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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EF-2024-0021

SURREBUTTAL TESTIMONY

OF

MARK C. BIRK

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
March, 2024

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SURREBUTTAL TESTIMONY

OF

MARK C. BIRK

FILE NO. EF-2024-0021

I. INTRODUCTION

Q. Please state your name and business address.

A. Mark C. Birk, 1901 Chouteau Avenue, St. Louis, Missouri.

Q. Who do you work for?

A. I am the President of Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "the Company").

Q. Are you the same Mark C. Birk who previously provided testimony in this case?

A. Yes.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of Staff witnesses Claire Eubanks and Keith Majors and Public Counsel witness Jordan Seaver on the issue of prudence. In doing so, I explain why the Company made reasonable and prudent decisions in concluding that the Rush Island Projects[1] would not trigger NSR and did not require permitting under the Missouri SIP.

[1] Capitalized phrases or terms used in this testimony, if not specifically defined in it, have the meaning given such terms in my Direct Testimony.

Q. In asserting prudence, does the Company attempt to re-litigate the NSR case as Staff witness Majors alleges[2]?

A. Absolutely not. As I said in my Direct Testimony, the District Court found that NSR permits were required for the Rush Island Projects, and the Eighth Circuit Court of Appeals upheld that decision. But the question here is not whether, looking back in hindsight, permits were required for the Rush Island Projects – the courts said they were, and that is not in dispute here. Instead, the question here is <u>why</u> Ameren Missouri did not get those permits, was that decision reasonable at the time of the projects – years before any of the legal rulings by the courts. That issue was not decided by the courts. Nor is it an issue that Staff has analyzed, as Ms. Eubanks admits:

> Q. One of the issues that are in contention here in this proceeding is why Ameren Missouri did not get the required Clean Air Act permits [i.e., NSR Permits], do you understand that?
>
> A. I think that is an issue that has been brought forth in this case, yes.
>
> Q. And have you drawn any conclusions as to why Ameren Missouri did not get the required Clean Air Act permits?
>
> A. I don't believe that I have drawn that conclusion, a conclusion on that, no.[3]

Q. So why didn't Ameren Missouri get NSR permits for the Rush Island Projects?

A. As explained by Mr. Whitworth's Direct and Surrebuttal Testimonies, NSR permits for these types of projects were not required under the legal standards as we

[2] File No. EF-2024-0021, Keith Majors Rebuttal Testimony, p. 4, ll. 17-18.
[3] Deposition of Claire M. Eubanks, File No. EF-2024-0021, p. 15, l. 23 to p. 16, l. 8 (March 11, 2024). The deposition transcript bears a March 12, 2024 date but the deposition took place on March 11, 2024.

understood them at the time. We believed that permits were required only for projects that would increase potential emissions from the unit, and none of the Rush Island Projects were expected to increase potential emissions. We also understood that permitting would not be required for boiler component replacements that are routinely performed within the electric utility industry, and that the Rush Island Projects were routine within this industry. Had either of those beliefs been found by the courts to be correct, we would not have needed NSR Permits.

Several years after the Rush Island Projects were completed, the courts told us that we were wrong about the law, and that the legal standards we applied to determine that the Rush Island Projects could proceed were not correct. But the courts did not find that our understanding of the law on either of those points was unreasonable at the time we made the relevant permitting decisions, and I firmly believe that our understanding was reasonable.

Q. Why?

A. Company witnesses Whitworth, Holmstead, and Moor discuss this in great detail in their Direct Testimonies and in their Surrebuttal Testimonies, and I will not attempt to repeat all that here. From my perspective, two undisputed facts show that our understanding of the law in the 2005-2010 period was reasonable.

First, our understanding of the law was consistent with MDNR, which had primary responsibility for issuing NSR permits in Missouri and did so under the Missouri SIP. Staff agrees on these points, as Keith Majors confirms.

> Q. Do you have an understanding as to whether they [Ameren Missouri] were required to ask EPA to confirm the decisions they made that the Rush Island projects were not going to trigger new source review or PSD?

A. No, I think they work with the DNR with the state implementation plan and so that's the primary rules and regs that the EPA has delegated to the state. So I think that they -- that would be the primary factor if you will for determining the PSD requirements under their air permit.

…

Q. Do you understand that Ameren Missouri's understanding of the law was consistent with that of the Missouri Department of Natural Resources?

A. That's my understanding, yes.[4]

Second, Ameren Missouri's understanding was consistent with the rest of the electric utility industry. Projects like those at Rush Island occurred across the industry, year after year after year, and not once to my knowledge has any utility sought a NSR permit before undertaking them.

II. WEPCO PORT WASHINGTON PROJECT

Q. But what about the Wisconsin Electric Power Company ("WEPCo") project identified by Office of the Public Counsel ("OPC") witness Seaver?

A. Mr. Seaver correctly notes that WEPCo believed permits were not required for a proposed project at its Port Washington Plant, that the state environmental agency agreed with WEPCo that no Clean Air Act permits were required, and that the EPA then disagreed and took a different view.[5] We were well-aware of the WEPCo Port Washington Project at the time the Company made its permitting decisions on Rush Island, but believed the WEPCo Port Washington Project was nothing like the Rush Island Projects.

[4] Deposition of Keith Majors, File No. EF-2024-0021, p. 44, ll. 13-22; p. 47, ll. 20-23 (March 12, 2024).
[5] File No. EF-2024-0021, Jordan Seaver Rebuttal Testimony, p. 2, l. 12 to p. 3, l. 11

Q. How was it you were aware of the WEPCo situation?

A. The WEPCo project and EPA's determination that the project triggered permitting requirements has been widely discussed throughout the electric utility industry. Company witnesses Holmstead and Moor discuss in more detail the widespread understanding of the WEPCo situation in their Direct Testimonies and in their Surrebuttal Testimonies.

Q. Why do you say that the WEPCo Port Washington Project was nothing like the Rush Island Projects?

A. Company witnesses Whitworth, Holmstead and Moor discuss the differences in more detail. From my perspective, however, there were many significant differences that made the Port Washington Project completely unlike the Rush Island Projects.

First, the Port Washington Project involved increasing the hourly potential emissions from the facility. The Rush Island Projects did no such thing. As Mr. Whitworth explains, this was a central fact upon which the ESD permitting decisions turned. When projects would increase the hourly potential emissions (as in the case of projects completed at Ameren Missouri's affiliated company's Duck Creek coal plant in Illinois), ESD identified the need for NSR permitting and NSR permits were sought. When projects were not expected to increase the hourly potential emissions, then ESD concluded that no NSR permits were required. Here, none of the Rush Island Projects were expected to (or did) increase the hourly potential emissions, as both EPA and the District Court agreed. So this means the WEPCo decision did not apply to Rush Island for that reason alone.

Second, the generating units at Port Washington were substantially degraded, and had permanently lost a substantial portion of their generating capacity. For example, one of the units could not even be operated due to safety concerns. The Rush Island units, by contrast, were in good shape, with equivalent availability exceeding 90% shortly before the outages in question. Although pluggage of the boiler did occur, the units never experienced a permanent loss of capacity. This is reflected in the equivalent availability data cited above, which incorporates and accounts for any of the occasional derates on the units. See Schedule MCB-S1 attached to my testimony.

Third, the Port Washington units were slated for retirement. The WEPCo project was necessary to stave off that retirement and to allow continued operation of the units. At Rush Island, by contrast, the units were nowhere near retirement and retirement was not considered as the alternative to performing the Rush Island Projects. Put another way, had the Port Washington Project not been performed, the plant would have shut down at that time; without the Rush Island Projects, the plant would have continued to operate for a long time but with a lower availability rate than would exist if the projects were completed.

Fourth, the Port Washington Project was much more extensive than the Rush Island Projects. The Port Washington Project was a four-year project that involved successive nine-month outages for each unit at the cost of over $70 million in 1988 dollars. The Rush Island Projects, by contrast, involved only three or four components, took place during planned outages covering approximately three months, which was typical for the units at issue, and cost substantially less than the Port Washington Project.

Finally, in addition to the significant work described above, the work in the WEPCo Port Washington Project included replacement of the steam drums on the boilers. Such work is rare for coal plants in the industry, and I am not aware of any comparable replacements ever being performed in the industry. In contrast, the work involved in the Rush Island Projects consisted of replacing boiler tube assemblies and boiler auxiliary equipment—activities that were and remain common within the utility industry.

We therefore understood that the WEPCo Port Washington Project was nothing like the Rush Island Projects, and the fact that EPA found permitting to apply for Port Washington in no way suggested to us that permitting would also be required for Rush Island. The work at issue in the Rush Island Projects was commonly done across all of the plants supported by ESD (for both Ameren Missouri and its Illinois affiliates) and throughout the utility industry, and other utilities were not seeking or receiving NSR permits for such work.

Q. The first reason you gave that the Rush Island Projects are nothing like the project in WEPCo is that the Rush Island Projects did not increase potential emissions, whereas the WEPCo project did. Why do you say that potential emissions did not increase at Rush Island?

A. The Rush Island Projects did not increase the capacity of any equipment that feeds coal, water or air into the boiler. Thus, none of the Rush Island Projects increased the maximum amount of coal that the unit could burn in an hour or the maximum amount of sulfur dioxide or other pollutants that the unit could emit in an hour. By definition, then, the Rush Island Projects did not increase potential emissions.

Q. Has anyone here suggested that the Rush Island Projects did increase potential emissions?

A. No. Staff concedes that they have no evidence of an increase in potential emissions. Ms. Eubanks made that clear:

> Q. On Page 35 of your rebuttal testimony, or thereabouts, there is a discussion about pluggage of one or both of the units at Rush Island and that there was work that needed to be done to maintain the maximum continuous rating?
>
> A. Yes.
>
> Q. Do you see that?
>
> A. I do.
>
> Q. Okay. And what does the maximum continuous rating mean to you?
>
> A. It means the ability of the unit to operate at its maximum.
>
> Q. Do you recognize the maximum continuous rating to be a steam flow rating?
>
> A. I don't recall.
>
> Q. Do you know whether there was any increase in the maximum designed steam flow as a result of any of the Rush Island projects?
>
> A. I'm not aware of whether or not there would have been an increase in the steam flow, maximum steam flow as you phrased it.
>
> Q. Now, you’re an environmental engineer, right?
>
> A. I am.
>
> Q. Okay. So if there was no increase in the maximum hourly designed steam flow, would it be a reasonable assumption that there's no increase in the maximum hourly emissions rate?
>
> A. Yes.
>
> Q. And by the same token, would it be reasonable assumption then that there would be no increase in the potential emissions either?

A. Yes.

Q. And you understand that there was no increase in the potential emissions from any of the Rush Island projects, correct?

A. My understanding from the -- one of the judge's order is that that was undisputed.

Q. That's not a position that you're going to dispute in this matter, are you?

A. No.[6]

Although Staff's rebuttal testimony notes that the megawatt capacity of Unit 2 increased following the project, Staff also conceded that megawatt capacity is not the same as the maximum hourly emissions rate (i.e., potential emissions).

Q. We're talking about the Rush Island projects again. And there was some discussion in the testimony you provided citing findings from the District Court case about changes in megawatt capacity at Unit 2. Do you recall that topic?

A. I do, yes.

Q. Okay. Now, as an environmental engineer you understand that megawatt capacity is not the same thing as the maximum hourly emissions rate for the unit, correct?

A. Yes.[7]

Nothing in any of documents cited by Staff suggests any change in potential emissions, and the District Court found that the absence of an increase in potential emissions was undisputed.

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[6] File No. EF-2024-0021, Claire Eubanks Deposition supra, p. 37, l. 21 to p. 39, l. 11.
[7] File No. EF-2024-0021, Claire Eubanks Deposition supra, p. 162, l. 22 to p. 163, l. 7.

Q. So, what relevance does the WEPCo Port Washington Project have for the prudence of the Company's permitting decisions for Rush Island?

A. Because the WEPCo Port Washington Project was distinguishable from the Rush Island Projects, the fact that EPA required permitting for the Port Washington Project did not indicate to us that permitting was required for the Rush Island Projects. Moreover, as Company witnesses Holmstead and Moor explain, EPA's many statements after it issued its decision made clear that the Port Washington Project was unusual and that EPA's decision about Port Washington did not mean most utility projects would require permitting. As Company witnesses Holmstead and Moor explain, at the time the Company made its permitting decisions, EPA had established an interpretation of the NSR program in which it applied the "routine maintenance, repair and replacement" (or "RMRR") provision in the NSR regulations to exclude large capital component replacement projects from NSR permitting requirements as long as they were routine within the industry.

III. ROUTINE MAINTENANCE, REPAIR AND REPLACEMENT ("RMRR")

Q. While the lack of an increase in potential emissions makes the RMRR question irrelevant, the Company did consider whether the Rush Island projects were RMRR, did it not?

A. Yes, we did.

Q. **At the time that Ameren Missouri made its permitting decisions, did the Company believe that the Rush Island Projects were routine for the utility industry?**

A. Yes.

Q. Why was that?

A. The Rush Island Projects consisted primarily of boiler tube replacement, which is routine for the utility industry. As I described in my Direct Testimony, the combustion of coal within the boiler produces a harsh and unforgiving environment. In particular, the reheater, economizer and lower slope tubes in the boiler experience high amounts of stress and wear from the fly ash particles and combustion gasses produced in the furnace. Because these tubes experience such wear, they will inevitably develop leaks that force the unit offline from time-to-time. As more and more tube leaks develop, the impact on the unit's availability increases and it becomes economical to replace the entire component instead of patching them one at a time. This is what Ameren Missouri has done for years, as well as the rest of the utility industry. The basic purpose of replacing boiler components like those at issue in the Rush Island Projects is to maintain or improve the boiler's availability. When such replacements occur, they typically incorporate the latest materials or designs.

Q. When do such boiler component replacements typically occur?

A. Across Ameren Missouri's plants and those of its Illinois affiliates, as well as across the industry, boiler component replacements typically occur during planned outages. Those outages can vary in length, but two to three months for planned outages is not unusual.[8] Ameren Missouri, like all other utilities, will generally take the opportunity presented by a planned outage and repair or replace multiple components at the same time. Doing so creates efficiencies and, we have found, reduces the amount of time that a unit is required to spend in planned outages overall, which greatly benefits customers.

[8] Each of the Rush Island outages at issue each lasted approximately three months.

Q. How do utilities generally perform such boiler component replacements?

A. Generally, boiler components replacements involve the use of outside contractors. As I explained in my Direct Testimony, these activities occur so frequently across the utility industry that a number of companies have lines of business devoted to replacing boiler components for utilities across the county. Contractors will typically provide the components (using the current state-of-the-art materials and designs), contractors will remove the existing pieces of equipment, and contractors will install the new pieces of equipment. From an engineering perspective, there is not much difference in the steps involved (or the craft labor required) for replacing an economizer, a superheater, a reheater, waterwall panels (including the lower slopes), or auxiliary equipment such as pumps, fans, or air preheaters.

Q. Was there anything unusual about the outages for the Rush Island Projects?

A. As I noted in my Direct Testimony, the 2007 outage at Unit 1 and the 2010 outage at Unit 2 marked an expansion of each unit's outage cycle from four to six years. Thus, the outages were longer than the plant had seen in the past and incorporated more work into each outage. A complete list of the work done during the Unit 1 outage in 2007 is found in Schedule MCB-S2, and a complete list of the work done during the unit 2 outage in 2010 is found in Schedule MCB-S3. The aggregation of all this work made each outage as a whole significant relative to prior Rush Island outages which occurred more frequently and thus had smaller work scopes, as I noted in the email quoted by Ms. Eubanks. But this is not a reflection on whether the Rush Island Projects or any other item of work within the overall outage was routine, as Ms. Eubanks acknowledges.

> Q. You have some testimony from – you have in your testimony, your rebuttal testimony, some quotations from Mr. Birk about the Unit 1 outage at Rush Island and the statement that it was the most significant outage in plant history, do you remember that?
>
> A. That was quoted in the order, yes, I do recall that.
>
> Q. Okay. Now, you recognize Mr. Birk did not describe the work done in the outage as being unusual for the utility industry, correct?
>
> A. I don't think he's speaking to whether -- comparing the Rush Island project to industry in that discussion, no.[9]

Q. Does a significant outage mean that the work performed within that outage was not routine?

A. No. Of the several dozen work items performed in the 2007 outage on Unit 1 (see Schedule MCB-S2), EPA sued Ameren Missouri for only four. And of the several dozen work items performed in the 2010 outage on Unit 2 (see Schedule MCB-S3), EPA sued Ameren Missouri for only three. As I have explained before, Ameren Missouri considered each of the seven component replacements involved in the Rush Island Projects to be routine for the electric utility industry.

Q. Why did you consider the Rush Island Projects routine for the electric utility industry?

A. For several reasons. First, the purpose of the Rush Island Projects was to improve availability. The most common reason for doing any form of maintenance, repair

[9] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 139, l. 20 to p. 140, l. 8.

or replacement on an electricity generating unit is to maintain or improve availability. The purpose of the Rush Island Projects was therefore routine in the industry.

Second, the nature and extent of the work at issue in the Rush Island Projects was boiler tube replacement and replacement of boiler auxiliary equipment. These were capital projects, rather than those charged to an existing O&M budget, but capital projects involving component replacement on electric generating units happen every year across the Ameren Missouri system and the industry as a whole. Moreover, as I noted above, from an engineering perspective there is not much difference in replacing these and other components on a coal-fired boiler. And although the replacement parts incorporated some improvements in materials or design, it is typical practice within the industry to do so.

Third, replacement of economizers, reheaters, waterwall panels (i.e., lower slope panels) and air preheater components has happened frequently across the industry. None of the work items performed by Ameren Missouri during the Rush Island Projects was unusual. In fact, we had performed such work many times before over the years.

Finally, the costs for the Rush Island Projects were not unusually large for the utility industry. Multi-million-dollar expenditures on existing units happen frequently across the industry.

For all these reasons, we considered the Rush Island Projects to be routine.

Q. Just now you said that Ameren Missouri had performed component replacements like this several times before. You had listed some of these component replacements in MCB-D2, attached to your Direct Testimony. Ms. Eubanks appears to take issue with that document in her Rebuttal Testimony. How do you respond?

A. As indicated in the response to Staff Data Request 24 (attached to my testimony as Schedule MCB-S4), we did find a discrepancy in the date of one of the projects listed on my Schedule MCB-D2. We are also in the process of checking work order details on some of the older projects, as Ms. Moore explains in the data request response. Regardless of the precise details, however, there are many instances of component replacements (like those included in the Rush Island Projects) for which we have confirmed work order information completed between 2001 and 2005 (see the updated project spreadsheet attached as part of Schedule MCB-S4), none of which were claimed to trigger NSR requirements. There are many more projects identified by our plant engineers pre-2001.

Q. Does Staff take the position it was unreasonable for Ameren Missouri to consider the Rush Island Projects to be routine in the industry?

A. No. Staff does not question Ameren Missouri's conclusion that the individual component replacements were routine for the industry, as Ms. Eubanks admits.

> Q. Can you say whether it was unreasonable for Ameren to believe that economizer replacement happened routinely in the industry?
>
> A. I can't speak to that, no.
>
> Q. Do you know whether it was unreasonable for Ameren to believe that reheater replacement was routine within the industry?
>
> A. I can't speak to that.

Q. Do you have any reason to believe that it was unreasonable for Ameren to believe that lower slope replacements were routine in the industry?

A. I can't speak to that.

Q. Do you have any reason to believe it was unreasonable for Ameren to believe that air preheater replacements were routine in the industry?

A. So I think that this was discussed in the order and there was discussion about all hot end and cold end air baskets and the rotor being replaced. And so I think there is some understanding that that would be less common, is my recollection of the order.

Q. Okay. It may be less common if that's your recollection of the order. But are you saying that that was unreasonable for Ameren to have believed that work to be routine?

A. I think it depends on what their understanding was based on.

Q. Depends upon what was their scope of analysis, what they were looking at?

A. Yes.[10]

Q. Ms. Eubanks refers to an email where you appeared to distinguish the replacement of the economizer, reheater, lower slope, and air preheaters from "the routine maintenance that had to be performed" during the Unit 1 outage in 2007. Does this contradict your testimony?

A. No. Ms. Eubanks ignores the fact that under applicable accounting rules, some work is classified as capital because it involves the replacement of a retirement unit,[11] whereas everything else is classified as an O&M expense. "Routine maintenance" as referenced in my email quoted by Ms. Eubanks refers to O&M activities, not to the "routine

[10] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 138, l. 14 to p. 139, l. 19.
[11] A "retirement unit" is unit of capital property that is removed from plant in service upon a retirement of the unit to ensure that it is no longer depreciated.

maintenance, repair and replacement" language in the NSR regulations. The exclusion for "routine maintenance, repair and replacement" in the NSR regulations plainly covers "replacement" as well as "maintenance" activities, and I never understood the accounting treatment of a project to control whether a project required permitting.

Q. Ms. Eubanks, on page 32 of her Rebuttal Testimony, also takes issue with your description of the Rush Island Projects as "replacements" and suggests that this is not accurate. How do you respond?

A. I cannot understand that at all. Ms. Eubanks herself described the Rush Island Projects as "replacements" in her Rebuttal Testimony.

> Q. Please briefly describe the projects for Rush Island Units 1 and 2.
>
> A. … 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 2010 major boiler modification for Rush Island Unit 2 **consisted of replacement of the reheater, economizer, and air preheaters**. . . .[12]

Ms. Eubanks then pivots from her description of the projects as "replacements" to cherry-picking the phrases "significant boiler modifications"[13] or "major refurbishment"[14] used to describe the Rush Island Projects. Here again, Ms. Eubanks misses the point.

The issue for the Commission to decide is not whether the Rush Island Projects were excluded from permitting under the "routine maintenance, repair and replacement" exclusion in the NSR regulations. That issue has been decided in the courts, after the

[12] File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 6, l. 21 to p. 7, l. 6 (Emphasis Added).
[13] *Id.* at p. 32, l. 20.
[14] *Id.* at p. 33, l. 10.

District Court concluded that the regulations excluded only “de minimis” activities from permitting.

But that was not Ameren Missouri’s understanding of the law, as Messrs. Whitworth, Holmstead and Moor explain. Our understanding of the law was that the RMRR exclusion was broader, excluding projects that were routine for the industry. We considered “major refurbishment” of units and “significant boiler modifications” to be routine within the industry for the reasons explained by Mr. Whitworth, Mr. Holmstead and Mr. Moor. We did not understand RMRR to exclude only trivial or “de minimis” activities, the test that the District Court later applied, and that belief was reasonable for the reasons explained by Messrs. Whitworth, Mr. Holmstead and Mr. Moor.

Q. Ms. Eubanks notes that neither Ameren Missouri nor its expert at trial identified another instance in the industry in which these same four components were replaced at once. How do you respond?

A. Here again, Ms. Eubanks misses the point. The question is not whether the Rush Island Projects are excluded from NSR permitting as RMRR. The District Court decided that they were not, and this Commission is not asked to decide differently. The point is that the District Court made that finding after deciding two key legal questions: 1) what is the standard for RMRR? and 2) would the separate component replacements be aggregated together for purpose of the RMRR analysis, or analyzed (as Ameren Missouri did) on a component-by-component basis? In making its permitting decisions, we understood RMRR to exclude activities that were routine for the utility industry—an exclusion broader than that the Court ultimately applied (excluding only trivial, “de minimis” activities for the unit). In making these permitting decisions, we also focused on the individual components at issue, and did not aggregate the four of them together (in the case of Rush Island Unit 1) or the three of them together (in the case of Rush Island Unit 2).

