Exhibit No.:_____
Issue: Depreciation
Type of Exhibit: Rebuttal
Witness: John J. Spanos
Sponsoring Party: Ameren Missouri
Case No.: ER-2021-0240
Date: October 15, 2021

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2021-0240

REBUTTAL TESTIMONY OF

JOHN J. SPANOS

ON BEHALF OF

AMEREN MISSOURI

Camp Hill, Pennsylvania

October 15, 2021

TABLE OF CONTENTS

PAGE

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is John J. Spanos. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania.

Q. ARE YOU THE SAME JOHN J. SPANOS WHO PREFILED DIRECT TESTIMONY IN THIS MATTER?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my testimony is to rebut the Staff Report filed by the Missouri Public Service Commission Staff ("Staff") related to depreciation and to rebut the testimony of Brian C. Andrews on behalf of the Missouri Industrial Energy Consumers ("MIEC") also related to depreciation.

Q. WHAT IS THE SUBJECT OF YOUR REBUTTAL TESTIMONY?

A. The subject of my testimony is depreciation. Specifically, I will address Staff's proposed service lives, an error in the Staff's calculation of depreciation for one plant account, and MIEC's proposal to not change depreciation rates for the Callaway Energy Center Nuclear Power Plant ("Callaway Energy Center"). I will also address the Company's plant accounting records.

II. REBUTTAL TO STAFF'S DEPRECIATION PROPOSALS

Q. WHAT DOES STAFF RECOMMEND?

A. Staff recommends increasing the service lives of 9 plant accounts and decreasing the service lives of 2 plant accounts from what was proposed by the Company. Staff is

also recommending a depreciation rate for Account 364.00 Poles and Fixtures that has been calculated using an incorrect reserve balance.

A. Service Life Estimates

Q. WHAT ADJUSTMENTS TO THE COMPANY'S PROPOSED SERVICE LIVES IS STAFF PROPOSING?

A. Staff is proposing to increase the service life estimates for 9 plant accounts and decrease the service life estimates for 2 plant accounts from what was proposed by the Company. Table 1 below shows the estimates that were proposed by the Company in the Depreciation Study as well as the estimates proposed by Staff. Table 1 also sets forth the change in average service life between what was proposed by the Company as compared to Staff.

ACCOUNT	COMPANY PROPOSED	STAFF PROPOSED	CHANGE IN AVERAGE SERVICE LIFE
312.03, Boiler Plant Equipment – Aluminum Coal Cars	35-R2	30-R2	(5)
325, Miscellaneous Power Plan Equipment	40-L0	35-O1	(5)
333, Water Wheels, Turbines and Generators	95-S0	105-L0	10
352, Structures and Improvements	65-R2.5	70-R2.5	5
353, Station Equipment	60-S0	65-S0	5
355, Poles and Fixtures	58-R3	64-L2.5	6
356, Overhead Conductors and Devices	65-R3	75-R3	10
364, Poles and Fixtures	52-R2.5	58-L2.5	6
365, Overhead Conductors and Devices	52-R1	65-O1	13
373, Street Lighting and Signal Systems	38-S0	40-O1	2
390, Structures and Improvements-Miscellaneous Structures-Old	45-S0	55-R1	10

Q. HAS STAFF PROVIDED ANY EXPLANATION FOR ADJUSTING THE SERVICE LIVES FROM WHAT THE COMPANY PROPOSED?

A. No. Staff simply states that, "Using the data supplied by Ameren, and the methods below, Staff calculated its own depreciation rates of Ameren's plant in service and recommends the rates as listed in Accounting Schedule 5."[1] There were over 60 plant accounts for which Staff agreed with the service life estimates made by the Company in the Depreciation Study and there is no explanation as to why Staff disagreed with the estimates made by the Company for the 11 accounts shown in Table 1 above.

