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**MISSOURI PUBLIC SERVICE COMMISSION**  
**FINANCIAL AND BUSINESS ANALYSIS DIVISION**  
**AUDITING DEPARTMENT**

**SURREBUTTAL TESTIMONY**

**OF**

**KEITH MAJORS**

**UNION ELECTRIC COMPANY,  
d/b/a AMEREN MISSOURI**

**CASE NO. EF-2024-0021**

*Jefferson City, Missouri*  
*March 2024*

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**TABLE OF CONTENTS OF  
SURREBUTTAL TESTIMONY  
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EXECUTIVE SUMMARY .....1  
SECURITIZATION CALCULATION .....2  
NET PRESENT VALUE.....2  
CONSTRUCTION WORK IN PROGRESS (“CWIP”).....3  
BASEMAT COAL VALUATION .....8  
RUSH ISLAND PRUDENCE .....9



- 1 • Net Present Value Calculations – OPC witness David Murray rebuttal  
2 testimony, pages 2-3.
- 3 • Construction Work in Progress (“CWIP”) – OPC witness Manzell Payne  
4 rebuttal testimony, pages 1-7.
- 5 • Basemat Coal Valuation – OPC witness John S. Riley rebuttal testimony,  
6 pages 12-18.
- 7 • Rush Island Prudence – OPC witness Jordan Seaver rebuttal testimony,  
8 pages 1-11.

9 **SECURITIZATION CALCULATION**

10 Q. Do you have any updates to Staff’s recommendation of the amounts to be  
11 securitized?

12 A. Yes. I have included as Schedule KM-s1 a summary of Staff’s recommendation  
13 of the amounts to be securitized. The only change is the inclusion of safe closure costs as  
14 identified by Staff witness Cedric E. Cunigan, PE.

15 **NET PRESENT VALUE**

16 Q. On pages 2-3 of his rebuttal testimony, OPC witness Murray states his overall  
17 disagreement with using the after tax rate of return (“ROR”) for the net present value (“NPV”).  
18 Has the Commission determined the correct rate to calculate NPV savings in a prior  
19 securitization case?

20 A. Yes. On page 74 of the Liberty Utilities Order<sup>1</sup>, the Commission determined  
21 that the weighted average cost of capital (“WACC”) is the correct rate:

22 The purpose of the net present value comparison required by the statute  
23 is to estimate what, if any, savings will be delivered to customers if the  
24 securitization proceeds. To accomplish that purpose a reasonable  
25 discount rate should be used in the net present value calculation of the

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<sup>1</sup> File No. EO-2022-0040 and File No. EO-2022-0193, Amended Report and Order, Issue Date: September 22, 2022.

1                   estimated costs for traditional financing absent securitization. Public  
2                   Counsel’s suggested discount rate would not result in a reasonable  
3                   comparison and is rejected. The WACC of 6.77 percent suggested by  
4                   Liberty and Staff is appropriate and is adopted.

5                   Q.       Are there any circumstances in this case that should cause the Commission to  
6                   use a different rate other than the applicable WACC for Ameren Missouri?

7                   A.       No.

8                   **CONSTRUCTION WORK IN PROGRESS (“CWIP”)**

9                   Q.       On page 4 of witness Payne’s rebuttal testimony, he recommends no recovery  
10                  of CWIP plant additions, also referred to as abandoned projects. Do you agree?

11                  A.       In part. The Commission addressed the recovery of CWIP through securitization  
12                  on page 67 of the Liberty Utilities Order:

13                               The cost of the abandoned environmental projects at Asbury meet the  
14                               definition of energy transition costs as defined by the securitization  
15                               statute. As such those costs may be recovered through securitization.  
16                               However, those costs would not be includible in Liberty’s ratebase and  
17                               thus it may not recover a return on those investments.

18                  Therefore, I recommend inclusion of most of the abandoned CWIP projects.

19                  Q.       Are “energy transition costs” defined in the securitization statute?

20                  A.       I am not an attorney, but I have been advised by legal counsel that it may be  
21                  unlawful to include CWIP under Section 393.135, RSMo, in the amount to be securitized.  
22                  Notwithstanding that uncertainty, section (7)(a) of the statute defines energy transition costs:

23                               (7) “Energy transition costs” include all of the following:

24                                       (a) Pretax costs with respect to a retired or abandoned or to be  
25                                       retired or abandoned electric generating facility that is the subject of a  
26                                       petition for a financing order filed under this section where such early  
27                                       retirement or abandonment is deemed reasonable and prudent by the  
28                                       commission through a final order issued by the commission, include, but  
29                                       are not limited to, the undepreciated investment in the retired or  
30                                       abandoned or to be retired or abandoned electric generating facility and

Surrebuttal Testimony of  
Keith Majors

1 any facilities ancillary thereto or used in conjunction therewith, costs of  
2 decommissioning and restoring the site of the electric generating facility,  
3 other applicable capital and operating costs, accrued carrying charges,  
4 and deferred expenses, with the foregoing to be reduced by applicable  
5 tax benefits of accumulated and excess deferred income taxes, insurance,  
6 scrap and salvage proceeds, and may include the cost of retiring any  
7 existing indebtedness, fees, costs, and expenses to modify existing debt  
8 agreements or for waivers or consents related to existing debt  
9 agreements;

10 Q. Do you believe these CWIP expenditures qualify as energy transition costs,  
11 Section 393.135, RSMo, notwithstanding?