For that reason, the fact that Ameren Missouri did not provide another example of this particular three-component (or four-component) combination at another plant is beside the point. The question is whether Ameren Missouri's understanding of the legal standards was reasonable, and whether it reasonably applied those legal standards to the Rush Island Projects in concluding no permits were required.

As Messrs. Whitworth, Holmstead and Moor explain, it was reasonable for Ameren Missouri to understand RMRR as excluding activities that were routine for the industry, beyond mere trivial or "de minimis" activities for the unit in question. And as Messrs. Whitworth, Holmstead and Moor also explain, it was reasonable for Ameren Missouri to apply this test on a component-by-component basis, and to conclude that these actions were excluded from permitting as RMRR.

Q. But does the fact the District Court record showed no other example of this particular combination of component replacements suggest it was unreasonable for Ameren Missouri to believe the Rush Island Projects were routine?

A. Not at all. Let me use an analogy to explain. A coal-fired unit consists of thousands of different components, all of which must work together for the unit to operate and each of which requires some periodic maintenance, repair or replacement. Scheduling projects during an outage is like filling up your plate at a buffet. You have a number of potential work items on the unit, and you have a number of potential food options at the buffet. You have a certain length of the outage for the unit, and a certain size of your plate at the buffet. In an outage, you will do the projects that fit the outage and provide the most benefit, based on component condition and need. And at any trip to the buffet, you may fill the plate with the contents of the buffet, as you wish. If I have low blood sugar, I may decide to add a piece of cake to my plate, beside the salad, side and entrée, rather than waiting and coming back a second time like other diners. Will my plate look different than most other plates around the restaurant? Of course. Does it mean that what I am doing is not routine? Of course not. Out of the whole restaurant, no two diners' plates will look exactly alike. The same is true of outages for electric generating units. No two outages are exactly alike—the scope (i.e., the particular components at issue) and the cost of outages will vary. This is illustrated by Schedule MCB-D2, attached to my Direct Testimony. See also the slightly updated version of that schedule included as part of Schedule MCB-S4 to this testimony.

Q. Ms. Eubanks cites the cost of the Rush Island Projects in comparison to the Rush Island plant's annual O&M budget. Does that contradict your testimony that Ameren Missouri considered the projects routine?

A. Absolutely not. Here again, Ms. Eubanks misses the point, citing a comparison that the District Court made in concluding that Ameren Missouri failed to convince him that the Rush Island Projects were RMRR. But the question here is not whether the Rush Island Projects were excluded from permitting as RMRR. The question is whether the Company reasonably believed that permits were not required for the Rush Island Projects. We understood that the standard for RMRR is "routine for the industry," not "routine for the unit" as declared years later by the District Court. The comparison of projects to the Rush Island O&M budget is relevant only for the "routine for the unit" test applied by the District Court, not the “routine for the industry” test that Ameren Missouri and the rest of the utility industry understood was required for RMRR.

In summary, at the time of the Rush Island Projects we had a different—but reasonable—understanding of the law on both the applicability of the Missouri SIP’s potential emissions exclusion I discussed in Section III and on the RMRR question I discussed in this section of my testimony. That the District Court later said our different but reasonable understanding was wrong isn’t the question; the question is whether it was unreasonable, years earlier, for us to have those understandings. It wasn’t, for the reasons discussed in our testimonies in this case.

IV. ESD’S PERMITTING DECISIONS ON RUSH ISLAND

Q. You have testified that Ameren Missouri reviewed the Rush Island Projects for permitting requirements, including NSR permits, prior to the outages. Does Ms. Eubanks offer anything to contradict that testimony?

A. No. In fact, Ms. Eubanks contradicts herself on this point. In her Rebuttal Testimony, on page 19, lines 16-18, Ms. Eubanks suggests that the Company “did not assess legal and environmental risks” around the Rush Island Projects. When pressed on this point in her deposition, however, Ms. Eubanks admitted that she has no facts to suggest that the Environmental Services Department failed to conduct a pre-project evaluation of the Rush Island Projects, as Mr. Whitworth testified occurred.

> Q. And in fact, I think you noted that in your rebuttal testimony. You noted his testimony saying that he reviewed the 2007 project outage scope before that occurred sometime in 2006. Do you recall writing that in your rebuttal testimony?
>
> A. Can you point to the page that you're thinking of?

Q. No. I don't have it committed to memory. And I think my pages are maybe off.

A. Maybe off a little bit? Okay. Let me look. Okay. So on Page 20, Line 12 through 13, I talk about Dave [sic] Whitworth's testimony in this case indicates to the best of his recollection he became aware of the 2007 project sometime in the summer of 2006.

Q. And do you recall that he also said that he reviewed the Rush Island projects for any permitting requirements before the outages commenced?

A. So I – my understanding is he personally did not review the 2010 outage. But I do think his testimony talks about the 2007 outage.

Q. Okay. And you're not disputing his testimony that says that there was a review of the 2007 outage projects for their potential permitting requirements, you're not disputing that, are you?

A. I don't have any evidence that -- other than what he has said that -- to say one way or the other.

Q. And you're not saying that the Commission should not believe his testimony on that point, are you?

A. No. I'm just saying that I don't have any evidence to support one way or the other, to offer the Commission.

Q. And with respect to the review that Environmental Services Department made of the 2010 Rush Island projects before the outage commenced, are you questioning that testimony at all?

A. Whose testimony?

Q. Mr. Whitworth's testimony.

A. You're saying in this case he said that -- I mean, I would have to probably re-read that part of his testimony.

Q. Okay. But as you sit here today, you’re not going to dispute any testimony that Mr. Whitworth has offered that there was a review prior to the 2010 outage of the projects?

A. So specifically a review and not a

quantitative kind of analysis that Mr. Hutcheson did that did -- that my understanding at least is after the project had commenced.

Q. Right.

A. So you're saying a qualitative review?

Q. Correct.

A. I don't have any information to, you know, state one way or the other.[15]

The Environmental Services Department had the job of reviewing projects for permitting requirements, and the testimony of Mr. Whitworth describes how this occurred for the Rush Island Projects. Ms. Eubanks offers no evidence to undermine that uncontradicted testimony of Mr. Whitworth.

The only piece of evidence that Ms. Eubanks does point to in her discussion of the ESD's assessment of the Rush Island Projects for permitting requirements is the Project Risk Management Plan documentation, and the fact that on one page of this package there is one box ("legal/environmental risk") that was not checked.[16]

I am familiar with the Company's Project Risk Management Plan process and documentation. This was part of the budget authorization process, not part of the ESD project review process. ESD did not use these documents to record the results of its permitting review and the Project Risk Management Plan did not apply to nor did it have anything to do with ESD's work. Indeed, even the District Court decision notes that these budgeting documents were not part of the ESD process for ensuring compliance with

[15] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 25, l. 1 to p. 27, l. 7.
[16] File No. EF-2024-0021, Claire Eubanks Rebuttal, p. 19, l. 21.

permitting requirements. Majors Schedule KM-s2 at 115 (¶ 385). Ms. Eubanks admitted this in her deposition:

> Q. Okay. And you said before that you had some indication that there was some requirement for Environmental Services to be involved in the project risk management process, did I understand you to say that correctly?
>
> A. Yes.
>
> Q. Okay. What are you basing that on?
>
> A. So that was attached as an exhibit to my testimony. At least -- and this is specific for -- well, there's two things. So for both projects there is a checklist in the work approval packages.
>
> Q. Before you get to the exact page, let's make sure we're on the same exhibit. Are you on Schedule 9?
>
> A. That's a good question. Yes, Schedule 9.
>
> Q. Okay. And that was the first page of what we just looked at as Exhibit 10 to your deposition?
>
> A. Right.
>
> Q. Okay. Thank you.
>
> A. Okay. So there's a project man -- excuse me -- project risk management plan, this is Page 12 of 91 of Schedule CME-R9. And the second Page includes risk factors having been addressed or not addressed and legal environmental is not checked.
>
> Q. Okay. Do you know what the scope of that legal environmental box was supposed to -- was supposed to refer to?
>
> A. No.
>
> Q. Okay. Do you know who were the folks that were supposed to check that box?

A. No.

Q. Do you know in what circumstances that box was checked?

A. No.

Q. But you understand that that box that you just referred to was part of the project risk management plan?

A. Yes.

Q. Can you turn to Page 115 of Exhibit 11?

…

A. 115. Okay. Yes. I'm there.

Q. Okay.

A. At the bottom.

Q. And you see in Paragraph 385 on that page it says the Environmental Services Department at Ameren is responsible for determining New Source Review applicability, do you see that?

A. I do see that.

Q. Okay. That was a finding by the District Court in the section?

A. That's right.

Q. And you're not disagreeing with that, are you?

A. That they have -- that they're responsible for determining New Source Review applicability or the entire paragraph?

Q. Just that sentence.

A. I am not disagreeing with that, no.

Q. Okay. It goes on to say, Environmental Services does not have any role in Ameren's capital project justification process. Do you see that?

A. I see that.

Q. Okay. Are you disputing that finding by the District Court?

A. I think that's based on Mr. Naslund's testimony. And certainly there's an indication that -- from that risk management plan that there potentially could be involved because it denotes that legal environmental review. So I really – I don't know.

Q. Okay. Yeah. The judge in that Paragraph 385 certainly cites some testimony. But his finding was the Environmental Services does not have any role in Ameren's capital project justification process, period?

A. Yeah. That's what he found.

Q. Okay. And you're not disputing the District Court's finding on that point, are you?

A. No.

Q. Okay. And then it goes on to talk about the project justification packages include a document called the project risk management plan. Do you see that in Paragraph 386?

A. I do.

Q. Okay. There's no indication here that Environmental Services ever used the project risk management plan, correct?

A. Yeah. In those two paragraphs, there's no indication of that.

Q. And the project risk management plan is part of the capital justification process, as you understand it?

A. As I understand it, yes.

Q. Okay. So it's not surprising that –

it's not surprising if the Environmental Services Department did not use that form that has the Environmental legal box on it from your Schedule 9, that wouldn't be surprising, would it?

A. I think it begs the question of who was supposed to check the legal and environmental risk of a project.

Q. Which you don't know?

A. I don't know.

Q. Okay. And so if the Environmental Services Department says they did not deal with or use those forms from the project risk management plan in the course of the Environmental Services Department's work, that would not surprise you, would it?

A. No.

Q. And that would be consistent with what we just read in Paragraphs 385 and 386 of the judge's findings, correct?

A. Yes.[17]

The budgeting documents cited by Ms. Eubanks therefore do not contradict the testimony of Mr. Whitworth about ESD's review of the Rush Island Projects for compliance with the permitting requirements, much less do they shed any light on why ESD concluded that no permitting was required, which is the central question for prudence. The undisputed evidence is that ESD was fully aware of the scope of the Rush Island Projects and based on its understanding of the law at the time, concluded NSR Permits were not required.

[17] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 101, l. 11 to p. 103, l.2; p. 103, l.9 to p. 106, l. 8.

V. TAUM SAUK

Q. Staff suggests that the process by which the Environmental Services Department made its permitting decisions on the Rush Island Project may have been flawed, citing the Taum Sauk impoundment failure. How do you respond?

A. I was Vice President of Power Operations at the time of the Taum Sauk impoundment failure. Unlike Ms. Eubanks, I have personal knowledge of the Taum Sauk impoundment failure, the subsequent investigation and the problems it uncovered, and how Ameren Missouri corrected those issues. Taum Sauk had nothing to do with the Environmental Services Department and how it made permitting decisions. ESD took no actions prior to the failure, nor did it have responsibility or need to do so, nor did any of ESD's work have anything to do with the failure.

The root cause of the impoundment failure at Taum Sauk was poor design and construction techniques (in the 1960s, when it was designed and built). Specifically, there were fine-grained soil materials in the core of the dam that should not have been there. The precipitating event for the dam failure was the failure of individuals *within Power Operations* to communicate with each other about the water levels behind the dam. This failure to communicate was a failure that occurred within the Power Operations department, the group at Ameren Missouri that maintains and operates the power plants. There was no issue with a failure to communicate any information to ESD.

After raising Taum Sauk in her rebuttal testimony and implying that it might have something to do with decision making around the Rush Island Projects, Ms. Eubanks admitted in her deposition that neither this incident nor any subsequent findings speak to how ESD did or should operate in making permitting decisions.

Q. So let's go to Exhibit 12, the Taum Sauk.

A. Okay. Exhibit 12.

Q. Exhibit 12, thank you. Do you recognize this?

A. I do.

Q. Can you just identify it for the identify [sic]?

A. It's Staff's initial incident report dated October 24, 2007 in the matter of an investigation into an incident in December 2005 at the Taum Sauk pump storage project owned and operated by the Union Electric Company doing business as Ameren UE.

Q. Were you on staff at the time that this report was prepared, Exhibit 12?

A. No.

Q. Okay. Did you have any involvement at all in the investigation into the Taum Sauk failure?

A. No.

Q. How did you come to learn about the Taum Sauk failure?

A. Initially I learned about it in college. I saw a presentation of the dam failure.

Q. And do you have an understanding of what the root causes of the dam failure were?

A. I have a -- well, the presentation was a long time ago and that was the topic of it. But I have a general understanding from either, you know, Staff discussions or potentially what's laid out in this incident report.

Q. What's your general understanding?

A. That there was an instrument that was available to, you know, read the level of the water behind the dam and it needed to be fixed and that was not done and the level of water was too much that the dam failed. Very general recollection of the incident.

…

Q. Okay. The Environmental Services Department had nothing to do with the Taum Sauk dam failure, did they?

A. Not to my knowledge, no.

Q. Do you know whether they had any involvement in the issue relating to the instrument and the water levels that we just talked about?

A. No That was not their responsibility.

Q. On Page 79 of this report there's a discussion there about overcompartmentalization?

A. Yes.

Q. If you could turn to that.

A. I'm there.

Q. All right. So if you read that section, starting on the bottom of 79 and over onto Page 80. Let me know when you're ready, I'll have some questions for you about it.

A. Okay. I've read it.

Q. Okay. So this is the discussion in the report about overcompartmentalization as a contributing factor to the Taum Sauk failure; is that correct?

A. Yes.

Q. And the problem that that created was a failure of communication?

A. That's correct.

…

Q. Just in that first sentence it's described by Tom Voss in the section entitled errors in judgment, engineers and operators at Taum Sauk failed to effectively communicate critical information to each other. Do you see that?

A. I do see that, yes.

Q. Okay. Was there ever any finding that there was a failure to communicate information to members of the Environmental Services Department in relation to Taum Sauk?

A. No.

Q. Was there ever any finding that there was a failure of the folks in power operations to communicate with others in the Ameren Services Company?

A. Specifically in staff incident report?

Q. As relates to Taum Sauk, yes.

A. Not that I'm aware of, no.

Q. Was there any criticism of the Environmental Services Department anywhere in the investigation report, Exhibit Number 12?

A. No.

Q. Was the Environmental Services Department given new plans or recommendations coming out of the Taum Sauk investigation?

A. So I did mention the project management plan, which is a schedule in my testimony.

Q. And do you know whether that was

specifically to guide Environmental Services Department operations?

A. Let me find the exhibit real quick. So this is part of confidential schedule CME-R2. And it starts on Page 5 of 25. And this is the project management process that Ameren submitted in response to the Staff's invest – initial incident report. And --

Q. Do you see any reference in any of that to changing ESD's procedures? You're flipping back and forth --

A. I know. I'm just looking for something in particular.

Q. Do we need to go off the record to find that?

A. We can do that.

(WHEREIN, the requested portion of the record was read by the court reporter.)

THE WITNESS: **So their internal procedures, no.** But I do think that the project management process was written in a way that Environmental Services, or Environmental Safety and Health and Legal would be involved in projects after The implementation of it which I believe it was January 2008.[18]

On further examination, Ms. Eubanks clarified her rebuttal testimony and noted she was not taking the position that any failures concerning Taum Sauk had anything to do with how ESD went about making its permitting decisions.

Q. So you talk about overcompartmentalization and financial pressure as documented in the Taum Sauk investigation as being relevant for the work that Environmental Services did in relation to determining whether the Rush Island projects required permitting. I want to go back to that topic.

[18] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 106, l. 9 to p 107, l. 22; p. 108, l. 2 to p. 109, l. 3; p. 109, l. 13 to p. 111, l. 21 (Emphasis Added).

A. Yeah. My testimony was not that that
was relevant to specifically the work that
Environmental Services did.[19]

Under subsequent examination, Ms. Eubanks admitted that the "overcompartmentalization" (in other words, the failure to communicate) and "financial pressure" she cited in her Rebuttal Testimony from the Taum Sauk report had no role in ESD's permitting decisions for the Rush Island Projects.

Q. Did the failure to communicate with
the Environmental Services Department about
availability impact from the Rush Island projects
have any role in the decisions that Environmental
Services made prior to the work that it didn't
trigger permitting?

A. I can't speak to what they did prior
to permitting because there's not documentation other
than Mr. Whitworth's testimony.

Q. So you're not saying that Ameren's
Environmental Services Department would have made a
different decision about whether the Rush Island
projects triggered permitting if it had been given
information about availability improvement?

A. I don't know if they would have or
not. But it may have changed their opinion.

Q. But you can't say that their opinions
would or would not have changed if they had
availability information?

A. I don't know.

Q. If the folks in the Environmental
Services Department thought that availability
improvement was not relevant to the permitting
decision then it wouldn't matter whether they had
that availability information, correct? They
wouldn't reach the same decision?

A. In the hypothetical that you laid

[19] *Id.*, p. 116, l. 23 to p. 117, l. 7.

> out, as far as I know it would not matter.[20]

This is not a hypothetical. It is a finding of the District Court, as Ms. Eubanks is well aware because she quotes it **twice** in her rebuttal testimony. "Mr. Hutcheson [in the Environmental Services Department] 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.'**"[21]

In addition to confirming that the "overcompartmentalization" was not a factor in ESD's permitting decisions, Ms. Eubanks admitted under oath that the "financial pressure" cited in the Taum Sauk report also had nothing to do with those decisions.

> Q. In any of your review of the case materials or the submissions in this case, did anybody in the Environmental Services Department indicate that they were under financial pressure?
>
> A. No.
>
> Q. Did anybody in the Environmental Services Department indicate that the reason that no permitting was required by that department for the Rush Island projects had anything to do with money?
>
> A. No.
>
> Q. Did Judge Sippel or any of the court opinions suggest that the reasons why Environmental Services Department concluded that no permits were Required for these projects had anything to do with money?
>
> A. No.[22]

---

[20] *Id.*, p. 118, l. 3 to p. 119, l. 5.
[21] File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 15, ll. 1-4; p. 30, ll. 31-34 (Emphasis Added).
[22] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 119, ll. 6-21.

Q. So, what relevance does Taum Sauk have to the issues this Commission must decide on the prudence of Ameren Missouri's permitting decisions?

A. None, as Ms. Eubanks admits in her deposition. Mr. Whitworth in his surrebuttal testimony confirms that nothing Ms. Eubanks offered in her Rebuttal Testimony concerning Taum Sauk described his experience working in ESD or affected ESD's permitting decisions regarding Rush Island.

VI. "AVAILABILITY" VERSUS "POTENTIAL EMISSIONS"

Q. Staff cites a number of findings by the District Court that Ameren Missouri should have expected that the Rush Island Projects would improve annual unit availability, and notes that these findings were upheld by the Court of Appeals. Doesn't that demonstrate imprudence?

A. Absolutely not. All that means is that, under the legal standards declared by the District Court and upheld by the Court of Appeals, NSR permits were required. But again, whether NSR permits were required is not the issue for this Commission to decide. The prudence question in this case is whether the Company reasonably believed, in the 2005-2010 period, that permits were not required. The primary reason that ESD concluded the projects did not trigger permitting requirements, as explained by Mr. Whitworth, is that they were not expected to increase potential emissions. Availability improvement (and any increase it might cause in actual emissions) has nothing to do with potential emissions, which are a function of the emissions rate at maximum designed capacity. Staff agrees with this.

> Q. I do want to make sure that we're on
> the same page about potential emissions. What does
> potential emissions mean to you?
>
> A. It's like the maximum amount it can

-- a unit can emit under, you know, full operation -- or, you know, ambient conditions. Probably horribly phrased.

Q. So at its maximum designed capacity?

A. Yes

Q. Now, as an environmental engineer you understand that the potential emissions from a unit has nothing to do with availability, correct?

A. Potential emissions has nothing to do with availability, that is correct.[23]

The District Court found that NSR permitting requirements apply if a unit increases its availability by a mere 0.3%, as Ms. Eubanks notes in her Rebuttal Testimony.[24] But that is a different test than that which Ameren Missouri understood was the law at the time of the Rush Island Projects, as Staff agrees.

Q. As you sit here today, is it your understanding that that approach that Ameren Missouri had was different from the determinations of law that Judge Sippel made for the legal standards applicable to permitting?

A. The testimony Ameren Missouri has provided in this case as to what their understanding of the law was at the time of the projects is different than what the judge found, yes.[25]

Given the facts and circumstances available to us at the time, nobody at the Company (to my knowledge) thought that increasing the availability of a unit would trigger permitting requirements under the Missouri SIP—much less that such a tiny change in availability would trigger NSR requirements.

[23] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 29, l. 23 to p. 30, l. 6; p. 40, ll. 17-21.
[24] File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 10, l1-30.
[25] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 21, ll. 10-18.

A coal-fired electric generating unit consists of thousands of components, as I described in my Direct Testimony. The failure of any one of them can affect unit availability. Many other things can impact unit availability as well, such as how the unit is operated or how planned outages are scheduled. This is something I explained to Staff back in 2003, as noted by Ms. Eubanks in her rebuttal testimony.[26] A unit is unavailable during planned outages, just as it is unavailable during forced outages. So, the greater the number of planned outage hours during a time period, the lower the unit availability. The "major unit overhauls" I described in 2003 and quoted by Ms. Eubanks are planned outages. The driver for moving to the "super outage" concept was reducing the number of planned outage hours, thereby improving unit availability, without having that offset by an increase in the number of forced outage hours (which would lower availability). We were looking for ways to reduce planned outage hours because planned outage hours—not forced outage hours or derates caused by boiler equipment problems—had the biggest impact on unit availability across the entire fossil fleet.[27]

The fact that lots of factors can impact unit availability is the very reason why availability was part of the Company's broad incentive program, cited by Ms. Eubanks in her Rebuttal Testimony.[28] This is also demonstrated in the availability data for Rush Island Unit 1 and Rush Island Unit 2 in the years leading up to the Rush Island Projects, reflected in the attached Schedule MCB-S1. Availability changed from year to year in the ten years

[26]File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 39, ll. 24-31.
[27] My 2003 response to Staff talked about changes in availability that could be obtained by changing the schedule for planned outages and the accumulated planned outage hours. I did not address the impact on availability that would be expected from any item of work to be performed during a planned outage.
[28] File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 15, ll. 9-10.

prior to the projects on each unit. Sometimes availability moved up, sometimes it moved down—but from year to year the change was always greater than 0.3%.

