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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2016-0156

REBUTTAL TESTIMONY

OF

JOHN J. SPANOS

ON BEHALF OF

KCP&L GREATER MISSOURI OPERATIONS COMPANY

Kansas City, Missouri
August 2016

REBUTTAL TESTIMONY

OF

JOHN J. SPANOS

Case No. ER-2016-0156

Q. Please state your name and business address.

A. John J. Spanos, 207 Senate Avenue, Camp Hill, Pennsylvania, 17011.

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 Direct Testimony set forth in the Staff Report filed by the Missouri Public Service Commission ("Commission") Staff ("Staff").

Q. What are the subjects of your Rebuttal Testimony?

A. The overall subject of my testimony is depreciation, however, the specific area that I address relates to the methodology used to develop the depreciation rates by the Staff. This generally relates to Staff's recommendation to use depreciation rates based on methods and techniques that are outdated and since been corrected for improved procedures.

Q. Why has Staff decided not to propose new depreciation rates?

A. Staff cited four concerns regarding depreciation issues that they would like to resolve through discussions and formal data requests. These issues include: 1) Account 312.00, Boiler Plant Equipment, Sibley Unit 1 showed a reduction in book reserves by account between December 31, 2014 and December 31, 2015 and Sibley Unit 2 had similar reductions; 2) For production plant the company's total net salvage percentage is set as high as 25% of original cost for some units; 3) Staff could not derive reserve balances based on information provided in data requests; and 4) "Probable Retirement Dates" in the Company's depreciation study for Sibley Unit 1 (2019), Sibley Unit 2 (2019) and Lake Road Unit 4 (2020) are different than the Integrated Resource Plan ("IRP"). The IRP lists Sibley Unit 1 and Sibley Unit 2 as 2018 and Lake Road Unit 4 as 2019.

Q. Have these concerns been addressed?

A. Yes. During multiple meetings with Staff since the issuance of the Staff Report all four concerns have been addressed and resolutions for each issue established.

Q. What was the resolution for Account 312.00, Boiler Plant Equipment, Sibley Unit 1 showing a reduction in book reserves by account between December 31, 2014 and December 31, 2015 and Sibley Unit 2 having similar reductions?

A. The depreciation study was conducted through December 31, 2014 which included extensive review and analysis of the book reserve. However, Staff utilized information from a different source which was not compatible by unit for December 31, 2015. Therefore, the reduction that Staff was questioning between December 31, 2015 and December 31, 2014 did not exist.

Q. What was the resolution for the levels of net salvage as high as 25% of original cost for some generating plants or units?

A. The net salvage in the depreciation study represented estimates of both terminal and interim net salvage. It is possible that the actual terminal net salvage percentage and\or the actual interim net salvage percentage to be different than the estimated net salvage percentage. The estimated net salvage percentage is utilized in the depreciation rate computation in order to systematically and rationally recover the full service value over the life of the asset. Informed judgment also factors into the estimated net salvage percentage. Additionally, only a couple of units actually have estimates as high as Staff expressed a concern. Most units have estimated net salvage percentages between 5% and 15% in the depreciation study.

Q. What was the resolution to Staff's concern of deriving reserve balances based on information provided in data requests?

A. Staff attempted to utilize data from two different sources which were not prepared in the same fashion. Consequently, after explanation of the issue Staff was able to identify reserve balance reconciliations and tie to the general ledger by utilizing the comparable reports.

Q. What was the resolution to differences in the "Probable Retirement Dates" between the Company's depreciation study for Sibley Unit 1 (2019), Sibley Unit 2 (2019) and Lake Road Unit 4 (2020) and the IRP. The IRP lists Sibley Unit 1 and Sibley Unit 2 as 2018 and Lake Road Unit 4 as 2019.

A. At the time the depreciation study was conducted the probable retirement dates were based on the information available and known at that time. Subsequently, updated information sets forth probable retirement dates for Sibley Unit 1 and Unit 2 (2018) and Lake Road Unit 4 at 2020.

Q. What are the methodology issues raised by your depreciation study and the Staff Report?

A. The currently approved rates were based on Case ER-2005-0436 for electric plant and HR-2004-0024 for industrial steam plant, with the exception of deprecation rates for Iatan Unit 2 and the approval of general plant amortization. Rates approved in ER-2005-0436 were reaffirmed in ER-2010-0356 and ER-2012-0175. Rates for Iatan Unit 2 and approval of general plant amortization occurred in ER-2010-0356 and reaffirmed in ER-2012-0175. Iatan Unit 2 depreciation rates were based on Iatan Unit 1 rates in ER-2005-

0436. Rates in ER-2005-0436 and HR-2004-0024 did not include the life span approach for all generating facilities and included the whole life method instead of remaining life. Recent proceedings in Missouri have approved the use of the life span approach for all generating facilities and the use of the remaining life method. Additionally, my depreciation study includes a component of terminal net salvage which also has been approved in recent proceedings.

