Exhibit No:
Issues: Steam Plant Life Span
Witness: Larry W. Loos
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Sponsoring Party: Union Electric Company
Case No: ER-2010-0036
Date: March 5, 2010

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2010-0036

SURREBUTTAL TESTIMONY

OF

LARRY W. LOOS, P.E.

ON BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
March 2010

SURREBUTTAL TESTIMONY

OF

LARRY W. LOOS, P.E.

CASE NO. ER-2010-0036

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Larry W. Loos, 11401 Lamar, Overland Park, KS 66211.

Q. ARE YOU THE SAME LARRY W. LOOS THAT FILED DIRECT TESTIMONY IN THIS CASE?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR PREPARED SURREBUTTAL TESTIMONY?

A. I will address the rebuttal testimony of Staff witness Arthur W. Rice relating to the life span of AmerenUE's (Company's) coal-fired steam electric generating stations. In his rebuttal testimony, Mr. Rice indicates that he is rebutting my testimony, and states that in Case No. ER-2007-0002, the Commission "rejected the life span method because the Commission did not find sufficient evidence presented to define future retirement dates for the steam production plants."[1] He goes on to say, "AmerenUE has not [in the current case] presented reliable evidence of future retirement dates for its coal fired steam production plant."[2]

Q. DO YOU AGREE WITH MR. RICE'S STATEMENT AT PAGE 1, LINES 23-24 OF HIS REBUTTAL TESTIMONY THAT "THE COMMISSION REJECTED THE LIFE SPAN APPROACH IN CASE NO. ER-2007-0002"?

[1] Rice Rebuttal Page 2, Lines 3 - 4
[2] Rice Rebuttal Page 2, Lines 8 - 9.

A. No, I do not. Based on my reading of the Commission's Report and Order in that case, I find that the Commission did not reject the life span approach. Although Mr. Rice made the above-quoted statement in his rebuttal testimony, he admitted in his deposition that he in fact agrees with me, that the Commission did not reject the life span approach. The following exchange demonstrates his agreement:

> *A. …[t]hose Commission decisions did not say that they rejected life span; it simply said they did not believe the dates that were chosen.*[3]
>
> Q. To put it another way, the Commission – and you correct me if I'm – at any time – if I mischaracterize what you're saying, obviously you should correct me. What you're saying is, it's your understanding, and the staff's understanding, that the Commission has never said that the life span approach is an inappropriate approach for developing depreciation rates for steam production plant?
>
> *A. That's correct.*[4]

Q. WHAT DID THE COMMISSION FIND REGARDING THE LIFE SPAN APPROACH?

A. What the Commission found was that "(w)ithout better evidence of when those plants (coal fired steam plants) are likely to be retired, allowing the company to increase its depreciation expenses based on what is little more than speculation about possible retirement dates would be inappropriate."[5] Based on my reading of the Commission's Report and Order, the Commission did not reject the use of the life span approach. Instead, the Commission rejected the application of that approach without better evidence; without a detailed showing of how estimated retirement dates are determined, which was lacking in AmerenUE's prior rate case when depreciation rates were determined.

[3] The italicized material throughout this surrebuttal testimony reflects Mr. Rice's statements in his deposition taken on February 18, 2010.
[4] Rice Deposition Page 15, Line 23 through Page 16, Line 6.
[5] Case No. ER-2007-0002 Report and Order Page 84.

By contrast, in my prepared direct testimony and in the report included therewith as Schedule LWL-E1, I show in detail the various considerations that went into developing the estimated retirement dates used by Company depreciation expert John Wiedmayer in developing depreciation rates for the Company's steam plants using the life span approach.

Q. HOW DOES THE SUPPORT YOU PROVIDED IN DEVELOPING INFORMED ESTIMATES OF THE RETIREMENT DATES OF THE COMPANY'S UNITS COMPARE TO THE EVIDENCE THE COMMISSION FOUND INSUFFICIENT TWO RATE CASES AGO (CASE NO. ER-2007-0002)?

A. In that rate case, in response to criticism, the Company actually changed its estimates in the middle of the rate case. The Company did not undertake the kind of detailed analysis I undertook in developing my estimates in this case. The Company's estimated life spans in that case were much shorter than my estimates, and called for a retirement of the steam unit capacity within a much shorter period. In summary, the evidence then was much different than the evidence in this case.

