

Exhibit No.: 042  
Issue: Depreciation  
Witness: John J. Spanos  
Type of Exhibit: Rebuttal Testimony  
Sponsoring Party: Ameren Missouri  
Case No.: ER-2019-0335  
Date: January 21, 2020

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO. ER-2019-0335**

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**REBUTTAL TESTIMONY OF**

**JOHN J. SPANOS**

**ON BEHALF OF**

**AMEREN MISSOURI**

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**Camp Hill, Pennsylvania**

**January 21, 2020**

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Ameren Exhibit No. 042  
Date 3/4/20 Reporter JNB  
File No. ER-2019-0335

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1 **I. INTRODUCTION AND PURPOSE**

2 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

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

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

7 A. Yes.

8 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

9 A. The purpose of my testimony is to rebut two aspects of the Staff Report filed by the  
10 Missouri Public Service Commission Staff ("Staff") related to depreciation, to rebut  
11 the depreciation-related contentions in the direct testimony of John A. Robinett on  
12 behalf of the Office of Public Counsel ("OPC"), and to rebut the testimony of Brian  
13 C. Andrews on behalf of the Missouri Industrial Energy Consumers ("MIEC").

14 **Q. WHAT IS THE SUBJECT OF YOUR REBUTTAL TESTIMONY?**

15 A. The subject of my testimony is depreciation. Specifically, I will address Staff's  
16 proposed depreciation rates for general plant amortization accounts, Staff's proposed  
17 accumulated depreciation adjustments, OPC's proposal with regard to other  
18 production facilities, and MIEC's proposal to reallocate the book accumulated  
19 depreciation for production facilities.

20 **II. REBUTTAL TO STAFF'S PROPOSALS**

21 **Q. WHAT DOES STAFF RECOMMEND?**

22 A. Staff makes two depreciation-related proposals. The first is to use whole life  
23 depreciation rates for the general plant amortization accounts (including similar assets  
24 in production plant accounts). Staff also recommends transfers of accumulated

1 depreciation for certain accounts or groups that have negative accumulated  
2 depreciation balances.

3 **A. General Plant Amortization Accounting**

4 **Q. PLEASE EXPLAIN GENERAL PLANT AMORTIZATION ACCOUNTING.**

5 A. General plant amortization is used for accounts that have a large number of assets with  
6 relatively small unit costs. Because the cost of accounting for these assets is often high  
7 relative to the level of investment in the accounts (e.g., requiring periodic inventories  
8 of assets such as chairs, desks or tools), most regulatory jurisdictions have adopted  
9 amortization accounting for certain general plant accounts. Under amortization  
10 accounting, an amortization period is established based on the expected useful life of  
11 assets in the account. Once assets reach the age of the amortization they are retired  
12 from the books, regardless of whether they are still physically in service. Ameren  
13 Missouri currently uses amortization accounting for many general plant accounts as  
14 well as for certain production plant accounts that include similar assets to the general  
15 plant amortization accounts (I will refer to all of these accounts collectively as  
16 "general plant amortization accounts").

17 **Q. PLEASE EXPLAIN THE DIFFERENCE BETWEEN YOUR PROPOSAL AND  
18 STAFF'S PROPOSAL.**

19 A. In the depreciation study, I have used the remaining life technique. For the remaining  
20 life technique, unrecovered costs (i.e., the original cost less net salvage less  
21 accumulated depreciation) are allocated over the remaining time the plant in an  
22 account is expected to remain in service. This approach ensures that the full service  
23 value (original cost less net salvage) is recovered and contrasts with the whole life

1 technique, in which the level of accumulated depreciation is not considered when  
2 calculating depreciation rates.

3 Ameren Missouri has proposed the remaining life technique for all assets in the  
4 depreciation study submitted in this case and the remaining life technique was used  
5 for the currently-approved and in effect depreciation rates. Similarly, Staff  
6 recommends using the remaining life technique for all accounts but is proposing a  
7 change from how current depreciation rates were set for the general plant amortization  
8 accounts. For general plant amortization accounts, which includes subaccounts of 316,  
9 325, 335 and 346, Staff recommends whole life depreciation rates. Contrary to the  
10 assertions on page 146 of the Staff Report, a whole life depreciation rate does not  
11 ensure that "[b]y the end of the amortization period the asset will be fully recovered."  
12 Instead, because accumulated depreciation may not be the precise amount needed to  
13 ensure full recovery, only remaining life depreciation rates will result in the full  
14 recovery of the entire service value of assets.

15 **Q. PLEASE ILLUSTRATE HOW THE IMPLEMENTATION OF THE WHOLE**  
16 **LIFE DEPRECIATION METHOD AS PROPOSED BY STAFF MAY NOT**  
17 **ENSURE THAT ASSETS ARE FULLY RECOVERED BY THE END OF THE**  
18 **AMORTIZATION PERIOD.**

19 A. The purpose of amortization accounting is to develop a constant depreciation rate and  
20 systematically recover the full plant in service value of high volume, small dollar  
21 assets. In other words, for assets that are placed in service with a 10 year amortization  
22 period, the rate of recovery will be 10% and the assets will be on the books for 10  
23 years, then retired. For example, a \$5,000 asset placed in service at the beginning of  
24 2010 with a 10-year amortization period will have a rate of 10% and annual expense

1 of \$500 through 2019. At the end of 2019, the asset has a total accumulated  
2 depreciation value of \$5,000. The asset is retired at the end of 2019 and is fully  
3 recovered. In this simple example, both the whole life and remaining life method  
4 properly recover the full service value by the end of the amortization period.

5 However, this simple example is not indicative of what Staff has done in order to  
6 achieve the proper amortization rate for all general plant accounts. Using the 10-year  
7 amortization period example, Staff has applied the whole life method on existing  
8 assets in order to achieve the 10% rate without considering the level of the book  
9 reserve which does not guarantee full recovery. For example, if the \$5,000 asset placed  
10 in service in 2010 has a book reserve of \$2,000 after year 5 due to the past depreciation  
11 rates for the account, then has a 10% rate applied for the last 5 years, then the book  
12 reserve at the end of 2019 would be \$4,500. Therefore, using the whole life method,  
13 the asset is not fully recovered since the accumulated depreciation (book reserve) for  
14 the \$5,000 asset is only \$4,500 at time of retirement. This is what Staff has done for  
15 all general plant amortization accounts.

16 **B. Accumulated Depreciation Adjustments**

17 **Q. WHAT IS THE BASIS FOR THE ACCUMULATED DEPRECIATION**  
18 **ADJUSTMENTS PROPOSED BY STAFF?**

19 A. Staff proposes adjustments for accounts that have negative book reserves.

20 **Q. ARE ADJUSTMENTS NEEDED FOR ACCOUNTS THAT HAVE NEGATIVE**  
21 **ACCUMULATED DEPRECIATION AMOUNTS?**

22 A. In general, if an account has a plant in service balance, a negative reserve balance does  
23 not require an explicit adjustment since the remaining life technique will ensure the  
24 full recovery of the unrecovered costs for the account – no more and no less. That is,

1 a negative reserve is not necessarily an issue that needs to be specifically addressed.  
2 If, however, there is no remaining plant balance, an adjustment may be necessary to  
3 ensure full recovery.

4 **Q. DO YOU AGREE WITH STAFF'S PROPOSALS?**

5 A. Staff's proposals for the land rights accounts are small dollar adjustments for accounts  
6 that are not included as depreciable accounts. I am not opposed in principle to  
7 adjusting these amounts, although the adjustment is not necessary. These issues were  
8 found by the Company during a normal review of the reserve amounts and the amounts  
9 were properly reclassified during 2019. The negative accumulated depreciation  
10 amount for Account 335 related to Osage are the result of high cost of removal and  
11 will be recovered through the remaining life technique. The negative accumulated  
12 depreciation amounts at the Taum Sauk Energy Center are specific to Account 332.  
13 The remaining life technique will recover these costs over the remaining life of the  
14 Taum Sauk Energy Center for this account, which is appropriate.

15 **III. REBUTTAL TO OPC'S PROPOSALS**

16 **Q. WHAT DOES MR. ROBINETT RECOMMEND?**

17 A. Mr. Robinett makes two recommendations:

18 [F]irst, that Ameren Missouri's combustion turbines be analyzed either  
19 individually or by facility location for depreciation rate assignments  
20 using remaining life procedure; and second OPC recommends no  
21 recovery of depreciation study expenses until the study is amended and  
22 resubmitted to comply with 20 CSR 4240-3.175(1)(A)2D by providing  
23 estimated retirement dates for the combustion turbines either  
24 individually or by facility location.<sup>1</sup>

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<sup>1</sup> Robinett at 2:16-21.

1 **Q. WHY DOES MR. ROBINETT BELIEVE THAT THE DEPRECIATION**  
2 **STUDY DOES NOT COMPLY WITH 20 CSR 4240-3.175(1)(A)2D?**

3 A. Based on his testimony, Mr. Robinett's complaint is that the depreciation study does  
4 not use the life span method to study each other production facility (i.e., each  
5 combustion turbine plant) individually. He interprets the Missouri Code of State  
6 Regulations, and specifically 20 CSR 4240-3.175(1)(A)2D, to require that a  
7 depreciation study analyze other production facilities by location and include  
8 estimated retirement dates.

9 **Q. HAS THE COMMISSION APPLIED AND INTERPRETED THIS**  
10 **LONGSTANDING COMMISSION RULE TO REQUIRE THAT STUDIES**  
11 **USE THE LIFE SPAN METHOD WITH ESTIMATED RETIREMENT DATES**  
12 **FOR EACH PRODUCTION FACILITY?**

13 A. No. The Commission has approved depreciation rates for other production facilities  
14 (essentially the Company's combustion turbine plants) in previous rate cases using the  
15 same approach as in the Company's study, including in each of the Company's last  
16 three rate cases where depreciation rates were at issue.<sup>2</sup> Further, the Commission did  
17 not even allow the Company to use the life span method for steam production facilities  
18 until Case No. ER-2010-0036. As a result, based on past decisions, the Commission  
19 has not interpreted 20 CSR 4240-3.175(1)(A)2D in the same manner as Mr. Robinett  
20 (and neither has its Staff or OPC for that matter). The rule has not changed.

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<sup>2</sup> File Nos. ER-2007-0002, ER-2010-0036, and ER-2014-0258.



1 Q. FOR THE CURRENT DEPRECIATION STUDY, HAVE YOU STUDIED THE  
2 OTHER PRODUCTION FACILITIES IN THE SAME MANNER AS IN  
3 PREVIOUS DEPRECIATION STUDIES?

4 A. Yes. I am not aware of any party challenging this approach in any of these previous  
5 cases.

6 Q. DO YOU DISAGREE WITH THE CONCEPT OF STUDYING THE OTHER  
7 PRODUCTION FACILITIES USING THE LIFE SPAN METHOD?

8 A. No. I have used the life span method for other production facilities in depreciation  
9 studies for other utilities. However, for Ameren Missouri I elected to continue to use  
10 the same approach as used in previous depreciation studies and study the other  
11 production facilities for each account as a single group.

12 Q. WHAT WOULD THE RESULT BE OF USING THE LIFE SPAN METHOD  
13 FOR OTHER PRODUCTION FACILITIES?

14 A. The result would be higher depreciation expense than Ameren Missouri has proposed.  
15 Schedule JJS-R1 provides the results of studying the other production facilities in  
16 accordance with Mr. Robinett's recommendation. For these calculations, I have used  
17 a 40-year life span for most other production facilities, which is consistent with the  
18 40-year average service life that has previously been adopted by the Commission for  
19 other production accounts and is consistent with life spans used for similar facilities  
20 for other utilities. The Company also has some older other production facilities that  
21 are likely to be retired in the coming years. I have used a retirement date of 2028 for  
22 these facilities.

23 The result of these calculations, which are consistent with Mr. Robinett's  
24 recommendations, produces depreciation expense that is \$8,678,896 higher than I

1 have proposed in the depreciation study. If the Commission prefers to use the life span  
2 method for other production facilities, I would have no objection to using the  
3 depreciation rates in Schedule JJS-R1.

4 **Q. PLEASE ADDRESS MR. ROBINETT'S SECOND RECOMMENDATION**  
5 **REGARDING THE RECOVERY OF COSTS FOR THE DEPRECIATION**  
6 **STUDY.**

7 A. I disagree with Mr. Robinett's recommendation. First, it would be excessively punitive  
8 to disallow the recovery of costs for a study that was conducted in a manner consistent  
9 with those filed in previous cases and with depreciation rates for these accounts  
10 calculated in a manner consistent with depreciation rates previously adopted by the  
11 Commission. Second, the calculations provided in Schedule JJS-R1 satisfy the  
12 analysis requested by Mr. Robinett and, thus, his point is moot.

13 **IV. REBUTTAL TO MIEC'S PROPOSALS**

14 **Q. WHAT DOES MIEC PROPOSE?**

15 A. MIEC witness Andrews proposes to reallocate accumulated depreciation amounts for  
16 production plant accounts.

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

18 A. Mr. Andrews' proposal is based on an analysis he performed comparing the book  
19 accumulated depreciation (or "book reserve") to the theoretical reserve. From this  
20 analysis, Mr. Andrews argues that Ameren Missouri's production plant is "over-  
21 accrued" and that "it is appropriate to reallocate the actual book reserves."<sup>3</sup>

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<sup>3</sup> Andrews at 9.

1 **Q. DO YOU AGREE WITH THE CONCLUSIONS MR. ANDREWS DRAWS**  
2 **FROM HIS ANALYSIS?**

3 A. No. As I will discuss in more detail, it is incorrect to emphasize the theoretical reserve  
4 calculations to the degree Mr. Andrews does, particularly in light of potential changes  
5 in expected retirement dates for the Company's coal-fired generating facilities.  
6 Further, Mr. Andrews has not sufficiently reviewed the historical accounting for other  
7 production facilities to determine the reasons for the levels of accumulated  
8 depreciation in these accounts. Instead, a more detailed review of the reserves for the  
9 Company's assets supports that it is not appropriate to reallocate the reserves as Mr.  
10 Andrews' proposes and that doing so could result in more significant increases in  
11 depreciation expense in future studies if current estimates of service lives are revised.

12 **Q. WHAT IS THE BOOK RESERVE?**

13 A. The book reserve, also referred to as the "book accumulated depreciation" or the  
14 "accumulated provision for depreciation," is a running total of historical depreciation  
15 activity. It is equal to the historical depreciation accruals, less retirements and cost of  
16 removal, plus historical gross salvage. The book reserve also represents a reduction to  
17 the original cost of plant when calculating rate base.

18 **Q. WHAT IS THE THEORETICAL RESERVE?**

19 A. The theoretical reserve is an estimate of the accumulated depreciation based on the  
20 current plant balances and depreciation parameters (service life and net salvage  
21 estimates) at a specific point in time. Put another way, it is, theoretically, what the  
22 reserve would have been had the current plant balances utilized the same depreciation  
23 parameters since the initial assets were placed in service.

24 **Q. IS THE THEORETICAL RESERVE THE "CORRECT" RESERVE?**

1 A. No, the theoretical reserve is an estimate based on the current plant balances and  
2 current life and net salvage estimates. It can provide a benchmark of a Company's  
3 reserve position, but it is not the "correct" reserve amount. The theoretical reserve will  
4 change every time a study is performed. For example, if there is a change in the  
5 estimated retirement date for a power plant, this will change the calculated theoretical  
6 reserve.

7 **Q. WHAT IS A THEORETICAL RESERVE IMBALANCE?**

8 A. A theoretical reserve imbalance ("TRI" or "imbalance") is calculated as the difference  
9 between a company's book accumulated depreciation, or book reserve, and the  
10 calculated accrued depreciation, or theoretical reserve. When Mr. Andrews uses terms  
11 such as "over-accrued" or "overstated," he is referring to the *theoretical* reserve  
12 imbalance. I do not agree with this characterization, as it incorrectly implies that the  
13 Company has recorded too much depreciation in the past. This is not the case – the  
14 Company has recorded depreciation consistent with Commission-approved  
15 depreciation rates and practices.

16 A theoretical reserve imbalance is merely a comparison of the book reserve to the  
17 theoretical reserve at a single point in time based on the service life and net salvage  
18 estimates. These estimates can and will evolve over time as more information is  
19 available. In my experience, there have been many instances in which a perceived  
20 "over-accrued" theoretical reserve imbalance turned out to actually be "under-  
21 accrued" in subsequent depreciation studies.

22 **Q. DO ANY DEPRECIATION AUTHORITIES PROVIDE GUIDANCE WITH**  
23 **REGARD TO MAKING ADJUSTMENTS BASED ON THEORETICAL**  
24 **RESERVE IMBALANCES?**

1 A. Yes. The National Association of Regulatory Utility Commissioners observes the  
2 following on page 189 of the textbook *Public Utility Depreciation Practices*:

3 When a depreciation reserve imbalance exists, one should investigate  
4 why past depreciation rates, average service lives, salvage, or cost of  
5 removal amounts differ from the current estimates. Care should be  
6 taken to analyze these effects before correcting for the reserve  
7 imbalances. Instances occur where subsequent experience shows the  
8 original estimates no longer to be appropriate. It should be noted that  
9 only after plant has lived its entire useful life will the true depreciation  
10 parameters become known.

11 Mr. Andrews does not appear to have investigated why reserve imbalances exist for  
12 these accounts. As I will discuss, a better understanding of the background of many  
13 of the Company's power plants demonstrates that Mr. Andrews' proposal to reallocate  
14 book reserves is not appropriate.

15 **Q. ARE ANY RESERVE IMBALANCES ADDRESSED IN THE COMPANY'S**  
16 **DEPRECIATION STUDY?**

17 A. Yes. As discussed previously in my testimony, the remaining life technique was used  
18 in the depreciation study. The remaining life technique addresses any reserve  
19 imbalances and remaining life depreciation rates are calculated to ensure the full  
20 recovery of the service value of the Company's assets, no more and no less.

21 **Q. WHAT ARE THE FUNCTIONS OR PLANTS THAT MR. ANDREWS**  
22 **REFERS TO AS "OVER-ACCRUED?"**

23 A. The two primary areas Mr. Andrews identifies and appears to target his adjustments  
24 are the Labadie and Rush Island coal-fired power plants and the Other Production  
25 function.

26 **Q. ARE THERE REASONS TO EXPECT THAT FUTURE EXPERIENCE WILL**  
27 **SHOW THE THEORETICAL RESERVE POSITION FOR LABADIE AND**

1           **RUSH ISLAND TO BE DIFFERENT FROM THE INDICATIONS IN THE**  
2           **CURRENT STUDY?**

3    A.    Yes. As I discussed on page 10 of my direct testimony, the actual life spans for Ameren  
4           Missouri's coal-fired facilities could end up being shorter than used in the depreciation  
5           study, which are the same as those used in the previous study. Indeed, many coal-fired  
6           facilities across the country have been retired at younger ages than the life spans  
7           estimated for Labadie and Rush Island (which are in the 68 to 72-year range). If shorter  
8           life spans were used for Labadie and Rush Island, the theoretical reserve would be  
9           higher and may even exceed the book reserve. Thus, the perceived "over-accrued"  
10          position alleged by Mr. Andrews may prove to be illusory.

11          Additionally, the net salvage estimates for steam production facilities do not include  
12          any costs associated with decommissioning the facilities once they reach the end of  
13          their lives or remediating ash ponds. These are costs that the Company will need to  
14          incur, as evidenced by the experience of many coal plants across the country including  
15          the Company's Venice plant. If these costs were included in the net salvage estimates,  
16          it would also increase the theoretical reserve and reduce the theoretical "imbalance"  
17          to which Mr. Andrews points.<sup>4</sup>

18    **Q.    GIVEN THESE CONSIDERATIONS, DO YOU AGREE WITH MR.**  
19           **ANDREWS THAT A REALLOCATION OF THE BOOK RESERVE IS**  
20           **APPROPRIATE FOR STEAM PRODUCTION PLANT?**

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<sup>4</sup> I note that in other cases Mr. Andrews has not disagreed with the concept that terminal net salvage costs should be included in depreciation rates (although he may not have agreed with a company's cost estimates). For example, in a recent case for Duke Indiana, Mr. Andrews' included tens of millions of dollars of terminal net salvage costs for steam production plants (see page 46 of Mr. Andrews' testimony in Indiana Cause No. 45253). I have attached the relevant excerpt from Mr. Andrew's testimony in that case as Schedule JJS-R2.

1 A. No. Given the possibility that Labadie and Rush Island will be retired earlier than  
2 reflected in the theoretical reserve calculations he has used as well as the potential for  
3 significant net salvage costs that are also not included in the theoretical reserve  
4 calculations, I do not believe a reallocation of the reserve for steam plants is  
5 appropriate. If Mr. Andrews' proposal was adopted, it is likely that in future  
6 depreciation studies Labadie and Rush Island could be in significant "under-accrued"  
7 positions. Further, his proposal would increase the risk that the costs for these plants  
8 – including net salvage costs – will not be recovered by the time they are retired, which  
9 would result in intergenerational inequity.

10 **Q. ARE THERE ANY SPECIFIC CONSIDERATIONS FOR OTHER**  
11 **PRODUCTION PLANT?**

12 A. Yes. Mr. Andrews alleges that "Ameren Missouri's investment in Other Production  
13 (mostly combustion turbines) is overstated by \$207 million, or 44%. This is because  
14 FERC Account 344 is significantly over-accrued."<sup>5</sup> First, as discussed above, a  
15 positive theoretical reserve imbalance does not mean that the reserve is "over-  
16 accrued," but instead simply means that the book reserve is larger than a theoretical  
17 number. Further, Mr. Andrews' testimony provides no evidence that he has  
18 investigated or considered why the book reserve for Account 344 is higher than the  
19 theoretical reserve. This information should be considered when assessing whether to  
20 make any reserve adjustments and, for Ameren Missouri, supports making no  
21 adjustment from Other Production to other plant functions.

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<sup>5</sup> Andrews at 9:9-11.

1 **Q. WHAT HAS CAUSED THE THEORETICAL RESERVE IMBALANCE FOR**  
2 **OTHER PRODUCTION FACILITIES?**

3 A. The reserve imbalance for Other Production is primarily due to five combustion  
4 turbines that the Company purchased in 2005 and 2006. These plants are Audrain,  
5 Goose Creek, Kinmundy, Pickneyville, and Raccoon Creek. These five plants  
6 comprise approximately \$492 million, or 73%, of the accumulated depreciation for  
7 Other Production plant accounts. Kinmundy and Pickneyville were acquired from an  
8 Ameren affiliate company at their net book value at the time.<sup>6</sup> Audrain was purchased  
9 from NRG Energy, Inc. which was in bankruptcy at the time of the sale. Goose Creek  
10 and Raccoon Creek were purchased from Aquila in what the Commission found were  
11 "similar circumstances." The Commission has found that the sales of Audrain, Goose  
12 Creek, and Raccoon Creek were "essentially a forced sale."<sup>7</sup>

13 Approximately \$371 million, or 55%, of the total Other Production book reserve, is  
14 due to Audrain, Goose Creek, and Raccoon Creek. These plants were acquired for less  
15 than their net book value. Because these assets were impaired when purchased, the  
16 accounting for the difference between the net book value and purchase price for these  
17 assets resulted in an increase to accumulated depreciation so that the resultant net book  
18 value was equal to the purchase price. This resulted in the book reserve being fairly  
19 high for these assets – for Audrain the book reserve is approximately 56% of the  
20 original cost and for Goose Creek, and Raccoon Creek the book reserve is  
21 approximately 75% of the original cost.

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<sup>6</sup> See page 60 of the Order in Case No. ER-2007-0002.

<sup>7</sup> See page 62 of the Order in Case No. ER-2007-0002.



1 An understanding of this history reveals that these plants, which comprise \$168  
2 million of the overall \$207 million theoretical reserve imbalance calculated by Mr.  
3 Andrews, are not "over-accrued" but rather their accumulated depreciation balances  
4 are in large part the result of impairments incurred by previous owners or depreciation  
5 expense incurred by previous owners.

6 **Q. GIVEN THIS BACKGROUND, DO YOU BELIEVE THAT MR. ANDREWS'**  
7 **PROPOSED ADJUSTMENTS ARE APPROPRIATE?**

8 A. No. It is more appropriate to use the remaining life technique to allocate the  
9 unrecovered costs for these plants over their remaining lives. This approach will  
10 allocate the costs of these plants over the time they are in service. In contrast, Mr.  
11 Andrews' proposal will transfer reserves for these plants to other functions and result  
12 in a mismatch of the recovery of these costs.

13 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

14 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 Decrease Its Revenues for ) File No. ER-2019-0335  
Electric Service. )

AFFIDAVIT OF JOHN J. SPANOS

COMMONWEALTH OF PENNSYLVANIA )  
 ) ss  
COUNTY OF CUMBERLAND )

COMES NOW John J. Spanos, and on his oath declares that he is of sound mind and lawful age; that he has prepared the foregoing *Rebuttal Testimony*; and that the same is true and correct according to his best knowledge and belief.

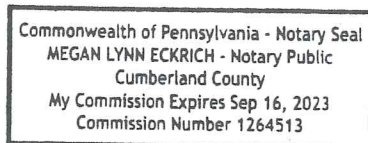
Further the Affiant sayeth not.

  
\_\_\_\_\_  
John J. Spanos

Subscribed and sworn to before me this 20<sup>th</sup> day of January, 2020.

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

My commission expires: September 16, 2023



AMEREN MISSOURI

ELECTRIC DIVISION

SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO OTHER PRODUCTION PLANT AS OF DECEMBER 31, 2018

DEPRECIABLE GROUP	PROBABLE RETIREMENT YEAR	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2018	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	RATE	COMPOSITE REMAINING LIFE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(8)/(5)	(10)=(7)/(8)
<b>OTHER PRODUCTION PLANT</b>									
<i>VENICE COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2042	40-R3	(5)	13,604,827.36	4,826,138	9,458,931	451,360	3.32	21.0
342.00	12-2042	45-R3	(5)	4,157,867.16	1,159,504	3,208,257	146,815	3.53	21.8
344.00	12-2042	45-R4	(5)	169,405,038.55	56,717,198	121,158,092	5,336,674	3.15	22.7
345.00	12-2042	40-R2.5	(5)	16,699,384.12	4,801,901	12,732,752	614,615	3.68	20.7
346.00	12-2042	22-L2.5	0	399,276.90	150,406	246,671	20,742	5.19	12.0
346.21		20-SQ	0	21,700.49	12,649	9,051	1,561	7.19	5.8
346.22		15-SQ	0	87,560.97	44,256	43,305	6,679	7.63	6.5
346.23		5-SQ	0	33,880.86	13,096	20,785	7,088	20.92	2.9
<b>TOTAL VENICE COMBUSTION TURBINE PRODUCTION PLANT</b>				<b>204,409,536.41</b>	<b>67,724,848</b>	<b>146,878,044</b>	<b>6,585,554</b>	<b>3.22</b>	
<i>MERAMEC COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2028	40-R3	(5)	1,481,247.23	528,740	1,026,570	110,556	7.46	9.3
342.00	12-2028	45-R3	(5)	1,292,315.85	759,646	597,286	83,999	4.95	9.3
344.00	12-2028	45-R4	(5)	19,641,084.66	14,986,472	5,636,657	598,370	3.05	9.4
345.00	12-2028	40-R2.5	(5)	2,591,296.67	1,634,593	1,085,869	120,119	4.64	9.0
346.00	12-2028	22-L2.5	0	12,535.13	12,535	0	0	-	-
<b>TOTAL MERAMEC COMBUSTION TURBINE PRODUCTION PLANT</b>				<b>25,018,479.54</b>	<b>17,922,368</b>	<b>8,346,392</b>	<b>893,044</b>	<b>3.57</b>	
<i>FAIRGROUNDS COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2028	40-R3	(5)	446,939.60	211,077	258,210	28,774	6.44	9.0
342.00	12-2028	45-R3	(5)	514,944.57	316,002	224,690	23,961	4.65	9.4
344.00	12-2028	45-R4	(5)	4,808,284.63	5,046,678	0	0	-	-
345.00	12-2028	40-R2.5	(5)	531,581.02	658,160	0	0	-	-
346.00	12-2028	22-L2.5	0	3,290.93	1,593	1,698	197	5.99	8.6
<b>TOTAL FAIRGROUNDS COMBUSTION TURBINE PRODUCTION PLANT</b>				<b>6,305,020.75</b>	<b>6,135,510</b>	<b>484,598</b>	<b>52,932</b>	<b>0.84</b>	
<i>MOREAU COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2028	40-R3	(5)	297,198.03	185,495	146,563	16,494	5.55	8.9
342.00	12-2028	45-R3	(5)	460,502.85	306,016	177,512	18,917	4.11	9.4
344.00	12-2028	45-R4	(5)	6,099,517.80	6,404,494	0	0	-	-
345.00	12-2028	40-R2.5	(5)	738,193.81	775,194	0	0	-	-
346.00	12-2028	22-L2.5	0	11,664.09	11,664	0	0	-	-
<b>TOTAL MOREAU COMBUSTION TURBINE PRODUCTION PLANT</b>				<b>7,606,476.58</b>	<b>7,662,173</b>	<b>324,075</b>	<b>35,411</b>	<b>0.47</b>	
<i>MOBERLY COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2028	40-R3	(5)	325,075.09	208,027	133,302	15,228	4.68	8.8
342.00	12-2028	45-R3	(5)	445,022.74	283,855	183,419	19,660	4.42	9.3
344.00	12-2028	45-R4	(5)	6,880,808.79	6,384,849	0	0	-	-
345.00	12-2028	40-R2.5	(5)	721,042.04	757,094	0	0	-	-
346.00	12-2028	22-L2.5	0	8,619.99	8,620	0	0	-	-
<b>TOTAL MOBERLY COMBUSTION TURBINE PRODUCTION PLANT</b>				<b>7,580,768.65</b>	<b>7,642,645</b>	<b>316,721</b>	<b>34,888</b>	<b>0.46</b>	

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DEPRECIABLE GROUP (1)	PROBABLE RETIREMENT YEAR (2)	SURVIVOR CURVE (3)	NET SALVAGE PERCENT (4)	ORIGINAL COST AS OF DECEMBER 31, 2018 (5)	BOOK DEPRECIATION RESERVE (6)	FUTURE ACCRUALS (7)	CALCULATED ANNUAL ACCRUAL (8)		COMPOSITE REMAINING LIFE (10)=(7)/(8)
							AMOUNT (8)	RATE (9)=(8)/(5)	
<i>MEXICO COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2028	40-R3	(5)	272,385.24	149,406	136,999	15,309	5.62	8.9
342.00	12-2028	45-R3	(5)	379,992.42	256,441	142,551	15,237	4.01	9.4
344.00	12-2028	45-R4	(5)	6,149,051.29	6,456,504	0	0	-	-
345.00	12-2028	40-R2.5	(5)	753,491.35	791,166	0	0	-	-
346.00	12-2028	22-12.5	0	16,209.12	16,209	0	0	-	-
346.22	12-2028	15-SQ	0	13,164.54	6,948	6,216	956	7.26	6.5
<i>TOTAL MEXICO COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>7,584,293.96</i>	<i>7,676,675</i>	<i>285,366</i>	<i>31,502</i>	<i>0.42</i>	
<i>PEÑO CREEK COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2042	40-R3	(5)	2,317,152.63	783,793	1,649,217	78,743	3.40	20.9
342.00	12-2042	45-R3	(5)	4,639,446.21	1,948,674	2,922,745	135,045	2.91	21.6
344.00	12-2042	45-R4	(5)	92,120,377.16	37,711,140	59,015,256	2,650,786	2.88	22.3
345.00	12-2042	40-R2.5	(5)	11,458,957.46	6,081,948	5,949,957	294,110	2.57	20.2
346.00	12-2042	22-12.5	0	1,554,511.44	963,518	590,963	59,006	3.83	9.9
346.21	12-2042	20-SQ	0	187,266.52	149,968	37,299	10,657	6.69	3.5
346.22	12-2042	15-SQ	0	88,374.06	46,467	41,907	6,609	7.48	6.3
346.23	12-2042	5-SQ	0	21,060.12	8,317	12,743	4,496	21.35	2.6
<i>TOTAL PEÑO CREEK COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>112,387,145.00</i>	<i>47,693,825</i>	<i>70,220,117</i>	<i>3,240,052</i>	<i>2.88</i>	
<i>AUDRAIN COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2041	40-R3	(5)	3,101,234.89	1,123,637	2,132,660	108,047	3.48	19.7
342.00	12-2041	45-R3	(5)	5,035,453.62	2,364,218	2,923,008	141,754	2.82	20.6
344.00	12-2041	45-R4	(5)	137,675,494.18	88,768,545	56,000,724	2,846,009	1.92	21.1
345.00	12-2041	40-R2.5	(5)	27,978,525.14	7,070,593	22,391,858	1,135,799	4.07	19.5
346.00	12-2041	22-12.5	0	1,641,353.12	541,843	1,099,710	64,968	3.96	16.9
346.21	12-2041	20-SQ	0	1,231.20	1,035	196	78	6.34	2.5
346.22	12-2041	15-SQ	0	34,054.59	13,020	21,035	2,450	7.19	8.6
346.23	12-2041	5-SQ	0	20,610.26	9,508	11,102	3,920	19.02	2.8
<i>TOTAL AUDRAIN COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>175,697,957.00</i>	<i>99,892,199</i>	<i>84,390,293</i>	<i>4,105,025</i>	<i>2.34</i>	
<i>GOOSE CREEK COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2043	40-R3	(5)	3,735,844.64	2,684,724	1,237,913	57,748	1.55	21.4
342.00	12-2043	45-R3	(5)	2,830,086.41	2,125,947	845,844	37,702	1.33	22.4
344.00	12-2043	45-R4	(5)	185,416,079.11	140,131,293	54,555,590	2,363,124	1.27	23.1
345.00	12-2043	40-R2.5	(5)	20,690,348.00	15,591,057	6,133,808	288,675	1.40	21.2
346.00	12-2043	22-12.5	0	888,104.72	749,148	138,957	11,463	1.29	12.1
346.21	12-2043	20-SQ	0	6,212.83	4,603	1,610	358	5.76	4.5
346.22	12-2043	15-SQ	0	34,083.03	17,446	16,637	2,463	7.23	6.8
346.23	12-2043	5-SQ	0	20,182.15	9,428	10,754	3,823	18.94	2.8
<i>TOTAL GOOSE CREEK COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>213,620,940.89</i>	<i>161,313,646</i>	<i>62,940,913</i>	<i>2,766,356</i>	<i>1.29</i>	

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DEPRECIABLE GROUP (1)	PROBABLE RETIREMENT YEAR (2)	SURVIVOR CURVE (3)	NET SALVAGE PERCENT (4)	ORIGINAL COST AS OF DECEMBER 31, 2018 (5)	BOOK DEPRECIATION RESERVE (6)	FUTURE ACCRUALS (7)	CALCULATED ANNUAL ACCRUAL (8)		COMPOSITE REMAINING LIFE (10)-(7)/(8)
							AMOUNT (9)	RATE (10)-(7)/(8)	
<i>KINMUNDY COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2041	40-R3	(5)	2,708,695.91	854,903	1,989,228	102,053	3.77	19.5
342.00	12-2041	45-R3	(5)	5,678,413.86	2,077,027	3,885,308	188,761	3.32	20.5
344.00	12-2041	45-R4	(5)	87,397,174.20	42,437,759	49,940,774	2,362,235	2.68	21.1
345.00	12-2041	40-R2.5	(5)	6,452,482.92	2,597,644	4,177,442	216,341	3.35	19.3
346.00	12-2041	22-L2.5	0	251,222.92	85,459	165,764	15,791	6.29	10.5
346.21		20-SQ	0	5,660.72	4,760	901	390	6.36	2.5
346.22		15-SQ	0	78,576.54	58,813	19,764	5,950	7.57	3.3
346.23		5-SQ	0	20,520.57	9,440	11,081	3,896	18.99	2.8
<i>TOTAL KINMUNDY COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>103,182,727.64</i>	<i>48,125,805</i>	<i>60,198,262</i>	<i>2,895,287</i>	<i>2.81</i>	
<i>PICKNEYVILLE COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2040	40-R3	(5)	9,381,260.12	4,759,296	5,091,027	288,986	2.87	18.9
342.00	12-2040	45-R3	(5)	5,032,240.86	2,377,204	2,905,649	146,432	2.91	19.8
344.00	12-2040	45-R4	(5)	146,378,640.55	61,922,248	91,775,325	4,507,813	3.08	20.4
345.00	12-2040	40-R2.5	(5)	13,201,455.23	6,091,099	7,770,429	409,357	3.10	19.0
346.00	12-2040	22-L2.5	0	565,619.59	327,935	237,895	21,423	3.79	11.1
346.21		20-SQ	0	1,258.67	1,170	129	86	6.62	1.5
346.22		15-SQ	0	60,437.86	36,152	24,286	4,673	7.73	5.2
346.23		5-SQ	0	22,684.13	10,138	12,546	4,353	19.19	2.9
<i>TOTAL PICKNEYVILLE COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>174,643,636.81</i>	<i>75,526,242</i>	<i>107,818,076</i>	<i>5,363,123</i>	<i>3.07</i>	
<i>RACCOON COMBUSTION TURBINE PRODUCTION PLANT</i>									
341.00	12-2042	40-R3	(5)	2,322,926.81	1,558,819	880,254	42,145	1.81	20.9
342.00	12-2042	45-R3	(5)	3,331,915.94	2,382,861	1,115,651	51,433	1.54	22.1
344.00	12-2042	45-R4	(5)	126,108,759.59	96,448,736	35,965,492	1,626,804	1.29	22.1
345.00	12-2042	40-R2.5	(5)	17,818,901.67	13,111,202	5,598,645	274,434	1.54	20.4
346.00	12-2042	22-L2.5	0	1,248,626.53	772,096	476,529	33,138	2.65	14.4
346.21		20-SQ	0	6,077.34	4,867	1,210	346	5.69	3.5
346.22		15-SQ	0	36,049.99	14,949	21,101	2,569	7.13	8.2
346.23		5-SQ	0	19,269.10	9,261	10,008	3,617	18.77	2.8
<i>TOTAL RACCOON COMBUSTION TURBINE PRODUCTION PLANT</i>				<i>150,692,526.97</i>	<i>114,302,793</i>	<i>44,068,860</i>	<i>2,034,486</i>	<i>1.25</i>	
<i>MARYLAND HEIGHTS PRODUCTION PLANT</i>									
341.00	12-2052	40-R3	(5)	6,510,843.22	961,197	5,875,188	199,755	3.05	29.6
342.00	12-2052	45-R3	(5)	14,870,622.51	1,813,109	13,801,045	444,987	2.99	31.0
344.00	12-2052	45-R4	(5)	12,281,459.24	1,211,244	11,684,288	360,616	2.94	32.4
344.00	12-2052	8-S2.5	40	8,417,407.92	2,269,640	2,780,805	835,747	9.93	3.3
345.00	12-2052	40-R2.5	(5)	6,743,189.67	1,345,610	5,734,739	197,954	2.94	29.0
346.00	12-2052	22-L2.5	0	1,251,827.84	469,715	782,113	48,765	3.90	16.0
346.21		20-SQ	0	49,252.25	11,354	37,898	2,807	5.70	13.5
346.22		15-SQ	0	32,477.66	8,741	23,737	2,736	8.42	8.7
346.23		5-SQ	0	15,814.59	(40,143)	55,958	21,910	138.54	2.6
<i>TOTAL MARYLAND HEIGHTS PRODUCTION PLANT</i>				<i>50,172,895.00</i>	<i>8,050,467</i>	<i>40,775,771</i>	<i>2,114,277</i>	<i>4.21</i>	

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DEPRECIABLE GROUP (1)	PROBABLE RETIREMENT YEAR (2)	SURVIVOR CURVE (3)	NET SALVAGE PERCENT (4)	ORIGINAL COST AS OF DECEMBER 31, 2018 (5)	BOOK DEPRECIATION RESERVE (6)	FUTURE ACCRUALS (7)	CALCULATED ANNUAL ACCRUAL (8)		COMPOSITE REMAINING LIFE (10)=(7)/(8)	
							AMOUNT	RATE (9)=(8)/(5)		
<i>OFALLON SOLAR PRODUCTION PLANT</i>										
341.00	12-2034	20-S2.5	*	0	2,858,821.95	224,017	2,634,805	195,171	6.83	13.5
344.00	12-2034	20-S2.5	*	0	9,375,593.50	2,231,817	7,143,776	525,169	5.64	13.5
345.00	12-2034	20-S2.5	*	0	3,920,801.80	401,952	3,518,850	260,648	6.65	13.5
346.00	12-2034	20-S2.5	*	0	11,593.88	2,993	8,601	637	5.49	13.5
346.23		5-SQ		0	24,536.46	16,136	8,398	8,398	34.23	1.0
<b>TOTAL OFALLON SOLAR PRODUCTION PLANT</b>					<u>16,191,147.59</u>	<u>2,870,817</u>	<u>13,314,330</u>	<u>994,023</u>	<u>6.14</u>	
<i>OTHER RENEWABLES PRODUCTION PLANT</i>										
344.00		20-S2.5	*	0	1,305,325.88	552,944	752,382	64,087	4.91	11.7
345.00		20-S2.5	*	0	68,382.87	9,181	59,222	5,044	7.38	11.7
<b>TOTAL OTHER RENEWABLES PRODUCTION PLANT</b>					<u>1,373,708.75</u>	<u>562,105</u>	<u>811,604</u>	<u>69,131</u>	<u>5.03</u>	
<b>TOTAL DEPRECIABLE OTHER PRODUCTION PLANT</b>					<u>1,256,557,262.14</u>	<u>673,107,136</u>	<u>641,173,422</u>	<u>31,215,191</u>	<u>2.48</u>	
<b>ACCOUNTS NOT STUDIED</b>										
340.00					<u>6,812,475.61</u>					
<b>TOTAL ACCOUNTS NOT STUDIED</b>					<u>6,812,475.61</u>					
<b>TOTAL OTHER PRODUCTION PLANT</b>					<u>1,263,469,737.75</u>			<u>31,215,191</u>	<u>2.47</u>	

\* CURVE SHOWN IS INTERIM SURVIVOR CURVE.

**TABLE 9**  
**Terminal Net Salvage Comparison**

Plant	IG		Duke		Delta	
	Terminal Net Salvage Cost (000)	Terminal Net Salvage Rates	Terminal Net Salvage Cost <sup>1</sup> (000)	Terminal Net Salvage Rates <sup>2</sup>	Terminal Net Salvage Cost (000)	Terminal Net Salvage Rates
Cayuga	\$ 51,663	(5)	\$ 80,640	(7)	\$ (28,978)	2
Edwardsport	36,304	(4)	313,736	(15)	(277,432)	11
Gallagher	26,796	(10)	41,427	(15)	(14,631)	5
Gibson	94,534	(6)	215,672	(9)	(121,138)	3
Markland	8,974	(16)	14,166	(23)	(5,192)	7
Cayuga CT	1,079	(3)	1,818	(5)	(739)	2
Henry County	1,389	(4)	3,265	(6)	(1,876)	2
Madison	958	(3)	12,014	(6)	(11,056)	3
Noblesville CT	6,175	(4)	23,786	(11)	(17,611)	7
Vermillion	1,727	(4)	8,728	(9)	(7,001)	5
Wheatland	1,154	(4)	15,869	(17)	(14,715)	13
Crane	3,241	(8)	4,726	(12)	(1,485)	4
Total:	\$ 233,992		\$ 736,846		\$ (501,853)	

Source (1) Data Response IG Attachment 14.14-A  
(2) 45253-DEI-Petitioner's Workpaper 2-JSS

1 As is shown in Table 9 above, my recommended level of decommissioning  
 2 costs for inclusion in the terminal net salvage calculations is \$234 million, compared to  
 3 \$736 million proposed by Duke. This is a reduction of over \$500 million to future  
 4 depreciation accruals due to the unsupported and excessive inventory, contingency,  
 5 and inflation assumptions proposed by Duke. The reduction of decommissioning costs  
 6 results in the lower (less negative) net salvage rates presented above. My calculations  
 7 of terminal net salvage rates and average net salvage rates are presented in  
 8 Attachment BCA-14.

9 Q HAVE YOU UPDATED DUKE'S PROPOSED ELG DEPRECIATION RATES WITH  
 10 YOUR RECOMMENDED TERMINAL NET SALVAGE RATES?

11 A Yes. I present a set of depreciation rates using the ELG procedure and with my  
 12 proposed net salvage rates in my Attachment BCA-15.