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MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENGINEERING ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

OF

CLAIRE M. EUBANKS, PE

UNION ELECTRIC COMPANY,
d/b/a AMEREN MISSOURI

CASE NO. EF-2024-0021

Jefferson City, Missouri
February 2024

****** Denotes Confidential Information ******

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REBUTTAL TESTIMONY OF

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UNION ELECTRIC COMPANY,
d/b/a AMEREN MISSOURI

CASE NO. EF-2024-0021

Q. Please state your name and business address.

A. My name is Claire M. Eubanks and my business address is Missouri Public Service Commission, P.O. Box 360, Jefferson City, Missouri, 65102.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as the Manager of the Engineering Analysis Department of the Industry Analysis Division.

Q. Please describe your educational background and work experience.

A. I received my Bachelor of Science degree in Environmental Engineering from the University of Missouri – Rolla, now referred to as Missouri University of Science and Technology, in May 2006. I am a licensed professional engineer in the states of Missouri and Arkansas. I began my career as a Project Engineer with Aquaterra Environmental Solutions, Inc., now SCS Aquaterra, an engineering consulting firm with locations across the Midwest. as a Project Engineer, I worked on a variety of engineering and environmental projects including landfill design, environmental sampling, construction oversight, and construction quality assurance. Over the course of my six years with Aquaterra I was promoted several times, eventually to Project Manager. As a Project Manager, I managed a variety of engineering projects primarily related to the design and environmental compliance of solid waste landfills, including performing as the Certifying Engineer for projects related to landfill design, construction plans and specifications, and construction quality assurance.

In November 2012, I began my employment with the Commission as a Utility Regulatory Engineer I. My primary job duties were primarily related to the Renewable Energy Standard, reviewing applications for Certificates of Convenience and Necessity, construction audits, and the development and evaluation of in-service criteria. Additionally, I served on work groups related to the Clean Power Plan. In January 2017, I was promoted to Utility Regulatory Engineer II and in April of 2020, I was promoted to my current position. I currently serve as co-chair to the NARUC Staff Sub-committee on Reliability and Resilience.

Q. Have you previously filed testimony before the Commission?

A. Yes, numerous times. Please refer to Schedule CME-r1, attached to this Direct Testimony, for a list of cases in which I have filed testimony or recommendations.

Q. What knowledge, skills, experience, training, and education do you have in the areas of which you are testifying as an expert witness?

A. I have received continuous training at in-house and outside seminars on technical matters since I began my employment at the Commission. I have been employed by this Commission as an Engineer for over 10 years, and have submitted testimony numerous times before the Commission. I have also been responsible for the supervision of other Commission employees in rate cases and other regulatory proceedings.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to Ameren Missouri witnesses Mark Birk, Karl R. Moor, Jeffrey R. Holmstead, and Steve Whitworth regarding Ameren Missouri's petition of securitization. I also address the potential for future harm to Ameren Missouri ratepayers that stems from the Rush Island litigation.

Q. Do any other Staff witnesses provide testimony in this case?

A. Yes. Staff witness Keith Majors provides testimony regarding various components of the Energy Transition Costs being requested in the securitization petition. Staff witness Sarah L.K. Lange provides testimony on the securitization tariff. Staff witness Brad J. Fortson provides historic background to Ameren Missouri's integrated resource planning. Cedric E. Cunigan, PE provides testimony on the decommissioning costs. Finally, staff witness Shawn E. Lange, PE provides testimony on the Rush Island Reliability Project.

Q. Please summarize Staff's recommendations in this case.

A. Staff recommends that the Commission find that Ameren Missouri's decision to comply with the District Court's modified Remedy Order to retire the Rush Island plant no later than October 15, 2024 is reasonable and prudent. The Commission should allow Ameren Missouri to securitize the remaining net book value of the Rush Island plant. However, Staff recommends the Commission acknowledge Ameren Missouri's failure to plan for the outcome of the litigation by holding ratepayers harmless from the costs above ** [redacted] **[1] associated with the Rush Island Reliability projects, and preserving the issues with potential future remedies and potential capacity shortfalls for a future rate proceeding. Additional adjustments to the amount to be securitized are contained in Staff witness Keith Major's rebuttal testimony.

SECURITIZATION

Q. What question does the Commission need to consider in this case regarding the retirement of Rush Island as it relates to the Securitization statute?

[1] Matt Michels direct testimony EF-2024-0021, page 6, line 13.

A. The Securitization statute in Section 393.1700(2)(a) defines Energy transition costs as:

> (a) Pretax costs with respect to a retired or abandoned or to be retired or abandoned electric generating facility that is the subject of a petition for a financing order filed under this section **where such early retirement or abandonment is deemed reasonable and prudent by the commission** through a final order issued by the commission, include, but are not limited to, the undepreciated investment in the retired or abandoned or to be retired or abandoned electric generating facility and any facilities ancillary thereto or used in conjunction therewith, costs of decommissioning and restoring the site of the electric generating facility, other applicable capital and operating costs, accrued carrying charges, and deferred expenses, with the foregoing to be reduced by applicable tax benefits of accumulated and excess deferred income taxes, insurance, scrap and salvage proceeds, and may include the cost of retiring any existing indebtedness, fees, costs, and expenses to modify existing debt agreements or for waivers or consents related to existing debt agreements; [**Emphasis added.**]

The Commission must consider whether Ameren Missouri's early retirement decision is reasonable and prudent. While the history leading to Ameren Missouri's decision to retire Rush Island is complicated and covers nearly two decades, the question now before the Commission is: Is it reasonable and prudent for Ameren Missouri to comply with the District Court's modified Remedy Order to retire the Rush Island plant no later than October 15, 2024? There is no question that Ameren Missouri must comply with the modified Remedy Order.

Q. Does that mean that the Commission must find that all Ameren Missouri's decisions related to the Rush Island major boiler modifications, subsequent litigation, and its planning for the outcome of the litigation were reasonable and prudent at the time they were made?

A. No.

Q. Is Staff concerned about future harm that Ameren Missouri customers may experience due to its decisions related to the Rush Island major boiler modifications, subsequent litigation, and its planning for the outcome of the litigation?

A. Yes, Staff has three main concerns related to Ameren Missouri's decisions to retire Rush Island and the costs associated with that decision that Ameren Missouri may attempt to recover from ratepayers in later rate cases.

(1) The DOJ is seeking additional remedies other than just the retirement of the Rush Island retirement.

(2) Ameren Missouri's recent 2023 IRP suggests that in the ** [redacted] ** Ameren Missouri will be short on capacity for MISO Resource Adequacy purposes.

(3) There are required transmission projects ("Rush Island Reliability Project") underway which will not be securitized under Ameren Missouri's proposal.

RUSH ISLAND BACKGROUND

Q. Please describe the Rush Island Energy Center ("Rush Island").

A. Rush Island has two coal-fired electric generating units, Units 1 and 2. These units began operations in 1976 and 1977, respectively. The combined net summer capability of the units is 1,178 MW.[2]

Q. Please briefly describe the litigation regarding Rush Island.

[2] Ameren Missouri 2020 Integrated Resource Plan, volume 4, page 3.

A. Ameren Missouri has been involved in litigation regarding environmental permits at Rush Island since 2011. Rather than installing air pollution equipment at Rush Island, Ameren Missouri made the decision to retire the plant.

Q. Is there a retirement process Ameren Missouri must follow?

A. Yes. The Regional Transmission Organization ("RTO") Ameren Missouri participates in, the Midcontinent Independent System Operator ("MISO"), has a retirement process that requires a study be undertaken to determine whether all or a portion of the resource is necessary to maintain system reliability. The MISO study suggested certain upgrades were required prior to the retirement of Rush Island. The MISO studies and associated upgrades are further discussed by Staff witness Shawn E. Lange, PE. Ameren Missouri and MISO entered into a System Support Resource ("SSR") agreement.[3]

Ameren Missouri has been operating Rush Island as an SSR, resulting in Rush Island supplying significantly less generation compared to its capability.

Q. Please explain the projects which prompted the legal issues surrounding Rush Island.

A. The legal issues surrounding Rush Island began with major projects that occurred during two planned outages. The projects for Unit 1 occurred during an outage in 2007 and for Unit 2 during an outage in 2010. Ameren Missouri failed to obtain permits required by the New Source Review ("NSR") provisions of the Clean Air Act ("CAA") for these major projects.

Q. Please briefly describe the projects for Rush Island Units 1 and 2.

[3] The initial SSR agreement was approved by FERC, effective September 1, 2022. The second SSR agreement was approved by FERC, effective September 1, 2023.

A. The projects were major boiler modifications. The 2007 major boiler modification for Unit 1 consisted of replacement of the reheater, economizer, air preheaters, and lower slope at Rush Island Unit 1. The cost for these upgrades was approximately $34 million. The outage took place from approximately February to May 2007. The 2010 major boiler modification for Rush Island Unit 2 consisted of replacement of the reheater, economizer, and air preheaters. The cost for these upgrades was approximately $38 million.[4] The outage took place from approximately January to April 2010.