12 A. Yes. Because the CWIP expenditures will not be placed into service, they  
13 would not qualify as a “retired or abandoned electric generating facility”. The statute does  
14 list “deferred expenses” as qualifying costs subject to securitization. CWIP expenditures  
15 are captured in a deferred account (FERC Account 107) until the time the individual project is  
16 “in-service”.

17 Q. Which CWIP project do you agree with OPC should be removed?

18 A. From the table on page 3 of witness Payne’s testimony, I would not include  
19 Work Order Number 15441. This work order captured the “[p]reliminary engineering and  
20 design costs for possible construction of a flue gas desuphurization [FGD] (scrubber) system  
21 for Units 1 & 2 at Rush Island energy center should final regulations require it”.

22 Q. Why does Staff recommend removal of the costs associated with the preliminary  
23 engineering and design costs?

24 A. Hypothetically, if Ameren Missouri were to now build the FGD at Rush Island,  
25 I would question the relevance and usefulness of a 13-year-old study. The costs in question  
26 were for the preliminary engineering and design costs, so there is potential that if Ameren  
27 Missouri were to build the scrubbers, new studies would have to be completed making these

1 13-year-old studies obsolete. There is no evidence that the FGD would be built at any time in  
2 the near or distant future. Had Ameren Missouri prevailed in the Rush Island litigation, there  
3 is no evidence that Ameren Missouri would have ultimately completed the scrubbers. Ameren  
4 Missouri's decision not to build the FGD is precisely why Rush Island is being retired.

5 Q. Is there any other evidence supporting removal of this project from the amount  
6 of CWIP to be securitized?

7 A. Yes. A report was prepared on behalf of Ameren Missouri by Kenneth J. Snell  
8 of Sargent & Lundy LLC to provide an expert opinion in the case *United States of America and*  
9 *Sierra Club v. Ameren Missouri*<sup>2</sup>, which I discuss at length later in this testimony. This report  
10 was attached to the rebuttal testimony of OPC witness Jordan Seaver as Schedule JS-R2.

11 As part of his findings, Mr. Snell made the following statement concerning the  
12 preliminary studies on page 10 of the report:

13 d. I disagree with Dr. Staudt's assertion that WFGD control could  
14 be installed on Rush Island Units 1 and 2 within approximately 3-years  
15 after a decision is made to proceed with the project. It is my opinion  
16 that the WFGD project would take a total of approximately 60- months  
17 (5-years) from a decision to proceed to commercial operation. **It is also**  
18 **my opinion that prior work done by engineering firms on behalf of**  
19 **Ameren, including conceptual design layouts, costs, and preliminary**  
20 **equipment specifications would not reduce the project schedule by**  
21 **any appreciable amount.** [Emphasis added.]

22 Q. What other findings did Mr. Snell make in this report concerning the preliminary  
23 design activities whose costs that you recommend removing?

24 A. Mr. Snell's findings suggest, on page 66 of his report, that the preliminary design  
25 activities would have to be verified, at the least, and recompleted in some cases:

---

<sup>2</sup> United States District Court, Eastern District of Missouri, Eastern Division, Case No. 4:11-CV-00077-RWS, Remedy Phase.

1 ...The major steps in a WFGD project, following a decision to proceed,  
2 include:

- 3
- 4 • The Owner must engage an architect-engineer (AE) to prepare conceptual  
5 designs and establish the design basis for the WFGD and ancillary  
6 systems. **As an initial step, the AE would have to thoroughly review**  
7 **studies previously prepared by B&V and Shaw, and confirm that**  
8 **information and assumptions used for those studies, which would**  
9 **have been completed approximately 10 years earlier, remain valid.**
- 10
- 11 • Once the design basis is established, specifications would be prepared  
12 for the WFGD equipment, including the reagent preparation system,  
13 absorber island, and by-product dewatering system. **Although**  
14 **B&V/Shaw prepared specifications for the WFGD and balance-of-**  
15 **plant (BOP) equipment, the AE would be required to review plant**  
16 **operating data, review and update the specifications to industry-**  
17 **current standards, and ensure accuracy of the specifications prior to**  
18 **issuing for bid.**
- 19
- 20 • In addition, specifications would be prepared for a new wet chimney and  
21 for an advanced wastewater treatment system. Construction of the wet  
22 chimney is typically awarded first, since the shell construction must  
23 precede construction of the WFGD absorber island.
- 24
- 25 • Environmental permit applications can be submitted following  
26 preliminary design and preparation of the equipment specifications. At a  
27 minimum, the WFGD project would require modification of the facility's  
28 Title V air permit and NPDES wastewater discharge permit, and, in my  
29 opinion, would likely require a New Source Review Prevention of  
30 Significant Deterioration (NSR/PSD) construction air permit. The  
31 requirement for an NSR/PSD permit is based on the assumption that the  
32 units would continue to operate at the same net output, but would fire  
33 additional coal to account for the additional auxiliary power load required  
34 to operate the WFGD; thus, mass emissions of other NSR-regulated  
35 pollutants would increase on a ton-per-year basis. Permitting will likely  
36 take a minimum of 12 months, and construction will not be able to  
37 commence until permits are received.  
38 [Emphasis added.]