Q. DO YOU AGREE WITH THE LIFE ESTIMATE DIFFERENCES STAFF HAS PROPOSED AS SET FORTH IN TABLE 1 ABOVE?

A. No. Without any explanation as to why Staff chose different service life estimates than what was estimated in the Depreciation Study, it is hard to discern Staff's thought process on its proposed service lives. Staff's estimates reflect too much emphasis on the assets surviving at the later stages of the life cycle for an account, which is much less representative of the entire account than the earlier stages. In other words, Staff is fitting their survivor curve estimates to the latter portions of the original data curve instead of putting emphasis on the earlier portions of the curve. In most cases, the earlier portions of the curve are more representative of service life expectations than the latter portions of the original curve because the latter portions of the curve rely on far fewer retirements than the earlier portions. Also, when considering the service lives of the survivor curves approved in the prior study (File No. ER-2019-0335) as

[1] Staff Direct Report, pg. 193, 11:13

well as Staff's proposed service lives in that study, the increased service lives proposed by Staff in the current case are excessive.

Q. WHAT IS THE MAIN ISSUE WITH THE SURVIVOR CURVE ESTIMATES PROPOSED BY STAFF?

A. Staff's proposed survivor curves do not fit the original data curve particularly well in most cases, nor do they align with the earlier, more representative portions of the original data curves. For many accounts, when making an estimate Staff has chosen to place emphasis on the assets surviving at the older ages of the life cycle. These data points reflect ages at which the assets exposed to retirement, as well as the recorded retirements, are nominal and not representative of the overall account.

Q. DO ANY DEPRECIATION AUTHORITIES SUPPORT THAT THE ESTIMATION OF SERVICE LIVES SHOULD BE BASED ON MORE THAN MATHEMATICAL RESULTS?

A. Yes. For example, NARUC makes clear that factors other than the statistical analysis must be considered. Chapter XIII of *Public Utility Depreciation Practices*, entitled "Actuarial Life Analysis" discusses and emphasizes the subjective nature of the process of estimating service lives. NARUC starts this chapter by explaining that the analysis of historical data is only one part of the process of estimating service lives:

> Actuarial analysis objectively measures how the company has retired its investment. The analyst must then judge whether this historical view depicts the future life of the property in service. The analyst takes into consideration various factors, such as changes in technology, services provided, or capital budgets.[2]

NARUC makes clear that the process of estimating service lives must go beyond any

[2] National Association of Regulatory Utility Commissioners, *Public Utility Depreciation Practices*, 1996, p. 111.

objective measurement of the past. In describing the determination of a survivor curve estimate (referred to as the "projection life" in this passage), NARUC states:

> The projection life is a projection, or forecast, of the future of the property. Historical indications may be useful in estimating a projection life curve. Certainly the observations based on the property's history are a starting point. Trends in life or retirement dispersion can often be expected to continue. Likewise, unless there is some reason to expect otherwise, stability in life or retirement dispersion can be expected to continue, at least in the near term.
>
> Depreciation analysts should avoid becoming ensnared in the mechanics of the historical life study and relying solely on mathematical solutions. The reason for making an historical life analysis is to develop a sufficient understanding of history in order to evaluate whether it is a reasonable predictor of the future. The importance of being aware of circumstances having direct bearing on the reason for making an historical life analysis cannot be understated. These circumstances, when factored into the analysis, determine the application and limitations of an historical life analysis.[3]

Thus, NARUC strongly advises against the approach apparently used by Staff, clearly stating that "relying solely on mathematical solutions" should be avoided. NARUC further elaborates on the need for a subjective component to forecasting service lives:

> A depreciation study is commonly described as having three periods of analysis: the past, present, and future. The past and present can usually be analyzed with great accuracy using many currently available analytical tools. The future still must be predicted and must largely include some subjective analysis. *Informed judgment* is a term used to define the subjective portion of the depreciation study process. It is based on a combination of general experience, knowledge of the properties and a physical inspection, information gathered throughout the industry, and other factors which assist the analyst in making a knowledgeable estimate.
>
> The use of informed judgment can be a major factor in forecasting. A logical process of examining and prioritizing the usefulness of information must be employed, since there are many sources of data that must be considered and weighed by importance. For example, the following forces of retirement need to be considered: Do the past and

[3] National Association of Regulatory Utility Commissioners, *Public Utility Depreciation Practices*, 1996, p. 126. Emphasis added.

