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Witness:	Mark Birk
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2011-0028

REBUTTAL TESTIMONY

OF

MARK BIRK

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
March, 2011

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REBUTTAL TESTIMONY

OF

MARK BIRK

CASE NO. ER-2011-0028

Q. Please state your name and business address.

A. My name is Mark Birk. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, MO 63103.

Q. Are you the same Mark Birk who filed direct testimony in this case on September 3, 2010?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to address five topics. First, I will address the "rate design" testimony of Missouri Industrial Energy Consumers' ("MIEC") witness James R. Dauphinais relating to the forced outage rates ("EFOR") and equivalent availability ("EAF") of Ameren Missouri's base load generation facilities, and its coal-fired generation facilities in particular. Mr. Dauphinais and MIEC witness Maurice Brubaker ask the Commission to increase the reporting requirements relating to generating plant efficiency, in part based upon Mr. Dauphinais' discussion of these performance metrics. Second, I will address MIEC witness Greg Meyer's and Staff witness Lisa Hanneken's adjustments of Ameren Missouri's proposed coal-fired power plant maintenance expense. Third, I will respond to the two proposed Staff disallowances of a portion of the Company's investment in wet flue gas desulfurization ("WFGD") units (scrubbers) at its Sioux Plant. The two proposed disallowances are based first, on the Staff's contention that costs in the amount of

approximately $31 million associated with Ameren Missouri's decision to "slow down construction and ultimately shift the in-service dates of the Sioux Scrubbers to fall 2010 from fall 2009 because of this delay and to coordinate the in-service dates with scheduled outages at Sioux Plant," and second, on the Staff's contention that $665,000 in unresolved back charges should be disallowed. Fourth, I will address Staff witness Lisa Hanneken's "placeholder" recommendation to include in the revenue requirement just $2.8 million of limestone costs for the limestone needed to operate the Sioux scrubbers. Finally, I will address Office of the Public Counsel witness Ryan Kind's contention that the Company's "hold harmless" commitment relating to the impact of the breach of the Taum Sauk Plant's upper reservoir should preclude the inclusion in rate base of the capital costs of the new upper reservoir that were described in my direct testimony.

I. Response to MIEC Witness Dauphinais

Q. What are Mr. Dauphinais' principal observations?

A. Mr. Dauphinais in particular examined EFOR statistics for Ameren Missouri's coal-fired generation facilities from 2007 to 2010. He also examined EAF statistics during that same period. He is apparently suggesting (as confirmed by Mr. Brubaker's "rate design" testimony), that these statistics indicate that off-system sales are less than perhaps they should be, which would tend to increase Ameren Missouri's net fuel costs. He doesn't actually claim any imprudence or other inappropriate action on Ameren Missouri's part or that off-system sales were in fact too low, but his view of the statistics he examined lead him to recommend that the Commission "carefully monitor" the performance of the Company's base load generating facilities.

Q. First of all, does the Company have any objection to such "careful monitoring"?

A. No, we don't. The Company has no objection to the annual reporting of Ameren Missouri generating unit statistics, or to providing those statistics to parties to the case where the FAC at issue was established.

Q. Does the Company already provide information on the efficiency and availability of its plants?

A. Yes. Heat rate information for every generating unit is provided in monthly reports the Company submits to the Commission (and serves on the parties, including MIEC) pursuant to the fuel adjustment clause ("FAC") rules. In addition, extensive heat rate testing data is submitted with each rate case filing where there is a request for an FAC or a continuation of an FAC – that information is also available to MIEC. The Company has also been providing the Staff with generating unit availability data of the type I believe Messrs. Dauphinais and Brubaker are contemplating since the early 1990's as part of the reporting that is required by 4 CSR 240-20.080. As I indicated, the Company has no objection to providing Ameren Missouri generating unit reports not just to the Staff, but also to those who were parties to the rate case where the latest FAC was approved. This information should allow the Staff and MIEC to conduct whatever "careful monitoring" they desire.

Q. Aside from the reporting discussed above, Mr. Dauphinais provides graphical information regarding EFOR and EAF for the coal-fired units from roughly 2007 to 2010. Does that information portray an accurate picture regarding the performance of the Company's coal-fired fleet?

A. No, it does not because the analysis takes an incomplete and simplistic view of power plant availability.

Q. Please explain how you believe that Mr. Dauphinais has over-simplified power plant availability issues.

A. In my opinion he has focused on two metrics over a relatively short period of time without taking into account other relevant metrics as well as other important considerations that must be assessed before one can draw any conclusions about overall power plant performance.

Q. What must be done to accurately assess performance of the base load fleet?

A. To accurately assess the performance of the fleet you must not only look at EFOR and EAF, but you must also look at planned outages, consider the reason planned outages are done, and the timing of them, consider the impact of all of the various factors on availability, and finally, you must review that data over a longer period of time than the period Mr. Dauphinais has examined. Consider the situation where we have a planned maintenance overhaul on a unit that lasts for two months during a particular year. In that case, the maximum achievable EAF for that unit for the entire year will be 10/12 or 83.3%, assuming that its EFOR for that year is zero. The plant's performance would have been perfect, but the EAF would appear to be lower than usual. The point is that one can't assess fleet performance by just looking at EFOR or EAF numbers over a short time period.

Q. Are there other examples that illustrate your point?

A. There are many, but let me give you one more simple example. Let's assume that in order to improve the coal-fired fleet EFOR by 1% the Company would have to add at

least one additional planned outage every year. A 1% EFOR improvement is equivalent to about 482,114 megawatt-hours ("MWh") per year and a typical planned outage, 60 days in duration, for a large 600 MW unit is equivalent to about 864,000 MWh per year. Thus, in an attempt to improve EFOR as Mr. Dauphinais seems to suggest is important, the Company would actually see a decrease in the total MWh of generation available to serve load or make off-system sales almost twice as large as the 1% improvement in EFOR.

Q. Mr. Dauphinais also uses a 12-month rolling average to review and analyze EFOR. Is this a reasonable method?

A. No, not by itself. If one is to look at a 12-month rolling average for EFOR one must also examine the monthly EFOR data behind that average. This will allow the analyst to spot and identify anomalies which may have occurred during the 12-month period. For instance, during the last 12 months (the period ending February 28, 2011), there were two unusual outages that caused an increase in coal-fired fleet EFOR. The first unusual outage event was a forced outage on the Rush Island Unit #2 generator which occurred shortly after the unit returned to service from a major planned outage. The major outage involved an overhaul of the boiler, which was undertaken to improve plant performance and to hopefully reduce EFOR for the unit.

The generator was not worked on during the overhaul, but it caused the forced outage due to a latent defect arising from work in 2004, when the generator was rewound. But for that defect we would have expected the generator to operate properly for much longer, but unfortunately the latent defect led to a forced outage of approximately 15 days notwithstanding the major planned outage we had just performed. This in turn caused EFOR to go up, but not because of a lack of proper maintenance of the unit.

During this same 12-month period, we had a second somewhat anomalous event. We monitor the performance of our fleet, including the coal-fired fleet, very carefully, using sophisticated monitoring tools and software. That monitoring revealed a problem with Meramec Unit #4's turbine valves, which could have led to even bigger problems, prompting us to take the unit out of service. Because we took the unit out of service when this problem was noticed, the reporting requirements classified this outage as a forced outage, again contributing to higher EFOR. Although EFOR went up, taking the unit offline to correct the problem likely prevented a lengthier forced outage in the future. I would also like to point out that other boiler and balance of plant work was performed during that outage, which eliminated the need for what had then been an outage planned for the spring of 2011. Consequently, we had a forced outage on this unit, which reduced its MWh of output at that time, but we are avoiding a longer planned outage later, which will increase its MWh of output then.

Both of these somewhat anomalous events are depicted on Schedule MCB-ER6, attached hereto.

Q. Mr. Dauphinais also used a 12-month rolling average to review and analyze EAF. Is this reasonable?

A. No, it is not because 12 months is also too short a period to measure EAF. In fact the Company, the Staff and even MIEC use a 6-year average of availability metrics in their production cost modeling to develop normal annualized net fuel costs. Six years of availability data is used to smooth out the impact of the major planned outages and to smooth out the unique forced outages which occur at random intervals such as the aforementioned Rush Island Unit #2 and Meramec Unit #4 outages.