39 Q. What did Mr. Snell conclude concerning the impact of the preliminary design  
40 work on the overall schedule of a potential scrubber project?

41 A. On page 68 of his report, Mr. Snell concluded it would have little impact on  
42 the schedule:



1 As Dr. Staudt notes in his expert report, starting in 2008 Ameren  
2 commissioned a number of FGD conceptual studies and cost estimates.  
3 Based on the results of these studies, on or around April 2010 Ameren  
4 made the decision to proceed with a more detailed evaluation of a WFGD  
5 system designed for PRB fuel only. Technical feasibility studies and  
6 financial analyses prepared as part of the technology selection process  
7 would precede the decision to proceed date referenced in Figure 10.  
8 **Therefore, the work done by Ameren prior to focusing on WFGD**  
9 **would not shorten the overall WFGD project schedule.** [Emphasis  
10 added. Footnotes omitted.]

11 Q. Could the initial design and engineering studies be relied upon if Ameren  
12 Missouri would have commenced construction of the scrubbers?

13 A. Not according to Mr. Snell, in the same report prepared on behalf of Ameren  
14 Missouri, on pages 68-69:

15 **However, as I noted above, any AE [architect-engineer] engaged to**  
16 **restart the WFGD project would not rely on the previously prepared**  
17 **specifications, which would have been completed approximately**  
18 **10-years earlier.** Operating parameters, design parameters, code  
19 requirements, design assumptions, and equipment layouts and  
20 redundancy would all have to be reviewed, confirmed, and brought up to  
21 date. Previously prepared specifications would have to be revised to  
22 reflect current industry standards and codes, and to ensure accuracy of  
23 the specification prior to issuing for bid. In my opinion, having access  
24 to the previously prepared specifications may provide a benchmark  
25 against which design and operating parameters could be confirmed, but  
26 would not reduce specification preparation time by any meaningful  
27 amount. **Given the potential liabilities associated with the design,**  
28 **construction, and operation of a complex air pollution control**  
29 **system on a large coal-fired steam electric generating unit, the AE**  
30 **would thoroughly review and confirm all design and operating**  
31 **parameters and code requirements to ensure the specification**  
32 **reflects current industry standards.** [Emphasis added.]

33 Q. OPC witness Payne recommends removal of all CWIP amounts as noted in his  
34 rebuttal testimony, not just the project you have discussed. Why should the other projects be  
35 included in the securitization amount?

1           A.     Other than the relevance of the Commission order in the Liberty Utilities Order,  
2 the other projects listed had a reasonable certainty of completion based on the descriptions  
3 provided by Ameren Missouri.

4           Q.     In summary, what are the reasons you agree with OPC witness Payne concerning  
5 the removal of the preliminary FGD studies project from the CWIP amount?

6           A.     As noted in the report attached to OPC witness Seaver's rebuttal testimony,  
7 Ameren Missouri's study by Mr. Snell found that the preliminary work was of limited benefit  
8 to a future project, would not substantially shorten the project schedule, and could not be relied  
9 upon by the actual project engineers in the case that Ameren Missouri were to actually  
10 commence the project.

11     **BASEMAT COAL VALUATION**

12           Q.     On pages 12-17 of his rebuttal testimony, OPC witness Riley discusses recovery  
13 though securitization of the basemat coal inventory at Rush Island. Do you agree with his  
14 primary recommendation?

15           A.     No. However, I do find the use of his calculated historical valuation of \$562,436  
16 from the Commission's Report & Order in Case No. ER-77-154 as an appropriate alternative  
17 to the amount used by Staff and Ameren Missouri. I was not aware of this Report & Order  
18 prior to witness Riley's testimony. The amount used by Staff and Ameren Missouri is based on  
19 the background calculations that supported the amounts in a Stipulation and Agreement in Case  
20 No. ER-2008-0318. The basemat valuation has been used for several rate cases since 2008.

21           Q.     Did this Stipulation and Agreement envision the valuation to be used to  
22 securitize the basemat coal at Rush Island?

Surrebuttal Testimony of  
Keith Majors

1           A.     I have looked at the three stipulations filed in the 2008 rate case. I cannot find  
2 any specific reference to the value of basemat at Rush Island. My understanding is that Ameren  
3 Missouri and Staff came to an agreement, albeit informal, for the level of basemat to use to  
4 calculate the revenue requirement and upheld that agreement through the prior rate case.  
5 Regardless of whether or not basemat was specifically agreed upon, the language of the  
6 stipulations in question specifically state that “[t]his Stipulation and Agreement is being entered  
7 into solely for the purpose of disposing of the issues that are specifically addressed in this  
8 Stipulation and Agreement”. Consequently, the language would not control what any of the  
9 parties would recommend in any future case.