Q. Can you detail the methodology issues stated above?

A. First, Staff has recommended maintaining depreciation rates which were based on plant balances which are over 10 years old, which is completely inappropriate. Second, outdated rates ignore recent transactions and knowledge of new assets as well as Company plans and practices. More specifically, I disagree with Staff's treatment of generating facilities as mass accounts instead of the more traditional life span approach which is reflected with current rates. Third, Staff recommends the whole life method instead of the remaining life method which does not account for changes over time of the life and net salvage parameters for full recovery. The remaining life method is a superior approach. Each of these issues will be addressed in detail throughout this testimony.

I. Consolidation to One Company

Q. Does the depreciation study consolidate assets and parameters for the three companies?

A. Yes. This case sets forth depreciation rates by account for the combination of all three companies in an effort to establish one rate for all like assets.

Q. Is there an overall benefit to establishing one rate per account?

A. Yes. First and foremost, one rate per account means recovery of all assets within an account are the same. In other words, a distribution pole for KCP&L Greater Missouri

Operations Company ("GMO" or the "Company") – Missouri Public Service ("MPS") is depreciated at the same rate as a distribution pole for – Light & Power (L&P). All GMO customers get the same benefits and the same costs. Second, the life and salvage parameters are determined based on one company policy and practice. Not only is the statistical analysis combined to produce one life and one net salvage percent per account, but plans to replace versus repair are the same. Third, the recent changes in plant activity, additions and retirements, which affect life and net salvage percentages, are reflected consistently among all assets.

Q. Does your depreciation study treat all poles the same?

A. Yes. All poles in Account 364.00 are depreciated at a rate of 4.02 which is based on a 54-S2.5 survivor curve and 100% negative net salvage. Again, this is consistent with the fact that all poles are treated the same regardless of predecessor company.

Q. Are there any other major concepts that are magnified by using the currently approved rates?

A. Yes. The currently approved depreciation rates are based on the whole life method, not the remaining life method. As I have established later in this testimony, remaining life is the superior depreciation method. Therefore, using the wrong life and net salvage parameters are magnified from year to year, since there is no correcting element in the rate.

II. The Life Span Approach to Depreciation

Q. How does the Staff's approach compare to the use of the life span approach?

A. During the life of a power plant, interim additions, replacements, and retirements occur regularly. At the time of the final retirement of a power plant, all of the structures and equipment are retired, regardless of whether they were part of the original installation or were added as recently as a year or two prior to the plant's retirement. The life span approach reflects the unique average lives that are experienced by each year of installation at a power plant by recognizing the period of time between each installation and the final retirement of the plant.

Conversely, the Staff's approach which is based on current rates applies a single average life or average survivor curve to all installation years of an entire power plant account and does not recognize the unique survivor characteristics of each installation year.

Q. How does Staff's approach differ in a specific instance from the life span approach?

A. For example, the MPS, Sibley Unit 3 began operation in 1969 and there have been subsequent plant additions made each year since 1969 in Account 312, Boiler Plant Equipment. For these plant additions, 1969 through 2014, there is a unique service life and survivor curve for each vintage under the life span approach for a total of 46 different survivor curves. Under the Staff's approach from their Report, there is one average service life and survivor curve used to describe the life characteristics of all assets within Account 312, Boiler Plant Equipment at Sibley. Further, the use of a single average life is only applicable for one year, as with each year of improvements and replacements, the overall average life of the power plant changes. Thus, depreciation based on the use of the life span approach, rather than the use of a single average life, results in a more accurate reflection of the loss in service value of a power plant.

Q. Has this Commission expressed its opinion on whether the life span approach is appropriate?

A. Yes. For example, the Commission adopted the life span approach to depreciation in its Report and Order in the Union Electric Company, d/b/a AmerenUE general rate case issued on May 28, 2010 in Case No. ER-2010-0036 ("2010 Ameren Rate Case") as well as Case No. ER-2014-0258. Additionally, in the Kansas City Power and Light Company ("KCP&L") Case No. ER-2014-0370, the life span approach was adopted. All of these rulings are in contrast to the Staff's approach in GMO's case which essentially treats power plants as mass plant property. Examples of mass plant include assets such as meters, poles, and line transformers. Electric generating plants are significantly different types of property compared with mass plant assets and need to be depreciated in accordance with the life span approach, as the Commission determined in its AmerenUE and KCP&L decisions.

Q. Do authoritative texts on depreciation support your opinion that the service value of power plants should be allocated based on the use of the life span approach?

A. Yes, they do. Authoritative texts on the subject of depreciation support the proposal to use the life span approach for power plants. The treatise entitled <u>Public Utility Depreciation Practices</u>, published in 1996 by the National Association of Regulatory Utility Commissioners ("NARUC"), states:

> Life span property generally has the following characteristics:
>
> 1. Large individual units,
> 2. Forecasted overall life or estimated retirement date,
> 3. Units experience interim retirements, and
> 4. Future additions are integral part of initial installation.
>
> The following classes of utility property may be most appropriately studied under this method, taking into consideration the availability of plant accounting data, and particularly the number of units of property involved: buildings, electric power plants.[1]

Another leading depreciation treatise, authored by Frank K. Wolf and W. Chester Fitch and entitled <u>Depreciation Systems</u>, states:

[1] <u>Public Utility Depreciation Practices</u> at p. 141 (National Association of Regulatory Utility Commissioners, 1996).