Mr. Rice agrees that the evidence in this case is much better when he indicates in deposition that he "personally thought it might very well be convincing enough that the Commission would use the life span approach."[6] In characterizing the work I did, Mr. Rice indicates that he didn't really have any criticism of what was done given the limitations on estimating plant retirement dates decades into the future, stating that "*they* (Black & Veatch) *did pretty much probably all they could ….*"[7]

Q. DOES MR. RICE CHALLENGE THE ESTIMATED RETIREMENT DATES YOU PRESENT IN YOUR DIRECT TESTIMONY?

[6] Rice Deposition Page 27, Lines 18 – 23.
[7] Rice Deposition Page 110, Lines 16 – 21.

A. Not really. His only challenge is to one of the bases I consider for my development of those dates. In fact, Mr. Rice's rebuttal testimony regarding my estimates is limited to two somewhat vague paragraphs. In one (Page 2, Lines 12 through 17), he describes some of the considerations that I rely on, but he ignores many others. In the second (Page 2, Line 18 through Page 3, Line 5), he erroneously asserts that I suggest that the database of retired steam production plant units that I present is comparable to the Company's units. In this regard, he indicates that Staff believes that the generating units included in this database are not comparable to the Company's units. He notes that the database includes only three with a capacity of greater than 250 MW. What Mr. Rice fails to point out is that he in fact agrees:

1) That unlike two rate cases ago, the estimated retirement dates in this case take into account the orderly retirement and replacement of the steam production units, and that indeed he has no criticisms related to this.[8]
2) That Appendix A-1 to my report (which he fails to mention in his rebuttal testimony at all) reflects a large number of utilities and their state commissions that set depreciation rates and plan to meet their load using estimated retirement dates for coal-fired power plants.[9]
3) That there are some large coal-fired power plants among those studied in my Appendix A-1 similar in size to AmerenUE's plants.[10]

Q. DO YOU CONSIDER THE DATABASE YOU SET FORTH IN APPENDIX A-2 OF SCHEDULE LWL-E1 COMPARABLE TO THE COMPANY'S STEAM GENERATING UNITS?

A. For the most part, I do not. However, the data still provides information relevant to developing informed estimates of retirement dates for the Company's steam generating units. It is true that the Company's existing generating units are generally larger than the units that have been retired. In addition, the Company's units are generally of a more recent vintage than those that have been retired.

[8] Rice Deposition Page 127, Lines 9 – 16.
[9] Rice Deposition Page 128, Lines 7 – 13.
[10] Rice Deposition Page 129, Line 9 through Page 130, Line 12.

However, the database does include 20 retired units with capacity equal to or in excess of 137.5 MW, which is the size of the smallest unit in the Company's current fleet. These 20 retired units had life spans from 28 to 53 years, well below the 69 and 70-year life spans I estimate for AmerenUE's 137.5 MW units (Meramec Units 1 and 2). I would also note that AmerenUE witness John Wiedmayer presents in his surrebuttal testimony yet additional retirement data for retired coal-fired power plants, including data for larger units. These data are generally consistent with the data in Appendix A-2 that I considered, in part, in developing my life span estimates.

Moreover, I do not base my estimate of the life spans of the Company's units solely on consideration of the data set forth in Appendix A-2. Nor do I give the data set forth in Appendix A-2 a great deal of weight. Appendix A-2 provides only some indication of some historical experience, and at this time, I believe serves to provide some guidance as to minimum reasonable life spans. Mr. Rice's singular focus on this one source of information, to the exclusion of the many other considerations that went into developing my life span estimates, is at best, incomplete.

Q. HOW DO THE LIFE SPANS OF THE RETIRED UNITS YOU SHOW IN APPENDIX A-2 COMPARE WITH YOUR ESTIMATES OF THE LIFE SPAN OF THE COMPANY'S UNITS?

A. The average and median life span of the retired units are about 44 years. The life spans that I estimate for the Company's units are generally 50 percent greater (62.16 to 73.25 years). As I indicated in my direct testimony, in my opinion my estimated life spans are conservative (i.e., toward the longer end of the spectrum), which results in lower depreciation expense rates.

Q. DO YOU PRESENT DATA REGARDING UNITS MORE COMPARABLE TO THOSE OF THE COMPANY?

A. Yes, I do. While Mr. Rice briefly focused on Appendix A-2, he ignored Appendix A-1, where I show available information regarding the planned life spans of 133 units. Of these 133 units, the capacity of 76 equal or exceed 137.5 MW. Of these 76, only five units have a planned life span greater than 62 years (the shortest life span that I identify for the Company's units) and only one exceeds the 73-year life span that I have estimated for the longest-lived Company unit.