The District Court found that the Company should have expected and did expect that the Rush Island Projects would cause unit availability to increase more than 0.3%, and that such an expectation triggered the requirement to get NSR permits.[29] But that is beside the point here and had nothing to do with the issue of prudence, where the focus is on <u>why</u> we did not get NSR permits. The Company did not get NSR permits because—first and foremost—we understood the law to require permits only when a project would cause potential emissions to increase, and we did not think that increasing unit availability would change the potential emissions. Staff agrees that this is a reasonable conclusion, as I discuss above. The prudence question for the Commission to decide therefore comes down to whether the Company's understanding of the law (that only a potential emissions increase would trigger permitting requirements) was reasonable at the time of the Rush Island Projects. For the reasons set forth in the testimony of Messrs. Whitworth, Holmstead, and Moor I believe that understanding was reasonable.

Q. But Staff points out in their rebuttal testimony that the District Court stated that the Company's failure to obtain NSR permits "was not reasonable."[30] Doesn't that line from the District Court resolve the issue of prudence against the Company?

A. No, as I have already explained in my Direct Testimony, and as Mr. Holmstead and Mr. Moor explain in their Surrebuttal Testimonies. That line in the District

[29] *Id.* at p. 10, ll. 27-30.
[30] File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 11, ll. 23-25; File No. EF-2024-0021 Keith Major Rebuttal Testimony, p. 13, ll. 8-10.

Court's remedy decision cites to and refers back to the District Court's earlier liability opinion, in which the District Court held that the emissions calculations that Ameren Missouri developed after the fact and presented at trial through witnesses Michael Hutcheson and Sandra Ringelstetter, for the purpose of showing that the Rush Island Projects would not have been expected to cause actual emissions to increase, were not reasonable applications of the federal NSR regulations. As Staff acknowledges, these after-the-fact calculations were different from the Company's pre-project qualitative analyses described by Mr. Whitworth.

> Q. Okay. But as you sit here today,
> you're not going to dispute any testimony that Mr.
> Whitworth has offered that there was a review prior
> the 2010 outage of the projects?
>
> A. So specifically a review and not a
> quantitative kind of analysis that Mr. Hutcheson did
> that did -- that my understanding at least is after
> the project had commenced.
>
> Q. Right.
>
> A. So you're saying a qualitative
> review?
>
> Q. Correct.
>
> A. I don't have any information to, you
> know, state one way or the other.
>
> Q. And you understand that there was a
> difference between Mr. Hutcheson's
> calculations that occurred after the project began on
> Unit 2 and the pre-project review that occurred for
> Unit's 2 scope through the Environmental Services
> Department, that qualitative review?
>
> A. I have not seen any documentation of
> their qualitative review so I can't speak to whether
> his quantitative analysis was different than the
> qualitative analysis they may or may not have done.

Q. So we're really talking about two
different things, the qualitative analysis that you
say may or may not have been done and then the Mike
Hutcheson's calculations which came after the fact,
those are two different things you understand?
A. They are two different things, yes.[31]

The District Court's rejection of our trial calculations as not reasonable has nothing to do with our legal position on potential emissions as the relevant trigger for permitting requirements to apply under the Missouri SIP or with our legal position on the proper scope and application of the RMRR exclusion, or the reasonableness of ESD's pre-project assessments of the Rush Island Projects for NSR permitting requirements.

VII. EPA'S NEW SOURCE REVIEW ENFORCEMENT INITIATIVE

Q. If the Company believed that the Rush Island Projects did not trigger NSR requirements, then why did it consider settling NSR claims with EPA?

A. In the mid-2000s, EPA proposed a number of rules that would tighten the emissions requirements from coal-fired power plants, independent of any NSR requirements. As any prudent utility would, Ameren Missouri studied the potential impact of these rules to determine what additional controls would be required for its coal-fired plants, and when those controls would need to be installed. At the same time, EPA had launched an investigation of NSR compliance on Ameren Missouri's affiliates' Illinois fleet. One outcome of that investigation in Illinois was discussion of a potential resolution of disputed NSR claims. Even <u>before</u> EPA expanded its investigation to Ameren Missouri, EPA's position was that settlement should cover both the Illinois plants <u>and</u> Ameren Missouri plants.

[31] File No. EF-2024-0021, Claire Eubanks Deposition, <u>supra</u>, p. 26, l. 19 to p. 27, l. 23.

Thus, in developing the environmental compliance plans for Ameren Missouri, it was reasonable for the Company to consider whether the sort of Ameren-wide settlement demanded by EPA would require anything more than what EPA's CAIR would require. And Staff agrees that is what a prudent utility would do, as confirmed by Ms. Eubanks in her deposition.

> Q. Would it have been reasonable for the
> Company to consider settling potential NSR claims if
> it was going to have to put the controls on anyway as
> a result of EPA rules like CAIR?
>
> A. Yes, I think that would be reasonable.[32]

But that does not mean we thought there was some risk that any of the completed or upcoming Rush Island Projects (or any project) had triggered NSR or would trigger NSR in the future. Staff agrees with that. When examined about the schedules attached to her rebuttal testimony referencing settlement talks with EPA, Ms. Eubanks confirmed this fact.

> Q. Is there anything in this document[33]
> that indicates to you that the Company believed it
> had triggered New Source Review on any Rush Island
> project?
>
> A. No.
>
> Q. Or that it would trigger New Source
> Review for any upcoming Rush Island project?
>
> A. No.
>
> Q. And you understand that the
> settlement of New Source Review claims with EPA
> typically take the form of consent decrees?
>
> A. That's my understanding, yes.
>
> Q. And one example of that is Exhibit 16

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[32] File No. EF-2024-0021 Claire Eubanks Deposition, <u>supra</u>, p. 155, l. 3-8.
[33] The document referenced is Schedule CME-R3 in Ms. Eubanks' Rebuttal Testimony and marked as Exhibit 15 to her deposition. Eubanks Deposition, <u>supra</u>, p. 151, ll. 2-15.

which you have in front of you. Do you see Exhibit 16?

A. I see Exhibit 16.

Q. And is it your understanding that in settling an NSR case that the [c]ompany maintains its position it did not violate New Source Review? Is that typically what you understand the companies do?

A. I have seen that happen, yes.

Q. Okay. So if you look at Page 1, it's the page numbered one of this Exhibit 16, you see the final whereas clause at the bottom of the page?

A. Yes.

Q. It says, whereas Westar has denied and continues to deny the violations alleged in the complaint?

A. Yes.

Q. Okay. And this is a complaint for New Source Review violations that we talked about in the rate case, right?

A. I don't know that – I don't recall If we talked about it or not.· But I believe this is the Jeffrey Unit 2.

Q. Correct.

A. Yes.

Q. A New Source Review case?

A. Yes.

Q. Okay. So it was not the case that Westar had to confess that it was liable for violating New Source Review in order to settle the case, right?

A. I'm not aware of that, no.

…

Q. So going into a settlement discussion
In your mind with EPA would not indicate some sort of
guilty knowledge that the utility thinks it violated
New Source Review?
A. No.[34]

Therefore, in developing its environmental compliance plans, the driver was always CAIR (and later its replacement, CSAPR) and what those rules required for compliance, because those were the only regulations we thought would require the retrofit of controls on any Missouri units. So, yes, given that it appeared that CAIR might require adding controls to the Rush Island units anyway, and EPA's own linkage of NSR violations it had alleged as to our affiliates' Illinois plants to Ameren Missouri plants, it might have made sense to agree in a settlement to add controls to Rush Island even if we believed there were no NSR violations with respect to Rush Island. As I discuss later in my testimony, we did believe that CAIR could require that we add scrubbers to Rush Island, which is why we performed engineering and specification development work to add scrubbers to Rush Island. As it turned out after the rules were pared back after litigation over them, neither CAIR nor its replacement CSAPR ended up requiring that we add scrubbers to Rush Island. Given that we were not otherwise required to scrub Rush Island and our belief that we had not violated the NSR requirements, we did not settle with EPA, but it made sense to consider it. As Company witness Michels' Surrebuttal Testimony indicates, by not settling and scrubbing Rush Island, we saved customers hundreds of millions or as a much as a billion dollars or more.

Q. Regarding the Company's environmental compliance planning, Ms. Eubanks attempts to draw a negative inference from the fact that the Company could

[34] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 156, l. 11 to p. 158, l. 4; p. 158, l. 11 to l. 15.

not locate any documents responsive to Staff Data Request 11.1, which sought documents related to a line in a 2007 memo suggesting that in developing the Company's environmental compliance plan for CAIR, the Company analyze the potential impact on that plan of a NSR violation being found.[35] How do you respond?

A. I will put aside the question of whether it is reasonable for Ms. Eubanks to expect the Company to retain internal correspondence for more than sixteen years and go to the heart of the issue. I was personally involved in the Company's environmental compliance planning in this time period. That environmental compliance planning process was separate from the ongoing work by ESD to review projects as they came up, and did not attempt to duplicate it. Re-review of projects for potential NSR applicability was beyond the purview of the environmental compliance planning team, and thus not part of anything that team asked the Legal Department to do. What the environmental compliance planning team did do was evaluate what CAIR (and later CSAPR) would require for compliance and consider whether the environmental compliance plan would be sensitive to a scenario in which NSR would hypothetically be triggered (e.g., if CAIR required scrubbing anyway, the plan might not change even if NSR were triggered).

Ameren Missouri had been following the NSR enforcement initiative through its membership in the Utility Air Regulatory Group, where the Company was represented by Mr. Whitworth, in-house counsel, and others. We therefore knew what EPA asks for in such litigation: the imposition of additional controls (such as a scrubber for sulfur dioxide) and the forfeiture of allowances. And as Ms. Eubanks herself notes in her rebuttal testimony, this is something I explained to the OPC in 2009. Although I cannot state with

[35] File No. EF-2024-0021, Claire Eubanks Rebuttal, p. 18, l. 6 to p. 19 l. 15.

precision when I gained this understanding of what would be on the table in an NSR enforcement suit, because I was in frequent dialog with in-house counsel about NSR requirements and EPA's NSR enforcement initiative over the years, I believe that this understanding that I relayed to the OPC would have been the product of such conversations. At no point in any of my discussions with in-house counsel do I recall anybody taking the position that Ameren Missouri likely violated the law. From my discussions with both ESD and in-house counsel, I saw no misalignment on the relevant legal standards for determining permitting requirements.

Q. But don't Staff and Mr. Seaver suggest that the Company perceived some risk of being found in violation when it undertook the Rush Island Projects?

A. That is not Staff's position. Although Ms. Eubanks' Rebuttal Testimony could be read that way, she clarified at her deposition that she asserts no such thing.

> Q. If you could turn to -- I think it's on Page 17 of your rebuttal testimony.
>
> A. Okay. I am there.
>
> Q. I don't know if it's exactly Line 30 but there's a question that says are there other contemporaneous documents suggesting that Ameren Missouri understood the risk of violation before approval of the 2010 project. Do you see that?
>
> A. Yes. That begins on Page 18.
>
> Q. Okay. Great.
>
> A. On my version.
>
> Q. All right. And then your answer is, yes, correct?
>
> A. Yes.
>
> Q. Okay. Are you saying that Ameren believed that these Rush Island projects risked

triggering New Source Review?

A. **No. I'm saying that there are documents from the time that suggest to Ameren Missouri that violating New Source Review has risks.**

Q. Okay. But you're not saying that Ameren employees understood that these specific Rush Island projects risked triggering New Source Review?

A. I think the only document -- **no**.

Q. No, you're not saying that Ameren employees thought that these specific Rush Island projects risked NSR triggering?

A. These documents talk about Ameren Missouri's understanding of New Source Review and the risks related to, you know, either a violation or triggering New Source Review not specifically the Rush Island 2007 and 2010 project.

Q. Was there any documentation that you saw that indicated to you that an Ameren employee thought that those specific Rush Island projects risked triggering New Source Review?

A. **No.**[36]

Ms. Eubanks is correct: the documents that she describes on page 18 and 19 of her Rebuttal Testimony, some of which were cited by the District Court, do nothing more than show we were aware of what the consequences for violating NSR would be—not that we believed any project had triggered or would trigger NSR.

Q. Did Ameren Missouri believe that the Rush Island Projects risked triggering NSR?

A. No. We did not believe the Rush Island Projects triggered permitting requirements, and we did not find it likely that a court would disagree with us down the road. That was a reasonable position, as Messrs. Whitworth, Holmstead and Moor explain.

[36] File No. EF-2024-0021, Claire Eubanks Deposition, supra, p. 140, l. 9 to p. 141, l. 20 (Emphasis Added).

Q. But didn't the District Court make a contrary finding?

A. No. Ms. Eubanks quotes from the District Court remedy decision, where the District Court stated that certain documents "indicate" that the Company "was aware of the possibility" that NSR would be triggered at Rush Island.[37] We agree with the way the District Court qualified its language because the document it discusses—a May 13, 2009 memo from third party contractor Black & Veatch—does not evaluate any project for NSR applicability, much less the Rush Island Projects at issue, as Ms. Eubanks acknowledged in her deposition in the testimony I quote above.[38] The "risk" discussed in that document by Black & Veatch is the risk that if EPA raises a NSR issue with Ameren Missouri, it could impact the schedule for the installation of scrubbers that was otherwise – apart from any NSR considerations – established by the Company's then-current Environmental Compliance Plan for CAIR and CSAPR. Because the installation of scrubbers on a unit would likely moot any NSR claim for such unit, the Company could adjust the schedule for installation in case any NSR claim came up. And that is precisely what I meant in the

[37] File No. EF-2024-0021, Claire Eubanks Rebuttal Testimony, p. 18, l. 26 to p. 19, l. 5 (quoting paragraph 398 of the District Court remedy decision).

[38] A subsequent July 2009 Black & Veatch report was submitted by the Company in its 2009-2010 rate case (File. No. EA-2010-0036) in support of the estimated retirement dates included in its depreciation study. It was an actuarial study of hundreds of other coal plants around the country performed to estimate how long the Ameren Missouri units would live. It had nothing to do with NSR permitting and did not analyze NSR permitting requirements. Schedule LWL-E1 to the Direct Testimony of Black & Veatch engineer Larry W. Loos, File No. ER-2010-0036 ("In this report we provide informed estimates of the retirement dates for the four Union Electric Company d/b/a AmerenUE (AmerenUE or Company) coal-fired plants. We base our estimated retirement dates on AmerenUE's actual retirement history, our assessment of the plants' current condition, our understanding of planned capital expenditures, life spans of other US coal plants, and engineering and environmental compliance considerations. *** The most important factor in determining the depreciation rate for unit property is the informed estimate of the final retirement date. In forecasting final retirement dates for AmerenUE's coal-fired plants we consider actuarial analysis of historical experience of the interim and final retirements of AmerenUE's coal-fired generating facilities, planned capital additions, the age at retirement of plants retired in the US, expected dates of retirement for comparable plants in the US, the current condition of AmerenUE's plants, and engineering and environmental considerations.").

discussion I had with members of the OPC in June 2009, as reported by Ms. Eubanks on page 19 of her Rebuttal Testimony. Did Ameren Missouri know the consequences of an NSR violation? Yes, of course. But that does not mean we thought an NSR violation had occurred or would occur.

Q. What does Mr. Seaver say about this?

A. Mr. Seaver fundamentally misstates my Direct Testimony when he cites it about EPA "flip-flopping" <u>during the course of the litigation</u> on what was or was not an alleged violation by Ameren Missouri,[39] and says that such testimony shows that Ameren Missouri incurred an unreasonable risk in proceeding with the Rush Island Projects without seeking NSR permits. My description of EPA's flip-flopping on its allegations against Ameren Missouri covered <u>only</u> that period of time <u>after</u> receipt of the initial EPA notice of violation. No fair reading of my Direct Testimony could lead one to think otherwise. The problem for Mr. Seaver is that this flip-flopping by EPA in its contentions about what Ameren Missouri did wrong, as I describe in my Direct Testimony, all <u>postdated</u> the relevant decisions made by ESD, which were made before the Rush Island Projects began. Because EPA's flip-flopping in its contentions about what Ameren Missouri did wrong are entirely post-decisional, and not part of the facts and circumstances available to the Company when we made the decision that permits were not required, that flip-flopping by EPA cannot form the basis of any claim of imprudence around the Company's permitting decisions. Company witness John Reed's Direct Testimony discusses in detail that hindsight cannot be used to judge a utility's decisions, including his direct quotes to the Commission's own statements stating as much.

[39] File No. EF-2024-0021 Jordan Seaver Rebuttal Testimony, p. 3, l. 23 to p. 4, l. 2 n. 2 (citing Birk Direct, p. 20, l.. 13 to p. 21, l. 26).

Given the law as we understood it at the time, the public statements by EPA about the application of the law, the statements by MDNR about the law and MDNR's application of the law to similar projects in Missouri, and the fact that courts were largely rejecting EPA's NSR claims—all as explained by Messrs. Whitworth, Holmstead and Moor—we did not believe that there was a significant risk that the Rush Island Projects would trigger NSR. I firmly believe that this belief was reasonable at the time, given the facts and circumstances that were available to the Company. And I firmly believe that the conclusions we made then—that permits were not required for the Rush Island Projects—were prudent and reasonable.

VIII. RUSH ISLAND-SPECIFIC SCRUBBER STUDIES

Q. Earlier you referenced studies related to a possible addition of scrubbers at Rush Island to apply with CAIR (unrelated to any NSR considerations). Mr. Lansford has included the cost of these studies in the Energy Transition Costs in this case. Please explain what these studies are and why they were done.

A. As discussed in more detail below, the Company commissioned two Rush Island-specific scrubber studies in the 2010 – 2011 timeframe, one from engineering firm Black & Veatch and one from engineering firm Shaw. As I referenced earlier, the Company commissioned the studies as part of its ongoing environmental compliance planning to ensure it could timely comply with anticipated federal environmental regulations being proposed around the time the studies were conducted but ultimately the Company was able to comply with final regulations without installing expensive FGD equipment at Rush Island. Therefore, the projects (the costs of which were properly recorded to construction work in progress ("CWIP")) did not result in actual construction and will be abandoned upon the plant's retirement later this year.

Staff witness Majors argues that the cost of the studies should not be included in the Energy Transition Costs. Specifically, Mr. Majors indicates that Staff "recommends exclusion of costs related to a study for the installation of environmental equipment that was never used and useful nor would have been in the near future."[40] The studies cost approximately $9 million.

Q. Why is it appropriate to include the cost of these studies in the Energy Transition Costs to be securitized in this docket?

A. First, for reasons I will discuss below the costs were prudently incurred in good faith. Second, as the Commission recognized in the only other power plant retirement securitization case it has heard, which involved Empire's Asbury coal plant, capital projects that were started but not completed due to the retirement of a plant are eligible Energy Transition Costs within the terms of the securitization statute.[41] In fact, much like the FGD studies at issue in this docket, the abandoned project costs which the Commission approved for inclusion in Empire's Energy Transition Costs were also projects undertaken (but not completed since Asbury retired) to comply with upcoming environmental regulations.[42] The facts appear to be that had Asbury not retired, those CWIP environmental projects would have been completed but since retiring Asbury was more economical than not retiring it, the projects were abandoned. Similarly, we know that given

[40] File No. EF-2024-0021 Keith Majors Rebuttal Testimony, p. 3, ll. 4-6.
[41] *Amended Report and Order*, File Nos. EO-2022-0040, EO-2022-0193, p. 67, Conclusion of Law UU.
[42] Surrebuttal Testimony of Empire witness Charlotte Emery, Ex. 8, File Nos. EO-2022-0040, EO-2022-0193, p. 26, ll. 6-8 ("These projects were undertaken a number of years ago in good faith to comply with upcoming environmental regulations."); *Amended Report and Order*, supra, p. 66 (Identifying the projects at issue as "abandoned environmental capital projects").

the federal district court's 2019 remedy order, the only way that we could have continued to operate Rush Island – if doing so had been in customers' best interest – would have been to install FGD, in which case, those FGD studies would also have been useful.

Q. Mr. Majors seems to make something of the fact that these FGD study projects may not have been "actual physical projects that would have been used and useful and in service in the near future" as an apparent means to distinguish them from other abandoned capital projects Staff agrees should be included in the Energy Transition Costs.[43] Does the distinction he is apparently trying to make matter?

A. No. This appears to be a variation on a "used and useful" argument, but the Commission has also specifically concluded that the question of used and useful does not control whether abandoned project costs are properly included in Energy Transition Costs in a securitization case.[44]

Q. **Please provide some additional context regarding why these capital project costs were incurred.**

A. As discussed in Schedule MCB-S5 attached to my surrebuttal testimony, we explained the projects to Staff and other stakeholders during a semi-annual environmental compliance briefing at the Commission's offices in 2009. One of the key EPA rules at issue at that time was the Clean Air Interstate Rule ("CAIR") which required large emissions reductions for both NOx and SO2 in the by the end of 2015. We were thus in a situation where we might be able to use our SO2 emission allowances to avoid installing FGD at Rush Island (this would depend in part on the outcome of CAIR-related litigation which was ongoing at the time) but there was also a significant risk that we would

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[43] File No. EF-2024-0021 Keith Majors Rebuttal Testimony, p. 3, ll. 2-3.
[44] *Amended Report and Order*, supra, p. 67.

be unable to comply without installing FGD at Rush Island and that we would need to have the FGD units running by January 1, 2016. To ensure that we could timely comply – because designing, engineering, permitting, and placing FGD in service is a multi-year process -- we believed it was necessary and prudent for us to commission Rush Island-specific studies that would then be used to bid actual FGD installations if that compliance option became necessary.

Q. Did Staff or any other stakeholder indicate at that time, or at any time, that the studies should not be undertaken, that they weren't necessary as part of the Company's environmental compliance planning?

A. No, they did not.

Q. FGD installations did not become necessary, right?

A. That's right. A combination of final CAIR regulations that were not as onerous as proposed and actions we took to switch our fuel supply to ultra-low sulfur coal allowed us to avoid installing expensive FGD equipment. And then after the Eighth Circuit Court of Appeals ruled in the litigation, when faced with being forced to install FGD to keep the plant open versus retiring it, we made the choice that was in customers' best interest (as Mr. Michels' direct and surrebuttal testimonies demonstrate – and a fact with which Staff agrees) – to retire the plant rather than install FGD.

Q. Mr. Majors "question[s] the relevance and usefulness" of the studies due to their age, suggesting they may be obsolete.[45] How do you respond?

A. Mr. Majors misses the fundamental point: we undertook the studies prudently and in good faith in response to What EPA's proposed CAIR would have

[45] File No. EF-2024-0021 Keith Majors Rebuttal Testimony, p. 17, ll. 17-20.

required. The studies were used by the Company to prepare for the large emission reductions required under the then-anticipated regulations, and they were pursued as part of our service obligation to customers to plan for compliance with future regulations.

Further, had the Company decided to install scrubbers after the Eighth Circuit Court of Appeals affirmed the District Court's liability ruling, the studies would have been used as the starting point for planning the installation of scrubbers at Rush Island, because they are plant and site specific and the technology, configuration, and capacity of Rush Island have not changed in any significant way.[46] However, because closing the plant was in customers' best interests, the studies cannot be used not, and therefore, the costs should be included in Energy Transition Costs because the plant's closure now requires that the costs be abandoned.