Q. What is the 6-year coal fleet EAF trend over the 2007 to 2010 time frame examined by Mr. Dauphinais?

A. The following table shows the Company's coal fleet 6-year average EAF as well as the 1-year average for time periods discussed by Mr. Dauphinais in his testimony.

Coal Plant EAF	1 year avg.	6 year avg.
December 2007	89.4	86.2
March 2009	88.7	87.7
August 2010	87.0	88.4
February 2011	87.0	88.6

Q. What does this table tell us?

A. This table shows that based on the 6-year averaging method that all parties use to make sure that normal availability is being modeled to set rates, EAF for the coal fleet is actually improving. This illustrates how Mr. Dauphinais' use of just a one-year average can lead to inaccurate conclusions.

Q. Please elaborate on why the one-year average EAF presented by Mr. Dauphinais can lead to inaccurate conclusions.

A. The one-year EAF average can lead to inaccurate conclusions because a one-year period is just too short a time period to evaluate what a normal EAF is or should be. As mentioned earlier, there were two unique, non-recurring EFOR events that occurred during just the last 12 months, and there have also been several planned outages, such as those associated with the tie-in of the Sioux scrubbers, that would not be considered "normal."

Q. Are there other items that effect EAF?

A. Yes, there are several issues that have an impact on plant availability. One such issue, cycling of the units, has been more prevalent for our coal-fired fleet in the past

couple of years. The negative impact of cycling (i.e. raising and lowering load frequently) on EFOR has been well documented in industry publications such as EPRI and Power Magazine. *See Damage to Power Plants Due to Cycling*, EPRI July, 2001; *Reducing the Adverse Impacts of Power Plant Cycling*, Power Magazine online, October 1, 2008.

Q. Why have Ameren Missouri's coal units been cycled more frequently in recent years?

A. There are two primary drivers of the increased cycling which may also be driving up EFOR. First, the downturn in power prices we have seen since the latter part of 2008, and which continues to persist, means during the night time periods power prices are frequently lower than the cost of operating the Company's coal-fired generators, thus the coal generation is off loaded or "cycled" more frequently than prior to the decline in power prices. Second, the proliferation of wind resources in the footprint of the Midwest Independent Transmission System Operator, Inc., ("MISO") has also increased cycling on Ameren Missouri's system. The registered wind capacity in MISO has grown from 2,400 megawatts ("MW") in January 2007 to 9,200 MW in January 2011. The increase in wind capacity has resulted in increased cycling because wind is an intermittent and unpredictable resource. The wind may blow very hard at times, which will displace coal-fired generation and cause it to cycle down, and then the wind may stop blowing, requiring that the coal-fired generation cycle back up.

Q. Are there other factors that may be increasing EFOR?

A. Yes. The length of intervals between major boiler work can also contribute to an increase in EFOR. Forced outages can occur as tube leaks in the boiler occur. Tube leaks

typically drop after a major boiler overhaul and then will gradually increase over time until the next major boiler overhaul.

For example, a review of the boiler tube leak outages indicates that Labadie Unit #2 is having an increasing number of tube leaks since its last major overhaul, which was done in 2004, and these forced outages are a major contributor to the coal fleet EFOR increase cited by Mr. Dauphinais. Due to the increasing frequency of tube leaks, the Company has advanced its planned outage for Labadie Unit #2 by one year, to the fall of 2012.

Q. Why doesn't the Company just overhaul the boilers more often?

A. Because a slight increase in EFOR due to more tube leaks does not necessarily indicate that the frequency of major overhauls should be shortened. The optimal timing of major overhauls requires a thorough analysis to determine what level of plant availability is optimal. As I discussed earlier, more planned outages may reduce EFOR, but they may result in lower overall plant availability. More specifically, consider the fact that a forced outage for a tube leak repair typically takes only 4 days while a planned overhaul normally takes at least 60 days, or the equivalent of 15 forced outages. Thus availability improvements from a planned overhaul would have to more than offset the amount of outage time associated with 15 tube leaks for the overhaul to improve overall plant availability.

Q. Do other factors impact the metrics Mr. Dauphinais is using?

A. Yes. The age of equipment also impacts overall EAF. The average age of the Ameren Missouri coal fleet is more than 40 years and just like an older car as our units continue to age more equipment wears out leading to the need for greater spending (both capital and O&M) to maintain current or historical EAF levels than when the plants were younger.

Q. Can you provide additional insight into the Ameren Missouri overall coal-fired fleet performance?

A. Yes, Schedules MCB-ER4 through MCB-ER6 attached hereto show (a) EAF for the Company's coal-fired fleet; (b) planned outage factors for the coal-fired fleet; and (c) EFOR for the coal-fired fleet. These schedules show these three measures over a ten-year period, and present both a 12-month (blue line) and a 72-month (thick green line) rolling average for each measure. It is critical to examine a relatively long period of time given the planned maintenance outage cycles utilized by the Company, and for the reasons discussed earlier, it is also critical to examine rolling averages over different periods to avoid having the data becoming skewed by the timing of a particular planned or forced outage. Finally, it is important to examine the monthly data (red line) so that individual events that impact the overall statistics can be observed.

Q. What do Schedules MCB-ER4 through MCB-ER6 tell us about the performance of Ameren Missouri's coal fleet?

A. These schedules show that the performance of Ameren Missouri's coal fleet has improved over the last ten years. Schedule MCB-ER4 shows that the overall availability of the coal-fired fleet was in the mid-70 percents in about 2000, and today is pretty consistently in the mid-to upper 80 percents.

Schedule MCB-ER5 shows that our coal-fired base load fleet was out of service for planned outages approximately 11 to 12 percent of the time in the early 2000s, but is generally out of service for planned outages only approximately 4-5% of the time today.

Finally, Schedule MCB-ER6 shows that EFOR levels are also lower than in the early 2000s.

Q. At various places in his testimony Mr. Dauphinais presented data for the coal-fired fleet alone, and for the entire base load fleet (coal-fired and nuclear). Schedules MCB-ER4 through MCB-ER6 address the coal-fired fleet. Do you have any observations about the nuclear fleet?

A. Yes, in Schedules MCB-ER7 through MCB-ER9, I present similar information for the Callaway Plant. In general EAF is slightly higher today than in the early 2000s. The noteworthy item on these Schedules is that there was an upward tick in EFOR (and a downward tick in EAF) in 2010 arising from an unexpected problem encountered at Callaway during the refueling outage that started in April 2010. For the first time in the plant's history, control rods became stuck during normal start-up testing, which ended up extending what had been a 38-day planned outage to an outage lasting 56 days, 18 of which were forced because of the control rod problem. This is an event we don't expect to occur again, nor was it one that we could have avoided. But if one looks at these statistics over a short time frame these kinds of one-time events may suggest a "trend" that in fact, in normal operations over time is not a trend at all.

Q. Can you provide some examples of how Ameren Missouri in fact proactively manages its coal-fired fleet availability?

A. Yes. As I discussed earlier, during the aforementioned Meramec Unit #4 forced turbine outage which occurred in the fall of 2010, other boiler and balance of plant work was performed, which eliminated the need for what had then been a scheduled spring 2011 major overhaul. In other words, we took advantage of the forced outage by improving other components of the unit at the same time that the turbine was repaired. Since returning

to service in November of 2010 Unit #4 has had an EAF of approximately 95% and an EFOR of approximately 4.5%.

In 2009, mini overhauls were scheduled and performed on Labadie Unit #3 and #4 for air heater basket replacement. These short outages were done ahead of the previously planned major overhaul timetable in order to eliminate de-rates that we were starting to see, and to recover approximately 20-30 MW of capability that had been lost on each unit over time. Late last year we also moved a Rush Island Unit #1 scheduled overhaul from the spring of 2012 to the spring of 2011 to eliminate a turbine de-rate that we were starting to see, and to also install two new LP turbine rotors, which should increase the Rush Island Unit #1 capacity while improving the unit's overall efficiency by over 2%.