> current service life dispersions represent the future? Will scrap prices rise or fall? What will be the impact of future technological obsolescence? Will the company be in existence in the future? The analyst must rank the factors and decide the relative weight to apply to each. The final estimate might not resemble any one of the specific factors; however, the result would be a decision based upon a combination of the components.[4]

Q. HAVE YOU INCORPORATED THE VARIOUS FACTORS DISCUSSED BY NARUC INTO YOUR ESTIMATES?

A. Yes. I have conducted site visits for this and prior studies as well as engaged in discussions with Company personnel to familiarize myself with the Company's assets and plans for the assets. In addition, throughout my career, I have performed hundreds of depreciation studies for numerous utilities. The information obtained from this experience has also been incorporated into my recommendations.

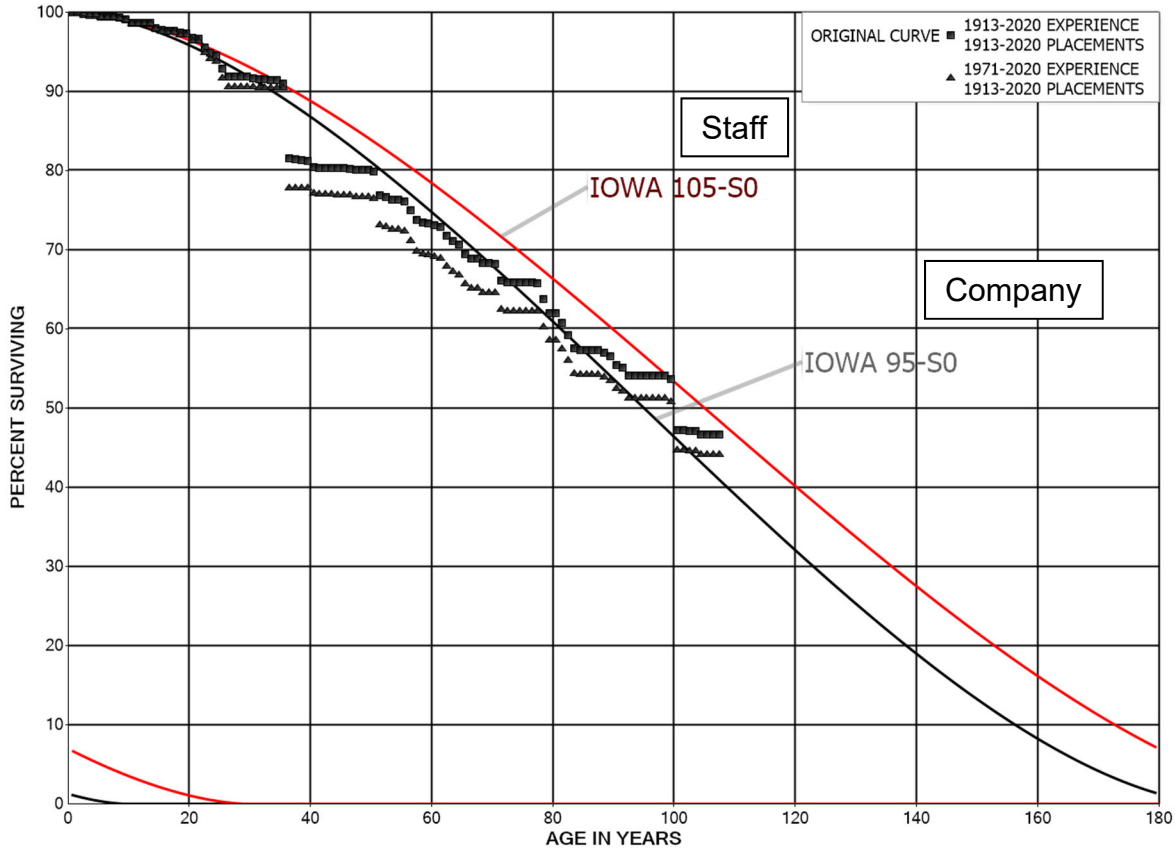
Q. CAN YOU PLEASE PROVIDE EXAMPLES OF THIS ISSUE?