> Depreciation professionals use the term life span to describe both a unit of property and a group of property that will be retired as a unit. Examples of a unit of property are a hydroelectric dam or the building housing electrical generating equipment. Examples of a group of property that will be retired as a unit include the turbines, generators, and other equipment used to generate electrical power and housed in either the dam or building. The dispersion pattern of retirements from a group of life span property differs from the pattern of other (mass) property, because much of the life span property is retired simultaneously (unlike mass property). The resulting survivor curve is truncated (and instantaneously reaches zero percent surviving) rather than gradually curving to zero percent surviving.[2]

Q. What method for allocation of power plant service value has GMO proposed in this proceeding?

A. GMO has proposed, consistent with authoritative texts and the Uniform System of Accounts ("USOA"), the use of the life span method of allocating the service value of power plants over the life of the facility.

Q. Based on the definitions and instructions in the USOA, what do you conclude that it requires regarding power plant net salvage?

A. The USOA requires that power plant net salvage, as a component of its service value, must also be allocated or accrued over the service life of the property in a systematic and rational manner.

Q. Do authoritative texts on depreciation support your conclusion that net salvage should be accrued during the life of the related plant?

A. Yes, they do. Every authoritative text on the subject of depreciation supports the proposal to ratably accrue for net salvage during the life of the related property. The 1996 NARUC depreciation treatise, cited above, states:

> Closely associated with this reasoning is the accounting principle that revenues be matched with costs and the regulatory principle that utility customers who benefit from the consumption of plant pay for the

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[2] Depreciation Systems, Frank K. Wolf and W. Chester Fitch at p. 255 (Iowa State University Press, 1994).

> cost of that plant, no more, no less. The application of the latter principle also requires that the estimated cost of removal of plant be recovered over its life.[3]

Depreciation Systems, also cited above, states the concept in this manner:

> The matching principle specifies that all costs incurred to produce a service should be matched against the revenue produced. Estimated future costs of retiring of an asset currently in service must be accrued and allocated as part of the current expenses.[4]

Q. Please describe the addition and retirement activity that occurs during the course of a power plant's life span.

A. The first addition at a power plant is its initial construction, a substantial expenditure. For a plant with several units, this initial construction can occur over a period of several years. Throughout the life of this initial expenditure, improvements and replacements take place. For example, after the initial installation in 1969 for Sibley Unit 3, major improvements were added in 1990, 1993, 1995, 2008, 2011, 2012 and 2014. These improvements also included replacements of the original assets which represent interim retirements. This type of activity occurs in almost every year of a power plant's life span in varying degrees of magnitude. Some of these major additions can be nearly as large as or larger than the original installation. Interim plant additions are made for various reasons, at times to replace worn or unreliable components of the facility and other times made to comply with newly enacted environmental regulations. After a period of 40, 50 or more years, it becomes uneconomic to continue to make improvements to keep the plant running and the entire unit or plant is retired. This retirement includes the original construction as well as all of the interim improvements and replacements.

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[3] Public Utility Depreciation Practices at p. 157 (National Association of Regulatory Utility Commissioners, 1996).
[4] Depreciation Systems, Frank K. Wolf and W. Chester Fitch at p. 7 (Iowa State University Press, 1994).

Q. Given this pattern of additions and retirements, how can the survivor characteristics of power plant structures and equipment be described?

A. The survivor characteristics of power plant structures and equipment can be described through the use of interim survivor curves truncated at the date of final retirement of the entire plant or unit. The interim survivor curve describes the rate of interim retirements from the date of installation to the date of final retirement. These interim retirements are the result of retirements of equipment with lives that are less than the overall life span of the plant. These retirements would be of items such as boiler feedwater pumps, turbine rotors, control equipment, coal pulverizers, and numerous other items. The interim survivor curve, graphically depicted, begins at 100 percent surviving at the date of installation and decreases gradually throughout most of the life span. At the date of final retirement, the interim survivor curve is truncated, reducing the percent surviving to 0 percent. The age at which truncation occurs is different for ***every*** year of installation, resulting in a different average service life for each vintage.

Q. How is the interim survivor curve estimated?

A. The interim survivor curves for the several accounts at power plants are estimated based on informed judgment that incorporates retirement rate analyses of historical *interim* retirements and a consideration of the interim retirement rates observed for similar accounts and plants at other electric utilities. Retirements that occur at the end of a power plant's life are termed final retirements and are excluded from the life analyses for purposes of determining an interim survivor curve. The results of the interim retirement rate analyses for GMO Account 312.0, Boiler Plant Equipment, are presented on pages VII-9 through VII-12 of the depreciation study (attached to my Direct Testimony as Schedule JJS-1) and plotted along with the 60-S0.5 interim survivor curve on page VII-8.