These are the kinds of things that we do on an ongoing basis to improve EAF and efficiency by effectively planning and scheduling overhaul work.

Q. Mr. Dauphinais and Mr. Brubaker seem to be suggesting that the existence of an FAC may have changed the way that Ameren Missouri manages its overhaul schedules or plant availability. Have any changes been made?

A. No, Ameren Missouri continues to manage its overhaul schedules and plant availability using exactly the same philosophy it did prior to implementation of the FAC in March 2009. Our philosophy is driven by considerations of safety, equipment reliability, market conditions (economics) and resource availability. If any of these variables change we perform the necessary review and adjust our maintenance overhaul schedules accordingly.

Q. Do you have any final comments about Messrs. Dauphinais' and Brubaker's observations?

A. Yes. As I discussed in detail in my testimony in the Company's last rate case, in approximately 2003, the Company determined that it could maintain or improve a relatively high level of equivalent availability at its coal-fired units while also extending the interval between major planned outages from an historic 18-24 month interval to intervals of three to four years, depending on the unit (the cyclone units at the Sioux Plant require more frequent planned outages). As the Company continued to study the issue, it determined that it could extend those intervals even further like most of the industry was doing, to approximately six years between planned outages. Extending these intervals not unexpectedly results in higher EFOR, but over time (as shown on Schedule MCB-ER4) it also results in higher EAF. As I discussed earlier, a planned outage typically "takes away" more MWh of generation than does experiencing more forced outages.

If one looks at Schedule MCB-ER5, the change in intervals between planned outages can be readily observed. (I have labeled the period of transition to longer intervals.) Consequently, it is not surprising to me that during the period Mr. Dauphinais examined EFOR has increased; we expected that to be the case. I would also point out that I have noted on Schedule MCB-ER5 the deferral of planned maintenance outages on our coal-fired units in 2009 due to the liquidity problems we were confronting in late 2008 and early 2009, as discussed by Ameren Missouri witness Jerre Birdsong in his rebuttal testimony. Those deferrals essentially delayed us getting back on a normal planned outage cycle (post- the transition to longer intervals between outages) and also contributed to higher EFOR and lower EAF in 2010. However, starting in 2010 we were able to get back on cycle and are taking approximately two major planned outages each year. This has also decreased EAF in 2010, but I would expect the impact of those planned outages should begin to appear in our

EFOR statistics in 2011 and beyond. I would also note that 2010 was a good year to take planned outages given the low power prices we saw during that period. In other words, a lower EAF during a low power price period means any reduction in off-system sales experienced because of the lower EAF will have a lesser impact on our overall net fuel costs.

II. Normalization of Coal-Fired Plant Maintenance Expense

Q. Please explain the issue that has been raised regarding the normalization of Ameren Missouri coal-fired plant maintenance expense.

A. MIEC witness Greg R. Meyer proposes that the revenue requirement for this case be set based upon the level of coal-fired plant maintenance expense included in the revenue requirement in the Company's last case--$110.2 million.

Q. What normalized level of coal-fired power plant maintenance expense did Ameren Missouri include in the revenue requirement in this case?

A. Ameren Missouri expected to spend approximately $113 million in the trued-up test year (i.e., the 12-months ending February 28, 2011), which is the amount we included in the revenue requirement in this case. Consequently, when we filed this rate case we made a pro-forma adjustment of $9.5 million to the test year level of expense (approximately $103.5 million) to bring the revenue requirement figure up to the expected expenditure level. I just received the final figures for the trued-up test year, and in fact we spent $111.6 million during that period – just 1.24% less than the $113 million we requested in this case.

Q. How did Mr. Meyer respond to this request?

A. Mr. Meyer reviewed the Ameren Missouri request for a $9.5 million increase to the test year expense for coal-fired plant maintenance, and segregated it into its labor and

other (non-labor) components. While he supports a $1.5 million increase for the labor component, he only supports $5.2 million of the $8 million requested for the non-labor component. It appears he just backed into the calculation of $5.2 million of additional dollars for the non-labor component by starting with the $103.5 million from the test year, adding the $1.5 million for the labor component, and then subtracting that sum ($105 million) from the $110.2 million from the last case.

Q. Will $110.2 million be sufficient to fund the Company's maintenance plans during the period when rates set in this case will be in effect?

A. No. As I already noted, we spent $1.4 million more than that in the trued-up test year period, and I expect to spend more than that on an annual basis in the coming years. I would note that a mandatory union employee wage increase of 3% (required by existing contracts) will take effect on July 1, 2011, putting more upward pressure on maintenance costs. That wage increase alone will add at least an additional $1.4 million to what we spent for the 12-months ending February 28, 2011, all else being equal, and associated benefit increases will add even more. If just the $1.4 million for wage increases is added to the $111.6 million we spent in that period, it is easy to see that the $113 million we requested is reasonable. I would also note that we are beginning to see inflationary increases in commodities and consumables, which will put upward pressure on non-labor maintenance costs as well.

Q. What is your recommendation for coal-fired fleet maintenance expense for use in setting the revenue requirement in this case?

A. I continue to recommend $113 million. When one accounts for the known and measurable wage increase that will take effect before rates from this case are set, under

the contracts already in place, coupled with the trued-up test year expenditure level, it is reasonable to expect that $113 million is a normal level of expense.

Q. Do you have any other observations on this issue?

A. Yes, I do. Because of the way the test year fell, during the test year (without true-up), which was from April 1, 2009 to March 31, 2010, there was only a portion of one major overhaul in the coal-fired fleet -- Rush Island Unit #2. This outage began on January 1, 2010, and was completed in April 2010. Consequently, not all of the maintenance costs for even that one major outage were reflected in the test year. Using the test year, as Mr. Meyer does, as the starting point for calculating a normal level of maintenance expenditures understates those expenditures. Moreover, as discussed in my testimony in the Company's last rate case, all other previously scheduled major overhauls for 2009 were deferred due to the necessity to reduce capital expenditures in 2009 because of the severe liquidity/credit concerns that arose in late 2008 due to the financial crisis that occurred at that time. Ameren Missouri witness Jerre Birdsong provides additional information regarding those liquidity/credit concerns in his rebuttal testimony. In 2010 we returned to a normal, ongoing level of maintenance, completing mini overhauls on Meramec Unit #2, Labadie Unit #2 and Labadie Unit #4, and major overhauls on Rush Island Unit #2, Meramec Unit #4, Sioux Unit #2 and a scrubber tie in outage (about 3 weeks) on Sioux Unit #1 late in 2010.

Our current outage planning philosophy is:

- To build our outage schedule around turbine-generator inspection and maintenance recommendations established by the original equipment manufacturer. Major turbine-generator work will be given the highest priority when resources are limited.

- To maintain a coal plant maintenance expense budget of approximately $113 - $114 million per year which includes expenses associated with all major overhauls, mini-outages and general coal plant maintenance. We believe this level of maintenance best balances our safety requirements while attempting to preserve reasonable EAF levels.
- To perform boiler and balance of plant work during major and mini overhauls and take short boiler outages using the remaining available resources.

Q. Is the Staff's recommendation for coal plant maintenance expenses more reflective of the current and expected level of expenses than the amount recommended by Mr. Meyer?

A. It is certainly closer, although for the reasons discussed above, it is still slightly inadequate.

III. Proposed Disallowances for the Sioux Scrubber Project

Q. Please explain the issue that has been raised regarding the slowdown of the Sioux scrubber project.

A. The Staff is recommending that the Commission exclude from rate base approximately $31.6 million as a result of Ameren Missouri's decision to slow down the construction of the Sioux scrubbers in November 2008. As the Commission likely recalls and as discussed in the rebuttal testimony of Ameren Missouri witness Jerre Birdsong, turmoil arose in the capital markets in the third quarter of 2008 following events such as the Lehman Brothers' bankruptcy, which raised severe liquidity concerns throughout the country, including for Ameren Missouri. This prompted the Company to substantially reduce planned capital expenditures in 2009. Given that the Sioux scrubber project was the single

largest capital project planned for 2009, the only way to achieve those substantial capital expenditure reductions in 2009 was to make a substantial reduction to the scrubber project expenditures in 2009.

