 to import coal from Wyoming and other states.² Ameren was responsible for sending \$565 million of this ratepayer money out of state to purchase coal.³ Those amounts are quite likely to increase, as coal exports are going up at the same time that traditional sources of coal are being depleted. These trends are expected to lead to upward pressure on coal prices as Central Appalachian reserves are depleted and mining in the Powder River Basin ("PRB") is intensified.⁴ For example, a presentation by John Drexler, Senior VP and CFO, Arch Coal, Inc.,

² Union of Concerned Scientists, *Burning Coal Burning Cash: Missouri's Dependence on Imported Coal* (May 2010), attached as Exhibit C.

³ *Id.*

⁴ See, for example, Scott Learn, *Mining companies aim to export coal to China through Northwest points*, The Oregonian, September 8, 2010, the most recent reporting on plans to ship PRB coal through the Pacific Northwest.

at the BMO Capital Markets 2011 Global Metals/Mining Conference in February 2011 noted the following:

Even modest increases in export activity can have significant market implications:

- Arguably the most significant driver in the 2008 market run-up was a 32 million ton increase in exports from 2006 to 2008.
- U.S. exports appear to be in the midst of an even greater expansion at present
- The market implications of such an increase could prove dramatic.⁵

In addition, there are indications that intensified mining efforts will lead to rising costs of production in the PRB.⁶ In 2008 the US Geological Survey (“USGS”) issued a study of the PRB’s Gillette coal beds. This study, which reflected forty years of USGS research on coal reserve methodology throughout the United States, concluded that the methods used by the United States government to calculate coal reserves had significantly overstated the amount of economically recoverable coal. The study explained that as existing mines and new mines in the area are more intensively exploited, production costs would rise substantially, perhaps to a level that could not be covered by the market price.⁷ This is an important observation as the Gillette coal bed contains most of the coal produced in the PRB, and, overall, accounts for 37% of the nation’s coal production.

Coal prices are a critical element of the cost of operating Ameren’s aging coal units.

Consistent with the Missouri Department of Natural Resources’ recommendation, we urge the Commission to require an evaluation of a wide range of potential future coal costs in order to

⁵ In Slide No. 15.

⁶ United States Geological Survey, *Assessment of Coal Geology Resources and Reserves in the Gillette Coalfield River Basin, Wyoming*, Open-File Report – 2008-1202.

⁷ The study offers precise calculations for existing mines in the Gillette coal beds as well as cost curves based on various production levels. These models allow for a dynamic understanding of the relationship between rising costs of production and the need for higher coal prices in the market place.

determine the impact that such costs has on the economic reasonableness of continued operation of each of Ameren's coal units.

The Commission should also require Ameren to engage in an up-to-date evaluation of natural gas prices that fully reflects the structural changes in the natural gas markets that are expected to keep the price of that fuel quite low in comparison to historical costs. In responding to comments regarding the natural gas price assumptions in its 2011 IRP, Ameren "acknowledge[d] that major shifts have recently occurred in natural gas markets and that price forecasts have changed dramatically since the IRP analysis was performed." (Ameren IRP, Resp. to Comments at 69). Ameren admitted that it would need to revise its natural gas price forecasts (*id.*), and NRDC urges the Commission to hold Ameren to that admission and to make sure that the utility relies on reasonable, well-supported, and up-to-date natural gas price estimates moving forward.

IV. ENVIRONMENTAL CONTROL COSTS FACING AMEREN'S COAL UNITS

Another special contemporary issue that the Commission should require Ameren to evaluate is the need to install modern pollution controls on any of the aging coal units that Ameren continues to operate after 2015. As summarized below, there are a series of existing or long overdue environmental standards that are finally being promulgated or enforced and that would require the installation of pollution controls that have been commercially available for decades on each coal unit that Ameren wishes to continue operating for a few more years. Ameren should be required to fully quantify those costs for each coal unit, and to factor those costs into the determination of whether continued operation of each unit is the least cost option to the ratepayers, or whether retirement or repowering of such units is more economically sensible.