Q. Please explain the legal timeline surrounding Rush Island.

A. The U.S. Environmental Protection Agency ("EPA") issued a Notice of Violation on January 26, 2010, and amended Notices of Violations on October 14, 2010 and May 27, 2011. In 2011, EPA, represented by the U.S. Department of Justice ("DOJ"), filed a lawsuit against Ameren, alleging that the Company installed boiler equipment that raised emissions of sulfur dioxide without obtaining applicable permits.[5]

In January 2017, a U.S. district court judge ruled that the Company violated the Clean Air Act when it made upgrades to its Rush Island Power Plant.[6] In 2019, the U.S. District Court for the Eastern District of Missouri ordered Ameren to obtain applicable permits, install wet flue-gas desulfurization units (i.e. scrubbers) and meet standards for sulfur dioxide emissions.[7] The 2019 order included relief against another Ameren Missouri plant, the Labadie Energy Center ("Labadie").

[4] Civil Action No. 4:11-cv-00077-RWS. Document #852, page 63.
[5] Case Number 4:2011cv00077- US District Court for the Eastern District of Missouri (Plaintiff: The United States of America- Defendant: Ameren Missouri).
[6] Case Number 4:11 CV 77 RWS- US District Court for the Eastern District of Missouri (Plaintiff: The United States of America- Defendant: Ameren Missouri).
[7] Case Number 4:11 CV 77 RWS- US District Court for the Eastern District of Missouri (Plaintiff: The United States of America- Defendant: Ameren Missouri). 11-077 - United States of America v. Ameren Missouri - Content Details - USCOURTS-moed-4_11-cv-00077-15 (govinfo.gov).

In 2021, the 8th Circuit U.S. Court of Appeals upheld the above ruling in part, concluding "[a]ccordingly, we affirm the judgment of the district court in all respects except as to the injunctive relief entered against Ameren's Labadie plant. We remand for further proceedings consistent with this opinion."[8]

On December 14, 2021, through a filing with the U.S. District Court for the Eastern District of Missouri, Ameren Missouri announced its plan to retire the Rush Island Energy Center in 2024. The proposed 2024 retirement date is 15 years earlier than the previously planned retirement date of 2039.[9] Ameren Missouri requested the Court "[f]ind that Ameren's retirement of Rush Island in lieu of installing an FGD [Flue Gas Desulfurization] complies with the SO2 emissions limit required by the Remedy Ruling, with Rush Island's specific retirement date to be determined pursuant to MISO [Midcontinent Independent System Operator] assessment."[10]

Ameren Missouri, in its December 14, 2021 filing with the Court, proposed that a specific retirement date (to be no later than March 30, 2024) be decided when MISO's reliability assessment is completed.

On August 19, 2022, MISO submitted (to FERC) for approval a System Support Resource ("SSR") Agreement by and between the Ameren Missouri and MISO ("Rush Island SSR Agreement") as well as a cost allocation for SSR costs.

FERC accepted MISO's proposed Rush Island SSR Agreement, effective September 1, 2022, for a period of 1 year. The second SSR agreement was approved by FERC, effective September 1, 2023.

[8] United States vs. Ameren Missouri, No. 19-3220 (8th Cir. 2021).
[9] Ameren Missouri 2020 Integrated Resource Plan, chapter 1, page 4.
[10] Civil Action No. 4:11-cv-00077-RWS- US District Court for the Eastern District of Missouri (Plaintiff: The United States of America; Plaintiff-intervener: Sierra Club- Defendant: Ameren Missouri).

On June 22, 2022, Ameren Missouri filed its Notice of Change in Preferred Resource Plan.

On August 1, 2023, Ameren Missouri filed a supplemental brief in support of its request to modify the District Court's ruling, asking the court to approve a specific retirement date, October 15, 2024. On September 30, 2023, the District Court issued its Order granting Ameren Missouri's request to retire Rush Island by October 15, 2024.

Ameren Missouri reported in its monthly report in EO-2022-0215 that the Department of Justice is seeking additional mitigation relief beyond the retirement of Rush Island.[11]

Securitization Request

Q. What costs related to Ameren Missouri's decision to retire Rush Island early is Ameren Missouri seeking recovery for in this case?

A. In this case Ameren Missouri is requesting recovery through securitization of:

- Inclusion of the net book value of Rush Island;
- Abandoned capital projects;
- Materials and supplies;
- Closure and decommissioning costs;
- ** [redacted] **; and
- Asset Retirement Obligations related to Ash Ponds;
- Water treatment and monitoring; and
- Community Transition costs.

Q. Please summarize Ameren Missouri's position regarding Rush Island.

A. Ameren Missouri witness Mr. Birk asserts that the "retirement of Rush Island is the culmination of a series of prudent and reasonable decisions by the Company." He goes on

[11] EO-2022-0215, *Ameren Missouri Monthly Report*, September 15, 2024.

to claim that "[e]very decision we have made on Rush Island incorporated the information reasonably available at the time and was guided by three principles: 1) to ensure system reliability; 2) to comply with the law; and 3) to serve the best interests of our customers."

COURT FINDINGS

Q. Did the Eastern District of Missouri comment on what Ameren Missouri knew at the time it failed to obtain permits for the 2007 and 2010 outage work?

A. Yes. United States District Judge, Rodney W. Sippel, discussed this in his January 23, 2017, Memorandum Opinion and Order regarding the liability phase:[12]

> This standard for assessing PSD applicability was well-established when Ameren planned its component replacement projects for Units 1 and 2. Ameren's testifying expert conceded that the method used by the United States' experts—which showed that Ameren should have expected the projects to trigger PSD rules—has been ''well-known in the industry'' since 1999. **But Ameren did not do any quantitative PSD review for the project at Unit 1 and performed a late and fundamentally flawed PSD review for Unit 2.** And Ameren did not report its planned modifications to the EPA, obtain the requisite permits, or install state-of-the-art pollution controls. Instead, Ameren went ahead with the projects, spending $34 to $38 million on each unit to replace the problem components. It executed these projects as part of ''the most significant outage in Rush Island history,'' taking each unit completely offline for three to four months. Ameren's engineers justified the upgrade work to company leadership on the basis that the new components would eliminate outages and the investment would be returned in recovered operations.
>
> The evidence shows that by replacing these failing components with new, redesigned components, **Ameren should have expected, and did expect,** unit availability to improve by much more than 0.3%, allowing the units to operate hundreds of hours more per year after the project. And **Ameren should have expected, and did expect,** to use that increased availability (and, for Unit 2, increased capacity) to burn more coal, generate more electricity, and emit more SO2 pollution.
>
> Now that the projects have been completed, the evidence shows that Ameren's expected operational improvements actually occurred. Replacement of the failing components increased availability at both

[12] 229 F. Supp.3d 906 at 915-916.

> units by eliminating hundreds of outage hours per year. Unit 2 capacity also increased. Ameren's employees have admitted that those availability increases would not have happened but for the projects. As a result of the operational increases, the units ran more, burned more coal, and emitted hundreds of tons more of SO2 per year. [**Emphasis added.**]

Q. Did the Eastern District of Missouri comment on the Ameren Missouri process for assessing Prevention of Significant Deterioration ("PSD") applications?

A. Yes. Judge Sippel discussed this in his January 23, 2017, Memorandum Opinion and Order regarding the liability phase in a section titled "Ameren does not have a legitimate process for assessing PSD applicability":[13]

> Ameren's PSD process suffered from two major flaws: the employees charged with assessing applicability started with an incorrect understanding of the law and lacked a meaningful understanding of the facts of the projects. In addition to these procedural flaws, for the reasons that follow, the actual analyses Ameren did ''conduct'' (for Unit 2 only) provide no basis for finding that Ameren could have reasonably expected the project would not significantly increase net emissions.

In his September 30, 2019, Memorandum Opinion and Order regarding the remedy phase, Judge Sippel summarizes his previous findings:[14]

> 393. I have already concluded that a reasonable power plant operator would have known that the modifications undertaken at Rush Island Units 1 and 2 would trigger PSD requirements. I have also concluded that **Ameren's failure** to obtain PSD permits **was not reasonable**. Ameren Missouri, 229 F.Supp.3d at 915-916, 1010-14.
>
> 394. After the liability trial in this case, I found that **at the time** of the Rush Island modifications, ''the standard for assessing PSD applicability was well-established.'' It was also ''well-known'' that the types of unpermitted projects Ameren undertook **risked** triggering PSD requirements. Id. at 915. [**Emphasis added.**]

Q. Did the US Court of Appeals uphold the Eastern District's ruling?

[13] 229 F. Supp.3d 906 at 915-916.
[14] 421 F.Supp.3d 729 (E.D.Mo. 2019), page 794.