Q. How is the final retirement date estimated?

A. The final retirement date is estimated based on informed judgment incorporating the outlook of management and a consideration of both the life spans of retired stations and units and the estimates of others for units currently in service. The recommended retirement dates shown in each depreciation study are based upon a consideration of relevant factors used to estimate life spans of steam plants. Some of these factors include: (1) age and condition of the plant; (2) life span estimates used by other electric generating companies; (3) industry experience with retired steam plants and those currently in service; (4) future major refurbishments including expenditures related to environmental compliance; and (5) design life of major components of the boiler and steam systems. This information was accumulated to determine the most reasonable retirement date for each unit for depreciation purposes.

Q. Do the final retirement dates represent a date certain for the retirement of the plants?

A. No, they do not. The probable final retirement dates should not be interpreted as a firm commitment to retire these plants on these dates, but rather, as reasonable estimates based on currently available information. The probable final retirement dates, like other estimates used for capital recovery purposes, are subject to modification in the future as circumstances dictate. The estimated final retirement dates are based on current information and a consideration of all relevant factors. The nature of using estimates is that there is always a degree of uncertainty associated with them. The only time you can precisely determine the service life of an asset or facility is after it has been retired, and you can look back and state with certainty how long it was in service. However, for purposes of determining appropriate depreciation rates we need to make estimates such as service lives and net salvage percentages.

Q. Is it necessary for management to have replacement plans in effect for these units in order to estimate a final retirement date?

A. No, it would be premature for management to be making such plans at this point in time. Such plans occur when discussions begin on the construction of the replacement power plant which typically take between 5 and 10 years.

Q. Is an economic study required in order to estimate the final retirement date of a power plant?

A. No, it is not. It is not possible to conduct such a study until near the end of the power plant's life. The economics and regulatory requirements are subject to significant change over the life of the plant, and it would be difficult, if not impossible, to forecast such conditions so far into the future. However, it is possible to recognize that (1) regulatory requirements continue to increase, making the operation of the plant more costly; (2) the condition of many plant items deteriorates with age and cannot be fully arrested through maintenance; and (3) technology continues to advance, making the installation of a new facility ultimately more economic than the continued operation of the existing facility.

Q. Is it appropriate to describe the life characteristics of power plants with the use of a single average survivor curve for each account?

A. No, it is not. For life span property, the average service life of each year of installation is different. The closer the installation is to the date of final retirement, the shorter is the average life. Complete recovery of the original cost with the use of a single average life would require an annual adjustment to reduce the average to reflect the shorter life of the new additions. This continual reduction in average life for the account would result in a pattern of increasing accruals with age for each year of installation. That is not straight-line depreciation as required by the USOA. Alternatively, an average life that reflects the lives of plant in service and plant to be added in the future could be used from the time of the initial installation. However, this approach results in too much annual depreciation in the early years for the long-lived facilities and too little depreciation in the later years for the short-lived facilities.

Q. Can actuarial analyses be used to develop a basis for estimating an overall average life applicable to a power plant account?

A. No, they cannot. The mix of interim and final retirements in the historical database is not consistent with the mix of future interim and final retirements. As a result, the analysis of historical retirement rates is not appropriate for forecasting future retirement rates for power plants. Also, there are only a small number of generating plants in service and a few generating plants that have been retired to be analyzed using the actuarial analyses. In contrast, there are thousands of poles, meters and line transformers added and retired each year. It is not appropriate to use the same analytical approach to determine the average service life of poles, meters, line transformers, etc., as it would be to determine the average service life of power plants. The sample size for power plants in the historical data base is too small.

Q. In this regard, do customer equity considerations support the use of the life span method for power plants, contrary to the Staff Report?

A. Yes, they do. The life span method provides for a better match of depreciation expense with service value rendered than does the use of a single average survivor curve for all installation years.

Q. Please explain.

A. The life span method develops and uses a unique average service life for each installation year. As a result of the decision to cease operations at a power plant, all property of varying ages is retired concurrently. Therefore, the older installation years have longer average service lives than the younger installation years. Under the life span approach, the original cost of an older installation year is recovered during the average life of that installation year. The original cost of a younger installation year is recovered during a shorter average life. In comparison, the use of a single average service life and survivor curve that is somewhere between the longer lives of the older installation years and the shorter lives of the younger installation years, results in the over-recovery of cost for the older installation years and the under-recovery of cost for the younger installation years.

Q. What is the policy of other regulatory commissions regarding the life span approach for production plant?

A. Virtually all other regulatory commissions use the life span approach for production plant, including this Commission as a result of its decision in past cases. Gannett Fleming, the firm by whom I am employed, has assisted utilities in all 50 states, 10 Canadian provinces and 3 Canadian territories. My colleagues and I are not aware of a jurisdiction that denies the life span approach for production facilities, although in this case the Commission must make clear that the life span approach now applies to such facilities owned by GMO.

Q. Would a decision by the Commission to apply the life span methodology to GMO's generating production facilities be consistent with its regulations?

A. Yes. 4 CSR 240-3.175, Submission Requirements for Electric Utility Depreciation Studies, requires that electric utilities provide an estimated date of final retirement for each warehouse, electric generating facility, combustion turbine, general office building or other large structure. Consequently, it would be illogical for this regulation to require the life span approach for these facilities for depreciation studies, only to have the life span approach rejected in base rate case proceedings.