Q. And after the District Court's decision, as discussed by Mr. Michels in his direct and surrebuttal testimonies, the Company determined that it was not in customers' best interest to install that equipment in response to the court decision, correct?

A. Yes. After the Eighth Circuit upheld the District Court's ruling on liability, we continued to look for a more cost-effective compliance option for customers and when we found one, we stopped spending on the study projects – we never imposed hundreds of millions of dollars of scrubber costs on our customers. When we found one, we stopped spending on the planning and installation of scrubbers at Rush Island, and therefore we never imposed hundreds of millions of dollars of scrubber costs on our customers. Instead, we made the retirement decision in 2021, also in our customers' best interest.

[46] The studies in fact informed estimates we made to make decisions about whether we should install scrubbers.

Q. OPC witness Manzell Payne also opposes inclusion of the FGD study costs in the energy transition costs. Do you have any comments on Mr. Payne's position?

A. Mr. Payne appears only to oppose including these costs in the Energy Transition Costs but does not necessarily oppose recovery of them by some other means. Company witness Mitch Lansford will address that issue in his surrebuttal testimony.

Q. Does this conclude your surrebuttal 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	)	EF-2024-0021
of Securitized Utility Tariff Bonds for	)	
Energy Transition Costs related to Rush	)	
Island Energy Center.	)	

AFFIDAVIT OF MARK C. BIRK

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

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

My name is Mark C. Birk, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Surrebuttal Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

/s/ Mark C. Birk
Mark C. Birk

Sworn to me this 22nd day of March, 2024.

Micro GADS Gold

5/5/2021 3:06:38 PM

Performance Summary Report

Baseload Coal - Labadie, Rush Island and Sioux - Baseload Coal - Labadie, Rush Island and Sioux

Report Period: 1984 to 2020

Rollup Weighting: MAX

Calculations done with NERC OMC conversion method. If there are OMC events, they have been excluded from the factor and rate calculations

Rush Island - Rush Island 1

DATE	GAG	NAG	SH	OH	Starting Att	Starting Act	Starting Rel	GHR	NHR	FOR	EFOR	EFORd	EAF	GCF	NCF
1997	3,721,120	3,507,339	7819.80	940.20	23	23	100%	9,794	10,391	2.86	5.43	5.43	86.36	69.07	68.32
1998	3,940,756	3,726,246	7651.27	1108.73	15	14	93%	9,861	10,428	4.92	10.77	10.77	81.34	73.15	72.59
1999	3,699,829	3,510,300	7042.38	1717.62	16	14	88%	10,125	10,672	2.49	5.05	5.05	77.94	68.68	68.38
2000	4,236,405	3,996,707	8127.65	637.52	21	20	95%	9,924	10,519	3.82	10.17	10.16	86.29	78.42	77.64
2001	3,189,097	2,996,862	5879.25	2880.75	22	21	95%	9,866	10,499	16.92	18.11	18.11	65.93	59.06	58.25
2002	4,418,104	4,183,498	7667.90	1092.10	16	16	100%	10,028	10,591	12.47	13.25	13.25	86.3	79.43	78.94
2003	4,556,947	4,314,312	8269.57	490.43	21	20	95%	10,060	10,625	2.62	4.66	4.66	91.99	81.92	81.41
2004	3,918,197	3,703,228	6712.57	2038.23	16	15	94%	9,880	10,453	21.8	22.15	22.06	76.46	70.62	70.19
2005	4,469,605	4,225,196	7663.72	1096.28	20	20	100%	9,440	9,986	11.27	12.12	12.12	86.54	79.90	79.39
2006	4,616,891	4,345,947	8328.88	431.12	11	9	82%	9,533	10,128	2.91	4.71	4.71	93.03	84.19	83.65

Schedule MCB-S1

Rush Island - Rush Island 2

DATE	GAG	NAG	SH	OH	Starting Att	Starting Act	Starting Rel	GHR	NHR	FOR	EFOR	EFORd	EAF	GCF	NCF
2000	4,122,553	3,898,859	7456.27	1327.73	17	15	88%	9,764	10,325	2.66	5.43	5.43	82.14	76.31	75.74
2001	3,790,124	3,578,343	7058.75	1592.60	21	21	100%	9,933	10,521	16.7	19.32	19.12	79	70.35	69.71
2002	3,499,300	3,300,076	6425.23	2334.77	28	24	86%	10,045	10,652	8.34	9.37	9.37	72.26	64.95	64.29
2003	3,857,635	3,626,909	7134.20	1625.80	22	21	95%	10,067	10,708	4.78	7.38	7.38	79.12	71.74	70.80
2004	4,011,528	3,788,793	7082.23	1701.77	23	22	96%	9,943	10,528	11.23	13.95	13.95	77.64	72.30	71.81
2005	4,972,919	4,696,883	8566.23	193.77	3	3	100%	9,458	10,014	0.3	1.88	1.88	96.24	88.91	88.26
2006	4,660,050	4,390,443	8159.08	600.92	16	12	75%	9,528	10,113	4.38	5.45	5.45	91.78	84.98	84.67
2007	4,502,596	4,236,129	8364.32	395.68	5	5	100%	9,555	10,156	3.08	5.36	5.36	93.24	82.10	81.79
2008	4,475,659	4,209,132	8294.42	489.58	12	12	100%	9,651	10,262	4.1	6.15	6.15	92.4	81.39	80.93
2009	4,020,352	3,766,278	7905.17	854.83	11	11	100%	9,802	10,464	4.75	5.94	5.94	88.92	73.41	72.79

Schedule MCB-S1

Post Outage Report
2007 Unit 1 Spring Outage

February 17, 2007 to May 28, 2007

Gen Supervisor Outages: Jerry Odehnal
Operations Coordinator: Keith Kraenzle
Capital Projects: Tim Pettus

Outage Critique: June 22, 2007

DEFENDANT'S EXHIBIT
S

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176	Replace Unit Transformer LV Bushing & Mounting Studs (Herb Fischer)
176	SYE – Replace U1 GSU Transformer (Tom Buhr)
177	Replace V4 Breaker (Greg Presti)
177	TRB – Install New Main Turbine & HPBFPT TSI (Dave Pruyn)
177	Overhaul LP1 Turbine (Bob Huneke)
177	Inspect LP2 Turbine (Dan Schaeffer)
178	Replace Steam Chest Vent Valves (Kevin Dohle)
178	Install Digital Turbine Oil Reservoir Level Gauge (Kevin Dohle)
178	Refurbish LF & RT Side Throttle and Governor Valves (Scott Wibbenmeyer)
178	Inspect HP/ IP Turbine blade Path (Scott Wibbenmeyer)
179	Install EH System Pall Ion Exchange Filter (Scott Wibbenmeyer)
179	Replace Turbine Seal Oil Backup Pump (Kevin Dohle)

Executive Outage Summary Report
Rush Island Unit #1
February 17, 2007 – May 28, 2007

The Unit was shut down on Friday, February 16, 2007 @ 22:30 PM for the plan Major Boiler Outage. Operations began there scheduled off-line cleaning on schedule. However, the RH area was found to be heavily built up with slag. As a result cleaning of this area delayed the installation of the Boiler Maintenance Work Platform (BMWP) by 24 hours.

Alstom was responsible for installation of the Major Capital boiler components (RH, Economizer, Lower Slope and Air Pre-heater replacements) and the O&M maintenance work in their area of responsibility. Scheck performed the boiler maintenance directly above the BMWP and burner area. As a result of manpower constraints and delays in the schedule, Scheck absorbed additional maintenance work from Alstom and the slag diverter capital work in the back pass. In addition, the plant forces took back the O&M work on the upper slope area. Haberberger replaced the hot water coils with steam coils. Sachs Electric replaced the GSU transformer and replaced the Generator exciter. Paynecrest installed the Power Station Construction Bus project, V4 breaker in the switchyard and installed the main turbine and HPBFP and turbine TSI. Wood group performed all of the turbine maintenance this outage. Plant forces and GCMS performed the balance of the plant work.

Significant unexpected work which impacted budget and resources were the Main Turbine Throttle valve seat replacement, 1D Boiler Circ Water pump overhaul, A&B Circ Water Discharge Valve repairs, A&B HPBFPT Discharge Valve repairs and the repairs to the Unit 2 stack liner support.

Our original critical path was calculated through the Lower Slope replacement and Bottom Ash Pit maintenance work. As the project progressed, the critical path moved to the Reheat replacement due to wind delays and manpower management of the overall capital scope that Alstom had under their area of responsibility. The result of delays extended the outage by 7days, 14 hours and 25 minutes from our original release date of May 20, 2007 @ 23.30 PM.

The Unit was chemically cleaned prior to release for startup. Testing of the exciter was accomplished by Goldfinch during the startup process. No significant startup issues were noted and the unit returned to service on May 28, 2007 @ 13:55 PM.

Subsequent to the unit release to load dispatch, the unit tripped as a result of DA Level Control Valve LV-113 on June 07, 2007 @17:05 PM. In addition, during a routine valve test the main turbine LF upper Intercept failed. A Unit outage is scheduled for the fall of 2007 to repair the damaged valves.

Outage KPI's:

Safety – Plant (0) Recordable Injuries Construction (6) Recordable Injuries
Schedule – Original Return Date May 20, 07 Due to construction delays the actual return date was May 28, 07.
Budget – O&M Goal $9,701,048 Final 12,450,499 The plant received a variance for the Stack and Turbine Throttle valves which totaled $793,513. Capital Goal $48,569,584 Final $53,757,038.
Quality – The Plant received (0) deficiencies Construction received (4) deficiencies.

Reason for Outage: Scheduled Unit Overhaul and Capital improvements. The Major Capital projects are as follows:

Reheater –Economizer and Lower Slope Replacement – Project 11506
GSU Transformer Replacement – Project 13372
Generator Exciter Replacement – Project 13376
Hot Water Air Heater Replacement – Project 14045
A&B APH Replacement – Project 14746
Turbine Supervisory Instrumentation Upgrade – Project 14810
Power Station Bus Installation Phase 1 – Project 20176
345 KV "V4" Generator Breaker Replacement – Project 21265

Critical Path: Reheat Outlet Header and Tubing Replacement, Boiler Chemical Cleaning and Exciter Testing

Maintenance Released the Unit after Chemical Cleaning: May 24, 2007 @ 18:30 PM

Unit Returned to the Bus: May 28, 2007 @ 13:55 PM

Total Outage Time Bus to Bus: 100 Days, 15 Hours, 25 Min.

Total Outage Labor Hours and Cost: 448,539 Hours @ $66,207,537

Labor Actual Hours:	Maintenance	Technicians	Operations	Contractor	Outage Total
Straight Time:	30,951	3849	384 *	324,055	359,239
Overtime	3686	1147	6413 **	78,054	89,300
Total Hours	34,637***	4996	6797	402,109	448,539

* Note – Straight time man-hours do not include startup and shutdown
**Note – This includes 1128 man-hours Operations OT for cleaning.
*** Note – Maintenance total reflects 2,266 man-hours of Maintenance work by POE/E,M,R's

Outage Cost:		**Boiler Cleaning Cost:**	
Contract Labor O&M	$7,297,817	Expro Preoutage Water Blasting	$40,863
Contact Labor Capital	$25,088,411	PMS Preoutage Cleaning	$5,125
Ameren Labor O&M	$1,947,742	Odesco Preoutage Vac Cleaning	$2,763
Ameren Labor Capital	$3,258,151	Odesco Outage Vac Cleaning	$73,252
		Expro Explosive Cleaning	$29,230
		Hartland Pump Rental	$8,903
		Scaffolding for Cleaning	$4,483
Total Labor	$37,583,177	Total Cleaning Cost	$164,619

O& M Material Cost	$2,179,972
Capital Material Cost	$20,763,152
Scaffolding Costs	$1,347,528
Other Costs	$3,921,362 (Consulting, Material Loading, Rentals)
Chemical Cleaning	$247,727
Cleaning Cost	$164,619
Total Outage Cost	$66,207,537

Estimated Commercial Availability Loss (Genesis): $39,674,772.30

Notes: During this outage we experienced a work stoppage due to Van Dyke (transformer heavy hauler), not communicating with the union hall to have sufficient union representation on their project. The work stoppage affected the turbine work and all crane usage for one shift.

Boilermaker tube welders were not available to fill our needs. Generally we were short 20 to 25 per shift throughout the outage. During the last 3 weeks of the outage we were also short Pipefitters and Insulators. The shortage of manpower contributed to the extent of the post outage work on the Boiler and Steam Coil projects.

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Post Outage Report
2010 Unit 2 Spring Outage

January 1, 2010 to April 9, 2010

Plant Manager: Dave Strubberg
Gen Supervisor Outages: Jerry Odehnal
Operations Coordinator: Keith Kraenzle
Safety Supervisor: Debbie Buenniger

Outage Critique: April 21, 2010

DEFENDANT'S EXHIBIT
AB

Schedule MCB-S3

Table of Contents

Schedule MCB-S3

AM-02739974

Ex. AB_2

Executive Outage Summary Report
Rush Island Unit #2
January 1, 2010 – April 09, 2010

The Unit was shut down on Friday, January 1, 2010 @ 18:53 PM for the planned Major Boiler Outage. This unit was on a 60 month major overhaul cycle, due to budget constraints cycle was extended to 71 months. The last major overhaul was completed on February 12, 2004 @ 19:23.

Expro preformed the boiler explosive cleaning in the main firebox. Operations began their off-line cleaning as planned. Firebox cleaning was completed on schedule for the boiler scaffold installation. However Nooter experienced a two day delay in getting in the APH due to cleaning and scaffolding resources resulting from critical path requirements for the RH.

Scheck was responsible for installation of the Re-Heater, Economizer, Economizer Hopper Ash Flow Diverter Baffles and the O&M maintenance work in the boiler. Nooter replaced the APH (Rotor posts, Diaphragms and Baskets) and performed the O&M maintenance associated with APH drives, re-circulating pumps, motors and internal housing repairs. MCI replaced the surge bin hopper, gates and feeder pans. Haberberger replaced the Isophase Bus Duct Cooler, LP Turbine extraction expansion joints, and installed new gland steam and slop drain piping in the condenser. Schneider Electric replaced the 125V DC chargers and breakers as well as installing the new 345KV breaker protective relays. Schneider also supported the Isophase Bus Duct Cooler installation, Surge Bin and LP Turbine replacement. Wood Group replaced both LP Turbines and performed all of the turbine maintenance this outage. Plant, PCM and TRW forces installed the 6900V Arc Flash reduction project including breaker remote racking. They also performed the internal ash pit maintenance and the balance of the plant work.

There were two significant jobs that were deferred from the outage scope as follows: The Circulating Water Pump Discharge Valves were deferred as a result of resource constraints and interferences with the TWS frazzle ice repairs on the caisson. Also, the Exciter Trip Check wiring modifications were aborted as a result of wiring connection drawing inconsistencies. Other minor scope was added to the project to maintain budget and fully utilize the plant and PCM resources.

Our project critical path was the Re-Heater replacement. As a result of only 2 days of wind delays and good overall productivity and project management, Scheck was able to release Hydro and Gas Path approximately 3 days early.

The Unit was chemically cleaned prior to release for startup. This outage we performed a Preliminary Copper Stage which added approximately 23 hours to the process. The unit was released for startup on April 5, 2010 @ 9:00 PM after unit trip checks and returned to the bus on April 6, 2010 @ 6:48 PM. On April 7, 2010 @ 1:58 AM the unit tripped on drum level. During roll down Operations noted sparking on the #6 Bearing oil Seal. Wood Group returned to site, measured seal clearances and re-torqued all of the turbine oil seals. After turbine differential expansion issues were within design limits the unit was fired and returned to the bus on April 7, 2010 @ 4:16 PM approximately 5 days ahead of schedule. The unit was release for full load operation on April 09, 2010 at 9:50 PM.

The unit was run at full load for turbine torsional testing and balance. Subsequently, the unit was taken off line on April 09, 2010 to remove the Intercept Valve fine mesh screens which were installed as a result of the RH replacement. The removal of the Intercept Valve screens and torsional equipment went better than originally planned and unit was released to fire on April 12, 2010 @ 4:00 AM. Due to the non-outage related H2 leakage into the stator cooling water system the startup was aborted on April 12, 2010 @ 3:04 PM. After repairs were made to Generator stator cooling water system the unit returned to the bus on April 24, 2010 @ 8:25 PM. The details of the Turbine valve outage and Generator stator cooling water system outage are covered in separate reports.

Outage KPI's:

Safety – Goal (0) Recordable Injuries; **Construction (2) and Ameren (2) recordable injuries**
Budget – Goal Capital -5% to -3%/ O&M .5% to -3%; **Capital budget (-10%), O&M budget (-5%)**
Schedule – Goal SPI >1 to 1**; Final global SPI .97 (resulting from a 3% error in calculation as demobilization hours were included) the unit returned to the bus 5 days early**.
Quality – Deficiency reports (<2); **The Plant received (0) deficiencies, Construction received (1) deficiency.**

Reason for Outage: Scheduled Unit Overhaul and Capital improvements. The Major Capital projects are as follows:
ReHeater –Economizer Replacement – Project 13775
A&B APH Replacement – Project 14747
LP Turbine Retrofit – Project 20121
Surge Bin Replacement – Project 12775
345 KV Generator Protective Relay Upgrade – Project 21439
6900V Arc Flash Reduction – Project 21631
125VDC Upgrade – Project 25605
Economizer Hopper Slag Flow Diverter Baffle - Project 21865
Isophase Bus Duct Cooler Replacement – Project 23282
Replace (12) Burners – Project 24010

Resource Management:
The Ameren outage management team totaled 72. (26) Plant management staff, (41) Power Operations support staff, (3) Support staff from other plants, and (2) consultants. The Ameren labor force totaled (85). (26) Plant maintenance, (12) Operations POE's, (29) PCM, (8) Supplemental from other plants, and (10) TRW's. Ameren resources worked a 5 day 8 hour 2 shift schedule, except for Repairmen who worked 5 day 10 hour 2 shift schedules for seven weeks during the outage. Other overtime was worked as needed to support milestone releases and electrical bus cleaning. Contract resources began with (296). During the outage they averaged (360) and peaked at (435) including management staff. They worked 6 day 10 hour 2 shift schedules for the duration of the outage. During the outage contractors worked selected crews on 3 consecutive Sundays to reduce interferences and maintain outage milestones.

Critical Path: Reheat Outlet Header and Tubing Replacement and Boiler Chemical Cleaning

Maintenance Released the Unit after Chemical Cleaning: April 3, 2010 @ 22:45 PM

Unit Returned to the Bus: April 6, 2010 @ 18:48 PM

Total Outage Time Bus to Bus: 95 Days, 23 Hours, 55 Min.

Total Outage Labor Hours and Cost: 351,177 Hours @ $36,045,186

Labor Actual Hours:	Maintenance	Technicians	Operations	Contractor	Outage Total
Straight Time:	38,515	4281	5840 *	210,259	258,895
Overtime	4,753	733	6102 **	80,694	92,282
Total Hours	43,268***	5014	11942	290,953	351,177

* Note – Straight time man-hours do not include startup and shutdown
**Note – This includes 2520 man-hours Operations OT for cleaning.
*** Note – Maintenance total reflects 3,668man-hours of Maintenance work by POE/E &R's

Outage Cost:	
Contract Labor O&M	$5,884,748
Contact Labor Capital	$21,361,144
Ameren Labor O&M	$1,441,927
Ameren Labor Capital	$206,384
Outage Management	$1,238,531
Total Labor	$30,132,734

Boiler Cleaning Cost:	
PMS Outage Vac Cleaning	$73,563
Expro Explosive Cleaning	$24,265
Vandevanter Pump Rental	$9,984
Total Cleaning Cost (non labor)	$107,812

O& M Material Cost (2010)	$2,504,209
Capital Material Cost (2010)	$678,390
Scaffolding Costs	$1,612,359
Other Costs	$758,689 (Consulting, Material Loading, Rentals)
Chemical Cleaning	$250,993
Cleaning Cost	$107,812
Total Outage Cost	$36,045,186

Calculated lost revenue as a result of the outage: $14,914,132

Notes:

Internal audit with the assistance of KPMG performed audit on our outage management processes in initiation, planning, monitoring and communication. Their conclusions were stated as follows: Controls over the Project were in place and operating effectively. The initiation, planning, monitoring, and communication of the Project were consistent with better management practices, and aligned with Ameren's Generation PMM procedures. The project documentation was in place for the scope areas reviewed.

Due to the downturn of the economy sufficient contract labor was available for our outage. The use of core group employees from our major contractors helped in quality and productivity.

This project was performed under the NMA which included the turbine work scope. No work stoppage were incurred this outage.

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Scope Detail

Originally this outage was scheduled to begin In February 0f 2009. At that time the Capital scope of the outage included the following jobs:

13775 – Replace U2 Re-heater, Economizer and Lower Slope
14747 – Replace A& B Air Pre-heaters
20121 – Replace A&B LP Turbines
12775 – Replace Surge Bin
21865 – Install Slag Flow Diverter
23282 – Replace U2 Isophase Bus Duct Cooler
25605 – 125V DC Upgrade
21631 – 6900V Arc Flash Reduction
24010 – Replace 12 Burners
24011 – Replace A&B CWP Discharge Valves
21439 – Replace V8 Breaker and Relay Upgrade

As a result of the outage being deferred form 2009 to 2010 the V8 Breaker was installed during the spring cleaning outage in May of 2009. The relay portion of this job was completed during this outage. Due to the budget constraints for 2010 the Lower Slope replacement was deferred to a future outage. The material was purchased and is currently stored on-site.

Just after Unit 2 was shut down for maintenance, Operations struggled with low river temperatures and frazzle ice formed on the screens causing significant damage. As a result, with limited resources and logistical interferences with screen restoration, the plant deferred the CWP Discharge Valve replacements.

One addition job (JR071268) Rewire U2 Exciter, was deferred due to incomplete drawings. Engineering is reviewing options to perform this work on a future SBO of sufficient duration.

Added jobs to the package after the outage began were controlled by the Project Change Request and Outage Change Request process. The added job breakdown was as follows:

Job Package JP000454 Plant / PCM Jobs:

72 Jobs were added to the package, most due to shut down and startup issues. The Outage Scope Change requests are as follows:

JR071775 – Additional Boiler Chemical Cleaning Process - $40,000
JR079276-01 – Replace 2B12 Bus DC Feeder Cable - $11,650
JR079353 – Replace 2A PA Fan Motor Feeder Cable - $17,185
JR079355 – Replace 2B PA Fan Bearing T/C Cable - $1,500
JR079354 – Replace 2B PA Fan Motor Feeder Cable - $24,619
JR076017 – Re-gasket GSU Transformer Access Covers - $31,346
JR078114 – Replace HPBFP Re-circulating Valve #5228 - $14,501
JR079628 – Raise 5A & B FWH Level Switches - $1,900
JR079629 – Remove / Clean EH Coolers - $2,000

Job Package JP000455 Turbine Contractor Jobs:

3 Jobs were added to the package. 15 job/tasks were added to release EWO work. No Project Scope Change requests were submitted.