A. Yes. The US Court of Appeals has upheld the Eastern District's ruling, stating:[15]

> Instead, the district court, as the factfinder, was entitled to ''consider all relevant information available to [Ameren] **at the time of the project**, including prior operating data and [Ameren's] own statements and documents'' in determining whether Ameren ''should have predicted that a project would have caused a [significant] net increase.'' *Id.* at *19 (quoting Jury Instr. No. 23, *United States v. Cinergy*, 1:99-cv-1693-LJM-JMS (S.D. Ind. 2008), ECF No. 1335) [**Emphasis added.**]

Q. Based on the above discussion, do you agree with Ameren witness Birk that Ameren Missouri made prudent and reasonable decisions guided by the principles he outlined?

A. No. Staff will address its concerns with Ameren Missouri's decisions related to other influences outside the guiding principles Mr. Birk outlines, and present facts related to information Ameren had at the time the decisions were made that contradict Ameren Missouri witnesses. Staff will also present the Commission with information regarding more recent Ameren Missouri decisions and the potential for future ratepayer harm.

Q. Between the 2007 and 2010 Rush Island projects, was Staff investigating a major safety incident that occurred at an Ameren Missouri plant?

A. Yes. On December 14, 2005, the Upper Reservoir Dam collapsed at the Taum Sauk Pumped Storage Project. Staff moved to open an investigation on June 8, 2007. Staff filed its initial incident report on October 24, 2007. Staff's investigation outlined system-wide issues that were brought to light by the Taum Sauk incident. These included: (1) undue risk (2) over-compartmentalization (3) failure to take responsibility and (4) financial pressure. Staff outlined recommendations, many of which Ameren Missouri agreed to implement in that docket. However, that implementation occurred between the two Rush Island

[15] 9 F.4th 989 (8th Cir. 2021) page 1007.

projects.[16] The most relevant system-wide issues that were present at the time of the 2007 Rush Island outage are over-compartmentalization and financial pressure.

Q. Please explain the issue of over-compartmentalization.

A. In the case of Taum Sauk, the over-compartmentalization was related to the managing of several engineering projects occurring during the 2004 Taum Sauk outage with no supervising engineer with overall responsibility for all of the projects. In response to Staff's recommendation, and other drivers, Ameren Missouri provided a single, on-site supervising engineer at each generating plant and provided its *AmerenUE Project Management Manual*.[17] As it relates to the Rush Island outage projects, testimony and depositions from Ameren employees David Boll, Robert Meiners, David Strubberg, and Michael Hutcheson (Ameren Services), reveals that Ameren suffered from issues with over-compartmentalization.

Q. Did Judge Sippell summarize the testimony and depositions of David Boll, Robert Meiners, David Strubberg, and Michael Hutcheson that you referenced above?

A. Yes.[18] First, David Boll was the Project Engineer for the 2007 Project, Robert Meiners was the Plant Manager of Rush Island during the 2007 Project, David Strubberg was the Plant Manager during the 2010 Project and Michael Hutcheson did the (late) [19] emissions analysis on the 2010 Project. Judge Sippell summarizes the testimony and depositions as follows:

> **Rush Island Unit 1**
>
> 392. Ameren's Environmental Services Department did not communicate with project engineer David Boll at any time prior to the

[16] ES-2007-0474, Ameren Missouri's Plan for Implementing Staff's Recommendations, March 5, 2008.
[17] ES-2007-0474, *Union Electric Company d/b/a AmerenUE's Plan for Implementing Staff's Recommendations* and *AmerenUE Project Management Manual.* Confidential Schedule CME-r2.
[18] 229 F. Supp.3d 906 at 976-978.
[19] Mr. Hutcheson's emissions analysis for the 2010 Project was not completed before the start of the project. 229 F. Supp.3d 906 at 978.

Unit 1 project completion in 2007. Boll Test., Vol. 8–B, 39:17–21, 40:6–9.

393. The Rush Island Plant Manager at the time of the 2007 outage was Robert Meiners. As plant manager, he was accountable for making sure the plant complied with environmental regulations. Meiners Test., Tr. Vol. 7–B, 64:2–5. However, Mr. Meiners had no communications with anyone about whether to seek a New Source Review permit for the Unit 1 project. When asked whether he understands that PSD requires utilit[ies] to make a prediction of future emissions in order to do [ ] emissions analys[es], Mr. Meiners replied ‘‘That’s not—not my responsibility. I’m not involved with it.’’ Meiners Dep., April 8, 2014, Tr. 342:11–17. In fact, Mr. Meiners testified that throughout his more than 40–year career at Ameren, he never had a single discussion with anyone about whether or not to seek an NSR permit for any capital project at all. Meiners Test., Tr. Vol. 7–A, 68:2–18 and Vol. 7–B, 64:2–20. Similarly, Mr. Strubberg testified that he was not involved in any assessment of whether the projects triggered PSD. Strubberg Test., Tr. Vol. 8–A, 73:17–74:5.

Rush Island Unit 2

396. The Ameren employee who was responsible for doing NSR calculations for Unit 2 was Michael Hutcheson. Mr. Hutcheson testified that he did not review any EPA or Missouri Department of Natural Resources guidance specifically as part of his work for the project at issue. Hutcheson Test., Tr. Vol. 11–A, 65:25–66:2.

397. Mr. Hutcheson admitted he had no personal knowledge of the project or whether the effects of the project were included in the projections he relied upon.

a. Mr. Hutcheson testified that in performing the company’s NSR analysis, he did not speak to any of the engineers who planned and developed the project. He received information from his superiors in the Environmental Services Department, but he did not know the source of that information. Hutcheson Test., Tr. Vol. 11–A, 63:5–19.

b. Mr. Hutcheson also testified that he did not review any of the project justification documents for the work. Hutcheson Test., Tr. Vol. 11–A 63:20–25.

c. Mr. Hutcheson did not know whether the modeling runs that he relied on for his analysis included any projected improvements in capacity or availability. Mr. Hutcheson did nothing to check the validity of the modeling runs he received, but simply ‘‘took them on their face.’’ Hutcheson Test., Tr. Vol. 11–A, 65:4–20; Hutcheson Dep., April 24, 2014, Tr. 118:20–119:5.

> d. Mr. Hutcheson testified that he did not consider whether availability was expected to improve as a result of the projects because he did not think that information was ‘‘relevant’’ or ‘‘necessary.’’ Hutcheson Test., Tr. Vol. 11–A, 82:16–25.

Q. Please explain the issue of financial pressure.

A. Staff's initial investigation report on Taum Sauk discussed how the advent of the MISO market created additional pressure on traders and operators to keep Taum Sauk running. Taum Sauk, like Rush Island, was an important producer of low cost generation and was consistently offered into MISO. Also, Ameren Missouri's incentive compensation plan at the time included key performance indicators (KPIs) related to equivalent availability. In the case of Taum Sauk, Richard Cooper, the plant superintendent, indicated he felt pressured by his supervisors to keep the plant running.[20] None of the Ameren Missouri witnesses in the Rush Island case indicated pressures to maintain availability, but the 2007 and 2010 Projects were justified by Ameren Missouri in terms of availability.

Q. Did Judge Sippell discuss how Ameren Missouri tracked availability of the Rush Island units?

A. Yes. Below are excerpts from Judge Sippell's Memorandum and Order regarding the liability phase:[21]

> 98. Ameren is no different. Unit availability, particularly at low-cost units like the Rush Island units, is very important to Ameren. The company tracks availability ‘‘quite closely’’ and awards salary bonuses under its ‘‘Key Performance Indicator’’ program to some employees based in part on meeting availability targets. Naslund Test., Tr. Vol. 6–B, 8:7–16; Response to Interrogatory No. 65 (ECF No. 823); Moore Rule 30(b)(6) Dep., Sept. 16, 2014, 123:12–124:15; February 6, 2007 Email (Pl. Ex. 103), at AM–02272420.
>
> 99. The Key Performance Indicator bonuses are paid for by Ameren's customers. Moore Rule 30(b)(6) Dep., Sept. 16, 2014, 124:16–125:9.

[20] MSHP Interview of Richard Cooper, March 16, 2007, page 4, paragraph 19.
[21] 229 F. Supp.3d 906 at 932.

100. Improving unit availability was always a goal for Ameren. If a unit is experiencing forced outages, the company would like it to perform better. Naslund Test, Tr. Vol. 6–B, 11:17–24; 13:15–18. Mr. Naslund, vice president of power operations, told the 1500 Ameren employees under his supervision that perfect availability would be 100%. *Id.*; Generation Times Article (Pl. Ex. 930), at AM–02583221.

102. The availability targets set by the company are identified down to the tenth of a percentage point. The company also uses availability predictions to know how much coal to buy. Naslund Test., Tr. Vol 6–B, 10:20–11:9; see also February 6, 2007 Email (Pl. Ex. 103), at AM–02272420 (discussing proposal to adjust availability KPI bonus target by half a percentage point).