A. Yes. In Figure 1 below there is a comparison of the Company proposed survivor curve in black (95-S0) along with the Staff proposed survivor curve in red (105-S0). From this comparison it can be seen that the Company proposed survivor curve 95-S0 is a good fit of the data from ages 0 through 84, while the Staff proposed 105-S0 is a good fit from ages 0 through 36, then doesn't fit with the data at all until it barely coincides with the data around age 100. The amount of plant exposed to retirement at age 100 is $2.5 million, whereas the data at age 84 has over $6 million of plant exposed to retirement, and age 36, where Staff's estimate deviates significantly from the data, has over $25 million of plant exposed to retirement. There is no reason for Staff's estimate to deviate from the data at an age where there are still significant dollars exposed to

[4] National Association of Regulatory Utility Commissioners, *Public Utility Depreciation Practices*, 1996, p. 128. Emphasis added.

retirement, especially when Staff's estimate doesn't intersect with the data again until age 100.

Figure 1: Comparison of Company and Staff Proposed Survivor Curves for Account 333.00 Water Wheels, Turbines and Generators

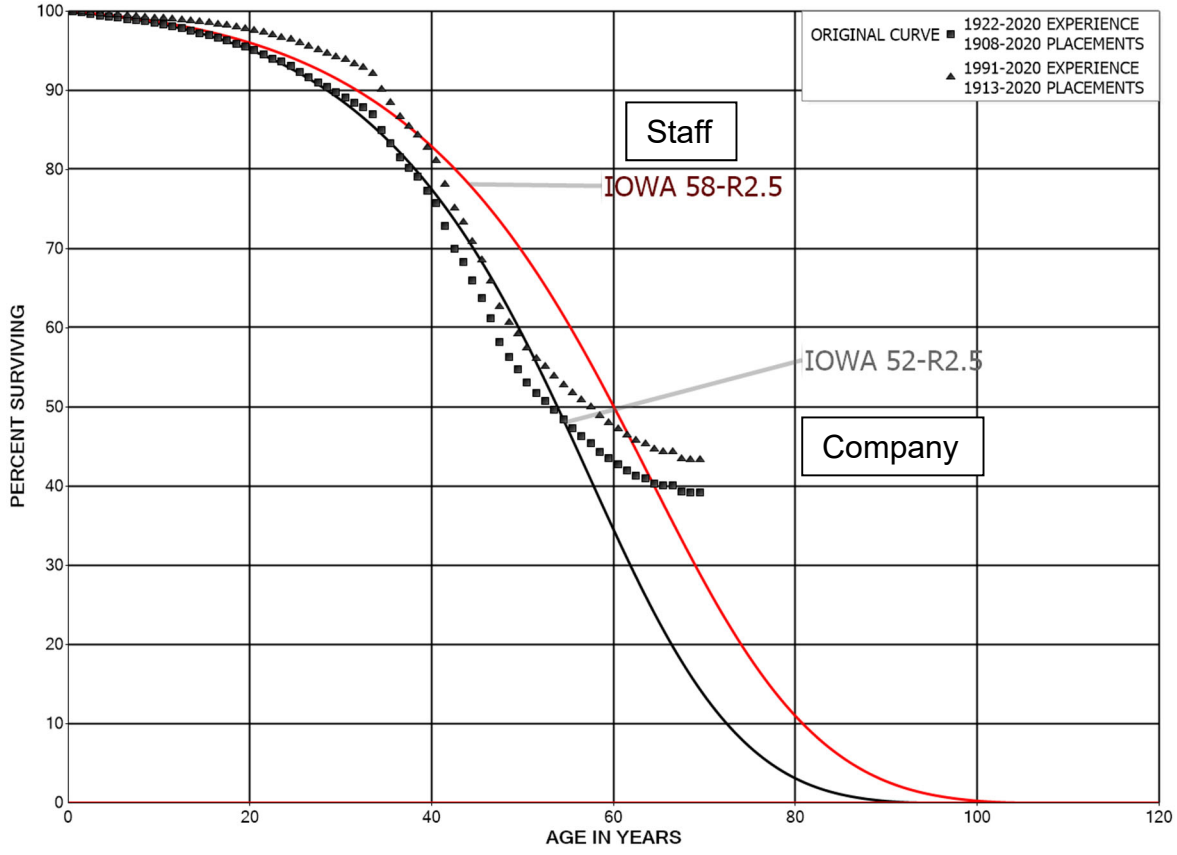


Q. ARE THERE OTHER EXAMPLES OF THIS DISCREPANCY IN HOW STAFF'S ESTIMATES FIT THE HISTORICAL DATA?

A. Yes. There are numerous examples for each account about which Staff disagrees with the Company recommendation. One other particularly striking example is on Figure 2 below and concerns Account 364.00 Poles and Fixtures. The comparison of the Company's estimate and Staff's estimate shows that the Company's survivor curve estimate (52-R2.5) is a very good fit of the data through age 55. At this point of the original data curve the data begins to tail off and the exposures at this age are

approaching 10% of the age 0 exposures--meaning the plant exposed to retirement at this age is drastically less than the plant that was exposed to retirement at earlier ages. The 58-R2.5 proposed by Staff is a good fit of the data through age 20, but after that Staff's survivor curve doesn't come near representing the data until it crosses over the data at age 64. At that age there is only just over $1 million of plant exposed to retirement, whereas there was over $1 billion for some of the earlier ages. This means the data at that point is not very reliable and significantly less reliable than the data from earlier ages.

Figure 2: Comparison of Company and Staff Proposed Survivor Curves for Account 364.00 Poles and Fixtures



Q. DO YOU HAVE ANY OTHER CONCERNS WITH THE SERVICE LIFE ESTIMATES PROPOSED BY STAFF?