10           **RUSH ISLAND PRUDENCE**

11           Q.     On page 1 of his testimony, OPC witness Seaver claims Ameren Missouri was  
12 imprudent not seeking a New Source Review (“NSR”) due to the resulting increased generation  
13 capacity at Rush Island. Do you agree with that contention?

14           A.     Yes, I agree with Mr. Seaver that the findings in the United States District Court  
15 Memorandum Opinion and Order in the liability phase (“District Court Opinion”)<sup>3</sup> support  
16 both Staff and OPC’s contention that Ameren Missouri’s decisions were imprudent. I would  
17 clarify that the NSR violation was not solely due to increased generation capacity. The District  
18 Court found that the NSR violations, and the motivation to complete the projects, was to  
19 increase the capability and availability of the Rush Island units. This could also be referred to  
20 as “regained capacity”. Additional capacity was gained from replacement of the low pressure  
21 turbine on Unit 2.

22           Q.     Could you summarize the findings of the District Court?

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<sup>3</sup> See Rebuttal Testimony of Keith Majors, Schedule KM-r2.

1 A. As the District Court found,

2 **2. The evidence shows that Ameren should have expected an**  
3 **emissions increase related to each project, and such an emissions**  
4 **increase occurred**

5 The core facts of this case show that before Ameren performed the  
6 challenged projects, problems with the components at issue were  
7 limiting the units' performance. Replacing those components would  
8 improve performance and result in additional use and pollution. That  
9 was what Ameren should have expected before the work began. The  
10 evidence shows that is what Ameren *did* expect. The evidence also  
11 shows that is exactly what happened.<sup>4</sup>

12 The District Court Liability Order is replete with examples of Ameren's decision process using  
13 the facts known to Ameren Missouri at the time the decisions were made leading to the NSR  
14 litigation.

15 Q. On page 7 of his rebuttal testimony, witness Seaver supports his prudence  
16 recommendations claiming that he does not rely on "hindsight". What is the "prudence  
17 standard", and how does hindsight factor into the determination of whether or not decisions and  
18 actions are prudent?

19 A. The Commission has defined the prudence standard on several occasions but  
20 I will use the definition from Case No. ER-2010-0355<sup>5</sup>:

21 17. The prudence standard is articulated in the Associated Natural Gas  
22 Case as follows:

23 [A] utility's costs are presumed to be prudently incurred.... However, the  
24 presumption does not survive "a showing of inefficiency or  
25 improvidence."  
26

27  
28 . . . [W]here some other participant in the proceeding creates a serious  
29 doubt as to the prudence of an expenditure, then the applicant has the  
30 burden of dispelling these doubts and proving the questioned expenditure  
31 to have been prudent. (Citations omitted).  
32

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<sup>4</sup> District Court Opinion, page 137.

<sup>5</sup> Kansas City Power & Light, Report and Order, page 74.

Surrebuttal Testimony of  
Keith Majors

1 In the [Union Electric] case, the PSC noted that this test of prudence  
2 should not be based upon hindsight, but upon a reasonableness standard:

3  
4 [T]he company's conduct should be judged by asking whether the  
5 conduct was reasonable at the time, under all the circumstances,  
6 considering that the company had to solve its problem prospectively  
7 rather than in reliance on hindsight. In effect, our responsibility is to  
8 determine how reasonable people would have performed the tasks that  
9 confronted the company.<sup>6</sup>

10 Q. In the context of prudent decision-making, how would you define “hindsight”?

11 A. Hindsight is defined as “perception of the nature and demands of an event after  
12 it has happened”.<sup>7</sup> Alternatively, hindsight is also defined as “perception of the significance  
13 and nature of events after they have occurred.”<sup>8</sup> In this context, the evaluation of the prudence  
14 of decision-making should not use perfect hindsight. That is, to determine prudence, one cannot  
15 utilize facts and outcomes using facts unknown to the decision maker at the times the decisions  
16 were made.

17 The Federal Energy Regulatory Commission (“FERC”) offered its view of the prudent  
18 investment test in 1984 by stating the following:<sup>9</sup>

19 We note that while in hindsight it may be clear that a management  
20 decision was wrong, our task is to review the prudence of the utility’s  
21 actions and the cost resulting therefrom based on the particular  
22 circumstances existing either at the time the challenged costs were  
23 actually incurred, or the time the utility became committed to incur those  
24 expenses. (New England Power Company, 31 FERC ¶ 61,047(1985).

25 Q. On page 6 of his rebuttal testimony, Mr. Seaver identifies his belief that  
26 “Ameren Missouri acted imprudently when it chose to proceed with the maintenance and boiler

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<sup>6</sup> See State ex. Re. Associated Natural Gas v. Public Serv. Comm’n, 954 S.W.2d 520, 528-529 (Mo. App. W.D. 1997).

<sup>7</sup> Webster’s Seventh New Collegiate Dictionary, 1963 Edition.

<sup>8</sup> The American Heritage Dictionary, 1985 Edition.