The Staff contends, however, that Ameren Missouri did not need to reduce capital expenditures during 2009 in order to improve its liquidity position.

Q. What is Ameren Missouri's response to the Staff's position?

A. The Company strongly disagrees, as explained in detail in Mr. Birdsong's rebuttal testimony. While Mr. Birdsong explains why the Company's decision to reduce capital expenditures in 2009 for the Sioux scrubber project was prudent, I will explain below how the Company's decision to reduce capital expenditures affected the various construction and maintenance projects under way or scheduled at the time within Power Operations – including the Sioux scrubber project.

Q. At the time the decision was made to reduce capital expenditures in the fall of 2008, what reductions were considered by Power Operations?

A. As noted earlier, we obviously had to consider deferral of major construction projects because of the dollars involved. We also considered deferring other significant expenditures, such as the deferral of major overhauls, equipment replacements, upgrades at the coal plants and at the Keokuk run-of-river plant, and the deferral of the purchase of the Labadie landfill property.

Q. Other than the decision to slow down construction of the Sioux scrubber project, what other reductions were actually made in Power Operations as a result of the severe liquidity crisis?

A. Due to the liquidity crisis, major overhauls for Rush Island Unit #2, Labadie Unit #4 and Meramec Unit #4 scheduled for 2009 were all delayed by one year. The Ameren Missouri Power Operations capital budget for 2009 was reduced approximately 17% and the O&M budget was reduced approximately 30%. Approximately $168 million of capital projects, including the Sioux scrubber project, were delayed or deferred in all areas across Power Operations. Projects such as generator transformer replacements, generator rewinds, excitation system replacements and DCS control upgrades were all delayed due to the uncertainty of being able to get the funds necessary to do the work.

Q. Presumably you would rather not have deferred these expenditures, including slowing down the Sioux scrubber project, but given the need to do so, was there a silver lining to the slowdown?

A. Yes, there was. First and foremost, we received the benefit of reduced capital expenditures, thereby ensuring that the Company's had sufficient financial resources to continue to provide service to its customers. Without this benefit, all other benefits would be meaningless. Other benefits were also gained, however. In particular, we were better able to factor in lessons learned from work on scrubber projects at Ameren Energy Generating Company's Duck Creek and Coffeen plants, which began prior to the start-up of the Sioux project.

Q. Please elaborate.

A. One of the lessons learned that benefited Sioux arose when in 2009 the Coffeen Plant experienced issues with its recycle pump gearboxes during start-up/commissioning of the WFGD systems. These issues necessitated hundreds of additional craft hours spent in determining the root cause of the problem. The Sioux project

benefited from this "lesson learned" and avoided the additional craft manhours necessary to determine the root cause of the problem. Another example where Sioux benefited from a lesson learned during the delay was the change made in absorber interior linings. Duck Creek and Coffeen experienced quality issues with the flake glass lining system that was originally planned for the scrubbers at Sioux. Because of the discovery of performance issues related to the flake glass lining, we were able to utilize the window of opportunity created by the delay and switch to Stebbins tile at Sioux. The application of this lesson learned to Sioux during the delay allowed the Company to install a lining that provided improved long-term reliability and lower maintenance costs.

Q. The Staff also seeks to disallow $665,000 in unresolved back charges. Shouldn't these back charges be disallowed?

A. While it is true that potential back charge amounts pending as of December 31, 2010, should not be included in rate base in this rate case (but should be considered in a future rate case), the $665,000 proposed disallowance does not accurately reflect the amount of unresolved back charges as of December 31, 2010.

Q. What was the process followed by the Company in identifying and resolving potential back charge claims?

A. A back charge is a charge incurred by the Company for work performed or costs incurred that, in accordance with the Company's agreement with a contractor, should have been performed or incurred by that contractor. The Company took a conservative view and sought to identify during the course of the Sioux scrubber project every potential back charge arising for any reason. For example, potential back charges were identified where a cost was incurred by the Company for work performed by a contractor which had to be

re-done, where one contractor performed work that should have been performed by another contractor, where testing had to be performed on work performed by a contractor, and where work was performed to correct deficient work or a defective piece of equipment. Once these charges were identified, the Company notified the contractor under the terms of the particular contract and then worked to resolve the potential back charges by following the procedure in the particular contract. Sometimes, the Company was able to recover these potential back charge claims, but at other times the contractor was able to demonstrate why the potential back charge was not appropriate under its contract with the Company. In each instance where the back charge was resolved—whether by the contractor's agreement to make full or partial payment or by the Company's release of the potential claim, the Company negotiated the best resolution it could under the circumstances.

Q. You have testified that the proposed disallowance of $665,000 does not accurately represent the amount of unresolved back charges as of December 31, 2010. Why not?

A. The number identified by Staff as the amount of unresolved back charges does not represent the actual amount of unresolved back charges in November 2010. Staff apparently relied upon two entries in the November 2010 Sargent and Lundy Cost Report's "Project Budget Summary" (Lines 186 and 189) to conclude that these amounts represented unresolved back charges. Instead, these two line items ($540,000 for MCI and $115,000 for Sachs Electric) represent the accounting maintained by those two contractors of work those contractors performed for which a *potential* back charge or credit could be considered by the Company; these numbers do not represent the amount of unresolved back charges, nor do they represent which of the individual back charges had been resolved by the Company or

how they were resolved. Finally, the two numbers do not even add up to $665,000, but to $655,000.

Q. What was the amount of back charges pending as of December 31, 2010?

A. The total pending back charge amount is just $18,215.89, which is a back charge pending against PraxAir for work MC Industrial performed in sand blasting, testing, painting and relocating PraxAir hydrogen tanks. Because this is the amount of back charges pending as of December 31, 2010, this is the proper amount of any proposed disallowance in this rate case. As I mentioned, however, the portion of that sum that the contractors are ultimately determined not to be responsible for should be considered in the next rate case.

IV. Limestone Expense

Q. What is the issue regarding limestone expense in this case?

A. When we filed this case, we included an estimate of the limestone expense that would be incurred once the Sioux scrubbers began operation as a pro forma adjustment to the revenue requirement. We had to use an estimate since at the time the case was filed the scrubbers were not yet in operation. The Staff agrees that an ongoing level of limestone expense should be included in the revenue requirement, and has indicated that it will review the level of expense it included in its direct case filing as part of the true-up phase of the case. However, it is apparent from an examination of the Staff's workpapers relating to this issue that the Staff has, thus far, ignored certain prudently incurred components of the costs that make up the overall limestone expense.

Q. What components make up the costs of limestone for the Sioux scrubbers?

A. Limestone costs for Sioux consist of three components. First, there are costs for the limestone itself from the quarry operator, APAC. Second, there are costs to grind the material to a fine powder so that it can be used in the scrubbers – these costs are charged by Charah, which operates an Ameren Missouri-owned grinding facility at APAC's quarry. Finally, there is the cost to transport the ground limestone to the Sioux Plant – these costs are charged by the transporter, Gibco.[1] Contracts are in place with all three of these entities and those contracts dictate the costs, as does the volume of limestone used by the scrubbers. Charah was the design/ builder of the grinding facility under a separate contract that is not at issue in this case.

Q. What are the basic terms of the APAC and Charah contracts?

A. The limestone cost from APAC is based on actual limestone supplied. APAC's quarry was selected based on the following criteria: the quarry's close proximity to the Sioux Plant, the relative cost of the raw material, and its quality or calcium carbonate purity, as high quality limestone is needed to meet the manufacturer's specifications for the scrubbers.

Charah designed and built for Ameren Missouri a new facility dedicated solely to grinding limestone for Ameren Missouri's Sioux Plant. Under a separate contract (which reflects part of the ongoing limestone costs that need to be included in the revenue requirement in this case), Charah operates the limestone grinding facility for Ameren Missouri with Charah employees.[2] Consequently, the Charah contract includes a "minimum

[1] In the Staff Report the Staff refers to a new transportation contract. When the Staff first inquired about transportation arrangements, a different carrier, Beelman, was transporting the limestone to the Sioux Plant. We have now completed a new contract with Gibco for 2011 transportation, a copy of which was provided to the Staff some time ago.