A. Yes. The service life estimates proposed by Staff in the instant case are inconsistent with what Staff supported as service life estimates in the prior case for Ameren Missouri (File No. ER-2019-0335). A depreciation study was filed by the Company with that case and Staff did not disagree with any service life estimates proposed in the depreciation study.[5] This depreciation study was based on data that had only two fewer years of data included in the analysis. A well-informed depreciation analyst should assume that with only two additional years of data, barring a convincing operational reason, that service life estimates should not be changed drastically. However, there are five plant accounts for which Staff is proposing an increase of 8 years of more from what Staff supported and what was approved in the previous study two years ago. For two plant accounts Staff is proposing an increase in average service life of 15 years over what Staff supported and what was approved in the prior case. It is not appropriate to increase service life estimates by that amount in such a short period of time.

Q. WHAT DO YOU RECOMMEND RELATED TO THE SERVICE LIFE ESTIMATES THAT SHOULD BE USED FOR DEPRECIATION RATES?

A. Due to the inconsistencies and improper methodology used for Staff's estimates discussed above, I recommend that the service life estimates made by the Company and filed as part of the depreciation study be adopted for use in developing depreciation rates. As discussed in the Depreciation Study[6] the service life estimates proposed by the Company considered a number of factors including statistical analyses of data, current Company policies and outlook as determined during

[5]File No. ER-2019-0335. Staff Report, pg. 144-146
[6] See Deprecation Study, pg. III-3

conversations with management, and the survivor curve estimates from previous studies of Ameren Missouri and other electric companies.

B. <u>Depreciation Calculation Error for Account 364.00, Poles and Fixtures</u>

Q. WHAT DEPRECIATION RATE AND EXPENSE ARE STAFF AND THE COMPANY PROPOSING FOR ACCOUNT 364.00, POLES AND FIXTURES?

A. Staff is proposing a depreciation rate of 6.12% as well as depreciation expense of $78.5 million for this account.[7] Based on a shorter average service life, the Company is proposing a depreciation rate of 4.30% and a depreciation expense of $55.2 million.[8] Staff is proposing roughly a $23.3 million increase compared to what the Company is proposing.

Q. IF STAFF IS PROPOSING A LONGER SERVICE LIFE THAN THE COMPANY, HOW IS STAFF'S DEPRECIATION EXPENSE SO MUCH LARGER THAN WHAT THE COMPANY IS PROPOSING?

