

In the Matter of Ameren Missouri’s 2014 Utility Resource Filing pursuant to 4 CSR 140 – Chapter 22)) File No. EO-2015-0084)

COMES NOW Union Electric Company d/b/a Ameren Missouri (Ameren Missouri), and
for its Supplemental Filing states as follows:

- ¹ Rule 4 CSR 240-22. The Commission revised its Chapter 22 rules, effective June 30, 2011.

FGD and SCR included in Ameren Missouri's 2011 IRP and 2012 and 2013 IRP Annual Update Reports to address Sierra Club's concerns related to changes in assumptions from prior IRP filings.

WHEREFORE, Ameren Missouri asks the Commission to find that it's October 1, 2014, IRP filing complies with the requirements of 4 CSR 240-22, as it existed at the time the Company's IRP was filed and to acknowledge the Company's Preferred Resource Plan as reasonable at this time.

Respectfully submitted,

UNION ELECTRIC COMPANY,
d/b/a Ameren Missouri

/s/ *Wendy K. Tatro*

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing Ameren Missouri Supplemental Filing was served on all parties of record via electronic mail (e-mail) on this 29th day of May, 2015.

/s/ Wendy K. Tatro

Wendy K. Tatro

Supplemental Filing

Ameren Missouri – 2014 IRP

Consideration of FGD

Ameren Missouri's 2014 IRP included the following discussion with respect to its consideration of compliance with sulfur dioxide (SO₂) emission limitations, including those required by the Cross-State Air Pollution Rule (CSAPR):

In general, our current assumption is to meet the SO₂ compliance requirements with the continued burning of Ultra-Low Sulfur Coal at all of our unscrubbed coal Energy Centers in conjunction with the operation of the wet scrubbers at our Sioux Energy Center (Sioux). Ameren Missouri's existing contracts for Ultra-Low Sulfur Coal will meet our needs through 2017.

While the Company anticipates that this will meet our compliance needs through the near term planning window, Ameren Missouri has identified the risk that this solution may not fully meet our SO₂ compliance needs when the planning window is extended out to the 20-year IRP timeframe. As such, we have assumed the installation of additional FGD to ensure compliance over this timeframe for planning purposes. In establishing our reference case, Ameren Missouri has assumed the installation of such scrubbers at the Labadie and Meramec Energy Centers given the co-benefit available for 1-hour SO₂ compliance at those particular stations.¹

As indicated in the 2014 IRP, CSAPR is assumed to be a primary driver for compliance with SO₂ emission limitations, along with 1-hour SO₂ emission limits under the National Ambient Air Quality Standards (NAAQS). Labadie and Meramec Energy Centers are assumed to require FGD retrofits in part because of the 1-hour SO₂ limits. The reference case environmental compliance assumptions in the 2014 IRP are based on continued operation of all coal-fired units through the planning horizon of 2015-2034. Because Ameren Missouri included retirement of Meramec Energy Center (Meramec) by the end of 2022 in all of its alternative resource plans, and based on the expected timing of requirements for additional reductions of SO₂ emissions, none of the alternative resource plans include the addition of FGD equipment at Meramec (i.e., retirement of Meramec is the chosen compliance option).

Of the Company's existing coal-fired facilities, only Rush Island Energy Center is left in operation beyond 2022 without an FGD system installed in the Company's preferred plan and all alternative resource plans. This reflects the assumptions listed above which allow for compliance with SO₂ limits, whether through NAAQS or CSAPR – namely, the continued use of Ultra-Low Sulfur Coal and the operation of FGD equipment at Sioux and Labadie Energy Centers, along with the retirement of Meramec.

¹ Ameren Missouri 2014 IRP, Chapter 5, page 17.

Sierra Club asserts in its comments on Ameren Missouri's 2014 IRP that the Company included the assumption in its 2011 IRP that FGD equipment would be installed on all coal-fired units under both "moderate" and "aggressive" environmental regulation scenarios.² This is not true with respect to the "moderate" environmental regulation scenario in the Company's 2011 IRP. Under "moderate" environmental regulation, only Labadie and Rush Island Energy Centers were assumed to require the addition of FGD equipment for compliance (in addition to the existing FGD at Sioux) while continued operation of Meramec was assumed not to require FGD equipment. FGD retrofits were assumed for all coal units under the "aggressive" regulation scenario.³

In making comparisons of environmental compliance assumptions between IRP filings, it is important to note that at the time the 2011 IRP was being prepared, there was still substantial uncertainty as to the final form of what became CSAPR. At that time, the developing rule was known by different names, such as the Clean Air Transport Rule (CATR) and the details of the regulation were not fully known. This uncertainty, along with uncertainty regarding other developing regulations at the time (e.g., Mercury and Air Toxics Standards and regulations for water and waste such as Coal Combustion Residuals), was the primary reason for developing two alternative regulatory scenarios – "moderate" and "aggressive."

Following the filing of Ameren Missouri's 2011 IRP in February of 2011, the EPA finalized the CSAPR in July of 2011. The CSAPR was subsequently stayed, vacated by the D.C. Circuit Court of Appeals (D.C. Circuit), and then reinstated following reversal of the D.C. Circuit opinion by the U.S. Supreme Court. During the time that the rule was not in effect, the previously remanded Clean Air Interstate Rule (CAIR) remained in effect. The limits under CAIR were more stringent than those under CSAPR. While the allowance allocations to Ameren Missouri are lower under CSAPR, the 2.86 allowance per ton of SO₂ surrender ratio under CAIR results in a lower effective allocation. Given the continued uncertainty in the eventual specific emission limits that would be in effect, and the expectation that action to comply with the regulations would be necessary in any event, Ameren Missouri secured a contract for Ultra-Low Sulfur Coal in July of 2011 to ensure a sufficient supply to comply with SO₂ emission limits through 2017.

The Company's 2012 IRP Annual Update Report, filed in April of 2012, reflected the continued use of Ultra-Low Sulfur Coal as one option for compliance with CSAPR SO₂ emission limits. Two other options were also considered at that time; 1) the addition of FGD equipment at Rush Island Energy Center, and 2) switching Meramec to natural gas fired operation. Retirement of Meramec in 2018 was also considered as part of the alternative resource plan analysis, with replacement of Meramec with other resources including energy efficiency. The analysis showed that the continued use of Ultra-Low Sulfur Coal was an economic option for compliance with SO₂ emission limits. The Company's 2013 IRP Annual Update Report reaffirmed the assumptions made for the 2012 Annual Update.

² Sierra Club Comments (on Ameren Missouri's 2014 IRP) filed May 2, 2015

³ Ameren Missouri 2011 IRP, Chapter 8, page 20, Table 8.3

In summary, the Company's assumptions for compliance with SO₂ emission limits have evolved modestly from the assumptions reflected in its 2011 IRP, from the addition of FGD at two coal-fired energy centers (Labadie and Rush Island) under "moderate" environmental regulations to the addition of FGD at one coal-fired energy center (Labadie) and retirement of another (Meramec). This modest evolution reflects changes in the nature of the expected regulation, from CATR to CAIR to CSAPR as well as expectations regarding NAAQS 1-hour SO₂ limits.

Consideration of SCR

Ameren Missouri's 2014 IRP included the following discussion with respect to its consideration of compliance with Nitrogen Oxide (NO_x) emission limitations, including those required by the CSAPR:

The actions assumed by Ameren Missouri to comply with the potential NO_x emissions standards include the installation of additional separated over-fire air ports at Labadie and continued use of low NO_x burners and staged air combustion processes at our other coal fired Energy Centers. Ameren Missouri installed this technology on Labadie Units 2 & 4 in 2012. In addition to these operational techniques, Ameren Missouri has installed SNCR⁴ capability at our Sioux Energy Center that can be utilized to further reduce our NO_x as necessary. For our reference case, Ameren Missouri has assumed the addition of Selective Catalytic Reduction (SCR) equipment at our Sioux Energy Center.

The assumptions in the Company's 2014 IRP with respect to NO_x controls reflect expectations for compliance with both CSAPR and NAAQS ozone limitations (for which NO_x emissions are a precursor). The NO_x emission rates of three of our four coal-fired energy centers have been, and are expected to continue to be, extremely low due to the operational measures described above. The table below presents Ameren Missouri's actual coal energy center NO_x emission rates for calendar year 2014.

Energy Center / Unit	NO_x Rate (lb/mmBtu)
Labadie Energy Center	0.094
Meramec Unit 1	0.118
Meramec Unit 2	0.115
Meramec Unit 3	0.170
Meramec Unit 4	0.176
Rush Island Energy Center	0.081
Sioux Energy Center	0.245
Coal Fleet	0.126

⁴ Selective Non-catalytic Reduction

As a result of the very low NO_x emission rates at the Company's other coal-fired energy centers, only Sioux is expected to require the addition of SCR equipment to meet future NO_x emission standards on both a plant and a fleet basis. This assumption differs from the Company's 2011 IRP and 2012 and 2013 IRP Annual Updates, in which no SCR additions were assumed for any coal-fired units. The specific expectations regarding CSAPR and NAAQS limitations led to the inclusion of SCR for Sioux in the 2014 IRP. Of the remaining energy centers, Meramec exhibits the highest NO_x emission rates, but is scheduled to be retired by the end of 2022.