[2]Ameren Missouri's limestone grinding equipment has a boilerplate design capacity of 1,095 tons per day or 400,000 tons annually. This capacity was based on the scrubber vessels' manufacturer's (Hitachi) original

take" or "take or pay" provision, which was necessary to cover Charah's fixed costs (e.g. for employees at the site) and to make its operations economically viable. Consequently, Ameren Missouri may at times be required to pay Charah for more limestone than it consumes. Our principal potential dispute with the Staff is that the Staff is failing to recognize that the normal level of expense to Charah will, by definition, be based upon processing at least the minimum take level of limestone.

Q. Was entering into this take or pay arrangement prudent?

A. Absolutely. As noted, the economics of the agreement had to work for both Charah and Ameren Missouri. We negotiated an arms-length contract with terms that were fair for both sides. The take or pay provision was one of those terms, and is common in contracts of this type. Consequently, Ameren Missouri is paying a prudently incurred expense that should be recognized in the revenue requirement.

Q. Was the Charah operating agreement the only take or pay contract in place relating to limestone supply for the Sioux Plant?

A. Initially, no. The Company's original contract with APAC also contained a take or pay provision. The basis for entering into this contract was the same as the basis for the Charah contract--we were very concerned with making sure we had a reliable supply of very high calcium carbonate limestone, with very low impurity levels, that was essential to operation of the scrubbers. Ensuring that supply required APAC to segregate this limestone from their normal quarry operations, which increased APAC's fixed costs, and led to the take or pay arrangement.

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design which can accommodate fuel with a high sulfur content, coupled with a surplus capacity. Maintaining surplus capacity is required to minimize risk of transportation interruptions or other issues associated with grinding the limestone off-site. Limestone deliveries are critical at Sioux – the units cannot operate without limestone in the scrubber for more than a few hours before sulfuric acid builds up in the scrubber systems. If this condition persisted, corrosion of components would begin.

Q. Have changes been made to the original APAC contract?

A. Yes. After we informed APAC that our actual take might be less than the take or pay minimum in the contract, APAC was willing to remove the take or pay provision, and the contract was amended.

Q. Why shouldn't the same thing occur with the Charah contract?

A. Because Charah has substantially different operations. While APAC's quarry was already existing and in operation, meaning APAC already had fixed operations costs at the site (making the take or pay provision much less important for them), for Charah, the circumstances are different, as discussed above. The basis for the Charah contract's take or pay provision has not changed; that is, Charah has to cover its fixed costs to operate the facility.

Q. Please summarize your concerns about Staff's proposed level of expense.

A. I have three concerns with the Staff's approximately $765,000 reduction to the level of expense included by the Company in its revenue requirement. First, the Staff has ignored the fact that Ameren Missouri must pay Charah for processing at least 100,000 tons of limestone annually under a contract that was prudently entered into. Ignoring this fact accounts for approximately $600,000 of the Staff's reduction to the appropriate level of limestone expense that should be included in the revenue requirement in this case. Second, based upon actual limestone use since the scrubbers went into service, the Staff is understating other variable charges (including fuel and other surcharges) in the Charah contract by approximately $125,000. Finally, the Staff's allowance for fuel surcharges for the transportation Company is approximately $41,000 too low, again based upon actual experience now that that the scrubbers have been operating.

Correcting these errors produces a normal level of limestone expense for operation of the Sioux scrubbers of approximately $3.54 million annually. This is the level of limestone expense that should be included in the Company's revenue requirement in this case.

Q. How do actual quantities of limestone consumed compare with early projections which were used by the Staff?

A. Limestone consumption has been higher than projected – due to fuel burned, unit capacities and higher removal efficiencies. From mid-November when operations began until mid-March, an average of over 7,600 tons of limestone per month has been consumed. Extrapolating, this would equate to approximately 91,000 tons annually, significantly more than the volumes used in the Staff's calculations (just 69,000 tons), and close to the minimum take level in the Charah contract.

V. Taum Sauk Enhancements

Q. Please explain the issue that has been raised regarding the recovery of costs incurred to enhance and improve the Taum Sauk upper reservoir.

A. Office of the Public Counsel witness Ryan Kind contends that consistent with Ameren Missouri's commitment to hold customers harmless from the adverse impacts caused by the failure of the Taum Sauk plant's upper reservoir, and the Company's failure to prudently maintain and operate the Taum Sauk plant prior to that failure, there should be no impact on customer rates in this case to reflect any of the investments made by Ameren Missouri to re-build and enhance the upper reservoir at the Taum Sauk facility.

Q. Did the settlement agreement with the State of Missouri permit Ameren Missouri to seek recovery of some of the costs associated with re-building and enhancing the Taum Sauk upper reservoir?

A. Yes. As part of its settlement with the State of Missouri, Ameren Missouri agreed to build the new upper reservoir, pay damages, expend approximately $180 million to rebuild and improve Johnson's Shut-Ins State Park and Campground, license an AmerenUE-owned railway corridor to the state for use as an extension to the Katy Trail in Western Missouri, and grant the state a right of first refusal to purchase Church Mountain, which is owned by Ameren Missouri. The Company agreed that it would only seek to recover "allowed costs" from ratepayers, which are defined by the settlement as enhancements, costs incurred due to circumstances or conditions that were not reasonably foreseeable at the time the settlement was executed, and costs that would have been incurred absent the breach.

Q. Mr. Kind appears to believe that all of the rebuilding efforts were the bare minimum required by regulatory agencies, and were not actually "enhancements." Is this true?

A. No. During the design and construction of the reservoir and all of the appurtenant facilities (i.e. controls, protection systems, etc.), Ameren Missouri and its consultants made prudent decisions in consultation with regulators to install features of the new upper reservoir that would provide for a much more robust new upper reservoir that would provide lasting energy benefits to Missouri customers for decades to come. We installed systems and features that reflected the state-of-the-practice design of new dams, and constantly challenged the designers and constructors for the most economical methods of achieving those objectives. It was of utmost importance to Ameren Missouri to ensure that the new upper reservoir would be a significantly improved. Those significant improvements ensure that the Taum Sauk Plant will continue to operate as part of Ameren Missouri's overall generation portfolio and will be able to provide safe, reliable energy and capacity

benefits to customers for many decades to come. The enhancements noted in my direct testimony, and in the direct testimony of Ameren Missouri witness Paul C. Rizzo, are substantial improvements over the previous upper reservoir.

Q. Did Ameren Missouri live up to its commitment associated with holding customers harmless from the adverse impacts of the breach?

A. Yes, we did. Ameren Missouri has proposed to include in rate base only approximately $90 million of the approximately $489 million in total construction costs for the new upper reservoir, all of which are allowed costs under the settlement. All of these costs arise from significant enhancements to the upper reservoir and also are costs that would otherwise have been incurred absent the breach, as explained in Mr. Rizzo's direct testimony. Ameren Missouri's commitment was that customers would not bear any of the clean-up costs and damages that Ameren Missouri bore because of the breach; no costs for clean-up, no damages to individuals, no costs and damages to rebuild Johnson Shut-Ins State Park, no monies or consideration paid in the settlement of the state's claims, and no increase in production costs to customers while the plant was out of service. I outlined tens of millions of dollars of costs these kinds of costs absorbed by Ameren Missouri in my direct testimony. Customers haven't paid and won't pay costs and damages resulting from the breach. Rather, customers are being asked, consistent with the settlement and the hold harmless commitment we made, to pay a fair return on just approximately $90 million of enhancements or investments that would have had to be made absent the breach, and to return the Company's investment in these enhancements through depreciation over an 80-year estimated life of the plant.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case No. ER-2011-0028

AFFIDAVIT OF MARK C. BIRK

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

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

1. My name is Mark C. Birk. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as Vice President, Power Operations.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Ameren Missouri consisting of 29 pages, Schedules MCB-ER4 through MCB-ER9, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