Job Package JP000456 Boiler / Other Contractor Jobs:

3 Jobs were added to the package. 324 job/tasks were added to release inspection driven work and EWO's. The Project Scope Change requests are as follows:

JR068330 – EWO 27 Extra work on adjusting APH Sector Plates - $62,000
JR069005-31 – EWO 11 Install RH Area (48) Roof tube Dutchmen - $138,600
JR069005-32 – EWO 17 RH Outlet Header Misalignment Issues - $71,280
JR069005-37 – EWO 35 Additional Time for RH Crossover Fit-up - $240,000

Job Package JP000457 Technician Jobs

19 Jobs were added to the package, 8 were considered new scope. No significant jobs were added to require outage scope change requests.

Job Package JP000458 Lube Service Jobs

No jobs were added to the package.

Resource Table based on outage Total Scope:

Craft	TOTAL HOURS	% Total
Electricians	8,256	2.35%
Machinist	11,247	3.21%
Repairmen	18,104	5.16%
Welders	1,801	0.51%
POE (E-M-R)	3,668	1.04%
Technician	5,014	1.43%
Lube Service	192	0.05%
Operations (Support & Cleaning)	11,942	3.40%
Subtotal	60,224	17.15%
Contracted	290,953	82.85%
Total	351,177	100.00%

Following are a full list of jobs by Package:

*Note Non-CCTM contract jobs will not show expended hours or labor costs.

Ameren Missouri's
Response to MPSC Data Request - MPSC
EF-2024-0021
In the Matter of the Request of Union Electric Company d/b/a Ameren Missouri for Issuance of a Financing Order Arising From the Retirement of its Rush Island Energy Center.

No.: MPSC 0024

1. Provide the project number/work order number associated with each Ameren Missouri project listed on Schedule MCB-D2. For any such project where the project number/work order is not available state as such. 2. What is the source of the dates and projects/components listed in MCB-D2 with regards to Ameren Missouri? 3. Please double check the dates associated with the following projects: • Rush Island Unit 2 Lower Slope (listed in 2010) • Rush Island 1 and Rush Island 2 Air Preheater (listed in 2001 and 2003) • Labadie 3 Reheater (1991) • Labadie 3 Air Preheater (1997) • All Meramec Unit 3 components (1999). • Meramec 1 & 2 Superheater (2000)

<u>RESPONSE</u>

Prepared By: Laura Moore
Title: Controller, Ameren Missouri
Date: March 8, 2024

1. Attached is Mr. Birk's Schedule MCB-D2 but with project numbers added for projects that were in service as of the time Ameren began utilizing PowerPlan as part of its plant accounting processes (in the third quarter of 2005) and for certain other projects for which paper work orders were on site. The project numbers for other projects placed in service prior to that time must be acquired from paper work order files which are housed in offsite storage. The files have been requested from offsite storage but are voluminous and will require additional time to review. This response will be supplemented when such review is complete.

2. The source of the data in Schedule MCB-2 is a combination of PowerPlan data as noted above and paper work orders reviewed several years ago when the files were not in offsite storage.

3. The dates on the projects listed in part 3 that went into service prior to the 3rd quarter of 2005 will be checked as part of the review of the paper work order files as referenced above. There is one project listed in part 3 for which information does exist in Power Plan – the Rush Island Unit 2 Lower Slope. Upon further review, the Rush Island Unit 2 Lower Slope (listed in Schedule MCB-D2 as 2010) was not installed until 2016 (the equipment was purchased in 2010 which led to its incorrect data listing in the table. This correction has also been made on the attached.

AMO

Project	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Economizer												Sioux 2	Labadie 2 **Project # 11047** Sioux 1 **Project # 10054**	Labadie 1 **Project # 11916** Labadie 4 **Project # 11473**	Labadie 3 **Project # 11465**	Meramec 1 **Project # 11152**	Meramec 4 **Project # 12397**		Rush Island 1 **Project # 11506**			Rush Island 2 **Project # 13775**
Lower Slope/ Boiler Floor				Labadie 2	Labadie 1 Labadie 3		Sioux 2	Sioux 1							Labadie 4 **Project # 13553**				Rush Island 1 **Project # 11506**			Rush Island 2 **Actually Replaced in 2016 Project # J036R**
Reheater		Labadie 4	Labadie 3			Sioux 1	Sioux 2	Labadie 2			Meramec 3								Rush Island 1 **Project # 11506**	Labadie 1 **Project # 11560**		Rush Island 2 **Project # 13775**
Air Preheater								Meramec 4 Labadie 4 (HE) only	Labadie 3 (CE) Only		Meramec 3 Sioux 2		Meramec 2 **Project # 10989** Rush Island 1	Labadie 1 **Project # 12529** Labadie 4 **Project # 12527**	Labadie 3 **Project # 12528** Rush Island 2	Meramec 1 (CE Only) **Project # 11645** Labadie 2 (CE Only) **Project # 14769**	Meramec 4 **Project # 13772**		Rush Island 1 **Project # 14746**			Rush Island 2 **Project # 14747**
Superheater						Sioux 1		Meramec 4			Meramec 3	Meramec 1 Meramec 2	Rush Island 1 **Project # 11112**		Rush Island 2 **Project # 12947**	Sioux 2 **Project # 11493** Meramec 1 & Meramec 2 **Project # 11505**	Meramec 4					
Cyclones																						
Waterwalls	Rush Island 1 Rush Island 2					Sioux 1		Meramec 4								Labadie 2 **Project # 14454**						

CE - Cold End

Schedule MCB-S4

Briefing Session
Environmental Compliance Plan

June 10, 2009

Highly Confidential

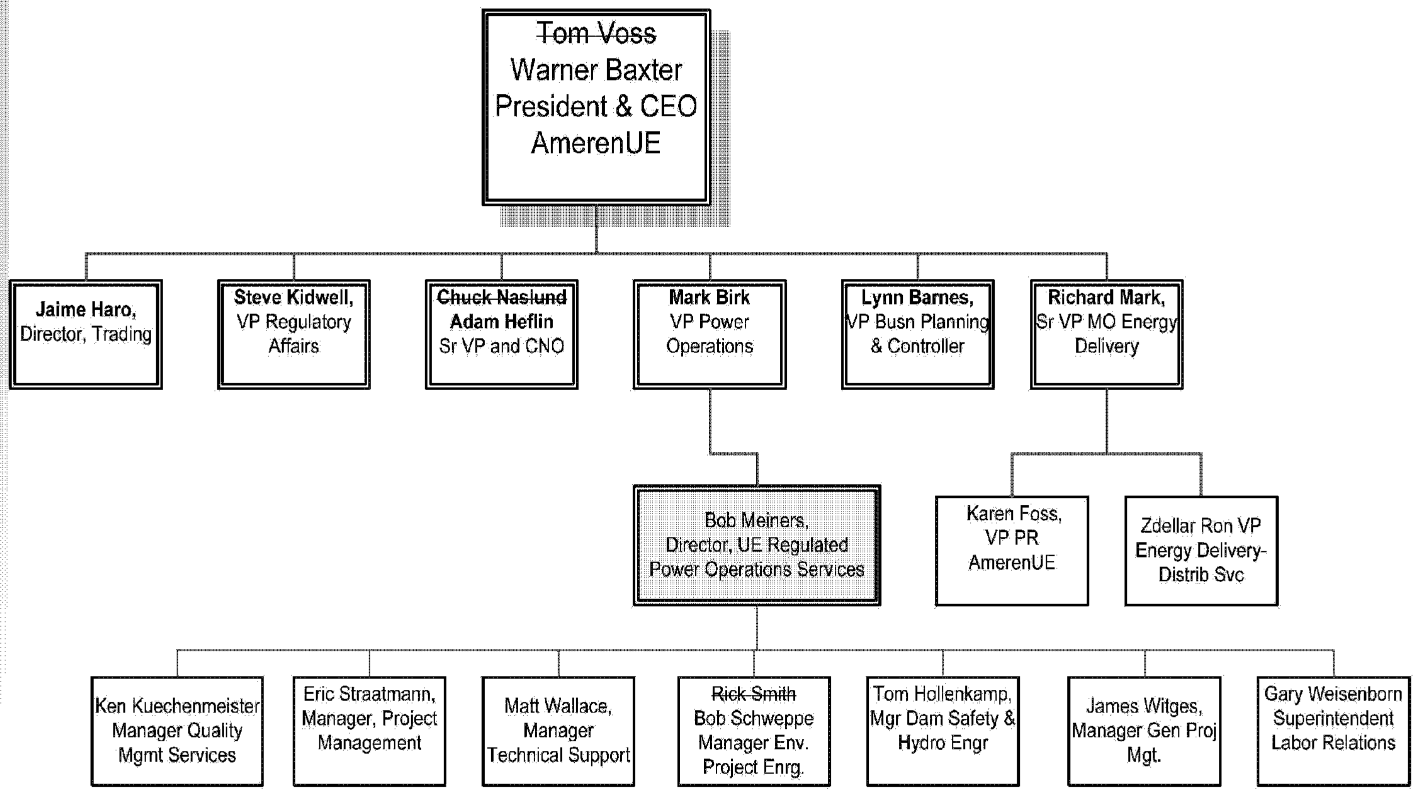
Schedule MCB-S5

Agenda

- Introduction – Gaye Suggett
- Update on Environmental Regulation and Legislation – Mike Menne
- AmerenUE's Environmental Compliance Strategy Update – Mark Birk
- R&D Activities – Bob Meiners
- Brief Sioux Plant Scrubber Update – Bob Schweppe

Schedule MCB-S5

AmerenUE Organization Chart



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Schedule MCB-S5

Update on
Environmental Regulation and Legislation

- Topics
  - Climate Legislation (American Clean Energy and Security Act)
  - Clean Air Act
  - Clean Water Act
  - Coal Combustion Products (CCP)/solid waste management

Schedule MCB-S5

Key Provisions of American Clean Energy and Security Act

- Clean Energy Title
  - Combined Efficiency and Renewable Standard
    - 6% in 2012 gradually rising to 20% in 2020
    - Allows 25% of standard to be met with energy efficiency
    - Governor of State can petition to increase 25% to 40%
    - Alternate compliance payment of $25 per renewable electricity credit
    - Standard is calculated against total generation that removes nuclear and hydro providing some credit for existing AmerenUE nuclear and hydro generation
  - Carbon Capture and Sequestration
    - Requires EPA to develop strategy to address legal and regulatory barriers
    - Provides incentives for deployment of CCS starting in 2014
  - Smart Grid provisions
  - Transmission Planning for Renewable and Demand Management
- Energy Efficiency Title
  - Building Code Standards: Requires establishment of codes achieving 30% improvement from 2006 levels by 2010 and 50% by 2016
  - Improved Lighting Standards

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Schedule MCB-S5

Key Provisions of ACES Act

- Global Warming Title
  - Reduce economy wide global warming from 2005 levels by
    - 3% in 2012
    - 20% in 2020 (Capped sources set at 17%)
    - 42% in 2030
    - 83% in 2050
  - Covered Sectors include:
    - Electricity sources
    - Petroleum and natural gas liquid producers and importers
    - Stationary sources emitting more than 25,000 tons of CO_2 annually
    - Geological sequestration site
    - Stationary industrial sources (2014)
    - Natural gas local distribution companies (2016)
  - Approximately 35% of allowances to electric sector through 2025 declining to 0% in 2030
  - Natural gas LDC allocated approximately 9% starting in 2016 declines from 9% to 0% from 2025 to 2030
  - Strategic Reserve

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Schedule MCB-S5

Greenhouse Gas Regulation

- USEPA Endangerment Finding
  - Court decision - USEPA has authority to regulate emissions of GHG under CAA
  - EPA endangerment and cause or contribute findings - proposal April 17
  - Six GHGs endanger public health and welfare
  - Motor vehicle contribution to atmospheric GHG concentration
  - Findings could lead to new regulations for autos, power plants and other covered sources.

- USEPA Mandatory Reporting Proposal
  - April 10 proposal for annual reporting beginning in 2011 for 2010 emissions

Schedule MCB-S5

Clean Air Interstate Rule Review

- Established Regional Cap and Trade program for SO_2 and NO_x
- Reduce transported emissions to attain ozone / $PM_{2.5}$ NAAQS
- CAIR region included 28 Eastern and Midwestern states and the District of Columbia; included Illinois and Missouri.
- Required emission reductions in two phases: NO_x - 2009 and 2015; SO_2 - 2010 and 2015
- Two NO_x programs - 1) ozone season; 2) annual
- SO_2 program used existing Acid Rain Program emission allowances
- Illinois and Missouri regulations to implement

Schedule MCB-S5

Clean Air Interstate Rule

- July 11 decision by D.C. Circuit vacates CAIR
- CAIR remanded to USEPA "to promulgate a rule that is consistent" with the decision
- December 23 decision to leave CAIR in place while USEPA revises rule; essentially reverses July decision
- New rule expected early 2010; New SO_2 / NO_x compliance 2014 - 2018
- Impacts:
  - Illinois and Missouri relied on CAIR for attainment plans for ambient standards
  - Annual NO_x Trading program in place 1/1/2009
  - SO_2 program starts in 2010
  - Revised CAIR will likely be more stringent

Schedule MCB-S5

Clean Air Mercury Rule – Legal History

- February 8, 2008 – U.S. Court of Appeals for the District of Columbia Circuit vacated the Section 112(n) Revision Rule and CAMR
- October 17, 2008 – U.S. Government filed a petition for writ of certiorari with the U.S. Supreme Court
- February 6, 2009 – U.S. Government asks U.S. Supreme Court to drop its petition for writ of certiorari
- February 23, 2009 – U.S. Supreme Court accepts U.S. Government's request to drop its petition

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CAMR - Next Steps

- USEPA will pursue Maximum Achievable Control Technology (MACT) standards
  - Will likely include other HAPs: metals, arsenic, nickel, HCL
  - Proposal late 2009; final rule 2010; compliance 2013 – 2015
  - Compliance? Hg 90%+ control; technology for other HAPs?
- MACT for existing sources must be at least as stringent as the average emission limitations achieved by the best performing 12 percent sources in that category
  - Called the "MACT floor" – can not consider costs
  - EPA may regulate "beyond the floor" where justified – can consider costs
- MACT for new sources must be based on the single best performing source

Schedule MCB-S5

Clean Water Act Regulations

- USEPA 316(b) Entrainment and Impingement of Aquatic Organisms
  - Cooling water intake structure design changes to reduce impacts
  - Revised rule late summer/fall 2009
  - USEPA site visits March 2009
  - Supreme Court decision 4/1/2009
- NPDES Permit Renewal
  - Potential for new and/or more stringent requirements
- Thermal Limitations/Monitoring
  - Missouri River
- Total Maximum Daily Load (TMDL) Determinations
  - Set discharge limits on new/modified sources

Schedule MCB-S5

Coal Combustion Products

- Federal Response to TVA Kingston
  - Congressional hearings
  - Need for standards - require the use of "dry storage"?
  - Promise from USEPA to draft regulations
  - Plans to develop legislation if EPA does not take action
- USEPA Actions
  - Revisit non-hazardous determination made in 2000
  - Information Collection Request (ICR) letter March 2009
  - Regulations proposed by 12/31/2009; final rules in 2010
- Future Issues
  - Capacity
  - Impact of mercury controls (activated carbon)
  - Beneficial use
  - Ponds vs. landfills

Future Uncertainties

- Climate Legislation and Regulations
- Stringency of revised CAIR
- Allowance allocations for future SO_2 program
- MACT for Mercury and other hazardous air pollutants
- Future revisions to NAAQS for ozone, PM2.5
- New Water Quality regulations on intake structures and thermal impacts
- New regulations on coal combustion by products

Schedule MCB-S5

AmerenUE Environmental Compliance Strategy Update

AmerenUE

Schedule MCB-S5

AmerenUE Environmental Compliance Strategy Update

- Air Environmental Strategy
  - SO_2, NO_x and mercury analyses were completed May 2009
  - SO_2 analysis based on current environmental regulations
  - NO_x analysis based on current environmental regulations
  - Mercury analysis based on possible future regulations
    - USEPA is planning to replace CAMR with a MACT standard for mercury emissions
    - MACT standard requires application of most effective pollution reduction equipment commercially available
- Misc. Air Environmental Strategy
- Water Environmental Strategy
- Solid Waste Environmental Strategy
- Other Environmental Projects
- Impact of Possible Future Air Environmental Regulations

Current Air Environmental Compliance Strategy – SO_2 (Based on current environmental regulations - CAIR)

- WFGD for Sioux 1&2; in service by 1/2011 (under construction)
- Pre-Engineering FGD Studies
  - Rush Island
  - Labadie
- Allowances will be used for compliance rather than sold
- Allowances will be purchased as needed for compliance

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Future Capital Expenditures ($) – SO_2
(Based on current environmental regulations - CAIR)

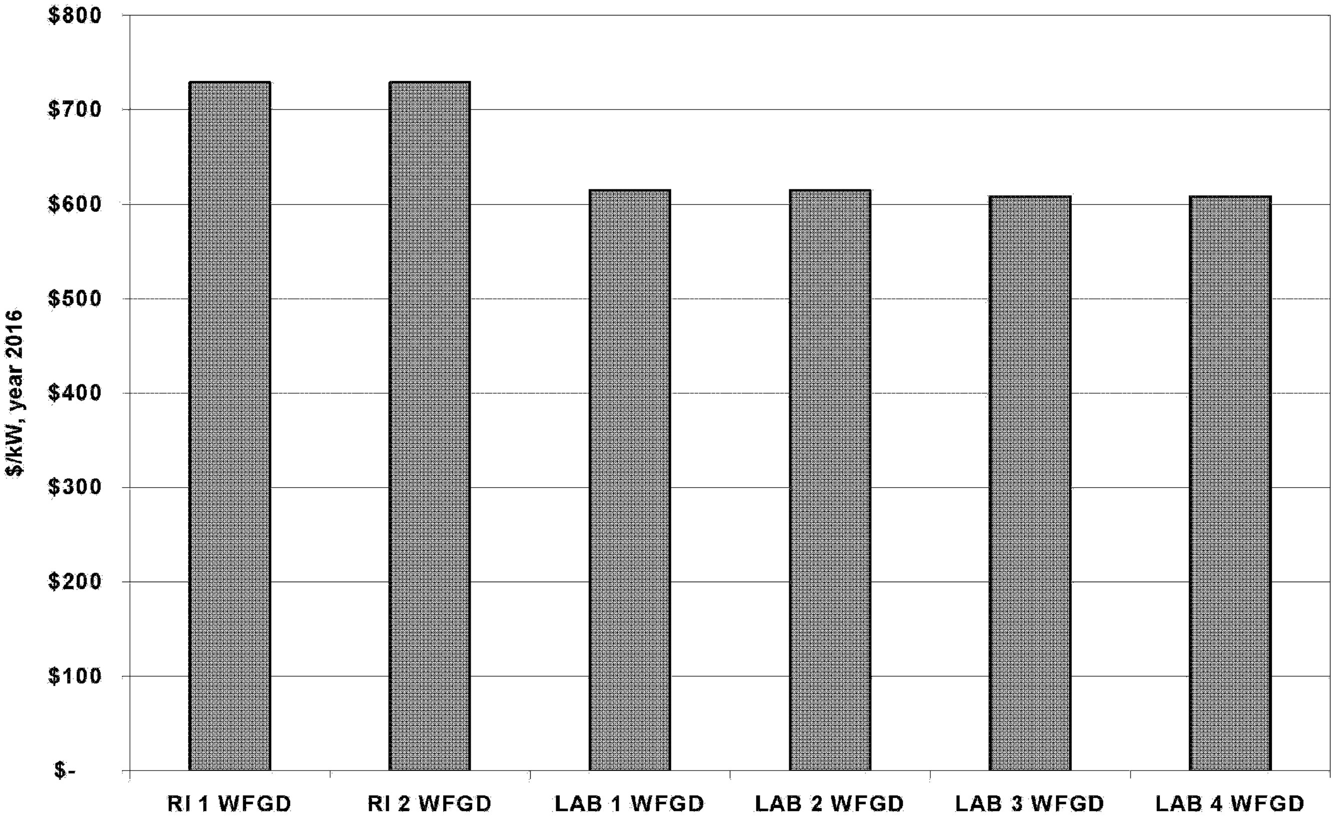
ITEM	Opening Balance	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
AIR ENVIRONMENTAL COMPLIANCE FORECAST										
SO_2 STRATEGY										
SO_2 CAPITAL EXPENDITURES										
SIOUX 1 WFGD 2011-CAPITAL EX	$101,340,624	$52,539,639	$51,466,115	$4,647,723	$0	$0	$0	$0	$0	$209,994,100
SIOUX 2 WFGD & COMMON FACILITIES 2011-CAPITAL EX	$201,168,700	$104,295,104	$102,164,079	$9,226,077	$0	$0	$0	$0	$0	$416,853,960
LABADIE 3 DRY FGD - PRE-ENGINEERING STUDY	$0	$10,420	$1,339,943	$300,290	$1,998,351	$3,351,471	$6,692,416	$0	$0	$13,692,892
LABADIE 4 DRY FGD - PRE-ENGINEERING STUDY	$0	$10,420	$661,167	$199,979	$1,002,657	$1,652,478	$3,302,768	$0	$0	$6,829,469
RUSH ISLAND 1 FGD - PRE-ENGINEERING STUDY	$0	$1,464,233	$1,998,341	$3,345,261	$6,694,197	$18,337	$0	$0	$0	$13,520,368
RI 2 FGD & COMMON - PRE-ENGINEERING STUDY	$0	$2,831,240	$1,003,428	$1,656,148	$3,304,545	$18,337	$0	$0	$0	$8,813,698
LABADIE 1 FGD - PRE-ENGINEERING STUDY	$0	$0	$0	$18,088	$19,650	$22,326	$2,000,991	$3,475,159	$6,898,451	$12,434,665
LABADIE 2 FGD - PRE-ENGINEERING STUDY	$0	$0	$0	$18,088	$19,650	$22,326	$1,003,097	$1,607,910	$3,191,820	$5,862,890
SO_2 CAPITAL EXPENDITURES TOTAL	$302,509,324	$161,151,056	$158,633,072	$19,411,654	$13,039,050	$5,085,273	$12,999,272	$5,083,069	$10,090,271	$688,002,042

Notes:

1) *Capital expenditures assume WFGD at Sioux*
2) *Future FGD pre-engineering studies to be conducted for conceptual cost estimates*