RISKS OF NSR VIOLATION

Q. Did Ameren Missouri have information that would indicate that there was risk of activities at coal-fired plants triggering NSR requirements?

A. Yes. Black and Veatch ("B&V") on behalf of Ameren Missouri, conducted a study, dated July 2009, titled *Report on Life Expectancy of Coal-Fired Power Plants*.[22] The B&V report was to inform Ameren's depreciation rate consultants in their recommendation of depreciation rates for the four Ameren coal-plants. Ultimately, B&V recommended an increase in the life span of Ameren's coal-plants, including Rush Island. For Rush Island, the retirement date was extended from 2026 to 2045.

Q. What was the scope of this study?

A. Relevant to the issues at Rush Island, B&V discussed the capital projects and their implication on plant remaining life and environmental considerations affecting the remaining life of coal-fired power plants. Further, the recommended life span was based on several factors and assumptions including existing and contemplated environmental regulations (page 3-4).

[22] ER-2010-0036 Public version attached to Larry Loos Direct Testimony.

Q. Did the study discuss the Company's plans to install scrubbers at its coal plants or New Source Review ("NSR") requirements?

A. Yes, both. Importantly, the date of this study is July 2009, after the 2007 Outage but prior to the beginning of the 2010 Outage. B&V noted that "[u]pon completion of the scrubbers at the Sioux Plant next year, the Company has no definitive plans to install scrubbers at the other plants **unless required to do so**." [**Emphasis added.**] Regarding NSR, B&V explained:

> At the current time, activities at an existing plant, including Air Quality Control (AQC) retrofit projects, are subject to New Source Review (NSR) air permitting requirements if they are determined to be "major modifications" at a "major stationary source." The NSR regulations define major modification and major stationary source,,and [sic] those terms have also been addressed by court decisions, agency applicability determinations and other authorities. NSR includes both the Non-attainment NSR and Prevention of Significant Deterioration (PSD) programs. Evaluation of NSR/PSD applicability is complicated and has change over time. When a project triggers NSR/PSD requirements, a major modification pre-construction air permit is required, which generally includes application of Best Available Control Technology (BACT) and/or application of Lowest Achievable Emission Rate (LAER) technology depending on the NAAQS attainment status of the relevant area.
>
> The current permitting path (for both new units and for modifications to existing units which trigger the NSR/PSD requirements) is a difficult one that requires planning and preparation. Major challenges to such permits from concerned citizen groups, interveners, and possibly government officials can be expected, which can result in litigation and additional costs.
>
> **In addition to prospective permitting issues, over the last decade or so US EPA has initiated Section 114 investigations into whether prior activities at many coal-fired generating plants triggered NSR/PSD requirements. Some of these investigations have resulted in enforcement actions and additional controls at the targeted facilities.** [**Emphasis added.**]

Q. Are there other contemporaneous documents suggesting that Ameren Missouri understood the risk of violation before approval of the 2010 Project?

A. Yes.

- March 11, 2004, Hunton and Williams slides[23]: Slides mention the potential for suits brought by environmental groups and listing of challenged projects.
- May 27, 2007, AmerenUE Environmental Compliance Strategy Analysis - Kick-off Meeting.[24] "It was suggested that a scenario which considered the impact of a New Source Review violation finding be analyzed. Corporate Planning agreed to work with Legal to review this issue. Legal will provide their views on this possibility to AmerenUE for their consideration. Based on that information AmerenUE will provide the team direction on whether additional analysis is to be performed." In response to Staff Data Request No. 0011.1, Ameren Missouri was unable to locate documents that would indicate whether any such analysis was performed.
- July 16, 2008 Coal Risks presented to Executive Leadership (Slide 17)[25]: ** [redacted] **
- August 7, 2008 Fuel Risk; Slide 5[26]: "NSR discussions continue and would be affected by recent court decisions."
- October 17, 2008, AmerenUE Rush Island Power Plant Flue Gas Desulurization Project.[27] "B&V should advise AmerenUE of latest NSR settlement results that are likely to illustrate emission limits." Staff has requested the B&V deliverable.
- May 13, 2009 Conference Memorandum[28] discussed by Judge Sippell in the remedy phase:[29]

> 398. Ameren's documents indicate that Ameren was aware of the possibility that NSR would be triggered at Rush Island. For example, on May 1, 2009, Ameren met with engineering firm Black & Veatch to review contracting strategies and to allow Black & Veatch to "understand internal AmerenUE drivers." May 13, 2009 Conference Memorandum (Pl. Ex. 1111), at AMERM-00319195. Included among the "Questions for thought" discussed at that meeting was "**What is the tolerance for risk?**" Id. at AM-REM-00319198, 319222. The Conference Memorandum summarizing the discussion of that question

[23] Attached to Steve Whitworth Direct testimony (SCW-D4)
[24] Response to Staff Data Request No. 0011.
[25] Exhibit 1001HC, Case ER-2008-0318. Confidential Schedule CME-r3.
[26] Response to Staff Data Request No. 0011 in EF-2024-0021. Schedule CME-r4.
[27] *Id.*
[28] This meeting occurred just a few months before the July 2009 B&V study and the August 2009 approval of the outage work. The Unit 2 outage work was initially approved in 2005 and was reassessed in 2009. The Unit 2 outage work was approved by the Capital Project Oversight Committee, Ameren's CEO, and Board of Directors.
[29] 421 F.Supp.3d 729 (E.D.Mo. 2019), page 795.

identified that ‘‘**NSR is likely the biggest potential issue.**’’ Id. at 319199. Addressing a question about cash flow for any FGDs at Rush Island, the May 2009 Conference Memo identified that ‘‘**NSR or EPA will likely be the driver to shift the schedule early.**’’ Id. [**Emphasis added.**]

- June 11, 2009 Email from Anthony Artman to Susan Knowles.[30] “The Missouri Office of Public Counsel (OPC) asked Mark why they would ever consider advancing the timing on scrubbers or installing scrubbers based on these results. Mark then used the 114 inquiry as an example of what might cause us to install scrubbers as early as 2013. Then questions came up about the 114 inquiry. Mark explained what was going on and Mike added a few comments. After the meeting was over Mark then approached OPC with the idea of maybe supporting us in the process if it came to forcing us to install scrubbers and possibly loose [sic] our allowances. They seemed to be receptive to the concept.”

Q. Is there evidence that suggests Ameren Missouri did not assess legal and environmental risks during the work approval process for the 2007 and 2010 Projects?

A. Yes. For Unit 1, the 2007 economizer, reheater, and lower slope panels were approved in August 2005 by Gary Rainwater, then Ameren CEO (Work Order 11506). The project justification package includes a Project Risk Management Plan, highlighting certain risk factors to be considered. The “Legal/ Environmental” risk is left unchecked. Robert Schweppe signed the Project Risk Management Plan. In his May 20, 2014 deposition,[31] Mr. Schweppe discussed that he did not recall that box being checked for any project:

> Q. Okay. And on page 606 there is kind of a series of boxes, some of which have been checked. And it says, Has -- Have the following risk factors been addressed? And then there's a series of them, and then the last one is legal, slash, environmental. And that is the only box that is not checked. Why is that?
>
> A. I don't know. I -- I don't recall that box being ever checked.
>
> Q. Meaning for large-scale projects and project engineering that you performed, typically that box would not be checked?
> A. In any project risk plan I've seen, I don't recall that box ever being checked.

[30] Response to Staff Data Request No. 0011 in EF-2024-0021. Schedule CME-r4.
[31] Robert Schweppe May 20, 2014 Deposition. Tr., 112:14–113:16.

Q. Okay.
A. I'm not sure what it even means.

Q. Did you ever talk to anybody or ask?
A. No.

Q. So let me ask the question more thoroughly than the way I just asked it. So you've never had any communications with anyone at Ameren concerning whether or in what circumstances to check the legal, slash, environmental box on a risk management plan for a large-scale capital project?
A. For any project, I've not had that discussion.

Additionally, Steve Whitworth's testimony in this case indicates that, to the best of his recollection, he became aware of the 2007 Project sometime in the summer of 2006,[32] approximately a year after the 2007 Project was approved by Gary Rainwater. He also indicates that the Environmental Service's Department ("ESD") did not consult with Ameren Services' Legal Department for either the 2007 Project or the 2010 Project.[33] The major boiler outage for Unit 2 went through a second justification process in 2009; it was approved by the Capital Project Oversight Committee, Ameren's CEO Warner Baxter, and the full Board of Directors.[34]

FUTURE HARM

Q. Previously you mentioned Staff's concerns with future harm related to Ameren Missouri's decision to retire Rush Island no later than October 15, 2024. What are Staff's concerns?