Q. THE STAFF CHALLENGED YOUR USE OF AVAILABLE INFORMATION REGARDING ACTUAL RETIREMENTS OF GENERATING UNITS. WHAT OTHER INFORMATION DID YOU CONSIDER IN DEVELOPING YOUR LIFE SPAN ESTIMATES?

A. As I describe in my direct testimony and in Schedule LWL-E1, I considered the following factors:

1) Age at retirement of coal-fired plants actually retired in the United States,
2) Publically available information regarding the age of coal-fired plants currently in service in the United States,
3) Publically available information regarding the estimated life spans of coal-fired plants which underlie actual depreciation expenses rates used by utilities in 26 western states,
4) Publically available information regarding the retirement dates of coal-fired plants that are actually used in integrated resource plans in 26 western states,
5) AmerenUE's actual historical interim and final retirement experience,
6) AmerenUE's planned capital expenditures and the implication of capital projects on plant remaining life,
7) General engineering considerations relating to design life and factors leading to the failure of major plant components and ultimately to the retirement of coal-fired generating stations,
8) Implications of existing and contemplated environmental requirements on coal-fired generating plants in general, and on AmerenUE plants specifically,

9) An assessment of the existing condition of AmerenUE's plants,
10) Allowance for a reasonable period over which to recover capital costs incident to the addition of scrubbers at the Labadie and Rush Island Plants, in the event the Company is required to add scrubbers at these plants,
11) The retirement of the Company's Meramec Plant in 2022 as discussed in the Company's Integrated Resource Plan and Environmental Compliance Plan, and
12) The practical consideration of the need for the orderly replacement of capacity when large blocks of base-load capacity are retired.

Q. OTHER THAN "THE AGE AT RETIREMENT OF COAL-FIRED PLANTS ACTUALLY RETIRED IN THE UNITED STATES," DOES MR. RICE ADDRESS ANY OF THESE CONSIDERATIONS?

A. No, he does not. He merely makes the unsubstantiated statement at page 2 of his rebuttal testimony that the Company "has not presented reliable evidence of future retirement dates."

This statement appears at odds with Mr. Rice's testimony during his deposition where he testified that:

- He spent *"enough time and"* has *"enough knowledge to be able to understand Larry Loos' testimony and thought it well done."*[11]
- *"What Mr. Loos did is rational."*[12]
- *"What Black & Veatch done (sic) is relatively complete, logical."*[13]
- The Black & Veatch study *"is as reliable, or at least within a reasonable range of reliability, of what could be done today."*[14]
- He does not *"really have any criticism of what they (Black & Veatch) did given the limitations of trying to estimate the retirement of large steam units decades into the future."*[15]
- *"They did pretty much probably all they could."*[16]

[11] Rice Deposition Page 26, Line 24 through Page 27, Line 2.
[12] Rice Deposition Page 68, Line 5.
[13] Rice Deposition Page 110, Line 8 – 11.
[14] Rice Deposition Page 110, Line 12 – 15.
[15] Rice Deposition Page 110, Line 16 – 21.

Q. DURING HIS DEPOSITION, DID MR. RICE INDICATE THAT YOU SHOULD HAVE PERFORMED A PLANT-BY-PLANT ECONOMIC ANALYSIS?

A. Yes, in his deposition he seemed to criticize my study because I did not perform a "plant-by-plant economic analysis." However, in leveling that criticism he went on to admit that to do so would be difficult for plants that are not expected to be retired for 30 years. In fact, he agreed that it cannot be done.[17]

Q. DO YOU AGREE WITH MR. RICE'S CRITICISM?

A. No, I do not. I agree that estimated retirement dates based on such an economic analysis are generally more accurate. I also agree that the number of assumptions and the nature of the assumptions required make such an economic analysis 12 to 37 years into the future impractical. However, I do not consider it impossible. I consider the life spans that I have estimated to be far more reliable than the obviously flawed assumption implicit in Mr. Rice's treatment of these power plants as mass property, especially given what he admits is insufficient retirement history in the Company's depreciation data.[18] The advantage (over my study) of conducting economic analyses far into the future (beyond five to ten years) is very minimal. Further, I would not consider conducting economic analyses far into the future without the benefit of some of the analyses set forth in Schedule LWL-E1.