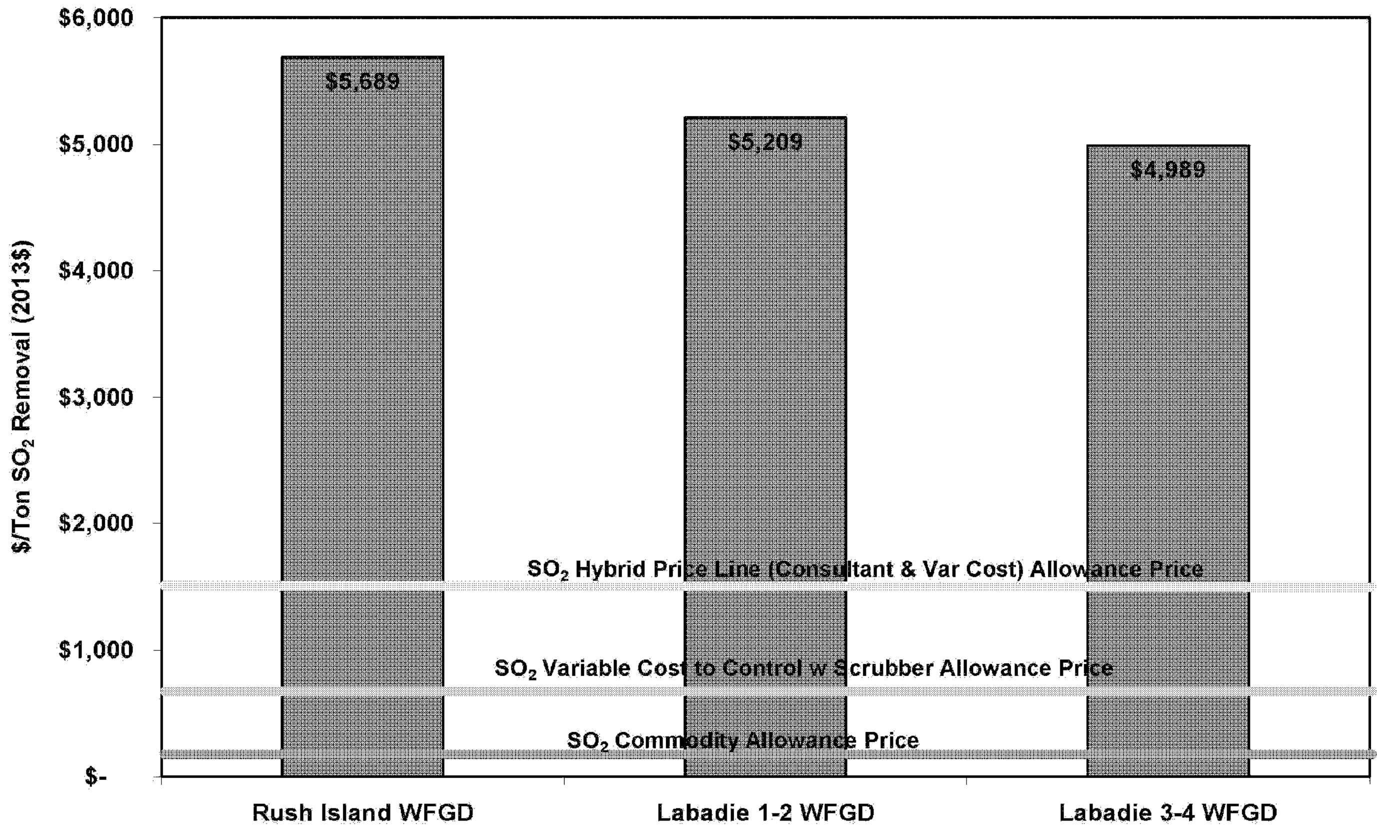
Schedule MCB-S5

SO_2 Control Technology Capital Cost



Schedule MCB-S5

Levelized Cost for SO_2 Removal



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Schedule MCB-S5

SO_2 Analysis – Strategies for Compliance with Current CAIR

Control Equipment	SO_2 Strategies (FGD In Service Date)			
	No Additional FGD Units	Alternative Schedule 1	Alternative Schedule 2	Alternative Schedule 3
SO_2 under Current CAIR				
Purchase of Allowances	As Necessary	As Necessary	As Necessary	As Necessary
WFGD – Sioux 1&2	2011	2011	2011	2011
FGD – Rush Island 1&2	--	2016	2013	2016
FGD – Labadie 3&4	--	2018	2015	2019
FGD – Labadie 1&2	--	2020	2017	2022

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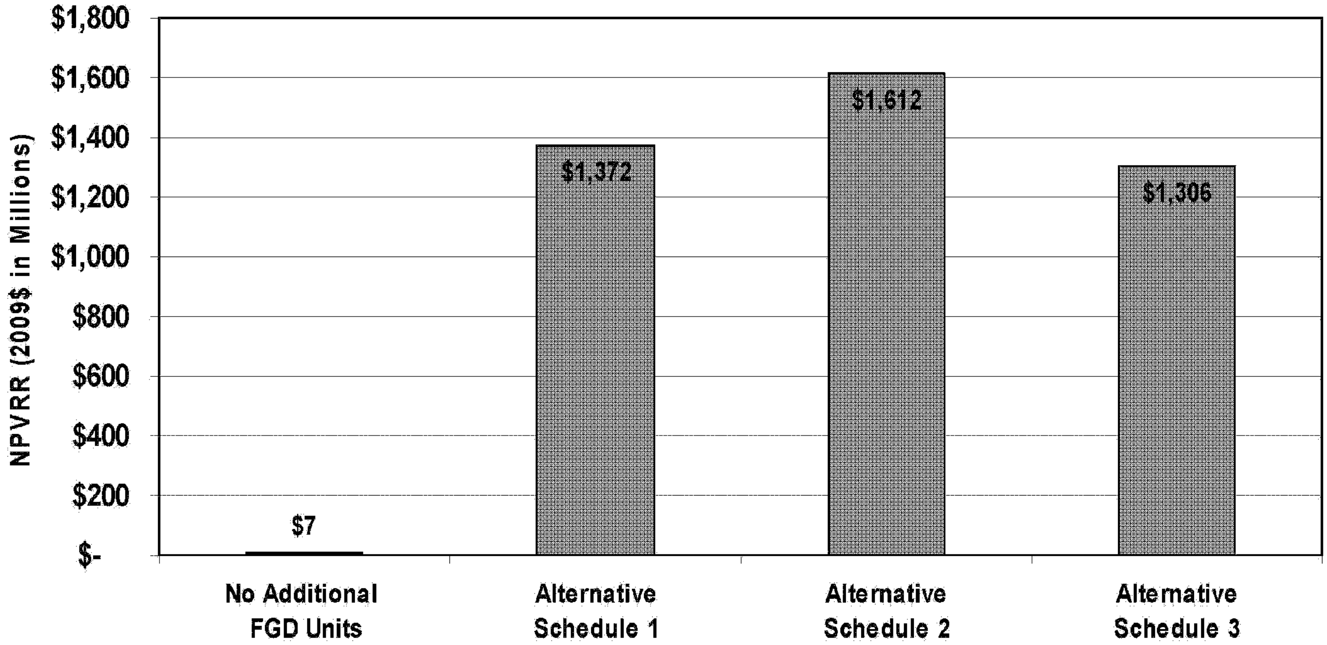
Schedule MCB-S5

SO_2 Net Present Value of Revenue Requirements (NPVRR) under Current CAIR (2013-2051)



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Schedule MCB-S5

Current Air Environmental Compliance Strategy – NO_x (Based on current environmental regulations – CAIR)

- RRI/SNCR for Sioux 1&2; in service 2007
  - Completed improvements on the Unit 1 SNCR System in Fall 2008
  - RRI/SNCR system to be used as needed
- Allowances will be used for compliance rather than sold
- Allowances will be purchased as needed for compliance

Future Capital Expenditures ($) – NO_x
(Based on current environmental regulations – CAIR)

ITEM	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
AIR ENVIRONMENTAL COMPLIANCE FORECAST									
NOx STRATEGY									
NOx CAPITAL EXPENDITURES									
SIOUX U1 RRI SNCR BOILER WORK	$134,158	$0	$0	$0	$0	$0	$0	$0	$134,158
NOx CAPITAL EXPENDITURES TOTAL	$134,158	$0	$0	$0	$0	$0	$0	$0	$134,158

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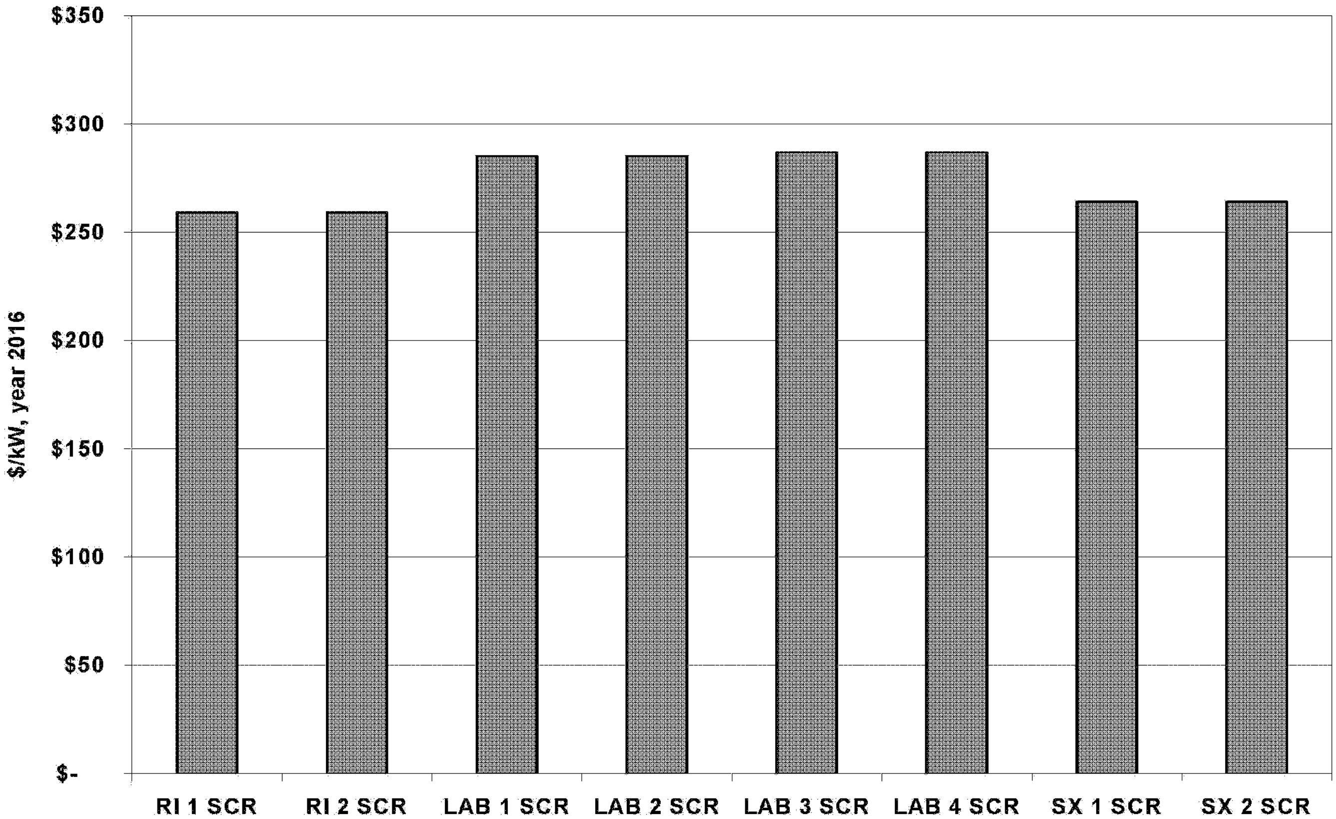
NO_x Control Technology Capital Cost



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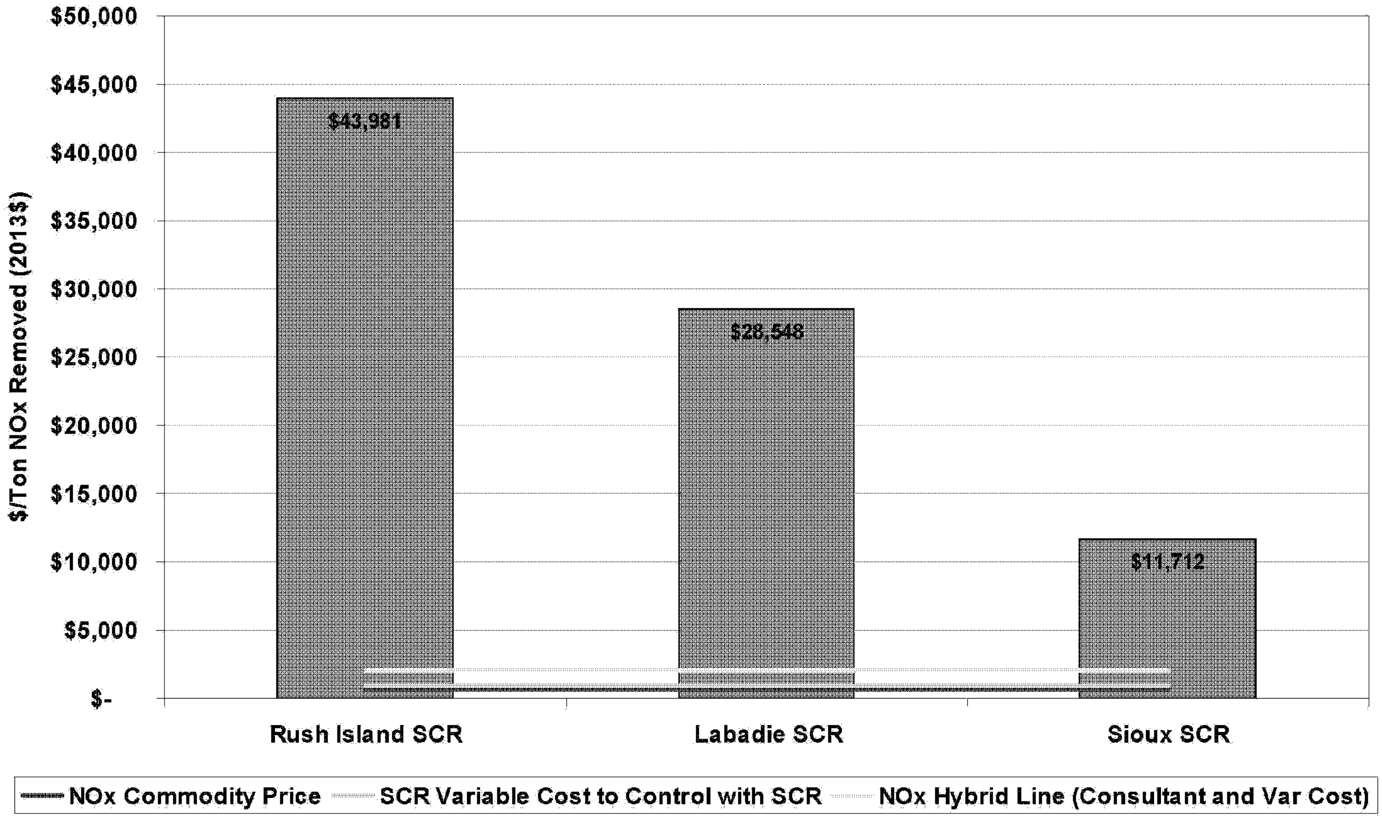
Levelized Cost for NO_x Removal



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NO_x Analysis – Strategies for Compliance with Current CAIR

Control Equipment	NO_x Strategies (In Service Date)	
	Not Operating RRI/SNCR at Sioux 1 & 2	Annual Operation of RRI/SNCR at Sioux 1 &2
NO_x under Current CAIR		
Purchase of Allowances (Seasonal)	2013-2028	2013-2028
Purchase of Allowances (Annual)	2013-2028	2013-2028
RRI/SNCR – Sioux 1&2	--	2010

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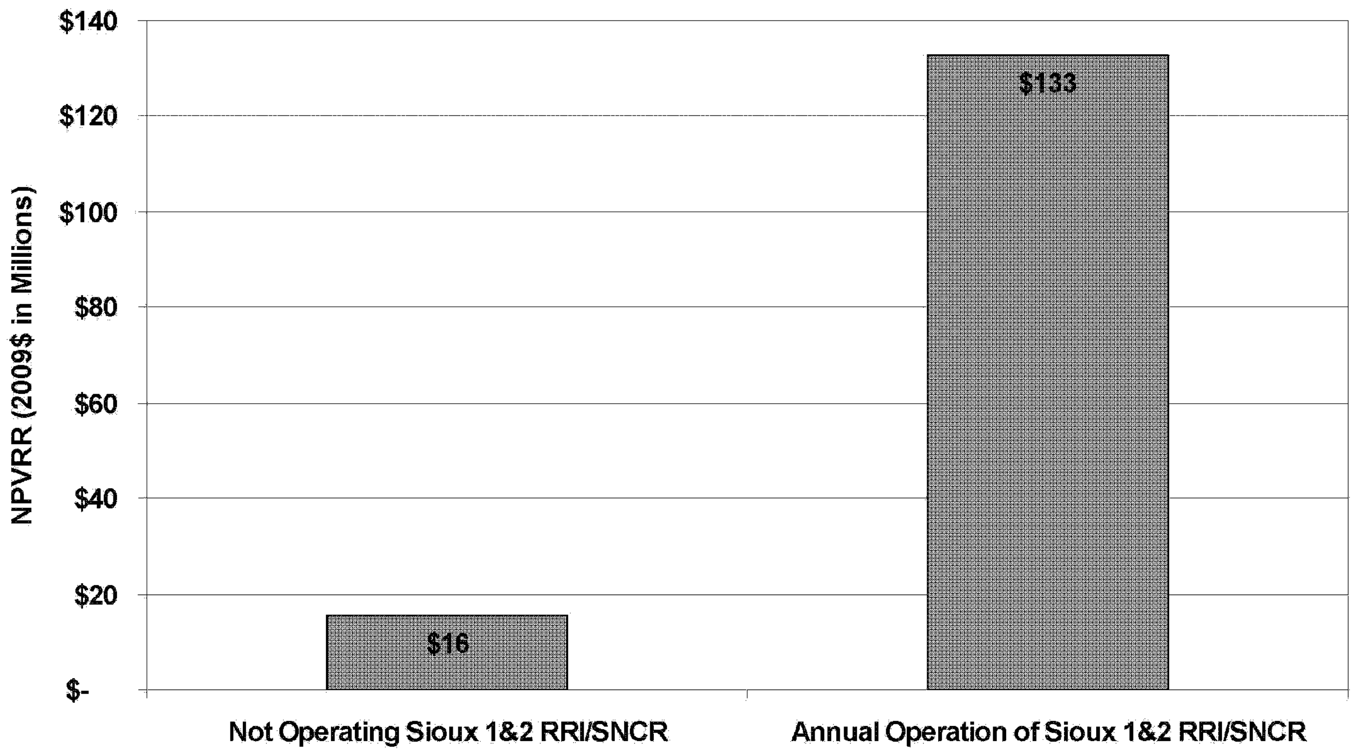
NO_x Net Present Value of Revenue Requirements (NPVRR) under Current CAIR (2013-20151)



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Schedule MCB-S5

Current Air Environmental Compliance Strategy – Mercury

- HACI for Rush Island 1&2; in service by 1/2014
- HACI for Labadie 1-4; in service by 1/2014
- HACI for Meramec 1-4; in service by 1/2014
- Fuel Additive – Sioux 1&2; in service by 1/2014

Schedule MCB-S5

Future Capital Expenditures ($) – Mercury

ITEM	2009	2010	2011	2012	2013	2014	TOTAL
AIR ENVIRONMENTAL COMPLIANCE FORECAST							
MERCURY STRATEGY							
MERCURY CAPITAL EXPENDITURES							
LABADIE 1 ACI MERCURY CONTROL	$0	$0	$0	$3,486,950	$6,430,030	$65,039	$9,982,018
LABADIE 1 MERCURY MONITORING	$387,579	$5,312	$731,000	$0	$0	$0	$1,123,890
LABADIE 1 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$0	$0	$0	$0
LABADIE 2 ACI MERCURY CONTROL	$0	$0	$0	$686,823	$3,859,142	$29,857	$4,575,822
LABADIE 2 MERCURY MONITORING	$289,217	$5,797	$742,723	$0	$0	$0	$1,037,737
LABADIE 2 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$0	$0	$0	$0
LABADIE 3 ACI MERCURY CONTROL	$0	$0	$0	$665,690	$3,614,414	$28,110	$4,308,215
LABADIE 3 MERCURY MONITORING	$868,609	$0	$0	$0	$0	$0	$868,609
LABADIE 3 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$0	$0	$0	$0
LABADIE 4 ACI MERCURY CONTROL	$3,067	$3,585	$3,847	$1,272,111	$3,170,650	$29,484	$4,482,743
LABADIE 4 MERCURY MONITORING	$646,466	$0	$0	$0	$0	$0	$646,466
LABADIE 4 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$0	$0	$0	$0
RUSH ISLAND 1 ACI MERCURY CONTROL	$143	$167	$179	$1,426,672	$3,320,022	$31,157	$4,778,339
RUSH ISLAND 1 MERCURY MONITORING	$48,502	$0	$0	$0	$0	$0	$48,502
RUSH ISLAND 1 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$0	$0	$0	$0
RUSH ISLAND 2 ACI MERCURY CONTROL	$0	$0	$0	$1,711,775	$3,043,403	$31,184	$4,786,363
RUSH ISLAND 2 MERCURY MONITORING	$41,900	$0	$0	$0	$0	$0	$41,900
RUSH ISLAND 2 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$0	$0	$0	$0
SIOUX 1 MERCURY MONITORING	$103,700	$22,000	$613,800	$0	$0	$0	$739,500
SIOUX 1 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$100,400	$367,300	$3,100	$470,800
SIOUX 2 MERCURY MONITORING	$100,400	$20,600	$462,000	$0	$0	$0	$583,000
SIOUX 2 MERCURY CONTROL FUEL ADDS	$0	$0	$0	$100,400	$367,300	$3,100	$470,800
MERAMEC 1 ACI MERCURY CONTROL	$0	$0	$0	$1,268,000	$2,611,500	$25,400	$3,904,900
MERAMEC 1 MERCURY MONITORING	$535,700	$17,400	$567,500	$0	$0	$0	$1,120,600
MERAMEC 2 ACI MERCURY CONTROL	$6,500	$7,600	$8,100	$642,700	$2,754,800	$23,800	$3,443,500
MERAMEC 2 MERCURY MONITORING	$785,500	$522,200	$0	$490,300	$0	$0	$1,798,000
MERAMEC 3 ACI MERCURY CONTROL	$6,600	$7,700	$8,300	$537,200	$3,750,300	$28,900	$4,339,000
MERAMEC 3 MERCURY MONITORING	$510,600	$77,600	$861,500	$0	$0	$0	$1,449,700
MERAMEC 4 ACI MERCURY CONTROL	$100	$100	$100	$665,800	$3,329,300	$26,200	$4,021,600
MERAMEC 4 MERCURY MONITORING	$510,300	$77,200	$865,500	$0	$0	$0	$1,453,000
MERCURY CAPITAL EXPENDITURES TOTAL	$4,844,883	$767,260	$4,864,549	$13,054,822	$36,618,161	$325,330	$60,475,005

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Schedule MCB-S5

Future O&M Expenditures – Mercury

- Mercury control equipment is relatively low in capital cost
- Mercury control equipment O&M costs are significant
- Mercury annual O&M expenditures range from approximately $46-52 Million/year from 2014-2028

Comparison of Current Air Environmental Compliance Strategy vs. 2008 AmerenUE Integrated Resource Plan (IRP)

Control Equipment	2008 IRP	Current Air Environmental Compliance Plan
SO_2		
WFGD – Sioux 1 & 2	2010	2011
Mercury		
HACI – Meramec 3 & 4	2015	2014
HACI – Rush Island 1 & 2	2015	2014
HACI – Labadie 1 & 2	2015	2014
HACI – Labadie 3 & 4	2015	2014
WFGD/FA – Sioux 1 & 2	None	2014

Note:
1) Current Air Environmental Compliance Plan is based on current environmental regulations - CAIR.

Schedule MCB-S5

Current Misc. Air Environmental Compliance Strategy (Current Environmental Regulations)

- SCR work – Pinckneyville & Venice CTG
- ESP Modifications
  - Labadie Plant
  - Meramec Plant
  - Rush Island Plant
- Asbestos removal – Keokuk, Venice & other facilities
- Sioux 1&2 chimney and liner demolition
- Sioux access road and fill for WFGD

Current Water Environmental Compliance Strategy (Current Environmental Regulations)

- Potable Water Upgrades at Rush Island
- Clean Water Act, Section 316 (a) Thermal Discharges
- Clean Water Act, Section 316 (b) Entrainment and Impingement of Aquatic Organisms
  - Labadie Plant
  - Meramec Plant
  - Rush Island Plant
  - Sioux Plant
- Spill Prevention Control and Countermeasures (SPCC) activities at electric substations
- Various compliance projects at the hydroelectric plants

Schedule MCB-S5

Current Solid Waste Environmental Compliance Strategy (Current Environmental Regulations)

- Landfill Activities – Gypsum generated at Sioux Plant
- Ash Pond Activities
  - Labadie Plant
  - Sioux Plant
  - Rush Island Plant
  - Meramec Plant
- Manufactured Gas Plant Activities
- Management of underground storage tanks, poles, used oil, paint waste, solvents, and other items used in the course of normal business

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Schedule MCB-S5

Current Environmental Compliance Strategy – Other Environmental Projects (Current Environmental Regulations)

- National Historic Preservation Act Projects
  - Major construction projects (power plans & transmission lines) that encounter significant cultural or historical resources

- Avian Protection Program
  - Transmission and distribution lines, and other electrical equipment can pose a hazard to raptors and other migratory birds
  - Avian Protection Plan was developed by AmerenUE to retroactively and proactively reconfigure distribution lines to reduce the risk to raptors and other migratory birds in areas of our service territory

Schedule MCB-S5

Summary of Future Capital and O&M Expenditures from 2009-2028 (Based on Current Environmental Regulations - CAIR)

ITEM	ESTIMATED TOTAL COST ($)
Air Environmental Compliance Plan	
Capital Expenditures	$557,800,000
O&M Expenses	$1,202,200,000
Water Environmental Compliance Plan	
Capital Expenditures	$448,900,000
O&M Expenses	$86,500,000
Solid Waste Environmental Compliance Plan	
Capital Expenditures	$450,500,000
O&M Expenses	$236,900,000
Other Projects Environmental Compliance Plan	
Capital Expenditures	$22,000,000
O&M Expenses	$0

Notes:
1) *Capital expenditures include future Sioux 1 & 2 WFGD*
2) *Future capital values are highly uncertain at this time*
3) *Future studies to be conducted for conceptual cost estimates*
4) *The total dollar amount was rounded to the nearest $100,000.*

Future Air Environmental Compliance Strategy-Alternative Schedule 1 (Compliance with Possible Future Air Environmental Regulations)

- SO_2 Strategy
  - WFGD for Sioux 1&2; in service by 1/2011(under construction)
  - FGD for Rush Island 1&2; in service by 1/2016
  - FGD for Labadie 3&4; in service by 1/2018
  - FGD for Labadie 1&2; in service by 1/2020
  - Allowances used for compliance rather than sold
  - Allowances will be purchased as needed for compliance
- NO_x Strategy
  - Utilization of RRI/SNCR for Sioux 1&2, as needed
  - Allowances used for compliance rather than sold
  - Allowances will be purchased as needed for compliance
- Mercury Strategy
  - Install HACI systems in 2014 and use FA when SO_2 scrubbers are installed

Schedule MCB-S5

Associated Future Capital and O&M Expenditures-Alternative Schedule 1 (Compliance with Possible Future Air Environmental Regulations)

- Capital Expenditures from 2009-2028: $2,989,800,000

- O&M Expenditures from 2009-2028: $2,425,200,000

Schedule MCB-S5

R & D Activities

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Research Activities

Major CO_2 Projects:

- Co-funding the shallow CO_2 sequestration test program by the City of Springfield, Missouri
- AmerenUE plant efficiency improvement team is investigating options with a view towards CO_2 emission reductions
- CO_2 capture demonstration projects
  - 1 MW chilled ammonia at WeEnergies Pleasant Prairie Plant
  - 20 MW chilled ammonia at AEP Mountaineer Plant
  - 25 MW alternate amine at Southern Company Plant Barry
- Washington University Consortium for Clean Coal Utilization
  - Mission - To advance technologies for clean utilization of coal, principally related to CO_2 reduction
  - Lead Sponsors - Peabody Energy, Arch Coal, Ameren
  - Initial funding - $12 million
- Focused on developing options to support the existing fleet of plants

Schedule MCB-S5

Research Activities

- Participating in EPRI Membership Environment-Related Programs
  - Combustion Performance & NO_x Control
  - Integrated Environmental Controls for Power Plants
  - Continuous Emissions Monitoring Systems (includes Hg CEMS)
  - Post Combustion NO_x Control (SCR's-O&M issues)
  - CO_2 Capture and Storage
  - Particulate and Opacity Control
  - Air Toxics Health & Risk Assessment
  - Fish Protection Issues
  - Assessment Tools for Ozone, Particulate Matter, and Haze
  - Assessment of Air Quality Impacts on Health & the Environment
  - Global Climate Policy Costs and Benefits
  - Greenhouse Gas Reduction Options
  - Coal Combustion Products - Environmental Issues
  - Effluent Guidelines and Water Quality Management
  - Power Plant Toxics Characterization
  - Plug-In Hybrid Electric Vehicles

Research Activities

- **EPRI Supplemental Programs**
  - Bio-mass Working Group
  - Mercury Control Interest Group
  - Indigo Multiple Air Pollutant System Pilot
  - SO_2 Control Interest Group
  - Closed Cooling Water Systems
  - SNCR interest group
  - ADA-ES Capture with Solid Sorbents
  - On-site production of activated carbon for mercury removal at Meredosia Plant

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Research Activities

- **Other**
  - Monitor activities of the Plains CO_2 Reduction (PCOR) Partnership, the Midwest Geological Sequestration Consortium, ISGS and others related to geological sequestration of CO_2.
  - Oxycoal project led by Alstom and co-funded by U.S. DOE and utilities.
  - Participate in DOE conferences related to CO_2 capture and sequestration projects and programs.
  - Monitoring and investigating opportunities to obtain funding under the U.S. federal stimulus (American Recovery and Reinvestment Act of 2009) to support CCS, oxycoal, biomass or other environmental-related RD&D.
  - Investigating the potential use of biomass in existing coal plants, e.g. cofiring with coal.
  - Providing advisory support to Washington University regarding establishing a masters' degree and research program in energy conversion, efficiency, and renewables technologies through the mechanical engineering department.

Schedule MCB-S5

Next Steps

- Discuss the value of continuing the environmental strategy briefing sessions
- Continue to monitor development of revised air environmental regulations and update environmental compliance strategy accordingly

Sioux Scrubber Retrofit Project

Progress & Cost Update

June 2009

June 10, 2009

Schedule MCB-S5

Absorber Area

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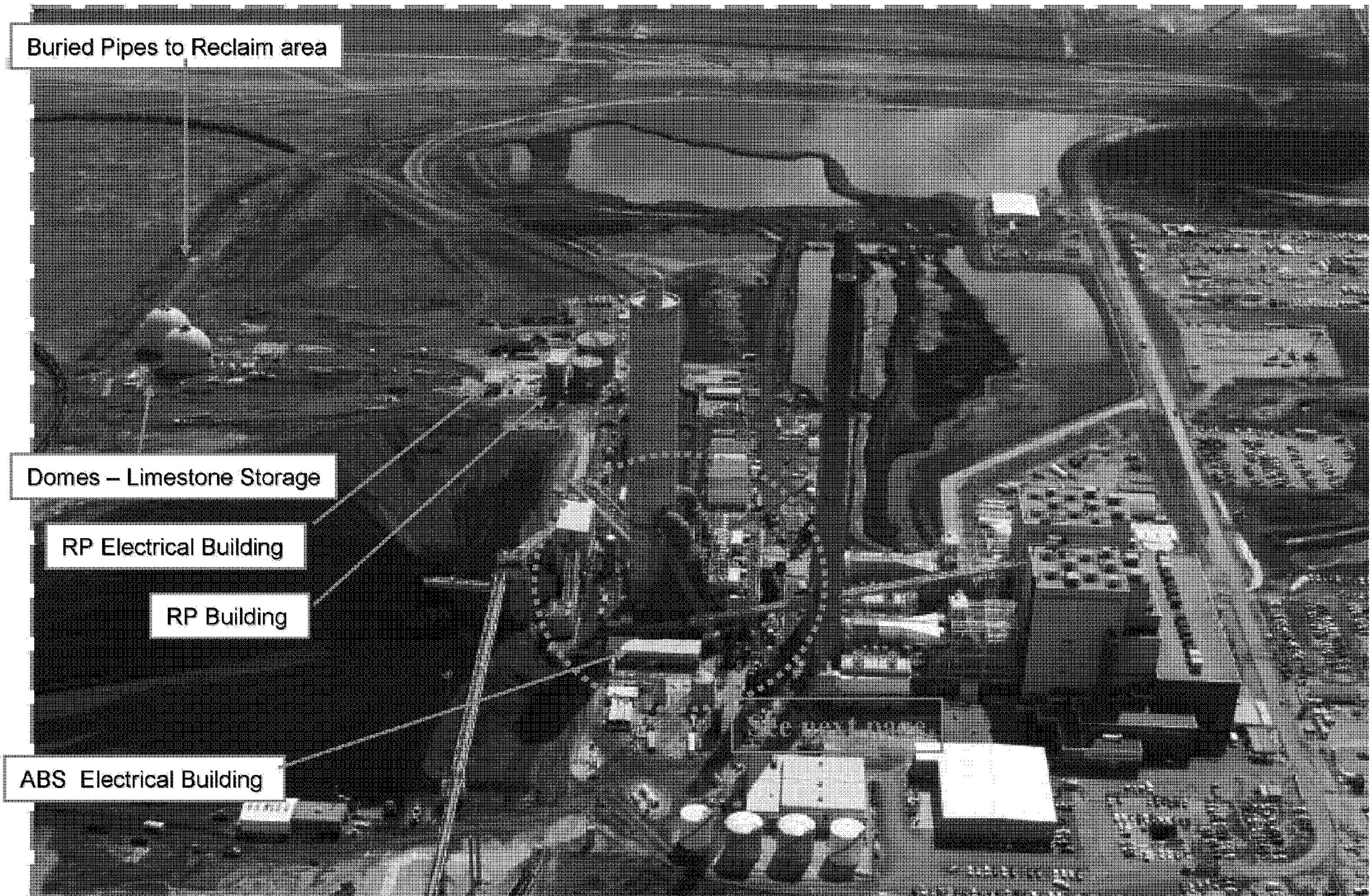
Progress To Date

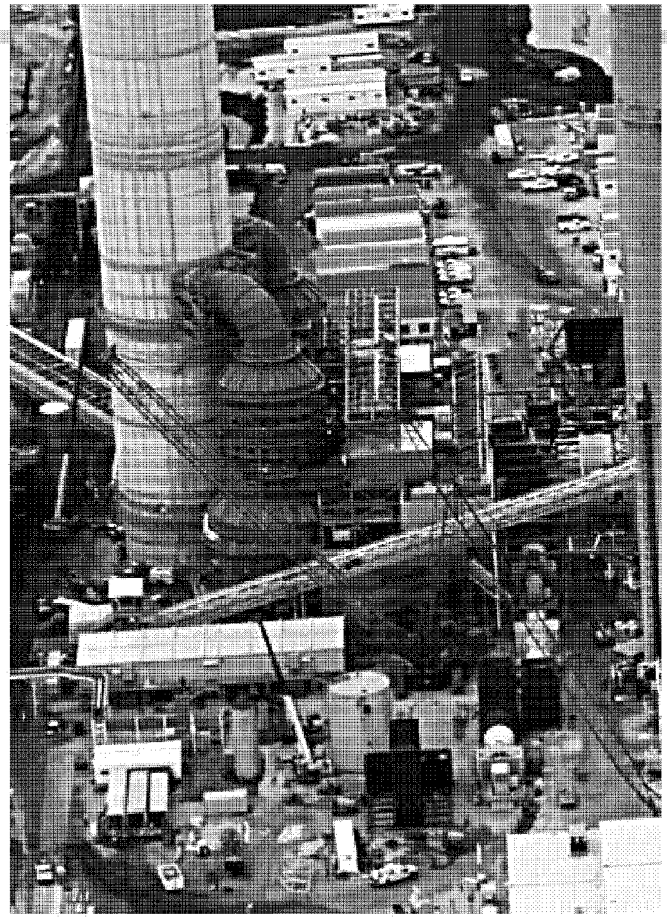
	Percent Complete	
		May-09
Engineering		98%
Construction		
General contractor (MCI)		57%
Electrical contractor (Sachs)		36%
Chimney contractor (Karrena)		99%

FGD Area, March 09



Schedule MCB-S5

FGD Absorber Area, March 09



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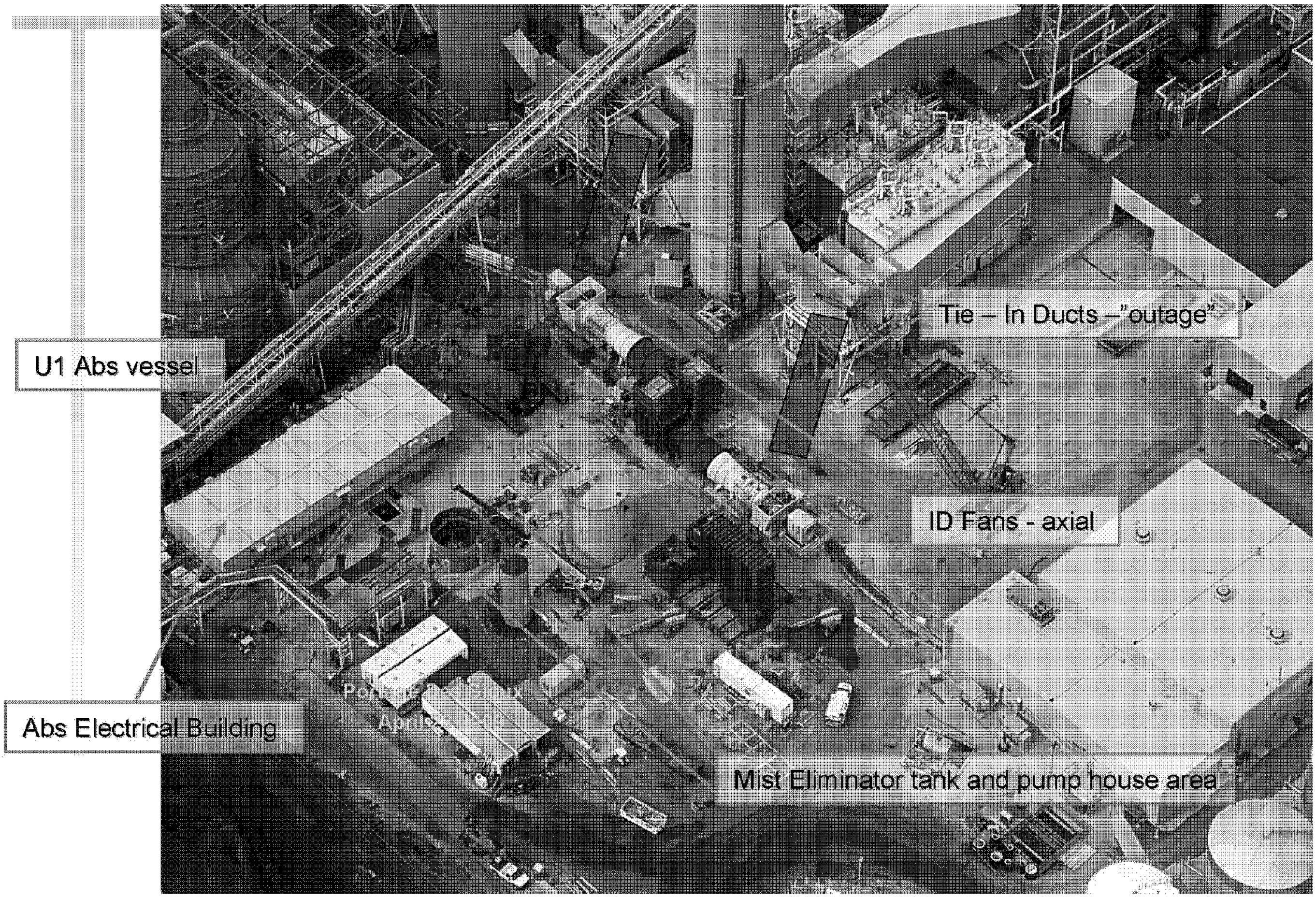
U1 Induced Draft(ID) Fan Area



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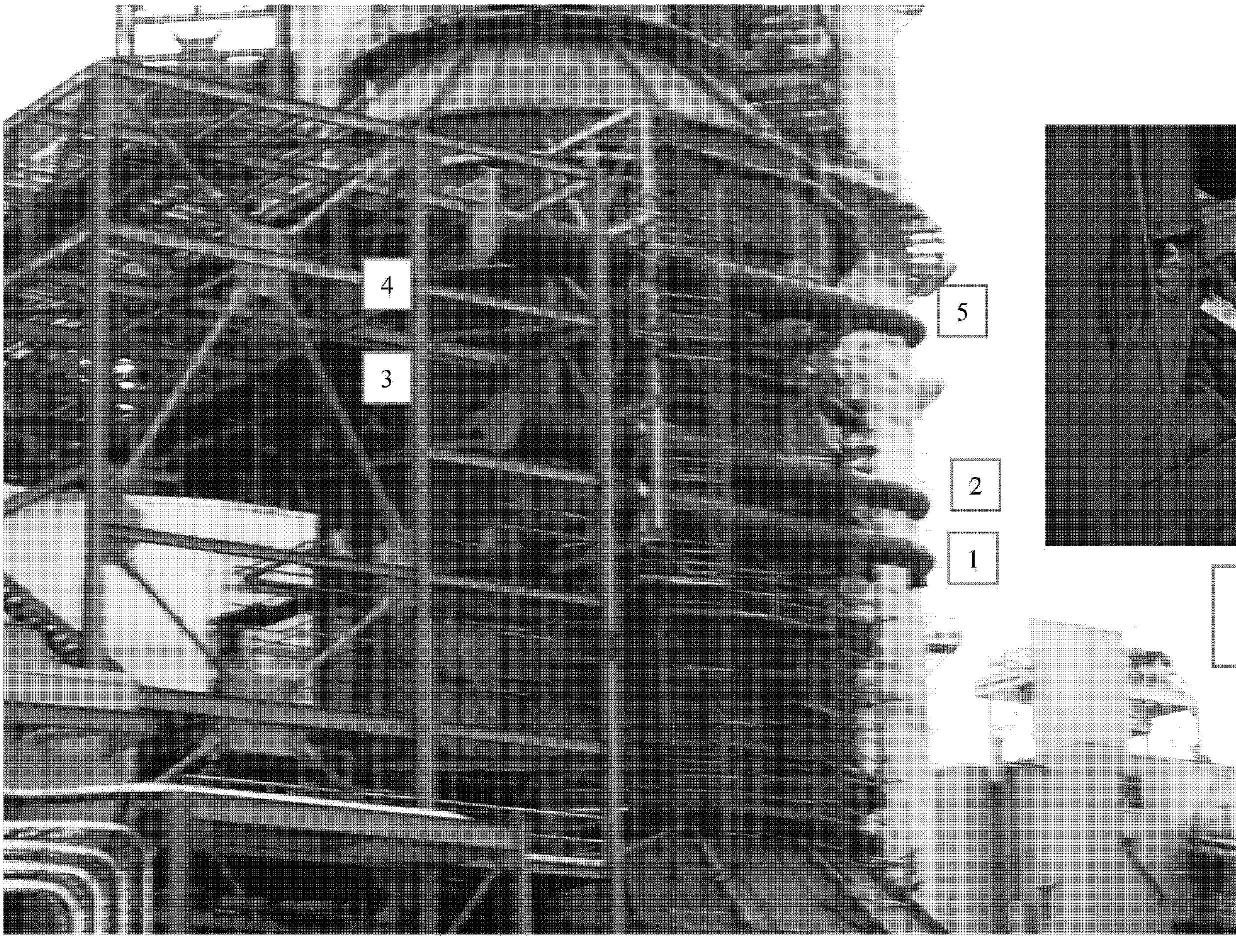
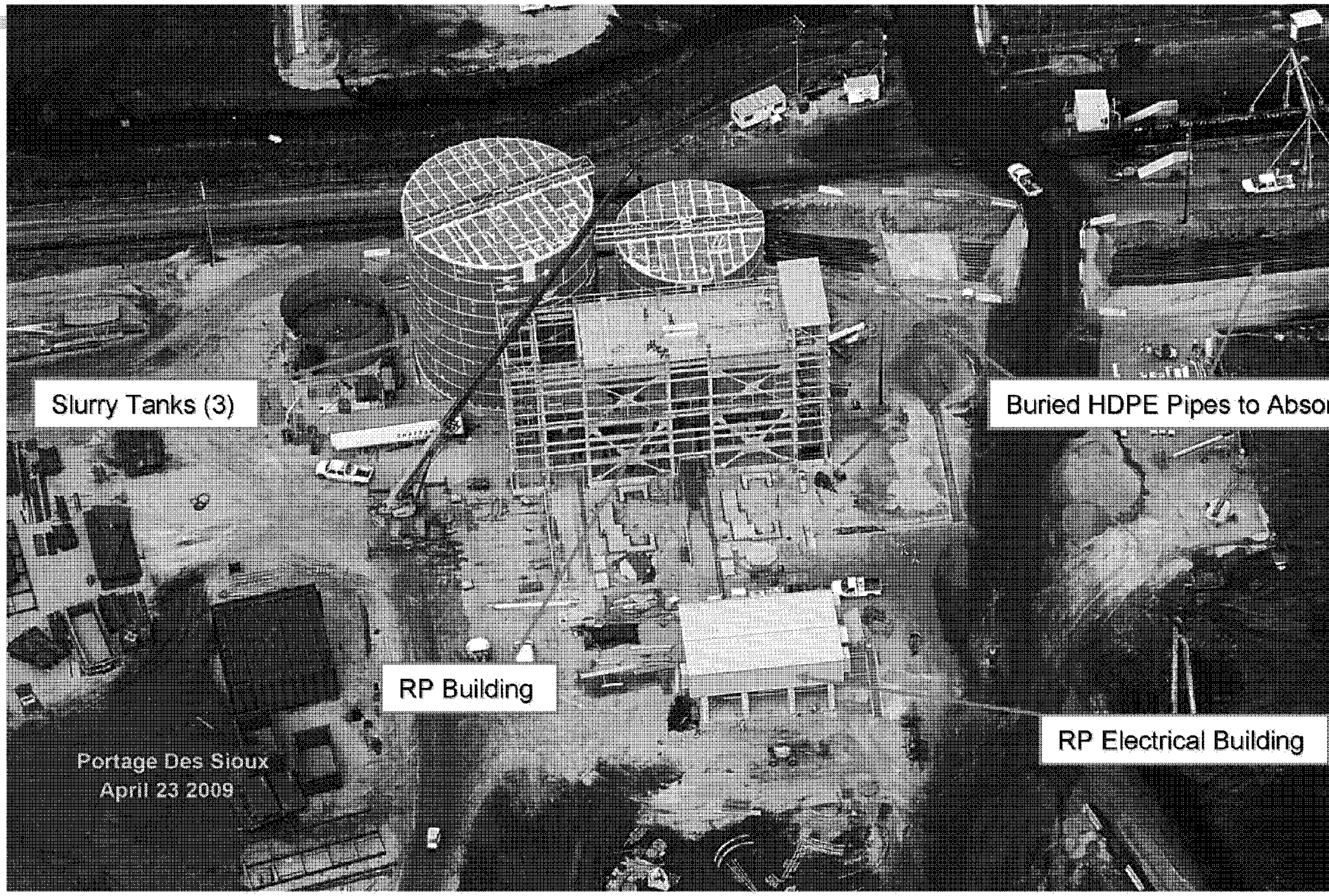
Absorber Vessel Recycle Piping



Recycle nozzle to vessel,
5 per spray level, 5 levels

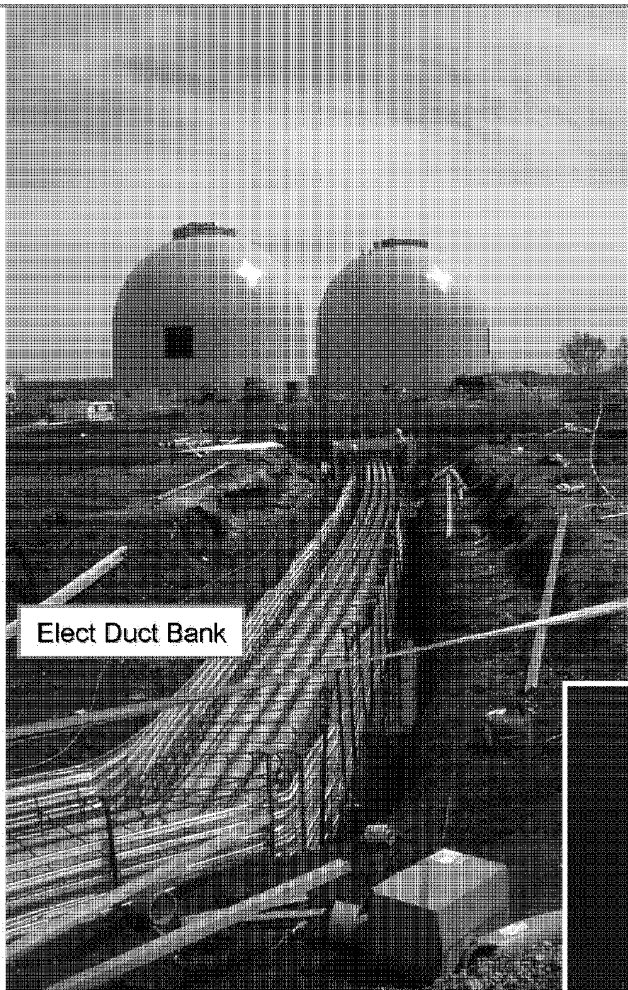
Schedule MCB-S5

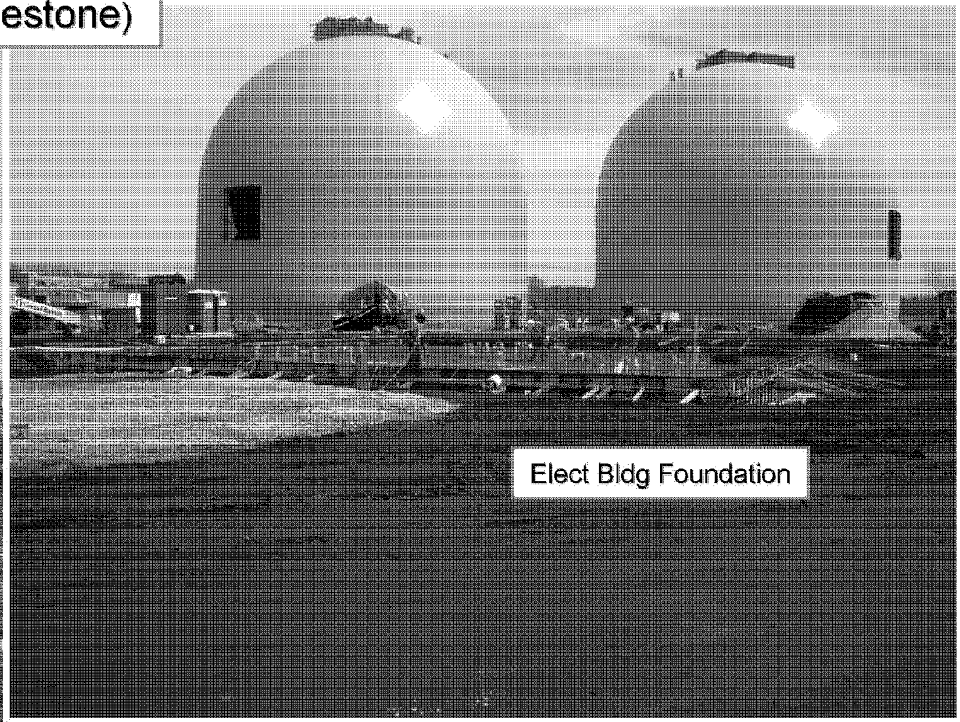
Reactant Prep Area

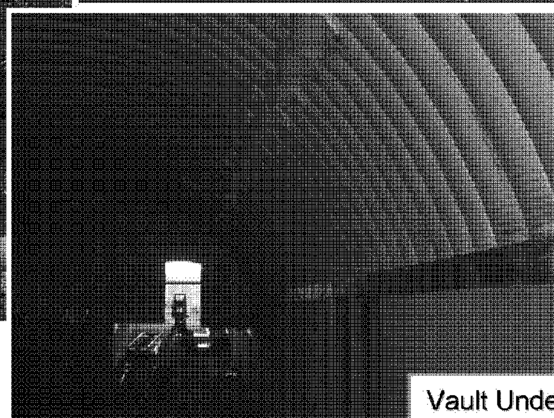


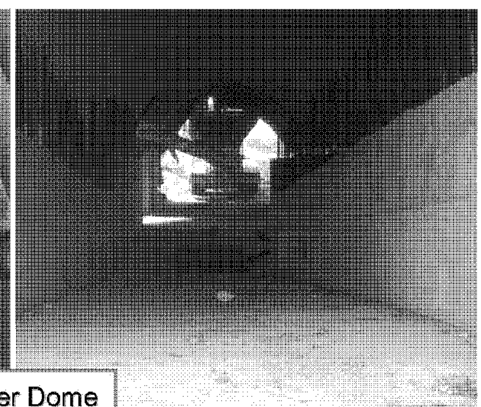
Schedule MCB-S5

Dome storage Area (Powdered Limestone)









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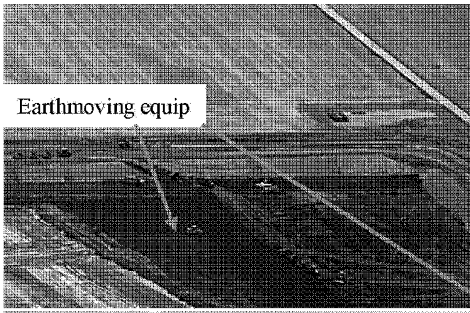
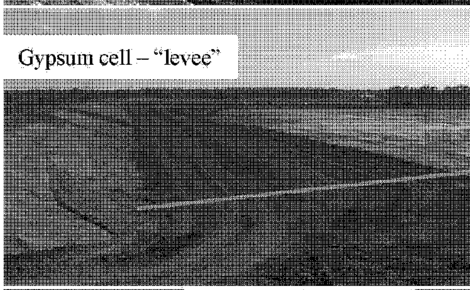
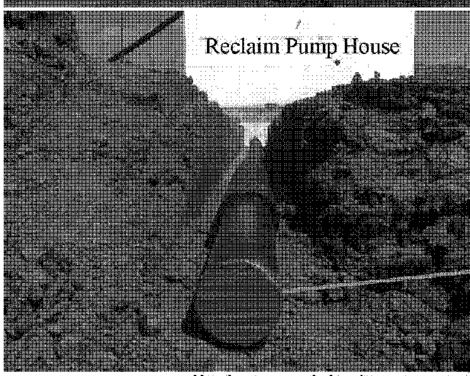
Schedule MCB-S5

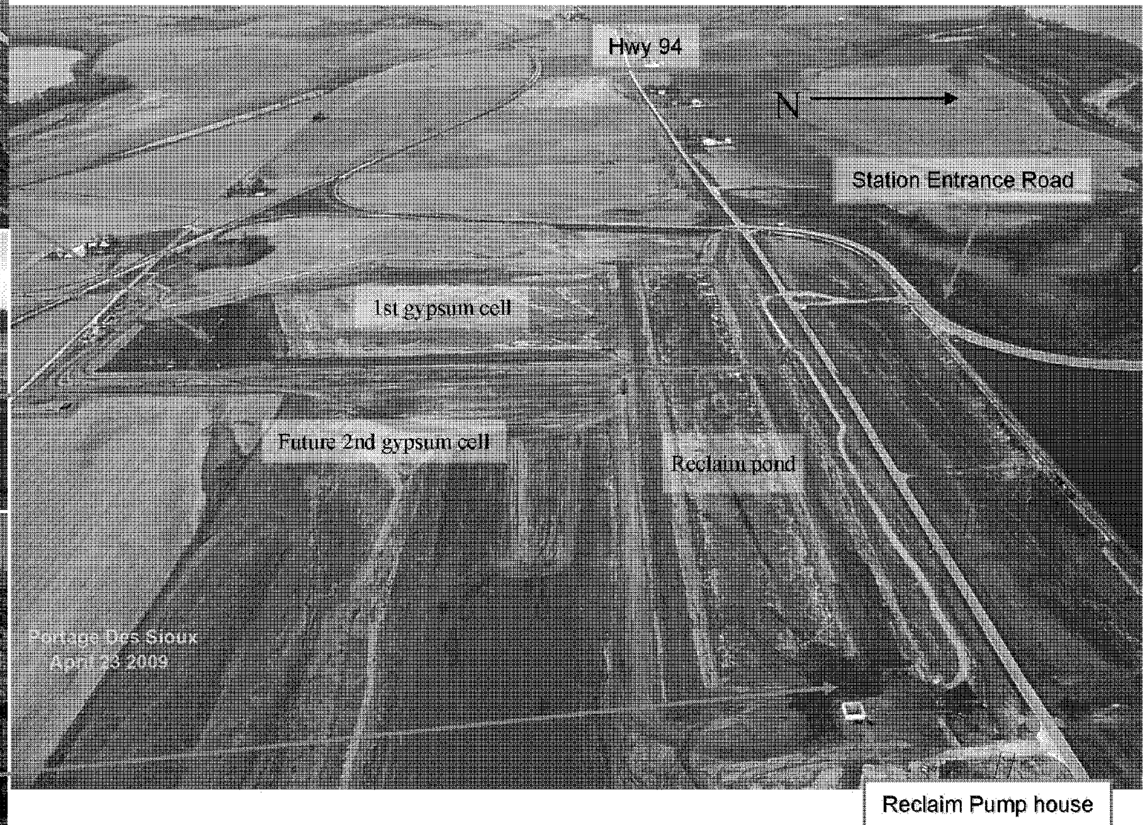
Gypsum Cell and Reclaim Pond





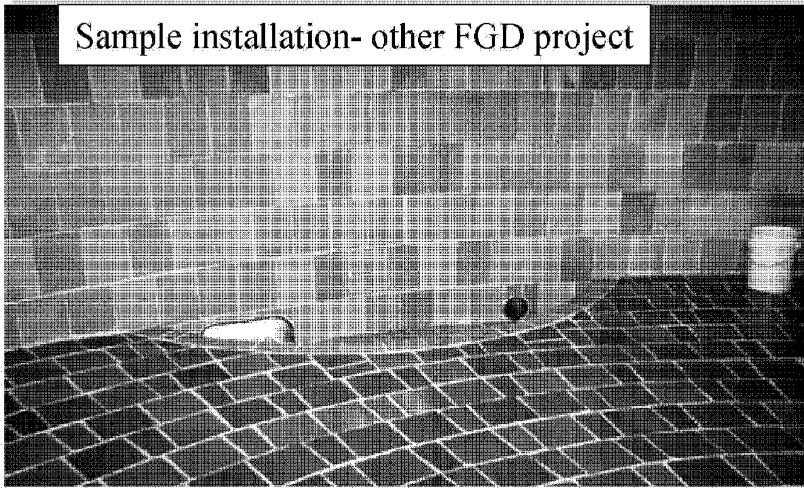


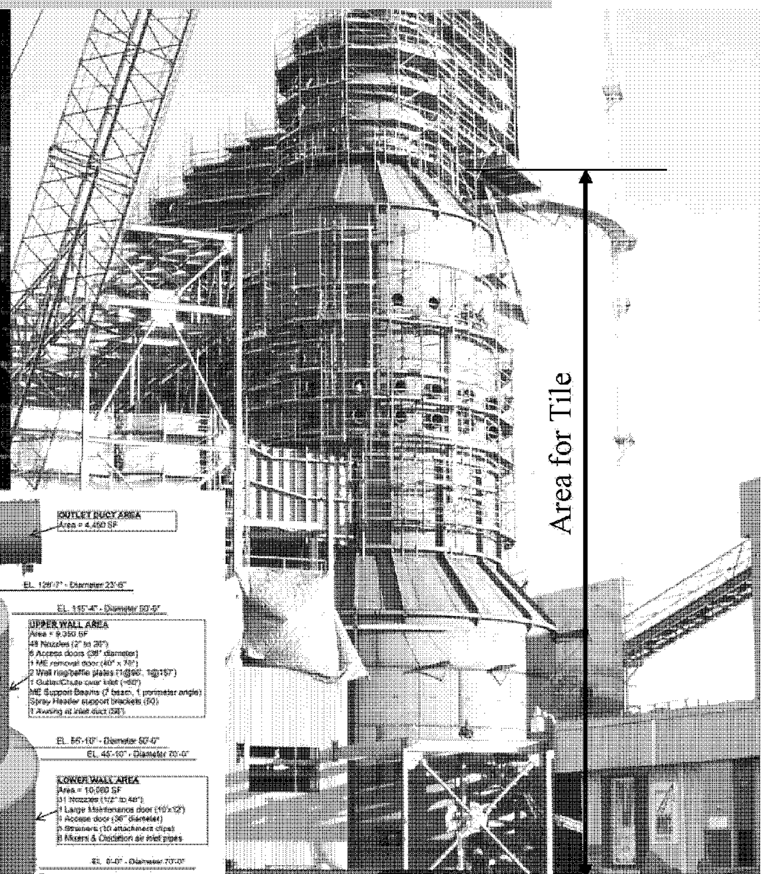
Reclaim pond discharge pipe

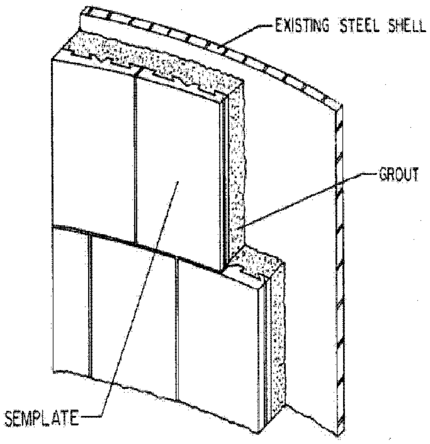


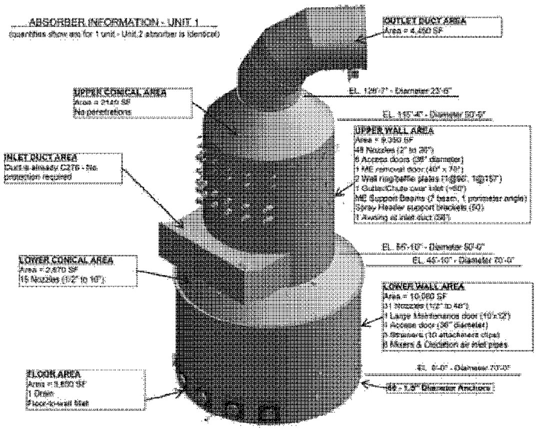
Schedule MCB-S5

Stebbins Interior Tile Lining









Schedule MCB-S5

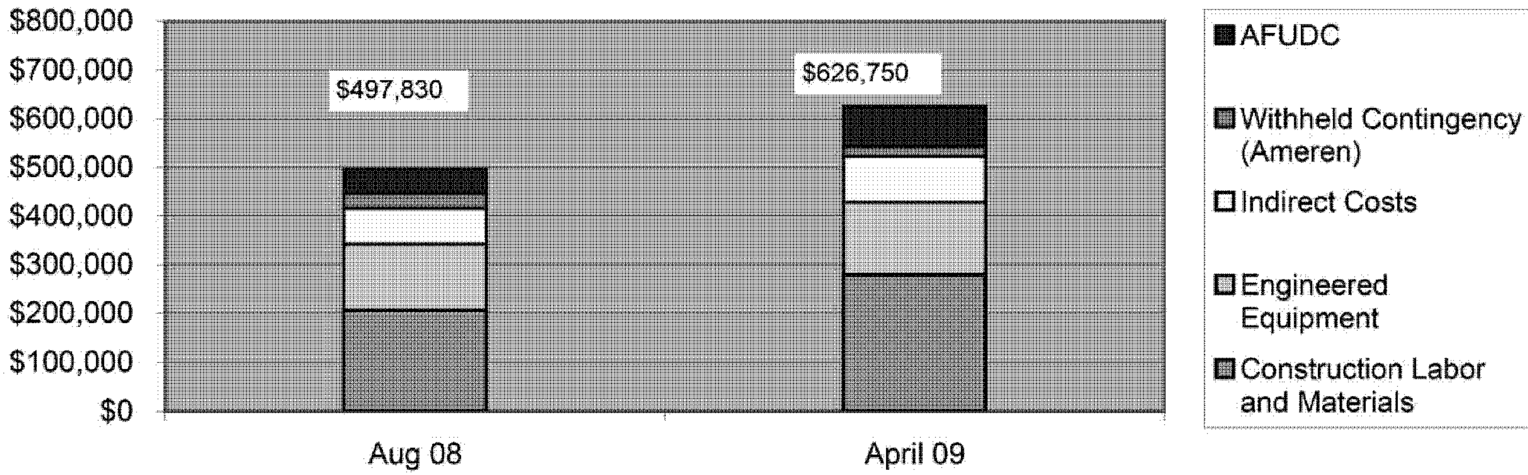
Capital Cost Update

Note: All costs are given in thousands of U.S. $

Schedule MCB-S5

Capital Cost Update

* Thousands, U.S. $



	Aug 08	April 09	Delta
Construction Labor and Materials	$206,186	$279,002	$72,816
Engineered Equipment	$135,187	$148,946	$13,759
Indirect Costs	$73,104	$95,259	$22,155
Withheld Contingency (Ameren)	$30,830	$18,374	($12,456)
AFUDC	$52,524	$85,166	$32,642
Total	$497,830	$626,750	$128,920

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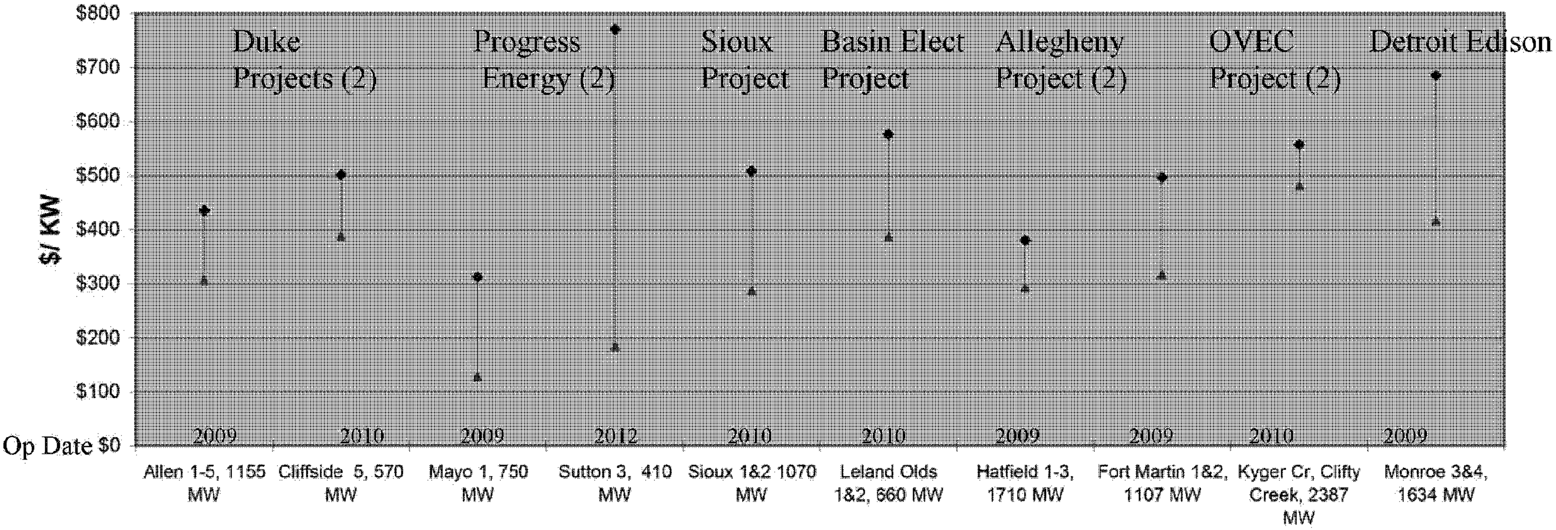
FGD Retrofit Cost Experience - April 2009



- Duke (2)*
  - Started Procurement in 2005
  - 95% Sulfur Removal
  - Medium Sulfur Coal
  - Spray Towers
- Progress Energy (2)*
  - Started Procurement in 2005
  - 95% Sulfur Removal
  - Medium Sulfur Coal
  - 1-Spray Tower
  - 1- Dry in 2012
- Sioux Project*
  - Started Procurement in 2005
  - 99% Sulfur Removal
  - Medium Sulfur Coal
  - Spray Towers
- Allegheny Projects (2)
  - Started Procurement in 2006
  - 95% Sulfur Removal
  - High Sulfur Coal
  - Spray Towers
- Basin Electric (1)*
  - Started Procurement in 2006
  - 95% Sulfur Removal
  - Lignite or PRB
  - Spray Towers
- Ohio Valley Elect Corp
  - Started Procurement in 2006
  - 98% Sulfur Removal
  - High Sulfur Coal
  - JBR
- Detroit Edison (1)
  - Started Procurement in 2005
  - 90%+ Sulfur Removal
  - Medium Sulfur Coal
  - Spray Towers

Triangle – Original estimate.
Diamond – Most recent estimate.
*Verified Costs exclude AFUDC

Sources: Various Rate Cases Filings, Annual Reports & Publications.

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