In order to ensure that the least cost path is followed, the Commission should require Ameren to evaluate the likely combined cost of compliance with each of the following environmental standards for each coal unit:

- **Clean Air Act New Source Review (“NSR”) Provisions**

The Clean Air Act’s NSR provisions require that an existing major source of pollution, such as a coal-fired electric generating unit, install Best Available Control Technology (“BACT”) if and when the source undergoes a modification that leads to a significant emissions increase. In January 2010, the U.S. EPA issued a Notice of Violation (“NOV”) to Ameren, alleging that the utility had violated the NSR requirements by modifying each of the utility’s aging coal units without installing BACT controls. The agency issued a second NOV in October 2010, alleging additional NSR violations at Ameren’s Rush Island plant. In February 2011, U.S. EPA brought an enforcement action against Ameren for NSR violations at the Rush Island plant. If U.S. EPA prevails on any of these NSR claims, Ameren could be required to install BACT controls for SO₂ or NO_x, which would likely consist of at least a scrubber for SO₂ and a selective catalytic reduction for NO_x.

- **More Protective National Ambient Air Quality Standards (“NAAQS”)**

In order to protect public health, the U.S. EPA establishes NAAQS that limit the allowable concentration of certain air pollutants in the ambient air. States containing areas that are designated out of attainment with any NAAQS must develop a State Implementation Plan (“SIP”) to bring the air quality into compliance with the applicable NAAQS through reduction of emissions of the pollutant in question. To the extent a large coal-fired power plant contributes to non-attainment, it will likely require controls to reduce overall emissions to help bring areas into attainment.

There are two recently strengthened NAAQS that are likely to have an impact on Ameren's aging coal units:

1. SO₂: EPA adopted a new one hour average NAAQS for SO₂ in 2010, and the Missouri DNR proposed non-attainment areas on May 26, 2011. The Missouri DNR proposed a non-attainment area in a portion of Jefferson County that includes Ameren's Rush Island plant.⁸ Ameren's Meramec plant is located only a couple of miles from that proposed non-attainment area. Ameren's Labadie plant, which emitted more than 61,000 tons of SO₂ in 2009, is located in a county that has no SO₂ emissions monitor. Air quality modeling, which is required for designating non-attainment areas for the 1-hour SO₂ standard, could show that Labadie causes violations of the 1-hour SO₂ NAAQS. In order to achieve compliance with the 1-hour SO₂ NAAQS, any of these plants could need to install controls for SO₂, such as a scrubber.
2. Ozone: U.S. EPA adopted a stricter ozone NAAQS of 75ppb in 2008. While the EPA recently announced that it was delaying whether to lower the standard further until 2013, Missouri DNR has proposed that each of the counties where Ameren's coal units are located be designated as out of attainment with the 75ppb level.⁹

- **Cross State Air Pollution Rule ("CSAPR")**

Initially referred to as the Clean Air Transport Rule, CSAPR was finalized by U.S. EPA on July 6, 2011. The rule establishes a cap on SO₂ and NO_x emissions from the eastern U.S. that will require some reductions in 2012 and then additional reductions in 2014. By 2014, SO₂ reductions are to be 73% below 2005 levels, while NO_x emissions are to be 54% below 2005

⁸ Missouri DNR, 2010 1-Hour Sulfur Dioxide Boundary Recommendation (May 26, 2011), at p. 24, available at <http://www.dnr.mo.gov/env/apcp/2010-SO2-Boundary-Recommendation.pdf>.

⁹ Missouri DNR, 2008 Ozone Non-Attainment Designation Recommendation (Jan. 25, 2009), available at <http://www.dnr.mo.gov/env/apcp/ozone/finalmap-08ozone.pdf>.

levels. Ameren has announced that it intends to comply with CSAPR's SO₂ limits through 2017 by purchasing "ultra low sulfur coal," but little detail has been provided as to whether that approach will be sufficient to meet the CSAPR standards or whether such an approach is the lowest cost option over the long run for Ameren's coal units. In addition, emission allowances under the CSAPR are expected to be \$1,000 per ton for SO₂ and \$500 per ton for NO_x in 2012, and \$1,100 per ton for SO₂ and \$600 per ton for NO_x in 2014,¹⁰ which could provide Ameren and its ratepayers with an added economic benefit if the utility were to retire some units and sell the unneeded emission allowances for those units.