In simple fact, regardless of whether one uses the life span approach or the Staff's treatment of these power plants (which are clearly life span property) as mass property, one must use estimates to develop depreciation rates. The difference is that the use of the mass property approach for life span property will always result in the failure to recover plant investment over the life of the plant. Applying the mass property approach to life span property shifts the

[16] Rice Deposition Page 110, Line 20 – 21.
[17] Rice Deposition Page 110, Line 2 – 3.
[18] Rice Deposition Page 77, Line 1 – 17.

recovery of a portion of the investment in plants used to serve today's customers into the future, to be paid by customers who are then not taking service from the plant (and thus are deriving no benefit from it) and at a time when those same future customers will have to begin paying for replacement plants. This means customers today under-pay for the use of plants that serve them, by shifting costs associated with those plants to future generations. There is simply no justification for requiring future customers to subsidize existing customers when we have, as we do here, solid, reasonable and logical informed estimates of the life spans of these units.

Q. IS THERE REASON TO BELIEVE THAT THE AVERAGE SERVICE LIFE ESTIMATES USED BY MR. RICE BY TREATING THESE STEAM UNITS AS MASS PROPERTY IN FACT ARE LESS RELIABLE THAN THE INFORMED LIFE SPAN ESTIMATES YOU HAVE DEVELOPED?

A. Yes, there is a great deal of such evidence from Mr. Rice himself. Mr. Rice testified in deposition that "because there's not much information in there (the Company's retirement data) at all about final steam unit retirements," he "*questioned the amount of final retirement history that's in those accounts to give an accurate mass property result*."[19] Indeed, Mr. Rice stated:

> Q. And when you look at that very limited amount of data, and then you look at these four large existing steam production plants, that limited amount of data doesn't give you a whole lot to go on about what the life of these large, existing, more modern plants is going to be, does it?
>
> *A. No. it does not.*[20]

Mr. Rice went on to claim that his average service life estimates and my life span estimates were "*equally flawed.*"[21] The basis for that claim is apparently his narrow questioning

[19] Rice Deposition Page 73, Line 21 through Page 74, Line 2.
[20] Rice Deposition Page 74, Line 18 – 23.
[21] Rice Deposition Page 75, Line 22 through Page 76, Line 1.

of my limited reliance on the past retirement data in my Appendix A-2 (which as I noted played some, but not a great, role in my development of the estimated life spans for the Company's units), and that I did not perform a plant-by-plant economic analysis which he claimed can't be done.

Q. IS THERE SUBSTANTIAL EVIDENCE THAT MR. RICE'S USE OF THE MASS PROPERTY APPROACH BASED UPON HIS FLAWED AVERAGE SERVICE LIFE ESTIMATES IS IN FACT MUCH LESS RELIABLE THAN THE INFORMED ESTIMATES OF LIFE SPANS THAT YOU DEVELOPED?

A. Yes. When asked about whether the data he relied upon was reasonable, and whether there was sufficient data to perform a statistically significant analysis, Mr. Rice admitted that he has some "serious doubts" about whether the data is sufficient.[22] Mr. Rice also admitted that where the retirement history of the company is inadequate, the mass property approach can't be used:

> Q. Under what circumstances would you find it appropriate to use the life span approach to develop depreciation rates for steam production plant?
>
> *A. If there was no or an inadequate retirement history for the type of plant that you are looking at . . .*
>
> Q. So if the retirement history of the company is inadequate, you really can't use a mass property approach. Is that another way of saying that?
>
> *A. Correct.*[23]

This testimony indicates that Mr. Rice has tried to treat life span property as mass property when admittedly he does not have sufficient data to develop the average service life estimates he would need to do so. He attempts to treat life span property as mass property,

[22] Rice Deposition Page 76, Line 12 through Page 77, Line 17.
[23] Rice Deposition Page 25, Line 15 through Page 26, Line 2.

which is not appropriate, as previously outlined in detail in the direct and rebuttal testimonies of AmerenUE depreciation expert John Wiedmayer.

This also demonstrates that the very detailed study that I conducted is based upon a far more robust set of data than the data set relied upon by Mr. Rice. Couple that with the fact that virtually all jurisdictions use the life span approach for depreciating steam production plants and it becomes apparent that the Staff's stubborn adherence to use of the mass property approach for these power plants lacks any real basis.