A. As discussed above, Staff's main concerns are:

(1) Ameren Missouri reports that the DOJ is seeking additional remedies from the Court in addition to the retirement of Rush Island.[35]

[32] Steve Whitworth Direct Testimony EF-2024-0021, Page 25, lines 8-12.
[33] Steve Whitworth Direct Testimony, page 28, lines 2-5 and page 39, line 5-8.
[34] 229 F. Supp.3d 906, paragraph 137, page 937.
[35] EO-2022-0215, Ameren Missouri Monthly Report, September 15, 2023.

(2) Ameren Missouri's recent 2023 IRP suggests that in the ** [redacted] ** Ameren Missouri will be short on capacity ** [redacted] **.

(3) There are four required transmission projects underway, which will not be securitized under Ameren's proposal.

Q. Can Staff elaborate on potential for additional remedies?

A. Staff is aware there was a hearing scheduled for February 8, 2024, just a few weeks ago. Ameren Missouri reports that the District Court has required both parties to submit, by March 14, 2024, proposals for mitigation relief and has set a hearing on March 28, 2024.[36] It is Staff's position that any additional remedies related to Ameren Missouri's litigation on Rush Island be borne by Ameren Missouri and not its customers.

Q. What is Staff's concern with the potential capacity shortfall ** [redacted] **?

A. Staff is still reviewing Ameren Missouri 2023 IRP and is not commenting in this case on the reasonableness of Ameren Missouri's long-term capacity expectations. However, the near-term expectation from Ameren Missouri is that there is a potential capacity shortfall when evaluating its capacity position in terms of ** [redacted] **. If Ameren Missouri's expectations materialize, Ameren Missouri will need to clear capacity in the planning resource auction (PRA), resulting in harm to ratepayers attributable to the early retirement of Rush Island.

[36] EO-2022-0215, *Ameren Missouri Monthly Report* dated February 15, 2024.

Ameren Missouri understood that its resource adequacy capacity position after the retirement of Rush Island would be tight in the coming years.[37] In its change of preferred plan filing in which the Company selected its preferred resource plan with the planned retirement of Rush Island at the end of 2025, Ameren Missouri noted other changes to its planning environment including Illinois legislation impacting its combustion turbine generator ("CTG") fleet and MISO's proposed seasonal capacity construct.[38,39]

** [redacted] **

Staff specifically asked in the Rush Island investigation case, File No. EO-2022-0215, about how Ameren Missouri planned to meet MISO reserve margins. Ameren Missouri responded, referring back to a data request that explained its preferred plan analysis was underway, as well as stating, "Also note that to the extent Ameren Missouri would expect to

[37] EO-2022-0215, On the Record, page 8, lines 17-21. Page 12, lines 13-14. Page 27, lines 18-25.
[38] EO-2022-0362, Notification of Change in Ameren Missouri's Preferred Resource Plan.
[39] Response to Staff Data Request No. 0198.5 in ER-2022-0337. Schedule CME-r5.

fall short of its resource adequacy requirement in MISO in a given year, it may rely on market purchases of capacity."[40]

Staff witness Brad J. Fortson discusses Ameren Missouri's required contingency planning leading up to the decision to retire Rush Island by October 15, 2024.

Q. Based on Ameren Missouri's expectations, what is the range of costs associated with the short-term capacity shortfalls depicted above?

A. Staff reviewed Ameren Missouri capacity price expectations from the 2020 IRP, Ameren Missouri's response to Staff Data Request No. 0198.5 provided in ER-2022-0337, and the 2023 winter capacity prices developed by Charles Rivers Associates provided in response to Staff Data Request No. 0094 in EA-2023-0286. ** [redacted] **

Q. What is Staff's concern with the in progress transmission projects referred to as the Rush Island Reliability Projects?

A. Similar to Staff's concerns with the short-term capacity outlook, Ameren Missouri did not evaluate its transmission system needs related to the Rush Island retirement until ** [redacted] ** . The Rush Island Reliability Projects are more costly than Ameren Missouri assumed in its 2020 IRP, and more costly than Mr. Michels' breakeven analysis used to evaluate the Rush Island retirement decision presented in this case.

Ameren Missouri understood that transmission investment would need to be made upon the retirement of Rush Island. Ameren Missouri's 2020 IRP Workpapers indicate that Ameren Missouri assumed transmission upgrades between ** [redacted]

[40] Response to Staff Data Request No. 0014 in EO-2022-0215. Confidential Schedule CME-r6.

[redacted]. **[41] Ameren Missouri made the decision to retire Rush Island on a break-even analysis around ** [redacted] ** for the transmission upgrades. The estimate upon approval of these projects was ** [redacted] **.[42] Staff witness Shawn E. Lange, PE discusses the components and status of the Rush Island Reliability Project in more detail.

Ameren Missouri received the court ruling in January of 2017, but ** [redacted] ** [43]

Ameren Missouri received its Notice of Violations in 2010 and 2011, therefore, it seems reasonable, or appropriate, that Ameren Missouri would have been planning for such a court ruling as far back as its 2011 Triennial Compliance Filing. In fact, Ameren Missouri itself considered evaluating NSR litigation scenarios even before the 2010 outage occurred. Ameren Missouri then received the negative court ruling on January 23, 2017, approximately seven months before it filed its 2017 Resource Plan on August 1, 2017. Ameren Missouri chose to appeal that decision and chose not to evaluate a comparison of the retirement of Rush Island to retrofitting Rush Island until the 2020 IRP. In response to Sierra Club, Ameren Missouri asserted: ** [redacted]

[41] Response to Staff Data Request No. 0009 in EO-2022-0215.
[42] Response to Staff Data Request No. 0017 in EF-2024-0021.
[43] Response to Staff Data Request No. 0001 in EO-2022-0215. Confidential Schedule CME-r6.

[redacted] **[44, 45] Given Ameren Missouri had already received a negative outcome from the Court, it would have been reasonable and prudent for Ameren to consider the possibility that an Appeals Court would uphold that decision.

Q. Please summarize Staff position on the Rush Island Reliability Project.

A. Had Ameren Missouri begun planning for an unfavorable outcome from the Courts earlier it may have considered the impact of a nearer term retirement on its transmission system, developed a tighter expectation on the cost of such upgrades, and avoided an increase in market and construction costs. Ameren Missouri's break-even analysis presented in this case assumed ** [redacted] ** for the transmission upgrades. The current expected cost is ** [redacted] . ** Because Ameren Missouri based its decision to proceed with Rush Island retirement on ** [redacted] ** in transmission costs, ratepayers should be held harmless from transmission costs in excess of ** [redacted] .** Ameren Missouri has presented no evidence in this case that ratepayers are better off with the retirement of Rush Island with transmission costs in excess of ** [redacted] .** Staff will propose an adjustment in a future rate proceeding to reflect any portion of the Rush Island Reliability Project it deems imprudent.

AMEREN MISSOURI'S ARGUMENTS

Q. Returning back to the time leading up to the 2007 and 2010 Projects, can you provide additional context to Ameren Missouri's statements in this case?

A. Yes, I will further discuss the Missouri SIP, emissions calculations, and routine maintenance, repair and replacement (RMRR), and the purpose of the 2007 and 2010 Projects.

[44] Response to Sierra Club 2-SC 002.8 attached as Confidential Schedule CME-r7.
[45] The Commission ordered, on December 3, 2019, a special contemporary resource planning issue in EO-2020-0047: "Ameren Missouri to model scenarios related to environmental upgrades to the Rush Island and Labadie coal-fired plants as mandated by the federal courts."

Missouri SIP

Q. Mr. Moor[46] and Mr. Holmstead[47] assert it was reasonable for Ameren Missouri to rely on the language of Missouri State Implementation Plan (SIP). What did the Court conclude?

> The court concluded that Missouri's SIP incorporated the EPA's PSD regulations:
>
> ''The PSD program is primarily implemented by the states through 'state implementation plans' (SIPs).'' *Otter Tail*, 615 F.3d at 1011 (citing 42 U.S.C. § 7471). While ''[s]tates have broad discretion in designing their SIPs,'' their ''plans must include certain federal standards.'' *Id.* The EPA reviews and approves States' SIPs. *Id.* at 1011–12. **Missouri expressly incorporated the EPA's PSD regulations into its SIP (''Missouri SIP'').** *See* Mo. Code Regs. Ann. tit. 10, § 6.060(8)(A) (2007) (''All of the subsections of 40 CFR 52.21, other than [certain subsections], are hereby incorporated by reference.''). The EPA approved Missouri's SIP, explaining that ''the provisions of § 52.21 supersede the state provisions for purposes of the PSD program.'' Approval and Promulgation of Implementation Plans; State of Missouri, 71 Fed. Reg. 36,486-02, 36,487 (June 27, 2006); *see also id.* at 36,489 (''This revision also incorporates by reference the other provisions of 40 CFR 52.21 as in effect on July 1, 2003, which supersedes any conflicting provisions in the Missouri rule. Section 9, pertaining to hazardous air pollutants, is not SIP approved.'').[48] [**Emphasis added.**]

Q. Ameren witness Karl R. Moor asserts that "MDNR's statements and actions represent crucial context for the evaluation of Ameren Missouri's actions to comply with the SIP's permitting requirements at Rush Island."[49] Do you agree?