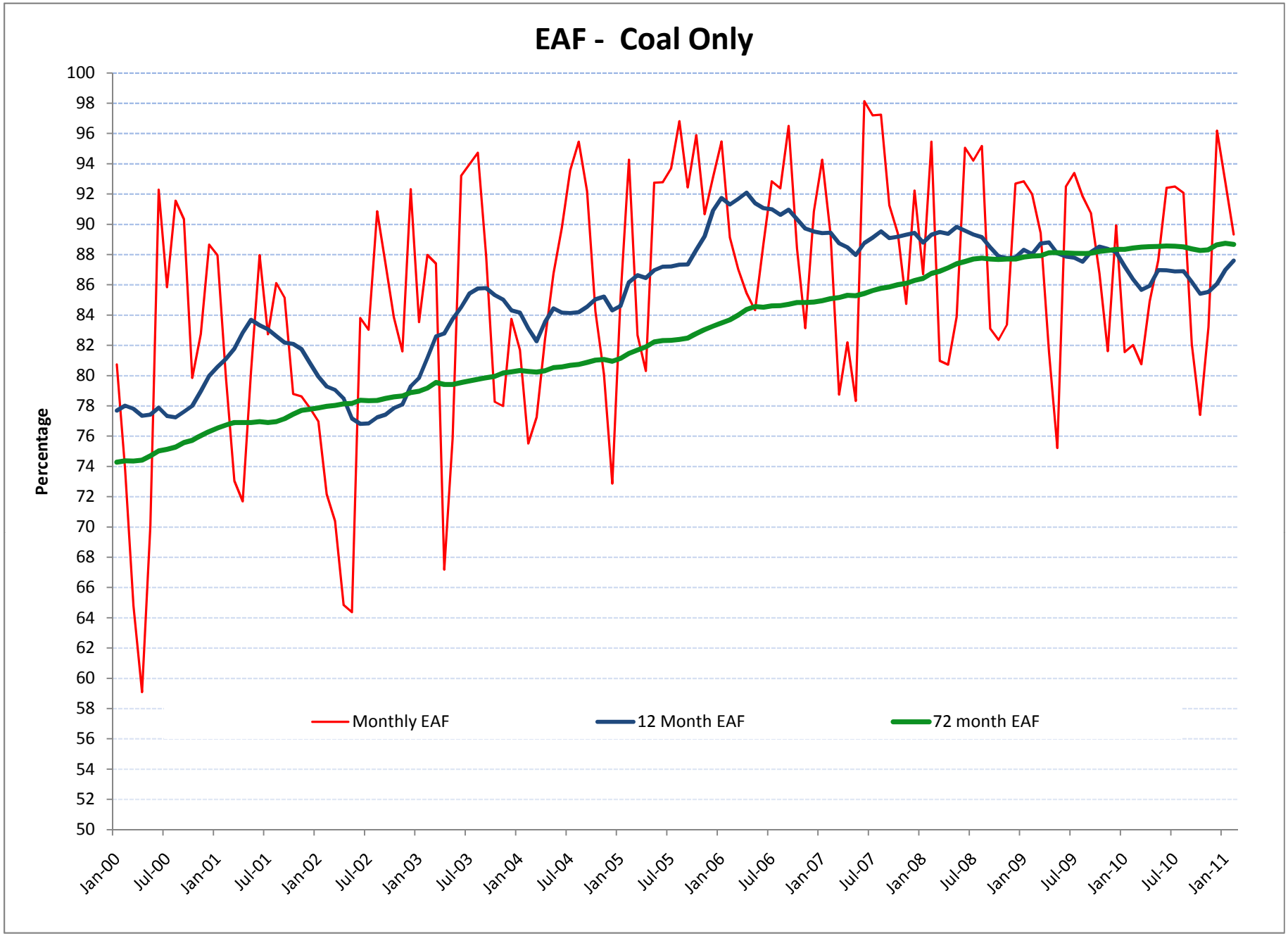
Mark C. Birk

Subscribed and sworn to before me this 25 day of March, 2011.

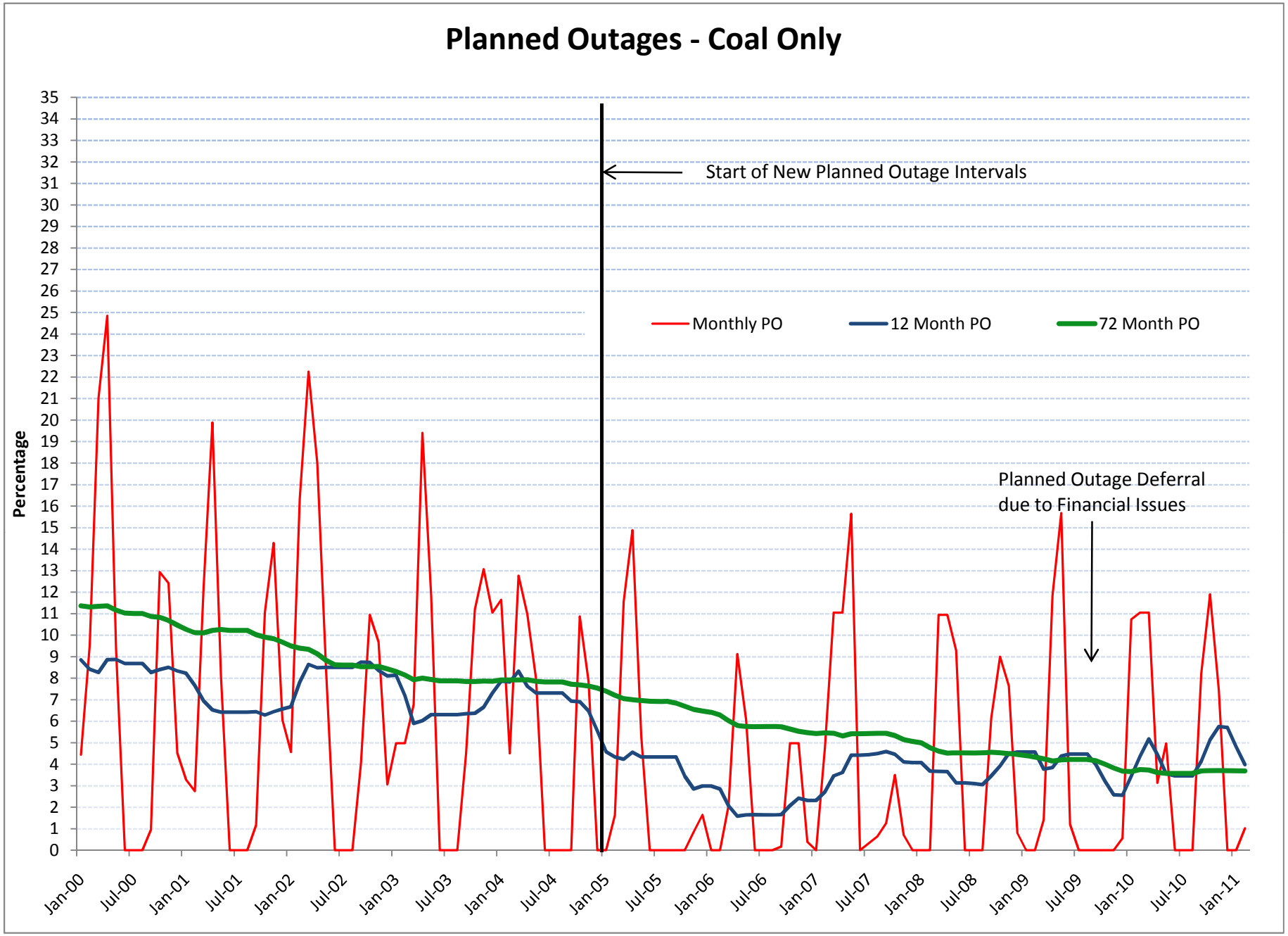
Amanda Tesdall
Notary Public

My commission expires:

Amanda Tesdall - Notary Public
Notary Seal, State of
Missouri - St. Louis County
Commission #07158967
My Commission Expires 7/29/2011



Schedule MCB-ER4


Planned Outages - Coal Only
Percentage
Start of New Planned Outage Intervals
Monthly PO
12 Month PO
72 Month PO
Planned Outage Deferral
due to Financial Issues
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
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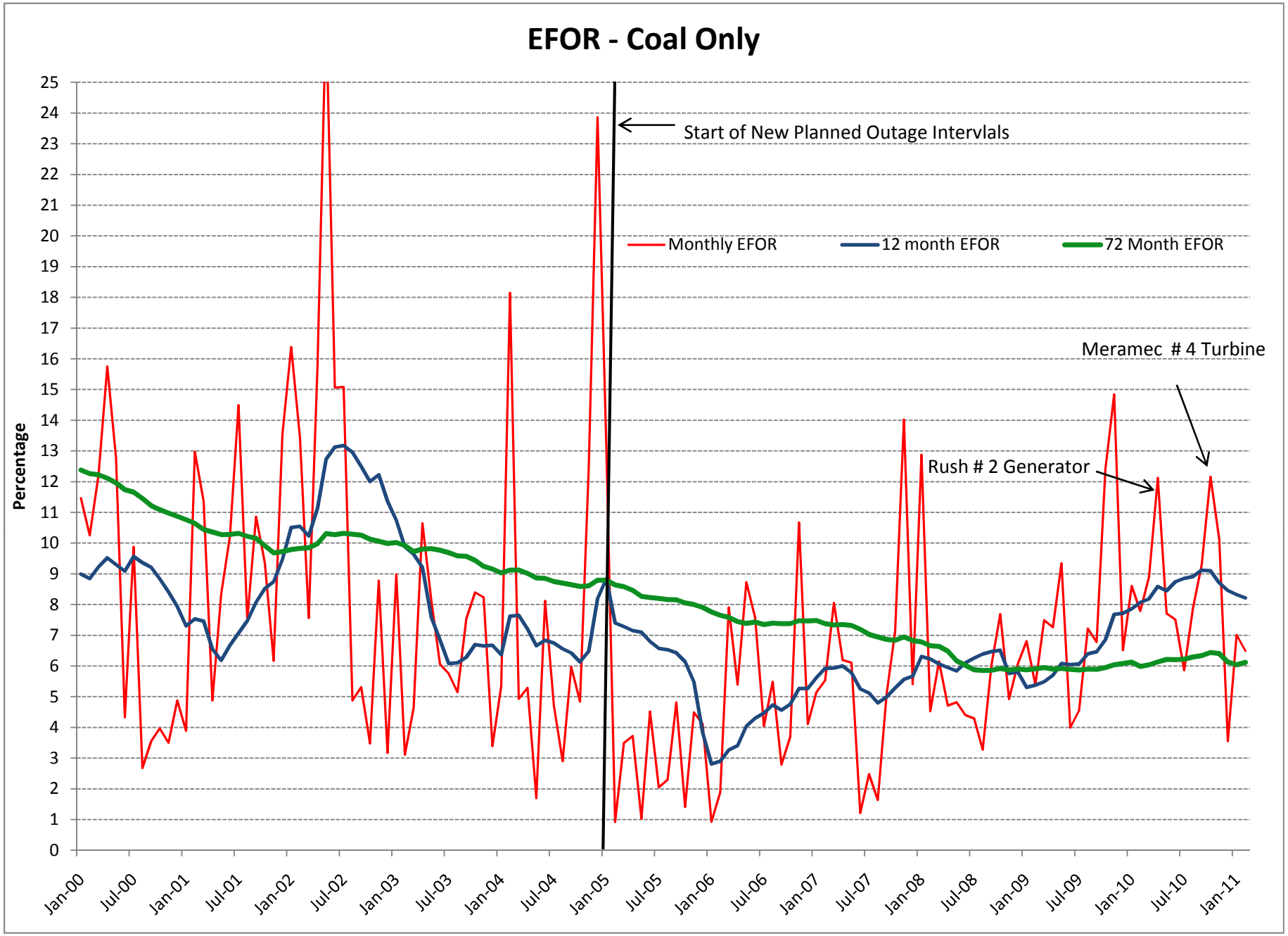
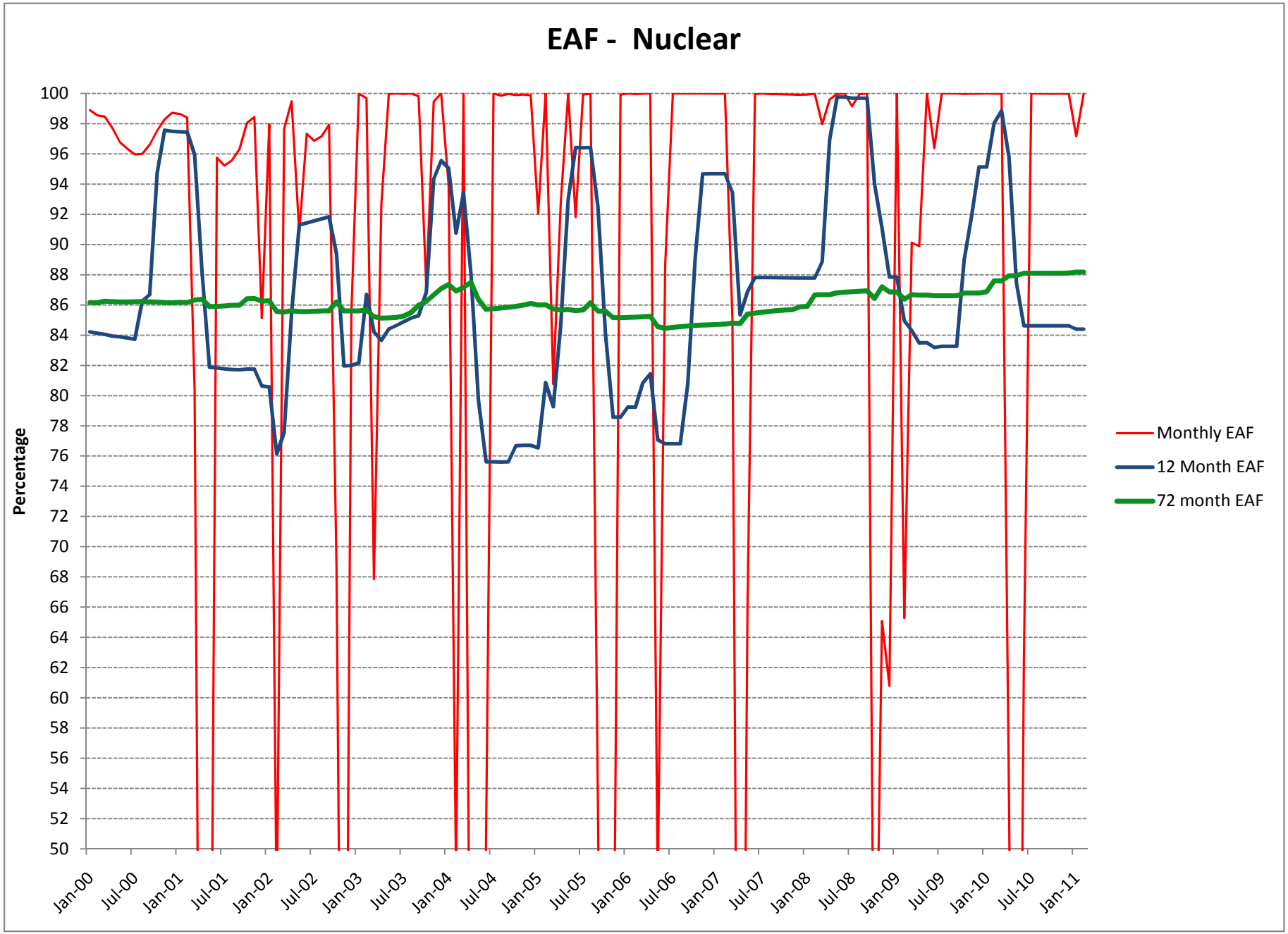
Jan-11



Schedule MCB-ER6



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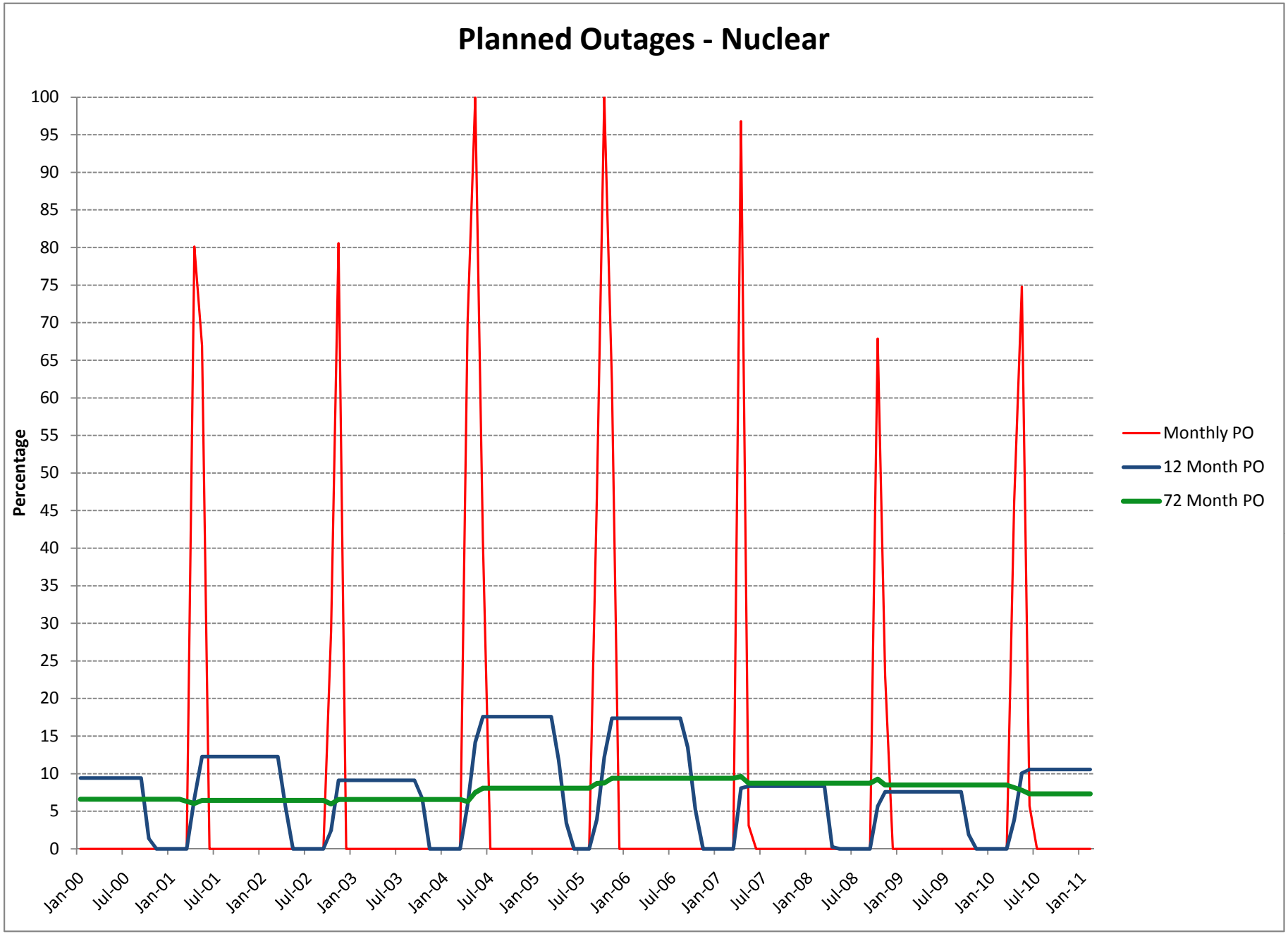
Planned Outages - Nuclear
Percentage
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80
75
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65
60
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20
15
10
5
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
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Jan-06
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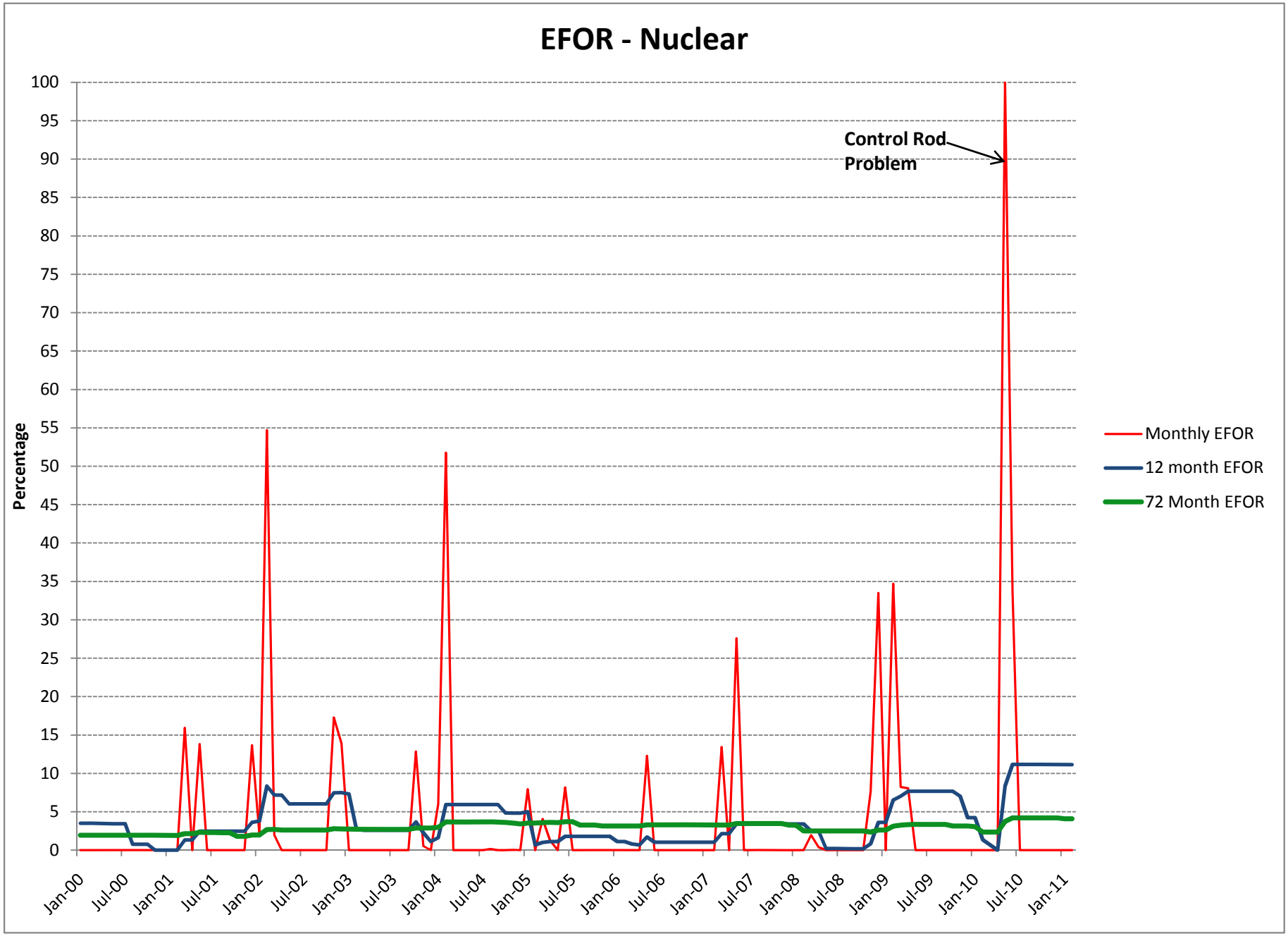
Monthly PO
12 Month PO
72 Month PO



Schedule MCB-ER9