<sup>9</sup> John J. Reed Direct, Case No. EF-2024-0021, page 13.

Surrebuttal Testimony of  
Keith Majors

1 upgrades on Rush Island Units 1 and 2 without first seeking a NSR [New Source Review]  
2 permit". What evidence should the Commission use to determine whether or not Ameren  
3 Missouri acted imprudently?

4 A. The District Court thoroughly, and in excruciating detail, disseminated all of the  
5 evidence in the District Court Opinion and the District Court Remedy Opinion, as upheld by  
6 the 8<sup>th</sup> Circuit Court of Appeals.<sup>10</sup> While I cannot say that each and every fact the District Court  
7 considered in making its determinations was not based on a hindsight analysis, I can say there  
8 are numerous examples of the District Court using evidence contemporaneous to Ameren  
9 Missouri's decision making prior to the completion of the projects and, therefore, relevant in  
10 determination of the prudence of Ameren Missouri's overall decision making as it applies to  
11 the NSR violations.

12 Q. What are some examples of evidence found by the District Court that do not rely  
13 on hindsight?

14 A. There are many. As the District Court noted on pages 3-4 of the District Court  
15 Opinion:

16 This standard for assessing PSD applicability was well-established when  
17 Ameren planned its component replacement projects for Units 1 and 2.  
18 Ameren's testifying expert conceded that the method used by the United  
19 States' experts—which showed that Ameren should have expected the  
20 projects to trigger PSD rules—has been "well-known in the industry"  
21 since 1999.

22  
23 But Ameren did not do any quantitative PSD review for the project at  
24 Unit 1 and performed a late and fundamentally flawed PSD review for  
25 Unit 2. And Ameren did not report its planned modifications to the EPA,  
26 obtain the requisite permits, or install state-of-the-art pollution controls.

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<sup>10</sup> See Rebuttal Testimony of Keith Majors, Schedule KM-r3.

1 The District Court continued:

2 The evidence shows that by replacing these failing components with  
3 new, redesigned components, Ameren should have expected, and did  
4 expect, unit availability to improve by much more than 0.3%, allowing  
5 the units to operate hundreds of hours more per year after the project.  
6 And Ameren should have expected, and did expect, to use that increased  
7 availability (and, for Unit 2, increased capacity) to burn more coal,  
8 generate more electricity, and emit more SO<sub>2</sub> pollution.

9 On page 5 of the District Court Opinion, Judge Sippel, the presiding judge, found the following:

10 As discussed below, I [Judge Sippel] conclude the United States has  
11 established that Ameren should have expected, and did expect, the  
12 projects at Rush Island to increase unit availability (and, for Unit 2, to  
13 increase capacity), which enabled Ameren to run its units more, generate  
14 more electricity, and emit significantly more pollution.

15  
16 As a result, I conclude that the United States has established by a  
17 preponderance of the evidence that Ameren violated the PSD and Title V  
18 provisions of the Clean Air Act.

19 Q. You claim the District Court found Ameren Missouri should have known at the  
20 time of the upgrades that PSD would be triggered. Please explain for the Commission what  
21 specifically the District Court found.

22 A. On page 58 of the District Court Opinion, the District Court again summarized  
23 its findings, which I will discuss further:

24 184. The 2007 and 2010 boiler upgrades triggered PSD if: (1) Ameren  
25 should have expected them to result in a significant (i.e., more than a 40  
26 tons-per-year) SO<sub>2</sub> increase; or (2) a 40 tons-per-year SO<sub>2</sub> increase  
27 related to the boiler upgrades actually occurred. *Ameren SJ Decision*; see  
28 also 40 C.F.R. § 52.21(a)(2)(iv)(b), (c).

29 On page 59, the District Court identified why the SO<sub>2</sub> emissions increased:

30 185. As described further below, Ameren should have expected the  
31 2007 and 2010 boiler upgrades to increase the availability of the units,  
32 thereby resulting in more than 40 tons per year of increased SO<sub>2</sub>  
33 emissions. At both units, these availability improvements resulted from  
34 eliminating significant outages and derates that had been plaguing the

1                   boilers prior to the upgrades. Removing the problems that had been  
2                   limiting their pre-project availability should have been expected to  
3                   increase their post-project operations and emissions. In addition, for at  
4                   least the 2010 boiler upgrade, Ameren should have expected the new  
5                   economizer, reheater, and air preheaters to increase the maximum  
6                   megawatt generating capability of the unit, resulting in increased annual  
7                   emissions.

8                   The District Court found Ameren Missouri expected the increased availability to trigger PSD  
9                   requirements:

10                   186. In addition, availability and hours of operation of Units 1 and 2  
11                   actually increased by an amount greater than that required to trigger  
12                   PSD, just as Ameren expected, as did the megawatt capability of Unit 2.

13                   Q. What evidence did the District Court utilize to make its determinations?

14                   A. The District Court Opinion is 195 pages front to back. I recommend the  
15                   Commission consider the document in its entirety when making its determination. I attached  
16                   the full Opinion to my Rebuttal testimony as a schedule. For brevity, I will refer to the most  
17                   relevant parts of the District Court Opinion.