Q. Does the Commission Staff have a depreciation manual?

A. Yes. This manual, entitled “Contents & Outline of a Depreciation Study,” is a lengthy document that sets forth extremely detailed steps required for conducting a depreciation study and includes the utilization of the life span technique for generating facilities. As noted by the Commission in its Report and Order in the 2010 Ameren Rate Case, the Staff depreciation manual “indicates the life span approach is appropriately used to determine depreciation for electric power plants.” <u>See</u> 2010 Ameren Rate Case, Report and Order at 30, n. 95 (May 28, 2010).

III. Whole Life vs. Remaining Life

Q. Which accounts has Staff recommended to utilize the whole life method?

A. Staff recommends the whole life method for all accounts in the Staff Report, given that Staff recommended the continued use of rates from Case No. ER-2012-0175. Rates in ER-2012-0175 were the same as rates in ER-2005-0436, with the exception, of Iatan Unit 2 rates and general plant amortization.

Q. Can you illustrate the whole life methodology recovery pattern?

A. Yes. Assuming an account has a twenty-year average service life and zero net salvage percent, then the rate is 5.00%. This rate will not change unless the average service life is adjusted. Additionally, the whole life method does not consider the ratio of the accumulated depreciation to the plant balance. In other words, after 10 years of a 20-year service life, the accumulated reserve should be 50% of the plant balance. However, if it is not due to the actual activity the whole life rate does not adjust to make sure full recovery is achieved after 20 years. Consequently, an unfair recovery pattern would exist for both ratepayers and shareholders.

Q. Why is the remaining life methodology superior to the whole life method?

A. A simple example will explain why the remaining life methodology is superior. Assume that there are three assets in an account which live 2, 5 and 8 years; therefore, the average life is 5 years. Each asset costs $100 for a total account cost of $300. Using the whole life method, the rate is 20.0%, so through year 5 the recovery for the 2-year unit is $40, the 5-year unit is $100, and the 8-year unit is $100. A new study is performed after year 5 and the average life is 8 years, so the rate is 12.5% and the recovery for the final three years is $37.50. Consequently, using the whole life method, recovery is $277.50 of the $300 in original cost, which fails to make the company whole.

Under the remaining life methodology, the average service life is still 5 years and the initial rate is 20.00%. Thus, the total accruals after 5 years is still $240.00 and the two retirements totaling $200 for an accumulated depreciation total of $40. Therefore, the remaining value is $60 to be recovered over 3 years at a rate of 20.00%. Consequently, under the remaining life method, full recovery is achieved at the end of life for the three units.

Q. Does the foregoing example of the remaining life method apply to all accounts?

A. Yes, it does. The correcting component of the remaining life is appropriate for all accounts, including generating accounts with the life span technique.

IV. Terminal Net Salvage

Q. What is terminal net salvage?

A. Terminal net salvage is the net salvage (i.e. gross salvage less cost of removal) related to the final or terminal retirement of life span property. Life span property is the term used to describe assets (such as power plants) for which all assets associated with a facility will eventually be retired concurrently. The retirements that occur at the end of the life of an entire power plant are referred to as "final" or "terminal" retirements. These contrast with the retirements that occur throughout the life of the plant (e.g. the replacement of individual components of the plant such as piping or pumps), which are referred to as "interim" retirements. The "life span method" is used for life span property. For the life span method, service life estimates are made for the final retirement of a facility as well as for the interim retirements expected to occur throughout the life of the facility.

There are typically net salvage costs associated with both types of retirements. Costs associated with interim retirements, such as the costs incurred to replace piping or pumps throughout the life of the facility, are referred to as "interim net salvage." The costs related to the final retirement of the facility, such as the demolition of the superstructure and the remediation of ash ponds, are referred to as "final net salvage" or "terminal net salvage."

Q. Has the Commission accepted the use of the life span method in the past?

A. Yes. The Commission first accepted the use of the life span method in Case No. ER-2010-0036 for Union Electric Company d/b/a Ameren Missouri ("AmerenMO", at the time AmerenUE), and has accepted the life span method in subsequent cases as well. The life span approach was also accepted in KCP&L Case No. ER-2010-0355. Prior to Case No. ER-2010-0036 the Commission had historically not accepted the use of the life span method for most types of power plants.

Q. Does Staff agree with the use of the life span method for assets such as power plants?

A. Yes. Staff not only agrees with the use of this method but also agrees with the estimates of final retirement dates except for a few units, interim survivor curves and interim net salvage I have used in the depreciation study. Staff's only area of disagreement for the GMO production plant assets is the inclusion of terminal net salvage in the depreciation rates.

Q. Should net salvage be included in depreciation?

A. Yes. Net salvage costs experienced at the end of an asset's service life are part of the service value of the asset. In order for customers to pay their cost of electric service, depreciation must allocate the full service value (original cost less net salvage) over the service life of the assets. This concept is set forth in the electric USOA, which states in General Instruction 22:

> Utilities must use a method of depreciation that allocates in a systematic and rational manner the service value of depreciable property over the service life of the property.

If net salvage is not included in depreciation, then the net salvage costs the company will incur upon the retirement of its assets will have to be paid by future customers after the assets are retired. Future customers will not be receiving service from assets that have already been retired. Therefore, excluding net salvage from depreciation results in intergenerational inequity because future customers will pay the costs of assets which have already been retired and from which they receive no benefit.