A. Not in isolation. Importantly, the Commission should consider the roles of MDNR and EPA. Ms. Kyra Moore, MDNR's current Director of the Division of Environmental

[46] Direct Testimony of Karl Moor, Page 20, lines 5-7.
[47] Direct Testimony of Jeffrey Holmstead, Page 26, lines 11-15.
[48] 9 F.4th 989 (8th Cir. 2021) page 995.
[49] Karl R. Moor Direct Testimony, page 21, lines 1-3.

Quality, discussed in her deposition[50] (which Ameren Missouri witnesses heavily cite to) that, in her opinion, if there was a disagreement on interpretation of the Missouri SIP, EPA's interpretation would govern:

> BY MR. HANSON:
> Q. Sure. Do you know whether Missouri DNR has a statutory obligation to implement the Missouri SIP consistent with the federal Clean Air Act?
> A. Yes.
> Q. And does?
> A. Yes. And -- and we do follow the Clean Air Act in the state of Missouri following our SIP, so.
>
> Q. How would you characterize EPA's role in implementing the SIP or the Clean Air Act in Missouri's boundaries?
> MR. BONEBRAKE: Objection, asked and answered. Go ahead.
> THE WITNESS: EPA provides the oversight of the implementation of the Clean Air Act in the state of Missouri and I would describe them as our partner in implementing the Clean Air Act in Missouri, because it is their federal regulations that our regs and SIP is based on.
>
> BY MR. HANSON:
> Q. Okay. If EPA and Missouri Department of Natural Resources disagreed on the interpretation of the Missouri SIP, whose interpretation of the Missouri SIP would you say it governs
> MR. BONEBRAKE: Objection, foundation, legal conclusion.
>
> THE WITNESS: I would say EPA because it is EPA's federal rules, so.
>
> BY MR. HANSON:
> Q. And when you say it "is EPA's federal rules," are you referring to the Missouri SIP?
> A. Yes, our SIP is based on the EPA's federal rules and the Clean Air Act.

Q. Did Ameren Missouri witnesses provide Kyra Moore's September 18, 2013 deposition to the Commission in this case?

A. Not in its entirety. Karl Moor provides the deposition transcript through page 101. I have attached the entirety of Kyra Moore's deposition as Schedule CME-r2.

[50] 30(b)(6) Deposition of Kyra Moore taken on behalf of Ameren Missouri, September 18, 2013, pages 258-259. (Schedule CME-r8)

Emissions Calculations

Q. Ameren witness Karl R. Moor outlines certain actions that he would have expected Ameren Missouri to do to make a reasonable decision. What are those actions?

A. On page 20, lines 5-7 of his Direct Testimony, Karl R. Moor focuses solely on the Missouri SIP and the application of the SIP to the specific facts of the projects. However, as another Ameren Missouri witness on this issue, Jeffrey R. Holmstead,[51] points out, NSR applicability determinations there "are basically two questions: (1) Will a proposed project be a "physical change or change in the method of operation"? and (2) will the project cause an increase in emissions? You don't trigger NSR unless the answer to both questions is "yes." Although you can conclude that an NSR permit is not required if the answer to either question is "no," **sources generally examine both questions out of an abundance of caution**." [**Emphasis added.**]

Q. Did Ameren Missouri examine both questions for the 2007 outage work?

A. No. As Judge Sippel notes:[52]

> 390. Ameren has admitted that it performed no emission calculations for purposes of determining PSD applicability prior to undertaking the 2007 project at Unit 1. Whitworth Test., Tr. Vol. 11–A, 94:23–25; Boll Test., Tr. Vol. 8–B, 38:3–5; Birk Dep., Sept. 24, 2013, Tr. 220:14–21; see also Knodel Test., Tr. Vol. 1–A, 88:10–12; Ameren Closing Arg., Vol. 12, 51:18–20.

Q. Did Ameren Missouri consult with MDNR, EPA, consultants, or other utilities when it made the decision not to seek a permit for the 2007 outage work?

A. Ameren Missouri's witness Steven Whitworth could not recall. (Whitworth trial phase Volume 11A, page 106, lines 3-7) and (Whitworth 30(b)(6) Deposition pages 28-29).

[51] Direct Testimony of Jeffrey Holmstead, page 27, lines 1-7.
[52] 229 F. Supp.3d 906 at page 976.

Q. Mr. Moor and Mr. Holmstead discuss various other utility projects in which MDNR provided letters indicating no permits were required based on the information provided by the utility.[53] Did Ameren Missouri seek a no permit required determination from MDNR related to the 2007 and 2010 outage work?

A. MDNR representative Kyra Moore indicated in her deposition: "Based on my review, they did not."[54]

Q. Did Ameren Missouri perform an emissions calculation for the 2007 outage work?

A. No.[55]

Q. Did Ameren Missouri perform an emissions calculation for the 2010 outage work?

A. Ameren Missouri witnesses indicated that an emissions calculation related to the 2010 outage work was completed "in early January of 2010" (Whitworth trial testimony page 95, lines 17-25). Recall the Unit 2 outage began on January 1, 2010.

Q. Did Ameren Missouri review any guidance from MDNR or EPA on the emissions calculations performed for Unit 2?

A. Ameren Missouri's then manager of Environmental Services, Steven Whitworth, testified[56] that a calculation was performed for Unit 2 because there was an

[53] Direct Testimony of Karl R. Moor, page 27, line 23 to page 28 line 1. Direct Testimony of Jeffrey R. Holmstead, pages 47 line 12-14.
[54] 30(b)(6) Deposition of Kyra Moore taken on behalf of Ameren Missouri September 18, 2013, page 268.
[55] Whitworth Test., Tr. Vol. 11–A, 94:23–25.
[56] Whitworth trial phase Volume 11A, page 96, lines 4-11.

understanding on Ameren Missouri's part that the Missouri regulations had been changed to incorporate some of the federal NSR revisions.[57] However, Judge Sippel notes:

> 396. The Ameren employee who was responsible for doing NSR calculations for Unit 2 was Michael Hutcheson. Mr. Hutcheson testified that he did not review any EPA or Missouri Department of Natural Resources guidance specifically as part of his work for the project at issue. Hutcheson Test., Tr. Vol. 11–A, 65:25–66:2.
>
> 397. Mr. Hutcheson admitted he had no personal knowledge of the project or whether the effects of the project were included in the projections he relied upon.
>
> > a. Mr. Hutcheson testified that in performing the company's NSR analysis, he did not speak to any of the engineers who planned and developed the project. He received information from his superiors in the Environmental Services Department, but he did not know the source of that information. Hutcheson Test., Tr. Vol. 11–A, 63:5–19.
> >
> > b. Mr. Hutcheson also testified that he did not review any of the project justification documents for the work. Hutcheson Test., Tr. Vol. 11–A 63:20–25.
> >
> > c. Mr. Hutcheson did not know whether the modeling runs that he relied on for his analysis included any projected improvements in capacity or availability. Mr. Hutcheson did nothing to check the validity of the modeling runs he received, but simply ''took them on their face.'' Hutcheson Test., Tr. Vol. 11–A, 65:4–20; Hutcheson Dep., April 24, 2014, Tr. 118:20–119:5.
> >
> > d. Mr. Hutcheson testified that he did not consider whether availability was expected to improve as a result of the projects because he did not think that information was ''relevant'' or ''necessary.'' Hutcheson Test., Tr. Vol. 11–A, 82:16–25.

Q. Did Mr. Whitworth indicate that Ameren Missouri's ESD were aware of the EPA's enforcement initiative?

[57] Whitworth indicates he understood a change occurred in summer of 2009. The Memorandum and Order, Judge Sippel, January 21, 2016, recognizes that Missouri adopted and incorporated by reference EPA's PSD rules (10 CSR 10-6.060). EPA approved the Missouri SIP in 2006. 47 Fed. Reg. 26,833.

A. Yes. In this case Mr. Whitworth notes in footnote 3 on page 27 in his Direct Testimony that Ameren Missouri's ESD were aware of EPA's enforcement initiative and relied on lawyers in Ameren Services' Legal Department and Utility Air Regulatory Group ("UARG") lawyers to summarize the key takeaway from these court cases. He also noted in his testimony that ESD did not consult with Ameren Services' Legal Department for guidance for these particular projects.[58]

Routine Maintenance, Repair and Replacement

Q. Ameren witness Moor asserts that Ameren Missouri "reasonably concluded that the Rush Island projects were excluded from permitting as RMRR." What did Ms. Kyra Moore state was her understanding of the RMRR exclusion?