18                   The District Court relied upon the United States' emission experts, along with  
19                   testimony from several Ameren Missouri witnesses. Specifically, the "Koppe-Sahu" analysis  
20                   was relied upon:

21                   187. Evidence for these expected and actual increases is found in  
22                   Ameren's documents and project justifications, in its GADS and other  
23                   operational data, and in the results of a computer modeling program  
24                   called ProSym that Ameren uses to simulate the operations of its  
25                   generating units. The United States' emissions experts, Mr. Koppe,  
26                   Dr. Sahu, and Dr. Hausman, explained how this evidence demonstrates  
27                   that the availability and capability improvements at Rush Island Units 1  
28                   and 2 would be expected to, and did, far exceed the 40 tons-per-year PSD  
29                   threshold for SO<sub>2</sub>. After a brief overview, the specific evidence  
30                   supporting a finding that the 2007 and 2010 boiler upgrades resulted in  
31                   significant SO<sub>2</sub> increases is reviewed in further detail below.



Surrebuttal Testimony of  
Keith Majors

1 Q. OPC witness Seaver and you claim that Ameren Missouri was imprudent in its  
2 decision making. Would the District Court’s finding, using the Koppe-Sahu analysis, require  
3 the Commission to determine what Ameren Missouri knew at the time the decisions were made?

4 A. Yes, and discussed throughout the District Court Opinion is what Ameren  
5 Missouri knew at the time prior to the improvements:

6 219. Another Ameren testifying expert, Marc Chupka, conceded that  
7 the method used by Mr. Koppe and Dr. Sahu for determining PSD  
8 emissions increases has at least been “well-known in the industry” since  
9 the first enforcement cases were filed in 1999. Mr. Koppe testified that he  
10 and Dr. Sahu had used the same basic formula in this case that he and other  
11 utilities have used for decades. Koppe Test., Tr. Vol. 3-A, 35:6-9; *see also*  
12 Sahu Test., Tr. Vol. 5, 53:17-57:5 (discussing Ameren and industry  
13 documents). Mr. Chupka himself has been asked to analyze utility projects  
14 using the same method employed by Mr. Koppe and Dr. Sahu numerous  
15 times. Chupka Test., Tr. Vol. 8-B, 74:14-21, 75:5-10.

16 The United States’ witnesses used outage data in the Generating Availability Data System  
17 (“GADS”) as well as contemporaneous documents:

18 225. Based on his analysis of Ameren’s operating data, including  
19 GADS, as well as contemporaneous documents, Mr. Koppe concluded  
20 that Ameren should have expected the 2007 boiler upgrade to eliminate  
21 all of the availability losses in the baseline period related to problems in  
22 the reheater, economizer, lower slopes, and air preheater components.  
23 Koppe Test., Tr. Vol. 3-A, 48:24-49:6, 66:5-12; *see also* Sahu Test., Tr.  
24 Vol. 5, 95:24-97:2.

25 Again, the District Court found Ameren Missouri expected availability gains, and therefore  
26 increased emissions as a result of the improvements:

27 226. Company documents and witnesses confirm that Ameren  
28 actually had such an expectation. Ameren expected that as a result of the  
29 2007 boiler upgrade, availability losses attributable to the replaced  
30 components would be completely eliminated for years in the future.  
31 Meiners Test., Vol. 7-B, 40:1-18 (“Q. Right. If you do the project, in the  
32 future you won’t have those causes of unavailability, right? A.  
33 Correct.”); Boll. Test., Vol. 8-B, 46:11-47:10 (“that’s probably a good  
34 bet”); FOF 145, 146, 147.

1 Again, the District Court found Ameren Missouri should have expected availability gains and  
2 emissions increases:

3 227. Based on his review of company documents and data, as well as  
4 his experience in the industry and his assessment of the overall condition  
5 of the rest of the unit, Mr. Koppe concluded that Ameren should have  
6 expected that the 2007 boiler upgrade would result in a substantial  
7 increase in the overall equivalent availability of Rush Island Unit 1.  
8 Koppe Test., Tr. Vol. 3-A, 34:13-21, 51:20-55:17, 66:5-12. The impact  
9 of the project alone would be to increase the availability of Unit 1 by 3.8  
10 percentage points over baseline availability by eliminating all 336.1  
11 EFPH of availability losses related to the reheater, economizer, lower  
12 slopes, and air preheater. Koppe Test., Tr. Vol. 3-A, 48:24-49:6; *see also*  
13 Sahu Test., Tr. Vol. 5, 95:24-97:2. If the four components had not been  
14 replaced, the availability of the unit would have been expected to  
15 decrease. Koppe Test., Tr. Vol. 3-A, 66:13-67:3.

16 The District Court found the same expectations for availability gains on the Rush Island Unit 2  
17 completed in 2010:

18 250. Based on his analysis of Ameren's operating data, including  
19 GADS, as well as other company documents, Mr. Koppe concluded that,  
20 just as at Unit 1, Ameren should have expected the 2010 boiler upgrade  
21 to eliminate all of the availability losses in the baseline period related to  
22 problems in the reheater, economizer, and air preheaters. Koppe Test.,  
23 Vol. 3-A, 76:23-77:5.

24  
25 258. Based on Mr. Koppe's availability analysis, and consistent with  
26 his review of company data and documents, Dr. Sahu translated the  
27 increased operations that were expected to result from the 2010 boiler  
28 upgrade into emissions increases, and determined that the expected SO2  
29 increase from such operations was far more than 40 tons per year. Sahu  
30 Test., Tr. Vol. 5, 39:23-25, 40:21-24, 78:13-19, 99:13-100:11, 102:7-10,  
31 113:22 – 114:1. Specifically, Dr. Sahu calculated that Ameren should  
32 have expected a net emissions increase of 414.5 tons per year of SO2 due  
33 solely to the improvements in equivalent availability that Ameren should  
34 have expected from the replacement of the economizer, reheater, and air  
35 preheater. Sahu Test., Tr. Vol. 5, 73:6-74:14, 115:17-20.

36  
37 259. Just as Ameren expected, Unit 2 experienced a substantial  
38 increase in availability following the 2010 boiler upgrade. During the  
39 relevant post-project period, as Ameren should have expected and did  
40 expect, there were no availability losses at all due to the reheater,  
41 economizer, and air preheater. Availability losses due to all the rest of

1 the equipment at the unit essentially stayed the same. Koppe Test., Tr.  
2 Vol. 3-A, 80:7-23; Sahu Test., Tr. Vol. 5, 80:13-81:1, 82:13-83:5; *see*  
3 *also* Pl. Ex. 746 (work paper showing no GADS events for reheater,  
4 economizer, and air preheater during post-project period).

5 Q. OPC witness Seaver referenced a capacity increase as the cause of the NSR  
6 violations. Were the capability increases projected to increase emissions?

7 A. Yes. The actual capacity increase was only on Unit 2. The regained capacity,  
8 or capability increases were on both units:

9 268. In addition to improving the availability of both units, the 2010  
10 boiler upgrade should have been expected to increase the capability of  
11 Rush Island Unit 2. As described further below, because Unit 1  
12 experienced a capability increase after the 2007 boiler upgrade, Ameren  
13 should have expected – and did expect – a similar increase to occur after  
14 the 2010 boiler upgrade at Unit 2. Koppe Test., Tr. Vol. 3-B, 19:20-25.

15  
16 279. Based on his review of Ameren’s documents and data, Mr. Koppe  
17 confirmed that Ameren should have expected, and did expect, an increase  
18 in Unit 2’s capability of at least 22 MW (gross) as a result of replacing the  
19 economizer, reheater, and air preheater. That additional capability would  
20 result from eliminating the effects of pluggage and allow Unit 2 to burn  
21 more coal per hour. Koppe Test., Vol. 3-B, 33:14-34:1; *see also* Vol. 3-A,  
22 27:18-25, 29:2-8, Vol. 4-A, 46:23-47:18.

23 The capacity increases were related to the replacement of the low pressure (“LP”) turbine:

24 281. Ameren’s best expectation for the effect of the LP turbine on unit  
25 efficiency is that it would increase Unit 2’s capability by 12 MW, which  
26 is the amount that was guaranteed by the vendor. Sind Test., Vol. 9-B,  
27 20:3-12, 26:23-28:3. Ameren’s updated financial analysis for the Unit 2  
28 outage estimated that the efficiency improvements associated with the  
29 LP turbine would allow Unit 2 to produce 15 more MW of capability.  
30 The analysis was based on the assumption that the turbine-related  
31 efficiency improvements would allow Unit 2 to produce more megawatts  
32 but would not result in the unit burning less coal. Pl. Ex. 48, at “Data  
33 Entry” sheet, rows 149-152 (no “decrease in fuel usage” input for turbine  
34 replacement) Pl. Ex. 110, at AM-02465690; Koppe Test., Vol. 3-B, at  
35 29:9-32:9.

36 Q. Did the District Court discuss the other half of the analysis from the United  
37 States’ expert, Dr. Sahu?

1           A.     Yes. While Mr. Koppe's focus was the plant generation analysis, Dr. Sahu  
2 focused on the resulting emissions increases:

3                     304. The company's project justification documents indicate that it  
4 expected Unit 2's capability to increase as a result of the project by more  
5 than ten times the amount that would result in 40 additional tons of SO2  
6 per year. Because the actual and expected increase in capability far  
7 exceeded 1.7 MW, and exceeded the 18 MW used in Dr. Sahu's  
8 calculations, at least 40 tons of the overall increase in SO2 emissions are  
9 related to the capability increase caused by the replacement of the  
10 economizer, reheater, and air preheater at Unit 2. Sahu Test., Tr. Vol. 5,  
11 87:22-25, 97:3-98:16.

12           Q.     In the preceding discussion, you have relayed findings of fact found by the  
13 District Court. What conclusions did the District Court find?

14           A.     The District Court found on page 154-156 of the order:

15                     **5. Conclusion: The emissions evidence shows an increase related to**  
16 **the projects should have been expected and actually occurred**

17  
18                     Ameren expected the projects to cause its highest period of post-project  
19 availability to rise well above the baseline availability for both units. The  
20 projects caused substantial availability increases. Ameren also expected  
21 and realized a post-project increase in capacity at Unit 2 from the  
22 challenged boiler work. Those expected and actual performance  
23 improvements were significantly larger than the small changes (an  
24 additional 21 full power hours or 1.7 MW) needed to cause a 40-ton  
25 increase in emissions.

26  
27                     ... By performing major modifications without obtaining an NSR permit  
28 (and satisfying the associated requirements, including the requirement to  
29 operate best availability control technology to reduce emissions),  
30 Ameren violated both the requirement to obtain a permit with all  
31 applicable requirements and the permit prohibition against unpermitted  
32 major modifications.

33           Q.     Witness Seaver identifies Ameren Missouri failed to conduct a NSR on the  
34 boiler modifications. What did the District Court conclude concerning Ameren Missouri's  
35 approach to NSR?

1 A. From page 176 of the District Court Opinion:

2 **1. Ameren does not have a legitimate process for assessing PSD**  
3 **applicability**

4  
5 First, Ameren’s position relies on a fundamental misunderstanding of the  
6 PSD program. Ameren offered the testimony of Mr. Boll and  
7 Mr. Whitworth at trial to describe how Ameren determined whether a  
8 project might cause an emissions increase. Both witnesses testified that  
9 the company looked to whether the unit’s *potential* emissions were  
10 expected to increase. FOF 391. The company employee actually charged  
11 with performing the PSD analysis for Unit 2 confirmed Ameren’s  
12 reliance on the wrong metrics when he testified that any improvements  
13 in availability were “irrelevant.” FOF 396, 397(d).

14  
15 Ameren’s method of assessing PSD does not comply with the rules,  
16 EPA’s instructions, or case law. The rules explicitly direct a source to  
17 compare projected emissions to baseline emissions, both measured in  
18 tons per year. 40 C.F.R. § 52.21(b)(41), (48). As noted above, both EPA  
19 and the courts that have interpreted the PSD program have explained that  
20 “[i]f an increase in hours of operation is caused or enabled by a physical  
21 change, the increased hours must be included” in the projection. *Duke*  
22 *Energy 2010*, 2010 WL 3023517, at \*5. EPA has brought enforcement  
23 actions since 1999 based on improvements in availability that lead to  
24 increases in annual pollution. Ameren’s testifying expert conceded that  
25 EPA’s enforcement approach has been “well-known in the industry”  
26 since 1999. FOF 219. [Footnotes Omitted.]

27 Q. In conclusion, why should the Commission find Ameren Missouri acted with  
28 imprudence in this matter?

29 A. Throughout the District Court Opinion, as upheld on appeal, the District Court  
30 found Ameren Missouri knew, or should have known, the improvements at Rush Island would  
31 trigger NSR. This conclusion is not based on a hindsight analysis.

32 Q. Does this conclude your surrebuttal testimony?

33 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 )

Case No. EF-2024-0021

**AFFIDAVIT OF KEITH MAJORS**

STATE OF MISSOURI )  
COUNTY OF Jackson ) ss

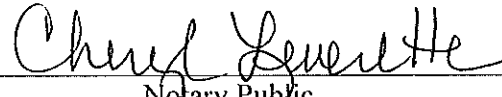
COMES NOW KEITH MAJORS, and on his oath states that he is of sound mind and lawful age; that he contributed to the foregoing *Surrebuttal Testimony of Keith Majors*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

  
\_\_\_\_\_  
KEITH MAJORS

**JURAT**

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Jackson, State of Missouri, at my office in Kansas City, on this 21st day of March 2024.

  
\_\_\_\_\_  
Notary Public



**AMEREN MISSOURI**  
**TOTAL RETAIL REVENUE REQUIREMENT FOR SECURITIZED ENERGY TRANSITION CHARGE**  
**Case No. EF-2024-0021**  
Prepared by Keith Majors

<u>LINE</u>	<u>DESCRIPTION</u>	<u>AMOUNT</u>
1	Rush Island Plant in Service	\$ 895,859,602
2	Rush Island Reserve	426,933,471
3	Net Plant in Service	<u>\$ 468,926,131</u>
4	Abandoned Capital Projects	3,936,152
5	Base Mat Coal Inventory	1,923,660
6	Materials and Supplies Inventory	18,304,442
7	NPV of Tax Benefits (NPV 15 Years)	(49,178,167)
8	Safe Closure and Decommissioning - REVISED	46,907,500
9	Asset Retirement Obligation-Ash Ponds	149,356
10	Water Treatment and Monitoring	-
11	Community Transition	-
12	<b>Total Rush Island Energy Transition Costs to Securitize</b>	<u><b>490,969,074</b></u>
13	Upfront Financing Costs (ESTIMATED)	6,514,155
14	<b>Total Cost to be Financed with Securitized Utility Tariff Bonds</b>	<u><b>\$ 497,483,229</b></u>