A. Staff is using an incorrect depreciation reserve amount in their calculations. In the Staff's workpapers it can be seen that Staff is calculating a depreciation rate for the account in question using an incorrect deprecation reserve of $10,820,634 rather than the correct deprecation reserve of $1,082,063,490 which is what the Company has on its reserve statement. This means that the future accruals in Staff's calculation have been far overstated and they are proposing a rate and expense that is much larger than if they had used the correct book deprecation reserve.

Q. WHAT IS YOUR RECOMMENDATION RELATED TO ACCOUNT 364.00?

[7] Staff Direct Report. Accounting Schedule 05, pg. 5
[8] See Depreciation Study, pg. VI-7

A. Due to Staff's calculation error and the discussion above of the most appropriate survivor curve for this account, I recommend that the Company proposed survivor curve of 52-R2.5 be approved for this account. The service life for this survivor curve is 5 years longer than what was approved in the prior case, whereas Staff's estimate is 11 years longer. Such a drastic increase in only two years would not be appropriate.

III. REBUTTAL TO MIEC'S PROPOSALS

Q. WHAT DOES MIEC PROPOSE WITH REGARD TO DEPRECIATION?

A. The Company proposed to change depreciation rates for the Callaway Energy Center Nuclear Generation Plant to reflect a life of the plant lasting until 2044, the expiration of its current NRC operating license. MIEC witness Andrews proposes to not change depreciation rates for the Callaway Energy Center Plant and to continue to use the currently approved depreciation rates for this plant, but does not propose to change the life span of the plant. In other words, witness Andrews proposes to maintain the rates that were based on a plant and reserve balance from the last study without considering changes in plant additions, retirements or inherent changes in life characteristics.

Q. WHAT IS THE BASIS FOR MR. ANDREWS' PROPOSAL?

A. Mr. Andrews' proposal is based on the Company's most recently filed Integrated Resource Plan ("IRP"). Mr. Andrews states in his testimony that based on the IRP the Company stated it intends to operate this plant past 2050.[9] His theory is apparently that if the plant does operate beyond 2050 future annual depreciation expense may be

[9] Andrews Direct Testimony, pg. 3, 19:21

lower (if there are more years to recover it) and thus depreciation rates could stay where they are.

Q. WHY DID THE COMPANY'S DEPRECIATION STUDY RESULT IN HIGHER DEPRECIATION RATES?

A. Because the parameters that are necessary to determine proper depreciation rates have changed, including the impact of new additions to the total asset investment om each account. In other words, there is more investment to recover now than existed in the last rate case and all of the existing assets have a different overall life expectancy.

Q. DO YOU AGREE WITH MR. ANDREWS' CONCLUSION THAT DEPRECIATION RATES FOR CALLAWAY ENERGY CENTER SHOULD REMAIN UNCHANGED?

A. No. Mr. Andrews is relying on the IRP too literally instead of as a guide or plan for the future as it is intended. There is also a flaw in his logic to just keep the depreciation rates the same as the currently approved rates, rather than updating the depreciation rates to be consistent with what he is effectively contending should be a longer life span for the plant.

Q. WHAT DOES MR. ANDREWS RELY ON FROM THE IRP TO SUPPORT HIS PROPOSAL TO NOT CHANGE CALLAWAY ENERGY CENTER DEPRECIATION RATES?

A. In his testimony, Mr. Andrews quotes the IRP and says, "Ameren's 2020 Integrated Resource Plan ('IRP') is based on the assumption that the operating license for the Callaway Energy Center nuclear facility is extended beyond 2050…".[10] The word

[10] Andrews Direct Testimony, pg. 8, 12:13

"assumption" is not a definitive term. Assumptions are not specific plans and could be subject to change between now and the currently approved life span of 2044 for the Callaway Energy Center plant. Indeed, the assumptions in the IRP change every three years when a new IRP is prepared and filed. The IRP does not lay out a specific end-of-life date for the Callaway Energy Center nuclear facility, thus the currently approved life span of 2044 should continue to be utilized until the relicensing is confirmed or at least initiated. This life span is based on the current operating license for Callaway Energy Center which is a legal responsibility for the Company to operate the plant, not an arbitrary guess at a date in which the plant will be retired. The operating license date is currently the best estimate of how long the plant will be in operation.