Q. Has the Commission ruled that net salvage should be included in depreciation?

A. Yes. The Commission addressed the issue of net salvage in Case No. GR-99-315 for Laclede Gas Company ("Laclede"), and ruled that net salvage should be included in depreciation. The Commission stated:

> The Commission finds that the fundamental goal of depreciation accounting is to allocate the full cost of an asset, including its net salvage cost, over its economic or service life so that utility customers will be charged for the cost of the asset in proportion to the benefit they receive from its consumption. The Commission further finds that the method utilized by Laclede is consistent with that fundamental goal.[5]

Q. Does Staff agree that net salvage should be included in depreciation?

A. Yes, in general Staff appears to agree with this concept, as evidenced by Staff's recommendations in this case (and in other cases). Staff has recommended net salvage estimates for all of the Company's transmission, distribution and general plant accounts. Staff has also recommended interim net salvage estimates for the Company's production plant accounts. Staff's transmission, distribution and general plant net salvage estimates, as well as Staff's interim net salvage estimates, are therefore consistent with the Commission's decision in Laclede.

However, Staff has not included terminal net salvage in their recommendations despite the fact that Staff has acknowledged that terminal net salvage is likely to occur in the future as I will explain. Staff's recommendation for terminal net salvage is therefore not consistent with the USOA, nor is it consistent with the Commission's Order in Laclede. Staff's recommendation is also not consistent with its recommendations in this case for other accounts and for interim net salvage.

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[5] Case No. GR-99-315, Third Report and Order, Issued January 11, 2005, p. 9 ("Laclede Order").

Q. Why has Staff excluded terminal net salvage from its recommended depreciation rates?

A. Staff does not provide a clear response, however, it is implied that terminal net salvage is excluded by Staff because the net salvage percentages are higher than Staff's net salvage percentages for production plant accounts. This is not justification for deviating from the Commission's stated objective of depreciation as set forth in the Laclede Order.

Q. Please address Staff's reason for excluding terminal net salvage based on prior decisions of the Commission.

A. In the past, Staff cited the Commission's Report and Order in Case No. ER-2004-0570 ("Empire Order") for The Empire District Electric Company ("Empire"). Staff's testimony gives the impression that the Commission's order in the Empire case would disallow terminal net salvage in all cases. However, a more detailed reading of the Empire case makes clear that the Commission's decision in that case, issued more than a decade ago, was based on assumptions that experience has shown to be incorrect. Given the circumstances today, as well as more recent Commission decisions regarding life span property, the Empire decision for terminal net salvage should not apply to GMO's current case.

Staff quotes a portion of a sentence from page 53 of the Empire Order. However, a more complete citation also provides the Commission's reasoning in the Empire case. Specifically, the Commission stated:

> [W]ith respect to Terminal Net Salvage of Production Plant Accounts, this Commission generally has not allowed the accrual of this item. <u>The reason is that generating plants are rarely retired</u> and any allowance for this item would necessarily be purely speculative. It is true that all depreciation is founded upon estimates, but all estimates are not unduly speculative. Just as utility companies plan rate cases around the projected in-service dates of new plants, so Empire can plan around the retirement of its generating plants so that the Net Salvage expense is incurred in a

> Test Year. Another alternative is the device of the Accounting Authority Order. As already discussed in connection with the Production Account Service Life issue, there is no evidence that the retirement of any of Empire's plants is imminent and the estimated retirement dates considered in this proceeding are not persuasive. For these reasons, the Commission will not allow the accrual of any amount for Terminal Net Salvage of Production Plants. (Emphasis added)

Q. Why did the Commission not allow for terminal net salvage in the Empire case?

A. As the underlined passages cited above demonstrate, the Commission's primary reason for not allowing terminal net salvage was that at the time of the Empire decision the Commission did not agree in concept with the use of the life span method. As I have noted previously, the Commission did not allow the use of the life span method prior to Case No. ER-2010-0036. Thus, in the Empire case, the Commission did not just reject the use of terminal net salvage but also rejected the use of final retirement dates for power plants.

However, in the time since the Empire decision the Commission has reversed its opinion and has accepted the use of the life span method as appropriate for power plants. The Commission's reasoning for excluding terminal net salvage in the Empire case therefore no longer applies. Since the life span method is used, terminal net salvage must also be included in order to be consistent with the USOA and the Commission's decision in Laclede.

Q. In the passage from the Empire case you have cited above, the Commission stated that "generating plants are rarely retired and any allowance for this item would necessarily be purely speculative." Has experience since the Empire decision shown that generating plants are retired and that they experience terminal net salvage?

A. Yes. In the time since the Commission issued the Empire Order the number of retirements of coal-fired power plants has increased significantly, due in part to changing environmental regulations. There are also a number of plants expected to retire in the coming years. As a result, there is far more evidence of the ultimate disposition of these facilities upon their retirement than was available at the time of the Empire decision. The retirement of these plants has typically resulted in costs not only related to the dismantlement of the physical power plants, but also significant costs related to the clean-up of the site.