- **Utility Boiler MACT**

On May 3, 2011, U.S. EPA issued a draft proposal to implement the hazardous air pollutant provisions of the Clean Air Act, which require the use of Maximum Achievable Control Technology ("MACT") to limit emissions of mercury and other HAPs. The agency is under a court order requiring that the rule be finalized in November 2011. As required under the Clean Air Act, the EPA's emissions limitations for existing units will be based on emissions achieved at the lowest emitting 12% of electric generating units in the nation. The best-controlled units in the country use wet scrubbers (i.e., wet FGD systems), selective catalytic reduction (SCR) systems, and baghouses to control HAPs. In addition, activated carbon injection (ACI) may be required to control mercury.

- **Clean Water Act 316(b) Cooling Water Intake Standards, 33 U.S.C. § 1326(b).**

On March 28, 2011, the EPA proposed a long-expected rule implementing the requirements of Section 316(b) of the Clean Water Act at existing power plants. Section 316(b) requires "that the location, design, construction, and capacity of cooling water intake structures

¹⁰ U.S. EPA, Cross-State Air Pollution Rule: Reducing Air Pollution Protecting Public Health, at 13, attached as Exhibit D.

reflect the best technology available for minimizing adverse environmental impact." Under this rule, EPA set new standards reducing the impingement and entrainment of aquatic organisms from cooling water intake structures at new and existing electric generating facilities

EPA is expected to finalize the 316(b) rule in July 2012, and the regulations will become effective within 60 days thereafter. Facilities would have five years, and up to eight years on appeal, to comply with the impingement mortality requirements; and up to eight years at the discretion of the Director to comply with the entrainment provisions. As such, Ameren's plants would likely face compliance deadlines of 2017 for impingement, and 2020 for entrainment. The best technology available standard should, in most cases, require the replacement of outdated once-through cooling systems with modern closed-cycle systems and cooling towers.

- **Clean Water Act Steam Electric Effluent Limitation Guidelines**

The Clean Water Act requires EPA to develop "effluent limitation guidelines," which are actually standards for what large industrial sources of water pollution can discharge into nearby waters. These standards are to be based on what is "economically achievable" and are supposed to be updated at least once every five years to keep up with improving treatment technology. The power plant ELGs were last updated in 1982, however, and are almost thirty years out of date.

On September 15, 2009, EPA announced its intent to proceed with a rulemaking on effluent guidelines for wastewater discharges from steam electric plants, including nuclear and fossil-fired plants. The EPA has identified wastewaters from flue gas mercury control systems, regeneration of the catalysts used for SCR, wastes from FGD units, and coal combustion residual storage ponds as waste streams that warrant attention. The new effluent limitation guidelines will address toxic releases from point sources, including coal ash ponds like those associated with

Ameren's coal-fired generating facilities. A final rule is expected in 2013, and requirements are expected on a permit-by-permit basis, which could take up to five years.

- **Coal Combustion Waste Regulations**

Coal-fired power plants generate a tremendous amount of ash and other residual wastes, which are commonly placed in dry landfills or slurry impoundments. The risk associated with wet storage of coal combustion waste was dramatically revealed in the catastrophic failure of the ash slurry containment at the Kingston coal plant in Roane County, Tennessee in December 2008, releasing over a billion gallons of slurry and sending toxic sludge into tributaries of the Tennessee River. With regards to Ameren, it was recently discovered that the slurry impoundment for the waste from the Labadie plant has been leaking up to 35 gallons of slurry per minute since 1992.¹¹

On June 21, 2010, EPA proposed regulation of ash and FGD wastes, or "coal combustion residuals" ("CCR") as either a Subtitle C "hazardous waste" or Subtitle D "solid waste" under the Resource Conservation and Recovery Act (RCRA). If the EPA classifies this waste as hazardous, a cradle-to-grave regulatory system would apply to CCR, requiring regulation of the entities that create, transport, and dispose of the waste. Under a Subtitle C designation, the EPA would regulate siting, liners, run-on and run-off controls, groundwater monitoring, fugitive dust controls, and any corrective actions required; in addition, the EPA would implement minimum requirements for dam safety at impoundments.

Under a "solid waste" Subtitle D designation, the EPA would require minimum siting and construction standards for new coal ash ponds, compel existing unlined impoundments to install liners, and require standards for long-term stability and closure care.

¹¹ Jeffrey Tomich, Leaks From Ameren Toxic Waste Pond in Labadie Stir Fears, St. Louis Post-Dispatch (Sept. 1, 2011), available at http://www.stltoday.com/business/local/article_1077fe32-0c9c-5bbf-a2df-27aaf6499ad5.html.

V. COMPARING COSTS ON AN EQUAL BASIS

The costs facing Ameren's coal units due to the age of the units, fundamental changes in the fuel markets, and long-overdue environmental standards raises the question of whether it is economically preferable to spend money keeping each aging coal unit operating or whether it would be better for ratepayers to retire at least some of those units. The Commission should require Ameren to engage in such analysis as a special contemporary issue, and should set forth at least the following three ground rules for the analysis:

1. Ameren should be required to quantify and assess a reasonable range of all of the capital, environmental, operation and maintenance, and fuel costs for each of its coal units, rather than looking at only some of the costs those units face.
2. Ameren should be required to evaluate the retirement versus continued spending question with regards to each unit in its coal fleet. In its 2011 IRP, Ameren short circuited such analysis by evaluating only the Meramec plant, and then concluding that it did not need to evaluate its other coal plants because retirement was purportedly not the least cost option for Meramec under a "moderate" regulatory scenario. That decision was flawed because both Rush Island and Labadie face far higher costs under the "moderate" scenario than Meramec does. A more accurate approach would look at each unit individually based on reasonable estimates of the various costs facing the unit in order to determine whether retirement or continued spending is the least cost option for that unit.
3. Ameren should be required to evaluate continued spending on its coal units with pursuit of other energy options on an equal footing. In its 2011 IRP, Ameren considered demand-side management resources only after supply-side resources were identified and a capacity need was established. This approach prevents economically preferable

demand side options from competing on an equivalent basis with continued investment in aging supply side resources. A more appropriate approach is for Ameren to input both supply-side and demand-side resources into its planning models and to allow those resources to compete equally on the basis of cost.

VI. MAKING WAY FOR A TRANSITION TO A NEWER, MORE COST EFFECTIVE APPROACH TO SATISFYING ENERGY NEEDS

NRDC believes that the above analysis will, in many cases, lead to the conclusion that retirement of a coal unit is the least cost option for ratepayers. In order for such retirements to occur, however, there also needs to be a determination as to whether retirement will impact the reliability of the electric transmission grid and, if so, an identification of the steps that need to be taken to avoid such impacts. Otherwise, the situation could arise where retirement of a unit is clearly the least cost choice, but the regional transmission organization will issue a reliability must run order requiring the unit to continue to operate until the reliability issues are addressed. Such orders mean that an uneconomic unit is continuing to operate at a higher cost to ratepayers. Therefore, it is in the best interests of ratepayers to ensure that Ameren is now identifying and carrying out any transmission grid upgrades and additions needed to avoid transmission grid reliability, stability, or voltage support impacts from the retirement of any existing Ameren coal-fired generating unit. Analysis of this issue should be included as a special contemporary issue for future consideration.

VII. DSM COST RECOVERY AND INCENTIVES

Ameren offers no solution to the throughput disincentive to DSM, nor does it offer any analysis of how “regulatory lag” may be dealt with. Since these issues are central to equal

treatment of supply-side and demand-side resources, overcoming these barriers is a special contemporary issue.

A recent report by the American Council for an Energy Efficient Economy, “Missouri’s Energy Efficiency Potential: Opportunities for Economic Growth and Energy Security,” lays out some options in its section on “Policy Opportunities,” p. 26 et seq. These are mostly familiar. Decoupling is one notable option with which Ameren and the Commission have not yet come to grips.

One of our suggested issues (and ACEEE’s) is a future test year. This attracted unfavorable comment from OPC and a warning from General Counsel that the Western District Court of Appeals held that a future test year is not permissible under § 393.135, RSMo. State ex rel. PSC v. Fraas, 627 S.W.2d 882, 887–8 (Mo.App. WD 1981). We are not recommending that regulatory pre-approvals or other non-traditional rate mechanisms be allowed except to the extent they may be authorized by MEEIA.

Respectfully submitted,

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