Q. DOES MR. ANDREWS DISPUTE THE CURRENT OPERATING LICENSE DATE FOR THE CALLAWAY ENERGY CENTER GENERATION FACILITY?

A. No. In his testimony he states, "Ameren's depreciation study shows that the probable retirement year for Callaway Energy Center is 2044. This is consistent with the current NRC operating license for Callaway Energy Center."[11]

Q. WHAT ELSE IS INCONSISTENT WITH MR. ANDREWS' PROPOSAL TO NOT UPDATE THE DEPRECIATION RATES RELATED TO CALLAWAY ENERGY CENTER NUCLEAR PLANT?

A. Mr. Andrews argument is to not change depreciation rates because the IRP states that the Company *assumes* Callaway Energy Center will be in operation past 2050.

[11] Andrews Direct Testimony, pg. 8, 8:9

However, the current deprecation rates he is supporting are based on the life span date of 2044 for the Callaway Energy Center plant. This creates an inconsistency between his opinion that Callaway Energy Center will operate longer than the year 2050, but he is supporting depreciation rates that were calculated using 2044 as the life span date for Callaway Energy Center. Additionally, the current rates were not developed with all the parameters and plant in service that are needed to create proper rates.

Q. WHAT DO YOU RECOMMEND RELATED TO THE CALLAWAY ENERGY CENTER NUCLEAR GENERATING FACILITY?

A. I recommend that depreciation rates utilizing the life span date of 2044 be approved and used by the Company. If in fact at a later date a Callaway Energy Center license extension is approved by the Nuclear Regulatory Commission (one has not even yet been applied for) then it would be appropriate to change the life span used to set Callaway Energy Center depreciation rates. However, if an extension were not approved Mr. Andrews' approach will result in the need to recover more depreciation expense later over a shorter term (thus impacting customers more in the future). Mr. Andrews' argument to continue to use current depreciation rates is not convincing and the more prudent approach would be to continue to use the life span date set forth in the operating license for Callaway Energy Center as has been the precedent for this plant and other similar facilities across the country.

IV. QUALITY OF COMPANY PROPERTY RECORDS

Q. IN STAFF'S CLASS COST OF SERVICE REPORT THERE ARE CRITICISMS OF THE LEVEL OF DETAIL IN THE COMPANY'S

CONTINUING PROPERTY RECORDS. DO YOU AGREE WITH THE CRITICISMS?

A. No. Ameren Missouri continuing property records have substantial detail of the type of transaction, transaction amount, and vintage of the asset. The level of detail and quality of the detail is comparable to and, in many instances, more detailed than the property records of many other utilities.

Q. FOR ALL ACTUARIAL PROPERTY DATA AND IN PARTICULAR MASS PROPERTY ACCOUNTS, WHAT ARE THE STANDARD COMPONENTS OF A PROPERTY RECORD?

A. Based on the FERC Uniform System of Accounts definition, 18 CFR 101(8), for each entry and in particular mass property, the following level of detail is necessary: (1) A general description of the property and quantity; (2) The quantity placed in service by vintage year; (3) The average cost as set forth in Plant Instructions 2 and 3 of this part; and (4) The plant control account to which the costs are charged.

Q. DO AMEREN MISSOURI'S CONTINUING PROPERTY RECORDS MEET THOSE STANDARDS?

A. Yes.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company	)	
d/b/a Ameren Missouri's Tariffs to Adjust	)	Case No. ER-2021-0240
Its Revenues for Electric Service.	)	

AFFIDAVIT OF JOHN J. SPANOS

COMMONWEALTH OF PENNSYLVANIA	)	
	)	**ss**
COUNTY OF CUMBERLAND	)	

John J. Spanos, being first duly sworn on his oath, states:

My name is John J. Spanos, and on his oath declare that he is of sound mind and lawful age; that he has prepared the foregoing *Rebuttal Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

John J. Spanos

Sworn to me this 14th day of October, 2021.