Q. WHY DO YOU SAY THAT IT LACKS ANY REAL BASIS?

A. Mr. Rice was quite candid in his deposition regarding how and why the Staff used the mass property approach. It is clear it wasn't because of any substantive problem with my estimated retirement dates. For example, when asked when and how the decision to use the mass property approach came about, Mr. Rice testified:

> Q. When Mr. Gilbert discussed with you – and this is my words – the virtues of using the mass property approach for steam production and the problems with using the life span approach, what had you reviewed from UE's filing at that time, when he first discussed it with you?
>
> *A. I think these discussions occurred prior to Ameren's filing for this case.*
>
> Q. So let me understand your testimony. Prior to seeing Mr. Wiedmayer's testimony, Mr. Loos' testimony, the Black and Veatch Report, Mr. Gilbert had essentially told you that the staff will use the mass property approach for steam production in a rate case; is that correct?
>
> *A. Yes. He indicated that – and now I think I'm taking it out of context – indicated that Staff's policy was to use the mass property method . . .*
>
> Q. …And did you take it from his recitation of the staff's policy that if you were asked to do a depreciation study in an electric race [sic] case for a utility that had steam production plants that you would be using the mass property approach?

A. For the steam production plants, that's correct.[24]

Clearly, for whatever reason, Staff was determined to use the mass property approach for the steam production units regardless of whether the Staff had reliable data, and regardless of the quantity or quality of the evidence that underlies the informed life span estimates I developed for this case. It appears to me that regardless of the quantity or quality of data relied on by Staff, Staff's very mild criticism of a tiny aspect of my study is not really a criticism of my life span estimates at all, but rather, a veiled attempt to justify the Staff's misguided decision to use a mass property approach for these steam production units.

Q. DID MR. RICE HIMSELF AGREE THAT THE LIFE SPAN APPROACH COULD BE USED AND THAT HE COULD HAVE ANALYZED THE DATA THAT YOU USED IN DEVELOPING YOUR ESTIMATES?

A. Yes, he did, as evidenced by the following:

> Q. And we've [sic] already testified, in your opinion, use of the life span approach for steam production plants is not wrong, right?
>
> *A. Correct.*[25]
>
> Q. If your boss, Ms. Kremer, or Mr. Gilbert, if they said, I think that the staff ought to use the life span approach, you'd have no problem with doing that, would you, for the steam production plants?
>
> *A. Correct.*[26]
>
> Q. You could have independently evaluated that information [the estimated retirement dates provided by Mr. Loos] and determined whether or not you found it to be reasonable, couldn't you?
>
> *A. Yes.*[27]

[24] Rice Deposition Page 21, Line 8 through Page 22, Line 9.
[25] Rice Deposition Page 91, Line 24 through Page 92, Line 2.
[26] Rice Deposition Page 92, Line10 – 14.
[27] Rice Deposition Page 70, Line 9 – 12.

I agree. The Staff had ample information upon which to calculate depreciation rates for the steam production units using the life span approach. In my opinion, Staff has provided no reasoned basis for failing to do so, and has provided no valid criticism of the estimated retirement dates that I developed for this purpose.

Q. DO YOU HAVE ANY OBSERVATIONS REGARDING STAFF'S PROPOSED TREATMENT OF LIFE SPAN PROPERTY AS IF IT WERE MASS PROPERTY?

A. Yes, I do. Staff has provided no justification in this case for:

1) Attempting to use the mass property approach for life span property, nor
2) Trying to apply the mass property approach when the Staff witness supporting its use admits the data required to apply the mass property approach is inadequate.

Company witness John Wiedmayer, on the other hand, offers extensive justification as to why it is inappropriate to try to treat life span property as if it were mass property, and I have developed life span estimates based on detailed analysis which the Staff witness Rice admits he thought was "*well done.*"[28]

Q. DOES THIS CONCLUDE YOUR PREPARED SURREBUTTAL TESTIMONY?

A. Yes, it does.

[28] Rice Deposition Page 27, Line 1.

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-2010-0036

AFFIDAVIT OF LARRY W. LOOS

STATE OF ARIZONA)
) **ss**
COUNTY OF ~~PINAL~~ Maricopa)

Larry W. Loos, being first duly sworn on his oath, states:

1. My name is Larry W, Loos, my office is located in Overland Park, Kansas.
2. I am a Director in the Enterprise Management Services Division of Black & Veatch Corporation.
3. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 14 pages all of which were prepared in written form for introduction into evidence in the above-referenced docket.
4. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Larry W Loos
Larry W. Loos

Subscribed and sworn to before me this 4th day of March, 2010.

Notary Public

My Commission expires: June 8, 2011

DONNA ATKINS
NOTARY PUBLIC - ARIZONA
MARICOPA COUNTY
My Commission Expires
June 8, 2011