Q. In the current depreciation study for GMO, how were the terminal net salvage costs determined?

A. As described in my Direct Testimony, GMO retained the firm Sega, Inc. to perform a detailed study of the expected retirement and dismantlement costs for the Company's power plants. The results of this report ("Sega report") are set forth in Chris Rogers' Direct Testimony, Schedule CRR-2. The Sega report determined the costs expected to be incurred upon the retirement and dismantlement of the Company's plants. These costs were based on a thorough review of the activities associated with the terminal net salvage for these facilities. Further, the terminal net salvage used for the depreciation study are based only on the retirement components of the Sega report, and do not include other costs for site remediation that may potentially occur. The terminal net salvage costs used for depreciation are therefore conservative estimates of the terminal net salvage costs. The net salvage costs included in the depreciation study are not speculative estimates of terminal net salvage, but are instead costs that the Company is very likely to incur.

Q. Can you provide an example of a power plant owned by a Missouri electric company that has been retired and experienced significant terminal net salvage costs?

A. Yes. The Venice Plant, operated until its closure by AmerenMO, provides an example with which both Staff and I are familiar. Staff and I have both toured the site of the Venice Plant subsequent to its decommissioning and dismantlement. This example is instructive not only because it provides an illustration of the terminal net salvage costs involved with power plants, but also because the site continues to be used for generation by AmerenMO. This example therefore provides evidence that terminal net salvage should be expected even if a generating site can be reused for other purposes after the closure of the facility.

Q. What was the experience of AmerenMO with the Venice Plant?

A. The Venice Power Plant was a six unit coal-fired power plant (which was converted to burn oil and gas in the 1970s) sited on the east bank of the Mississippi River near St. Louis. The plant was owned and operated by AmerenMO. The total capacity of the plant was 474 MW. In 2002, the plant was retired. Decommissioning and dismantlement occurred in the years subsequent to the retirement and was completed in 2013. Total costs expended by AmerenMO to retire the Venice Plant were approximately $36.3 million, which was offset by about $12.1 million in gross salvage. Thus, the total terminal net salvage cost for Venice was approximately $24.2 million. This amount includes not only the demolition of the plant itself, but also significant costs to close and remediate the ash pond for the site.

Q. Has Staff recognized that Venice has experienced terminal net salvage costs?

A. Yes. In the Staff Report for AmerenMO's most recent rate case, Case No. ER-2014-0258, Staff discusses the Venice Plant:

> The Venice steam production plant was retired in 2002, and environmental cleanup, demolition, and disposal were completed in 2013. During three visits over the past several years, Staff has observed the progression of the removal of the steam production plant at Venice. The cost of removal and salvage for these large plants often continues for many years, and is recorded to the company's plant depreciation reserves. The Venice steam plant accounts currently show an accumulated depreciation reserve deficit of $17,219,969.[6]

Q. Were the terminal net salvage costs of the Venice Plant recovered over the life of the plant?

A. No. Because the Commission had not allowed for the recovery of terminal net salvage through depreciation expense, the terminal net salvage costs for Venice were not recovered over the plant's life. Current customers are paying for these costs, even though they are not receiving service from Venice.[7]

The experience for Venice should demonstrate why it is important that terminal net salvage be recovered prospectively through depreciation expense over the life of each generating facility. Under Staff's proposal to exclude terminal net salvage from depreciation, future customers will have to pay for the terminal net salvage costs of these plants – costs that Staff recognizes will occur. This is unfair to future customers, as they will be paying costs related to assets that are retired and no longer providing service.

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[6] Case No. ER-2014-0258, Staff Cost of Service Report, p. 151, lines 21-27.

[7] In Case No. ER-2014-0258, Staff's proposal was to offset the unrecovered Venice costs with accumulated depreciation reserves from certain general plant accounts. I should point out that mathematically Staff's proposal for Venice has the effect of recovering the Venice costs over the recovery period of these general plant accounts, as current customers will now pay more depreciation for the general plant assets. Thus, even with these reserve transfers current customers must pay higher rates due to the fact that earlier generations of customers did not pay the full cost of the Venice Plant.

Q. Has Staff also recognized that other Missouri power plants should be expected to have terminal net salvage costs?

A. Yes. In Case No. ER-2014-0258 Staff not only acknowledged the costs incurred at Venice, but recognized that other plants will experience terminal net salvage when retired. In the Surrebuttal Testimony of Arthur Rice in that case, Staff not only acknowledged future terminal net salvage costs for AmerenMO's Meramec plant, but provided a rough estimate of those future costs:

> At this time Staff has only a very rough estimate of a cost for terminal net salvage of the Meramec steam plant, (retirement and removal cost corrected for salvage receipts). Based on this limited information, Staff estimates the cost at approximately $100 million, (15% of the current plant in service for the Meramec steam plant).[8]

Because Staff has recognized that there are terminal net salvage costs for Meramec, I would expect that they would also recognize that GMO will incur similar costs for its steam plants.

Q. How does Staff's estimate of terminal net salvage for the Meramec steam plant compare to the estimates GMO has proposed in this proceeding?