A. In her deposition,[59] through questioning by the US Department of Justice (Mr. Hanson), Ms. Moore explains that in her experience the RMRR is narrowly interpreted:

> BY MR. HANSON:
> Q. Turning for a moment to -- back to routine maintenance.
> A. Okay.
> Q. Is it your understanding that the routine maintenance test is to be construed narrowly or is it to be construed broadly
> MR. BONEBRAKE: Objection, foundation, legal conclusion.
> THE WITNESS: In my experience and in conversations with EPA staff, routine maintenance and repair is fairly narrow in interpretation.

Q. At the time of the Unit 1 outage, how did Mr. Birk describe the outage work?

A. In his Memorandum and Order, Judge Sippel[60] referred to an email from Mark Birk highlighting the 2007 outage as the most significant outage in Rush Island history:

> 172. The 2007 and 2010 major boiler outages were unprecedented events for Rush Island Units 1 and 2. After the 2007 major boiler outage, **Ameren's Vice President Mark Birk referred to the outage as the**

[58] Steve Whitworth Direct Testimony, page 28, lines 2-5 and page 39, line 5-8.
[59] 30(b)(6) Deposition of Kyra Moore taken on behalf of Ameren Missouri, September 18, 2013, pages 262.
[60] 229 F. Supp.3d 906 at page 943.

> **‘‘most significant outage in Rush Island history.’’** May 29, 2007 Email (Pl. Ex. 31). Mr. Birk specifically called out the replacement of several components—including the economizer, reheater, lower slope, and air preheaters—as distinct from ‘‘the routine maintenance that had to be performed’’ during the outage. Id. The 2010 major boiler outage was similarly referred to as ‘‘among the most significant in [company] history.’’ Jerry Odehnal Report (Pl. Ex. 40); see Vasel Dep., Aug. 15, 2013, Tr. 272:2–23 (describing exhibit 40); see also 2010 State of the System presentation, Pl. Ex. 41, at AM–02493747 (distinguishing the air preheater, reheater and economizer replacements from the ‘‘routine maintenance’’ done during the 2010 outage). [**Emphasis added.**]

Q. Did Mr. Birk testify to the Commission about the 2007 Rush Island outage during the Taum Sauk investigation?

A. Yes. In describing longer-term major overhauls to the Commission, Mr. Birk discussed the 2007 Rush Island Unit 1 outage as an example.[61]

> Q. Is that generally, also, how the long-term works?
>
> A. No. The longer term, because of the requirements that you have associated with long lead time equipment, to give you an example, recently, we -- earlier this spring, we had an **outage on our Rush Island Unit 1 where we did significant boiler modifications to that unit.**
>
> The unit was roughly 30 years old. That outage, because of the requirement to get the necessary labor resources and materials, has to be planned quite a ways in advance. It typically takes a year to 18 months just to get the material and have the designs complete to do one of those outages. So you have to plan those pretty far in advance.
>
> And you pick -- typically, you pick a season, spring or fall. And -- and you'll pick rough dates to do those outages. And then you'll fine tune the -- the exact date of the outage as you get closer.

Q. Did Mr. Birk describe the Unit 1 outage work as significant boiler modifications in his Direct Testimony in this case?

[61] ES-2007-0424. August 3, 2007 Volume 7, page 1425 line 20-25 and page 1426 line 1-13.

A. No. On page 15, lines 9-15, Mr. Birk describes the Project work as "replacements" concluding that "[t]hese projects were fundamentally the same as those Ameren Missouri and its affiliates had routinely performed for decades." Similarly, Mr. Whitworth refers to the replacements as "like-kind".[62]

Q. How did Ameren Missouri describe the 2007 and 2010 Projects in the Work Order Authorization process?

A. In a letter dated October 5, 2005, regarding the Request for Full Work Order Authorization Rush Island 2 Air Preheater Replacement, Additional Background Information, Ameren Missouri described the work:

> For several years we have been planning major refurbishment of the Rush Island 1 and 2 boilers, which have operated for nearly 30 years without replacing any of the major components. The major scope elements include the following major components which are experiencing an increase in tube leaks and fatigue issues, and have been redesigned to improve future operation and maintenance:
>
> - Reheater—redesigned for PRB coal
> - Economizer—redesigned for PRB coal
> - Lower Slope—ruggedized design to better withstand slag falls
> - Air Preheater—redesigned for ease of future basket replacement.

Q. Did Judge Sippell consider all the components at each unit as one project for the purposes of deciding whether the RMRR exclusion applied in the case of the 2007 and 2010 Projects?

A. Yes.[63] He discussed that that the work was planned together, budgeted together, completed together, and undertaken for the same purpose. (page 1000-1001) Then he considered the nature and extent, frequency, purpose, and cost.

[62] Direct Testimony of Steve Whitworth, page 34, line 18; page 45, line 17.
[63] Judge Sippell also noted "Even if I were to consider each major component replacement separately, I would still conclude that the projects were not routine maintenance under the weight of the evidence."

Q. In this case Mr. Whitworth comments that "similar projects were done elsewhere in Missouri and across the country". Is that consistent with the testimony of Ameren Missouri's expert in the case before the Eastern District?

A. No, not entirely. Judge Sippell noted that Mr. Golden was unable to identify any coal-fired unit in the industry that replaced the economizer, reheater, lower slopes and air preheater together:

> 175. Even looking exclusively to how common work is performed across the utility industry, Mr. Golden was able to identify few, if any, projects that rival the 2007 and 2010 major boiler outages at other Ameren plants or elsewhere in the utility industry. Mr. Golden has worked on 14 NSR cases since 2000 on behalf of electric utilities. Golden Test., Tr. Vol. 8–A, 6:3–16. During that time, he has collected a list of 18,300 projects undertaken at coal-fired power plants that he says are both capital projects and cost more than $100,000. Golden Test., Tr. Vol. 8–A, 25:11–14; 25:24–26:2, 26:13–16. However, Mr. Golden was not able to identify any coal-fired unit in the electric utility industry that has replaced the economizer, the reheater, the lower slopes, and the air preheater together. Golden Test., Tr. Vol. 8–A, 19:3–8; see also Vasel Dep., Aug. 15, 2013, Tr. 154:11–24 (unable to recall any other outage at Ameren when all components were replaced).

Q. Mr. Birk in this case presents a schedule (MCB-D2) that includes a table of projects conducted by Ameren and its affiliates with what he represents[64] are similar components to the 2007 Project and 2010 Project, does that support the finding of fact from Judge Sippell presented above?

A. Yes, though it may not be the point he was attempting to make. Another witness for Ameren Missouri, Mr. Vasel (Rush Island Supervising Engineer) was unable to recall any other outages at Ameren when all components were replaced[65] and from Mr. Birk's exhibit, Mr. Vasel's recollection is confirmed.

[64] Mark Birk Direct Testimony. EF-2024-0021. Page 17, lines 11-13.
[65] Vasel Dep., Aug. 15, 2013, Tr. 154:11–20.

Q. Is Mr. Birk's schedule of Ameren Missouri components consistent with Ameren Missouri's plant asset records?

A. No, Mr. Birk's schedule and Ameren Missouri's plant asset records contain different completion dates for the component projects. In some instances the difference may be a year lag, which would not be unexpected given the records are based on the year placed in-service and it is unclear from Mr. Birk's testimony how he developed his schedule. [66] There were also several components listed on Mr. Birk's scheduled that I was unable to locate in Ameren Missouri's plant records.[67]

Q. Does Mr. Birk's schedule address the cost of any of the components of the 2007 and 2010 Projects?

A. No. Among other findings of fact related to cost, Judge Sippell found:

> 182. Costing $34 to $38 million, the boiler component replacements at Unit 1 and 2 were the costliest capital projects ever done at the Rush Island plant. Golden Test., Tr. Vol. 8–A, 23:7–19. By way of comparison, Rush Island's entire annual O&M budget for the Rush Island plant was about $25 million. Meiners Test., Tr. Vol. 7–B, 23:24–24:2.

Purpose of Projects

Q. What was the purpose of the 2007 Project and 2010 Project?

A. The Project Delivery Plan for the 2007 Project, dated July 21, 2005, described the then current situation and need for the project highlighting the pluggage in the reheater and economizer, that cleaning of the economizer and reheater was needed to maintain the boiler's maximum continuous rating, and that large slag accumulations on the reheater hit the lower slopes causing tube leaks. Ameren Missouri expected that as a result of the 2007 Project,

[66] Staff notes there appears to be an error in MCB-D2 in that the lower slopes were not replaced during the Rush Island 2010 major boiler outage.
[67] Response to Staff Data Request No. 0003 in ER-2014-0258.

pluggage of the economizer would be "eliminated or greatly reduced due to the in-line spiral fin economizer. Slag accumulations on the reheater will be greatly reduced due to the increased reheater pendant spacing. Forced outages due to tube leaks in the reheater and economizer will be reduced to zero. The new furnace lower slopes will have thicker wall tubing, making them more resistant to damage from slag falls."[68]

As Ameren Missouri stated in its October 15, 2009 Request for Full Work Order Authorization for Unit 2 (2010 Project), the objectives were to:

- Reduce the pressure loss across the economizer by switching from a staggered tube arrangement to an in-line arrangement. Unit load reductions due to economizer fouling will be minimized. Load reductions of 30 MW in the summer and 20 MW for the remainder of the year can be avoided with the new boiler components and the re-designed air preheater.
- Restore structural integrity to the economizer to avoid a possible catastrophic failure.
- Reduce the number of reheater tube leaks thereby minimizing forced boiler outages for the next 20 years.

Ameren Missouri noted that the air heater baskets had fouled to the point where fans were load limited and considered that high pressure washes were no longer restoring the pressure loss due to "an ever increasing accumulation of hardened fly ash". Ameren Missouri justified the 2010 Project, assuming there would be a "gain of 30 MW in the summer and 20 MW in the summer… with the combined reheater, economizer, and air preheater replacements… Also included in the justification is an approximate 3-4% improvement in equivalent availability of the unit."

Q. How does Mr. Birk describe the effect of boiler pluggage on the units?

A. On page 15, lines 3-5 of his Direct Testimony in this case, Mr. Birk states: "Boiler pluggage restricts airflow through the boiler. This affects both the efficiency of the heat

[68] Confidential Schedule CME-r9 includes the work order authorizations for the 2007 and 2010 Projects.

transfer in the boiler and results in less oxygen available for combustion, thus restricting maximum generating capability on (i.e., derating) the unit."

Q. Did other Ameren witnesses discuss the effect of pluggage on the units?

A. Yes. Judge Sippell summarizes the testimony of Jeff Shelton, an Ameren Missouri engineer in performance and reliability engineering:

> 64. Jeff Shelton, an Ameren trial witness, similarly testified that because they all collectively contribute to the problem, the air preheaters, economizer, and reheater have to be looked at together when considering the effects of pluggage on the unit's ability to generate. Shelton Test., Tr. Vol. 10–A, 106:13–24.

Q. Did Ameren report to Staff an increase in Unit 2's capability after the 2010 outage?

A. Yes. For the 2010 outage work, Ameren Missouri reported to Staff that there would be a significant capacity restoration of 22 MW and a true capacity increase of 12 MW. (Data Request No. 0257 from ER-2011-0028 attached as Confidential Schedule CME-r10). Judge Sippel discusses[69] the actual increases in Unit 2's capability:

> 287. After the 2010 outage, Ameren also reported a substantial increase in Unit 2's capability to its system operator, MISO, to NERC, and to the Missouri Public Service Commission. Specifically, in September 2010, Ameren reported to NERC that Unit 2's summertime peak capability had increased to 648 MW (gross), 617 MW (net), ''due to work completed in the 2010 major boiler outage (replacement low pressure turbines and ***numerous boiler modifications***).'' October 27, 2010 MISO Verification Test Data (Pl. Ex. 139), at AM–02663830 (emphasis added). Ameren provided the same information to NERC in September 2010. September 15, 2010 Capability Validation (Pl. Ex. 133), at AM–02645178; see also Koppe Test., Tr. Vol. 3–B, 46:6–47:22.
>
> 288. Later in December 2010, Ameren responded to a request from the Missouri Public Service Commission to identify any plant upgrades that it expected to result in an increase in the amount of electricity the plant

[69] 229 F. Supp.3d 906 at page 963.

> would produce in the future. MPSC Data Request 0257 (Pl. Ex. 222); Koppe Test., Vol. 3–B, 50:22–51:11.
>
> 289. Ameren told the Missouri Public Service Commission that the 2010 outage, including the component replacements at issue, would result in a 34 MW increase in Unit 2's capability, which it characterized as having been based on a ''significant capacity restoration[ ]'' of 22 MW and a ''true capacity increase[ ]'' of 12 MW. Ameren Resp. to DR 0257 (Pl. Ex. 223); Koppe Test., Vol. 3–B, 51:12–52:22. Joe Sind, the Ameren engineer who performed the analysis supporting Ameren's statements to the Missouri Public Service Commission, confirmed that the reported 12 MW ''true capacity increase'' was based on the company's best expectation of the impact of the LP turbine replacement on the capability of the unit. Sind Test., Tr. Vol. 9–B, 20:3–12, 27:12–28:3. Mr. Sind's work papers show that his capacity analysis only looked at changes in unit capability and air preheater differential pressures and that he reported increases in capability for other Ameren units where work had been done on air preheaters but no turbine work had occurred. Sind Test., Tr. Vol. 9–B, 22:3–23:17, 25:6–26:2.

Q. Did Mr. Whitworth discuss Ameren Missouri's understanding of the projects that were targeted by the EPA's enforcement initiative?

A. Yes. On page 49, lines 9-15 of his Direct Testimony, Mr. Whitworth discusses the understanding that EPA targeted units whose availabilities were "substantially degraded" and that the Rush Island plant managers did not expect an increase in availability of the Rush Island Units.

Q. Did Ameren Missouri justify the projects based on increased availability?

A. Yes. Ameren Missouri expected that the 2007 and 2010 Projects would reduce the number of forced outages and particularly in the 2010 Project, Ameren Missouri expected to see the availability improvements gained from the 2007 Project in the 2010 Project. Judge Sippell summarized some of depositions and contemporaneous documents:

> 124. Ameren witness David Boll testified in his deposition that these predicted additional megawatts represented ''regained capacity'' that had been lost due to the inability to pull gas flow through the plugged air preheaters. Boll Test., Tr. Vol. 8–B, 51:23–52:4, 54:21–25.

> 147. Ameren expected that the work would reduce the number of forced outages due to these components ‘‘to zero.’’ Project Approval Package (Pl. Ex. 1), at AM–00072585–586 (‘‘Flyash pluggage of the economizer will be eliminated or greatly reduced due to the in-line spiral fin economizer… Forced outages due to tube leaks in the reheater and economizer will be reduced to zero.’’); see also id. at 590 (‘‘completing this project will eliminate all the problems’’); Project Approval Form (Pl. Ex. 2), at AM–00072829 (same statements for Unit 2); Project Approval Package (Pl. Ex. 3), at AM–00072831–833, 837 (same statements for Unit 2); Presentation re: Justification for Projects (Pl. Ex. 28), at AM–00966731, 740, 750 (identifying avoided costs associated with avoiding derates and outages due to boiler tube leaks); see also Vasel Dep., Aug. 15, 2013, Tr. 131:11–132:24.
>
> 149. Further evidence of Ameren’s expectation of availability improvements is found in Plaintiff’s Exhibit 126, which was a presentation that Mr. Meiners made to senior executives at a business plan meeting. Meiners Test., Tr. Vol. 7–B, 27:21–24, 28:18–20. One of the purposes of the presentation was to discuss component replacements and the condition of the reheater, economizer, air preheater, and lower slopes. Id. 28:10–17. At the end of the presentation, Mr. Meiners presented a graph showing that Rush Island’s availability would increase by almost 5%, from about 90% in 2005–2006 to 95% in the first year after both major boiler outages had been completed. Id. 31:15–21.

Q. In the past, has Mr. Birk recognized that outages impact the equivalent availability of Ameren Missouri’s fleet?

A. Yes. In 2003, Ameren Missouri evaluated the feasibility of increasing the timespan between major unit overalls, referred to as “Super Outage”. In responding to a Staff data request, Mr. Birk described the Super Outage concept: ** [redacted] **[70]

Q. Please summarize Staff’s position in this case.

[70] Exhibit 160 HC in ER-2010-0036. Confidential Schedule CME-r11.

A. Staff recommends that the Commission find that Ameren Missouri's decision to comply with the District Court's modified Remedy Order to retire the Rush Island plant no later than October 15, 2024 is reasonable and prudent. The Commission should allow Ameren Missouri to securitize the remaining net book value of the Rush Island plant. However, Staff recommends the Commission acknowledge Ameren Missouri's failure to plan for the outcome of the litigation by holding ratepayers harmless from the costs above ** [redacted] ** associated with the Rush Island Reliability projects, and preserving the issues with potential future remedies and potential capacity shortfalls for a future rate proceeding. Additional adjustments to the amount to be securitized are contained in Staff witness Keith Major's rebuttal testimony.

Q. Does this conclude your rebuttal testimony?

A. Yes it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Petition of Union Electric Company d/b/a Ameren Missouri for a Financing Order Authorizing the Issue of Securitized Utility Tariff Bonds for Energy Transition Costs related to Rush Island Energy Center	)	**File No. EF-2024-0021**

AFFIDAVIT OF CLAIRE M. EUBANKS, PE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

COMES NOW CLAIRE M. EUBANKS, PE, and on her oath states that she is of sound mind and lawful age; that she contributed to the foregoing *Rebuttal Testimony of Claire M. Eubanks, PE*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Claire M Eubanks
CLAIRE M. EUBANKS, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 22nd day of February 2024.

Dianna L. Vaught
Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377