A. GMO's estimates are very conservative estimates of terminal net salvage when compared to Staff's (admittedly rough) estimate of Meramec's terminal net salvage costs.

Table 2 of GMO's depreciation study (which can be found on pages VIII-2 through VIII-7 of the study) provides the total terminal net salvage estimates included in the depreciation rates recommended in the study. As can be seen on page VIII-5 of the study, the total terminal net salvage estimated for all of GMO's steam production plants is approximately $53.4 million. This is only about 50% of the cost Staff estimates for just one of AmerenMO's power plants. This should emphasize that GMO's terminal net

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[8] Case No. ER-2014-0036, surrebuttal testimony of Arthur Rice, p. 5, lines 15-18.

salvage estimates are conservative estimates of the future costs the Company should be expected to incur.

Q. One argument that has been made against the inclusion of terminal net salvage in depreciation is that generating sites can be reused for future generation. Does AmerenMO still use the Venice site for power generation?

A. Yes, it does. There are gas-fired generating units in operation on the site. The decommissioning activities, such as the closure of ash ponds, were not required in order to use the site for new generation and thus, cannot be charged to it. Indeed, much of the site is not used for generation, as newer gas plants require a much smaller footprint than coal-fired power plants. For example, the site of the ash pond, which represented a significant portion of the terminal net salvage costs, is not used for generation. Instead, this site is currently a grass field with wells to monitor the closed ash pond.

Q. How does the experience of the Venice Plant impact the inclusion of terminal net salvage in this case?

A. The facts surrounding the experience of the Venice Plant demonstrate that significant costs should reasonably be expected upon the final retirement of coal-fired power plants. These costs are not speculative, and instead experience shows that terminal net salvage costs will occur.

First, consider the argument that the Company's plants can be reused for other purposes (such as future generation). Such a scenario has in fact occurred with the Venice site. The coal facility at this site was retired in 2002, and the site continues to be used for other types of generation. AmerenMO has spent a net amount of approximately $24.2 million removing the retired power plant and remediating the site. Thus, this experience reveals that even when the site will be reused for new generation there will still be significant costs incurred for the retirement of the old plant. These costs therefore should be included prospectively in depreciation rates.

The costs and activities associated with the retirement of the ash pond at Venice are also instructive. These are activities that are highly likely to be required upon the retirement of the Company's power plants. Recent breaches of ash ponds at sites owned by the Tennessee Valley Authority and by Duke Energy, in which the contents of the ash ponds entered waterways, have increased scrutiny related to the remediation of the ash ponds at coal plants across the country. It should therefore be expected that the costs incurred at GMO's existing coal fleet at a minimum be similar in scope to the activities that were undertaken at Venice.

Q. Can you provide examples from other jurisdictions of power plants that have been or are planned to be decommissioned?

A. Yes. There are many recent examples of plants that either have been or will be decommissioned and dismantled. Examples include:

- Black Hills Power will decommission its Ben French, Osage and Neil Simpson I plants.
- Black Hills Colorado Electric is in the process of decommissioning its Canon City (W.N. Clark) plant and units 5 and 6 at its Pueblo plant.
- Duke Energy plans to decommission a number of sites in the Carolinas, and activities related to the retirements of these sites include asbestos removal, demolition and the closure of ash ponds.
- Dominion Virginia Power is in the process of decommissioning coal units at its Chesapeake Energy Center, North Branch and Yorktown sites.
- PacifiCorp is in the process of decommissioning its Carbon coal power plant.

Q. Will any of these sites continue to be used for power generation?

A. Yes. Some of these facilities have other existing generating facilities on location.

Q. What do you conclude regarding terminal net salvage?

A. Depreciation principles as set forth in the USOA and the Commission require that net salvage is included in depreciation expense. The exclusion of net salvage costs results in intergenerational inequity because future customers will be required to pay for the costs of retired assets that are no longer providing service. Despite the fact that Staff has recognized that terminal net salvage costs will occur in the future, Staff has proposed to exclude these costs from depreciation. Staff's recommendation therefore does not meet the requirements of the USOA or the Commission and will produce intergenerational inequity. For these reasons, the Commission should reject Staff's proposal and accept the depreciation rates proposed in the depreciation study.

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 KCP&L Greater Missouri Operations Company's Request for Authority to Implement A General Rate Increase for Electric Service	)))	Case No. ER-2016-0156

AFFIDAVIT OF JOHN J. SPANOS

COMMONWEALTH OF PENNSYLVANIA)
) ss
COUNTY OF CUMBERLAND)

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

1. My name is John J. Spanos. I am employed by Gannett Fleming Valuation and Rate Consultants, LLC as a Senior Vice President. I have been retained to serve as an expert witness to provide testimony on behalf of KCP&L Greater Missouri Operations Company.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of KCP&L Greater Missouri Operations Company consisting of twenty-eight (28) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

John J. Spanos
John J. Spanos

Subscribed and sworn before me this 11th day of August, 2016.

Notary Public

My commission expires: February 20, 2019

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Cheryl Ann Rutter, Notary Public
East Pennsboro Twp., Cumberland County
My Commission Expires Feb. 20, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES