

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

Application of Union Electric Company d/b/a	)	
Ameren Missouri for Acceptance of Its Triennial	)	
Filing of Cost Estimates for Callaway Energy Center	)	
Decommissioning, Including the Independent	)	File No. EO-2018-0051
Spent Fuel Storage Installation, and Approval of the	)	
Funding Level of the Nuclear Decommissioning Trust	)	
Fund.	)	

**APPLICATION FOR ACCEPTANCE OF DECOMMISSIONING COST ESTIMATES  
FOR CALLAWAY ENERGY CENTER, INCLUDING INDEPENDENT SPENT FUEL  
STORAGE INSTALLATION, AND APPROVAL OF FUNDING LEVEL FOR  
NUCLEAR DECOMMISSIONING TRUST FUND**

COMES NOW Union Electric Company, d/b/a Ameren Missouri ("Ameren Missouri" or "Company"), and pursuant to 4 CSR 240-3.185(3), hereby respectfully requests that the Missouri Public Service Commission ("Commission") approve Ameren Missouri's decommissioning cost estimates for the Callaway Energy Center ("Callaway" or "Plant") and for the Callaway Independent Spent Fuel Storage Installation ("ISFSI"), as well as the continuation of the funding level of its nuclear decommissioning trust fund at the current \$6,758,605 annual amount, with \$6,323,396 allocated to plant decommissioning and \$435,209 allocated to ISFSI decommissioning. Ameren Missouri further requests that the Commission find that the \$6,758,605 annual funding level of its decommissioning trust fund be included in Ameren Missouri's current cost of service for ratemaking purposes and confirm that this funding level is based on the parameters and assumptions stated in this Application.

In support of its Application, Ameren Missouri states the following:

**1. INTRODUCTION**

1. Ameren Missouri submits this *Application for Acceptance of Decommissioning Cost Estimates for Callaway Energy Center, Including Independent Spent Fuel Storage*

*Installation, and Approval of Funding Level of Nuclear Decommissioning Trust Fund*

("Application") in compliance with the general application requirements of 4 CSR-2.060(1) as well as the more specific requirements of 4 CSR 240-3.185(3), which provides:

On or before September 1, 1990, and every three (3) years after... utilities with decommissioning trust funds shall perform and file with the commission cost studies detailing the utilities' latest cost estimates for decommissioning their nuclear generating unit(s) along with the funding levels necessary to defray these decommissioning costs. These studies shall be filed along with appropriate tariff(s) effectuating the change in rates necessary to accomplish the funding required.

2. Accordingly, this *Application* will be divided into the following sections:
  - I. 4 CSR 240-2.060(1), (A) through (M)
  - II. 4 CSR 240-3.185(3)
    - A. 2017 Cost Study
    - B. Required Annual Funding Level
    - C. Funding Adequacy Model Assumptions
    - D. Funding Adequacy Model Results
    - E. Making Contributions to the Tax-Qualified Decommissioning Trust
  - III. Requested Findings and Orders

The information requested by both rules, as well as the additional findings the Company requests, are discussed in more detail below.

3. In summary, based upon the 2017 cost estimate and Ameren Missouri's analysis, the Company is not requesting any increase or decrease to the total current decommissioning contribution amount. The total proposed annual decommissioning contribution amount remains at \$6,758,605. The allocation of this total amount between funding for the plant decommissioning and ISFSI decommissioning will be adjusted, but the total decommissioning expense and

contribution amount of \$6,758,605 remains adequate. Because the total costs remain unchanged, there should be no impact on Ameren Missouri's customers.

## **II. 4 CSR 24-2.060(1), (A) through (M)**

### **A. Paragraph (A) – Applicant**

4. Company is a Missouri corporation doing business under the fictitious name of Ameren Missouri, organized and existing under the laws of the State of Missouri, in good standing in all respects, with its principal office and place of business located at One Ameren Plaza, 1901 Chouteau Avenue, Saint Louis, Missouri 63103. Company is engaged in providing electric and gas utility services in portions of Missouri as a public utility under the jurisdiction of the Commission. Ameren Missouri is the owner and operator of Callaway, a nuclear generating unit, and the ISFSI, a spent fuel storage installation at the Plant. The decommissioning cost estimates and decommissioning contributions to the nuclear decommissioning trust fund for Callaway and ISFSI are the subject of this application. Company is a subsidiary of Ameren Corporation.

### **B. Paragraph (B) – Articles of Incorporation; Paragraph (E) – Fictitious Name; Paragraph (G) – Information Previously Submitted; Paragraph (H) – Character of Business<sup>1</sup>**

5. Company previously submitted to the Commission a certified copy of its Articles of Incorporation (See File No. EA-87-105), as well as its Fictitious Name Registration as filed with the Missouri Secretary of State's Office (See File Nos. EN-2011-0069 and GN-2011-0070). Ameren Missouri submits with this *Application* an updated Certificate of Corporate Good Standing as Attachment 1. These documents are incorporated by reference and made a part of this *Application* for all purposes.

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<sup>1</sup> Paragraphs (C), (D), and (F) do not apply to Ameren Missouri.

**C. Paragraph (I) – Correspondence and Communication**

6. Pleadings, notices, orders and other correspondence concerning this Application should be addressed to:

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**D. Paragraph (K) – Actions, Judgments, and Decisions; Paragraph L - Fees<sup>2</sup>**

7. Company has no final unsatisfied judgments or decisions against it from any state or federal agency or court that involve customer service or rates that have occurred within three years of the date of this *Application*. By the nature of its business, Company has, from time to time, pending actions in state and federal agencies and courts involving customer service or customer rates. Company has no annual report or assessment fees overdue to this Commission.

**E. Paragraph (M) – Affidavit**

8. An Affidavit in support of this application by an individual authorized by Ameren Missouri to execute such a document is included as Attachment 2 with this *Application*.

**III. 4 CSR 240-3.185(3)**

**A. 2014 Cost Study**

9. Ameren Missouri contracted with TLG Services, Inc. ("TLG") to perform, under the direction of Ameren Missouri, the site specific cost study to determine the estimated cost for

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<sup>2</sup> Paragraph (J) does not apply to Ameren Missouri.

decommissioning Callaway. Since 1982, TLG has provided engineering and field services for contaminated facilities including estimates of decommissioning costs for nuclear generating units. TLG is an industry leader in nuclear power plant decontamination and decommissioning planning, cost estimating, and project field supervision and has prepared and updated decommissioning cost estimates for the vast majority of nuclear generation units in the country. TLG also is the company that prepared the decommissioning cost estimates that were filed with and approved by the Commission in 1993, 1999, 2002, 2005, 2008, 2011, and 2015, as well as the ISFSI decommissioning cost estimate in 2015.

10. Attachment 3, which is attached hereto and made a part hereof for all purposes, is the updated decommissioning cost estimate prepared by TLG, titled *Decommissioning Cost Analysis for the Callaway Energy Center*, and dated August 2017. This cost estimate is comprehensive in that it covers both the Plant and ISFSI decommissioning; however, the costs are segregated for each. TLG estimated the total cost to decommission Callaway and the ISFSI, employing the DECON alternative, as \$943,465,000 in 2017 dollars. Of this total, \$934,296,000 is attributable to Plant decommissioning and \$9,169,000 is attributable to ISFSI decommissioning. The estimate is based on an assumed 60-year plant operating life, and reflects the use of off-site, low-level radioactive waste processing to minimize the volume designated for controlled disposal.

#### **B. Required Annual Funding Level**

11. Ameren Missouri's analysis of the required annual funding level for the Missouri jurisdictional sub account is based on the premise that the current annual contribution to the decommissioning trust should be changed only if that annual contribution continued over the licensed life at Callaway does not result in a final trust account balance that is just sufficient to cover the estimated decommissioning cost given in Attachment 3 under a reasonable set of

economic, financial, and investment assumptions and at a reasonable decommissioning inflation rate assumption.

12. The Company has developed a funding adequacy model that computes the required annual decommissioning contribution for the Plant and ISFSI based on specified economic and financial parameters and on a specified decommissioning inflation rate. Conversely, the model can also be used to derive the decommissioning inflation rate for which given annual contribution amounts for the Plant and ISFSI would provide adequate funding, under a given set of investment return assumptions.

13. Attachment 4, Ameren Missouri's analysis of the required funding level, is attached hereto and made a part hereof for all purposes. Please note that the analysis contained in Attachment 4 requests neither an increase nor a decrease to the aggregate funding amount for the consolidated Plant and ISFSI decommissioning.

### **C. Funding Adequacy Model Assumptions**

14. The Company used its funding adequacy model to derive the decommissioning inflation rate for which the current annual decommissioning expense and contribution amount of \$6,758,605 would be adequate under the economic, financial, and investment assumptions outlined below. In addition, the model determined the allocation of the total \$6,758,605 annual decommissioning expense and contribution amount between the Plant and ISFSI.

15. The economic, financial and investment assumptions used as the basis for the funding adequacy modeling are as follows:

- For Callaway:
  - The beginning balance (after-tax liquidation value) of the Callaway Energy Center sub-account as-of June 30, 2017: \$594,889,944

Note: The above balance includes the after-tax liquidation values of both the Missouri and FERC subaccounts associated with Plant decommissioning, as the Missouri demand allocator is 100%.

- Decommissioning cost estimate: \$934,296,000 (2017\$)
  
- For the ISFSI:
  - The beginning balance (after-tax liquidation value) of the ISFSI sub-account as-of June 30, 2017: \$590,889
  - Decommissioning cost estimate: \$9,169,000 (2017\$)
  
- Common parameters for the Callaway Energy Center and ISFSI:
  - The proposed expense and contribution amount and allocation between Plant and ISFSI is to be effective beginning with calendar year 2018.
  - Operating license expiration date of October 18, 2044
  - Missouri jurisdictional allocator 100%
  - Federal income tax rate 20%
  - State income tax rate 0%
  - Projected investment management and trust fees 15.00 basis points
  - Asset allocation 65% equities and 35% Bonds
  - Nominal Return on Bonds (Pre-Tax & Expense) 3.90%
  - Nominal return on Equities (Pre-Tax & Expense) 8.60%
  - Weighted-Average Return (Pre-Tax & Expense)  
(During period of investment in bonds & equities) 6.955%
  - General inflation level (CPI) 2.20%
  - Real Rate of return (Pre-Tax & Expense)  
(During period of investment in bonds & equities) 4.755%
  - Real Rate of return (Pre-Tax & Expense)  
(During period of investment in bonds alone) 1.700%

- Year in which divestiture from equity investments occurs 2043
- Annualized pre-tax and expense nominal return over the life of the fund (Plant & ISFSI Consolidated) 6.508%
- Decommissioning inflation rate 4.0519%

16. The *Non-Unanimous Stipulation and Agreement* approved by the Commission

Order in File No. EO-2012-0070, states:

The Parties agree that, it is reasonable to use capital market return expectation information provided by Ameren Missouri's pension plan consultant, or the 2% real rate of return set forth in 10 CFR §50.75(e)(1)(ii), for purposes of developing expected portfolio returns for Ameren Missouri's nuclear decommissioning trust fund. The Parties agree that any proposed changes to the annual contribution to Ameren Missouri's nuclear decommissioning trust fund shall be based on capital market return expectation information provided by Ameren Missouri's pension plan consultant, or the aforementioned 2% real rate of return, unless the Parties agree to use a different source and/or methodology for capital market return expectations or the Commission finds in a contested case that different source and/or methodology for capital market return expectation are more appropriate.

17. The nominal return on bonds and equities indicated above are consistent with the current *Pension Master Trust – Expected Return on Assets* provided January 10, 2017, by Willis Towers Watson, Ameren Missouri's pension plan consultant, which are described as follows:

Willis Towers Watson projected a 10-year (2017-2026) Arithmetic Mean return on "Long Bonds" of 3.1% and a 20-year (2017-2036) Arithmetic Return of 4.7%. For the decommissioning funding adequacy modeling, an average of these two returns of 3.9% was used.

Willis Towers Watson projected a 10-year (2017-2026) Arithmetic Mean return on "US Large Cap Equity" of 8.3% and a 20-year (2017-2036) Arithmetic Return of 8.9%. For the decommissioning funding adequacy modeling, an average of these two returns of 8.6% was used.

18. 10 CFR 50.75(e)(1)(ii) states, in part, as follows:



(ii) External sinking fund. An external sinking fund is a fund established and maintained by setting funds aside periodically in an account segregated from licensee assets and outside the administrative control of the licensee and its subsidiaries or affiliates in which the total amount of funds would be sufficient to pay decommissioning costs at the time permanent termination of operations is expected...A licensee that has collected funds based on the formulas in § 50.75(c) of this section may take credit for collected earnings on the decommissioning funds using up to a 2 percent annual real rate of return up to the time of permanent termination of operations. **A licensee may use a credit of greater than 2 percent if the licensee's rate-setting authority has specifically authorized a higher rate.** (Emphasis added.)

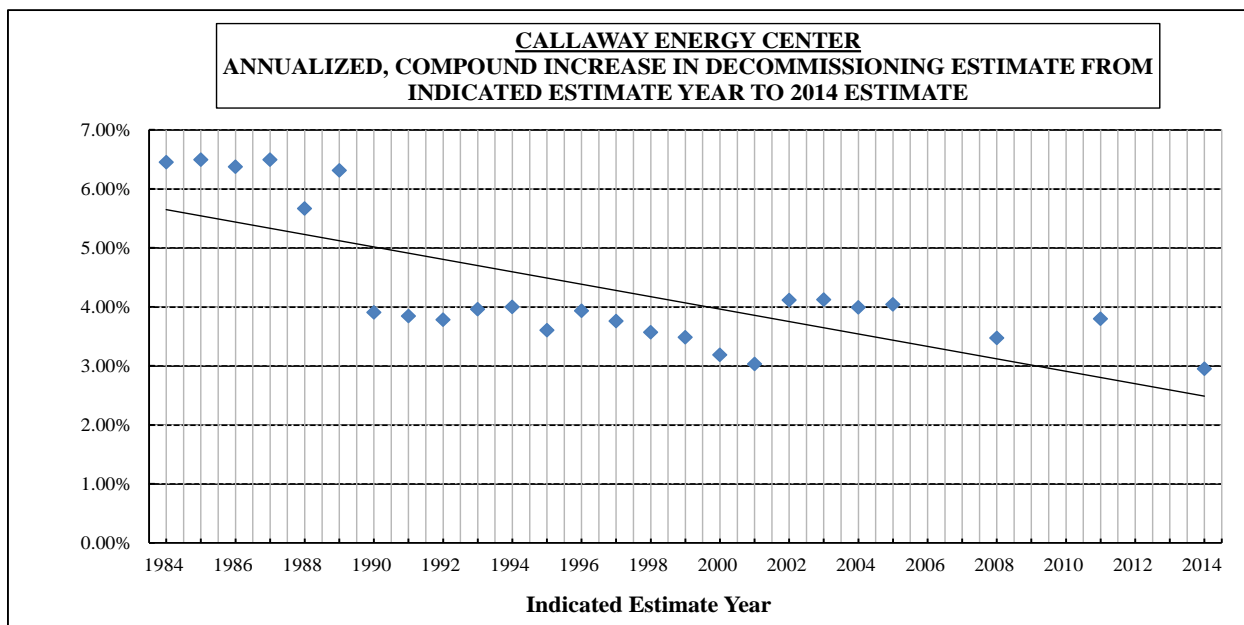
19. Consequently, the Company requests that the Commission authorize the return assumptions used in the Company's funding analysis on which the proposed decommissioning expense and contribution amount is based.

#### **D. Funding Adequacy Model Results**

20. As a basis for recommending that the current annual contribution amount remain unchanged at the current total aggregate annual funding level of \$6,758,605, the Company calculated the decommissioning inflation values for this funding level would be adequate under the economic, financial, and investment assumptions indicated in the foregoing section. Based on those same assumptions, an annual contribution of \$6,758,605 would be adequate up to a decommissioning inflation rate level of 4.0519%. Pre-tax and expense nominal returns on the funds' investments would be 6.955% through 2043, and 3.900% thereafter. The annualized pre-tax expense nominal return for the consolidated Plant and ISFSI fund, over the life of the fund, would be 6.508%.

21. Although future levels of decommissioning inflation are very difficult to project, the Company feels that a 3% to 4% range is reasonable, given historical trends in the escalation rate of the site specific decommissioning cost estimates for Callaway. The vast majority of

annualized compound escalation rates from historical site specific estimates to the current 2017 estimate fall within that range as indicated in the chart below:



22. The funding adequacy model output obtained from these analyses is presented in Attachment 4:

- Page 1 of Attachment 4 provides the annual decommissioning cash flows for the Plant and for the ISFSI and illustrates the escalation of these decommissioning expense cash flows at the 4.0519% decommissioning inflation rate, which is the maximum rate at which the proposed annual contribution level of \$6,758,605 would be adequate.
- Page 2 of Attachment 4 contains a spreadsheet illustrating how the proposed annual “Plant allocation” of the total contribution amount will adequately cover Plant decommissioning expenses with a \$0 balance upon completion at a decommissioning inflation rate of 4.0519% and the economic and financial assumptions specified in the foregoing section.
- Page 3 of Attachment 4 contains a spreadsheet illustrating how the proposed annual “ISFSI allocation” of the total contribution amount will adequately cover ISFSI decommissioning expenses with a \$0 balance upon completion at a

decommissioning inflation rate of 4.0519% and the economic and financial assumptions specified in the foregoing section.

- Page 4 of Attachment 4 contains a spreadsheet illustrating how the proposed total annual contribution amount will adequately cover consolidated Plant and ISFSI decommissioning expenses with a \$0 balance upon completion at a decommissioning inflation rate of 4.0519% and the economic and financial assumptions specified in the foregoing section.
- Page 5 of Attachment 4 illustrates the derivation of the annualized return that the consolidated fund's assets would be required to earn, from June 30, 2017 through 2053, to adequately cover Plant and ISFSI decommissioning expenses with a \$0 balance upon completion at a decommissioning inflation rate of 4.0519% and the economic and financial assumptions specified in the foregoing section.

23. In conclusion, the calculations set forth in Attachment 4 validate Ameren Missouri's request to continue funding the decommissioning trust fund using the same annual amount previously authorized by the Commission, with a 2044 operating license expiration and the economic and financial assumptions specified in the funding adequacy model and summarized in this application.

24. Because Ameren Missouri is not seeking a change to the funding level, there is no need for Ameren Missouri to file new tariffs. Because it is unnecessary for Ameren Missouri to change the funding level of the decommissioning trust, and unnecessary to file new tariffs, Ameren Missouri does not request a hearing, nor does it believe one is required.

#### **E. Making Contributions to the Tax-Qualified Decommissioning Trust**

25. In orders entered in early cases regarding the establishment of the decommissioning trust fund (File No. EO-85-17 and File No. ER-85-160), the Commission stated that it: "... requires that [the Company] establish the external fund to take the maximum advantage of the 1984 tax law and follow the requirements of the tax law in making investments for the fund." Consequently,

Ameren Missouri is required by Commission order to fund the future decommissioning liability through contributions to the tax-qualified trust fund. In order to make the proposed contributions to the tax-qualified trust fund, Ameren Missouri must comply with section 468A of the Internal Revenue Code. Specifically, in order to make contributions to the tax-qualified trust, a schedule of ruling amounts must be applied for and obtained from the Internal Revenue Service ("IRS"). *See* Treasury Regulations § 1.468A-3(a)(1), which reads, in part:

Except as otherwise provided in paragraph (g) of this section or in § 1.468A-8 (relating to deductions for special transfers into a nuclear decommissioning fund), an electing taxpayer is allowed a deduction under section 468A(a) for the taxable year in which the taxpayer makes a cash payment (or is deemed to make a cash payment) to a nuclear decommissioning fund only if the taxpayer has received a schedule of ruling amounts for the nuclear decommissioning fund that includes a ruling amount for such taxable year. Except as provided in paragraph (a)(4) or (5) of this section, a schedule of ruling amounts for a nuclear decommissioning fund (schedule of ruling amounts) is a ruling (within the meaning of § 601.201(a)(2) of this chapter) specifying the annual payments (ruling amounts) that, over the taxable years remaining in the funding period as of the date the schedule first applies, will result in a projected balance of the nuclear decommissioning fund as of the last day of the funding period equal to (and in no event greater than) the amount of decommissioning costs allocable to the fund.

In order for the IRS to issue a schedule of ruling amounts, the assumptions upon which it is based must be reasonable. *See* Treasury Regulations § 1.468A-3(a)(3), which reads, in part:

The Internal Revenue Service (IRS) shall provide a schedule of ruling amounts that is identical to the schedule of ruling amounts proposed by the taxpayer in connection with the taxpayer's request for a schedule of ruling amounts (see paragraph (e)(2)(viii) of this section), but no schedule of ruling amounts shall be provided unless the taxpayer's proposed schedule of ruling amounts is consistent with the principles and provisions of this section and is based on reasonable assumptions.

Under Treasury Regulations, section 1.468A-3(a)(4), Ameren Missouri can satisfy this obligation by documenting that the proposed contributions are calculated using the decommissioning assumptions used by the Commission in its most recent order:

The taxpayer bears the burden of demonstrating that the proposed schedule of ruling amounts is consistent with the principles and provisions of this section and is based on reasonable assumptions. If a public utility commission established or approved the currently applicable rates for the furnishing or sale by the taxpayer of electricity from the plant, the taxpayer can generally satisfy this burden of proof by demonstrating that the schedule of ruling amounts is calculated using the assumptions used by the public utility commission in its most recent order.

26. Finally, Treasury Regulations, section 1.468A-3 (e)(2)(v), indicates specific information that a taxpayer such as Ameren Missouri must disclose to the IRS when requesting a schedule of ruling amounts:

(A) Whether the public utility commission has determined the amount of decommissioning costs to be included in the taxpayer's cost of service for ratemaking purposes;

(B) The amount of decommissioning costs that are to be included in the taxpayer's cost of service for each taxable year under the current determination and amounts that otherwise are required to be included in the taxpayer's income under section 88 and the regulations thereunder;

(C) A description of the assumptions, estimates and other factors used by the public utility commission to determine the amount of decommissioning costs;

(D) A copy of such portions of any order or opinion of the public utility commission as pertain to the public utility commission's most recent determination of the amount of decommissioning costs to be included in cost of service; and

(E) A copy of each engineering or cost study that was relied on or used by the public utility commission in determining the amount of decommissioning costs to be included in the taxpayer's cost of service under the current determination.

#### IV. REQUESTED FINDINGS AND ORDERS

27. In order for Ameren Missouri to comply with the requirements of the foregoing regulations, Ameren Missouri requests that the Commission:

- Find that the Company's Missouri retail jurisdiction annual decommissioning expense accruals and trust fund payments shall continue at the current level of \$6,758,605, with \$6,323,396 allocated to decommissioning Callaway and \$435,209 allocated to decommissioning the ISFSI;
- Find, in order for the Callaway decommissioning fund to continue to utilize the external sinking fund method of decommissioning funding, that the current decommissioning costs for Callaway, including the ISFSI, are in Ameren Missouri's current Missouri retail cost of service and are reflected in its current retail rates for ratemaking purposes;
- Approve, pursuant to 4 CSR 240-20.070(4)(C), the use of a jurisdictional demand allocator of 100.00%;
- Recognize that Attachment 3, TLG's *Decommissioning Cost Analysis for the Callaway Energy Center*, dated August 2017, meets the requirements of 4 CSR 240-3.185(3); and
- Acknowledge that this annual decommissioning expense and contribution amount is based on Attachment 3, the August 2017 *Decommissioning Cost Analysis for the Callaway Energy Center*, and on the parameters and assumptions contained in Attachment 4 and summarized as follows:
  - The after-tax value of Missouri jurisdictional sub-account of the Callaway Energy Center Tax-Qualified Nuclear Decommissioning Trust Fund as of June 30, 2017, was \$594,889,944.
  - The after-tax value of Missouri jurisdictional sub-account of the ISFSI Decommissioning Trust Fund as of June 30, 2017, was \$590,889.
  - The proposed expense and contribution amount and allocation between Plant and ISFSI is to be effective beginning with calendar year 2018.
  - The Plant decommissioning cost estimate is \$934,296,000 and the ISFSI decommissioning cost estimate is \$9,169,000, both in terms of 2017 dollars.
  - Operating license expiration date of October 18, 2044
  - The Missouri jurisdictional allocator is 100%.

- The federal income tax rate is 20%.
- The state income tax rate is 0%.
- The composite federal & state income tax rate is 20%.
- An asset allocation of 65% equities and 35% bonds is assumed to exist through 2043, at which time all equity investments will be divested.
- Investment management and trust fees are estimated at 15 basis points annually.
- An inflation rate of 2.200% is assumed for general (CPI) inflation.
- The pre-tax & expense nominal return on bonds is assumed to be 3.900%.
  - The pre-tax & expense real return on bonds is assumed to be 1.700%.
- The pre-tax & expense nominal return on equities is assumed to be 8.60%.
  - The pre-tax & expense real return on equities is assumed to be 6.400%
- The pre-tax & expense nominal weighted-average return is assumed to be 6.955% through the 2043 date of divestiture of equity investments.
  - The pre-tax & expense real weighted-average return is assumed to be 4.755% through the 2043 date of divestiture of equity investments.
  - The pre-tax & expense real weighted-average return is assumed to be 1.700% following the 2043 date of divestiture of equity investments.
  - The annualized pre-tax and expense nominal return over the life of the fund will be 6.508%
- Decommissioning cost escalation is assumed to be 4.0519%.

**WHEREFORE,** Ameren Missouri requests that the Commission: (1) approve Attachments 3 and 4, which are Ameren Missouri's estimate of decommissioning costs and the funding level necessary for said costs; (2) specifically find that the annual funding level contributed to the decommissioning trust fund is included in Ameren Missouri's current cost of service for rate-making purposes, and is based on the parameters and assumptions contained in Attachment 4 and summarized above; and 3) make the specific findings outlined above, which are necessary to fully comply with IRS requirements and regulations.

Respectfully submitted,

/s/ Paula N. Johnson

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### **CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and copy of the foregoing was served via e-mail on counsel for all parties of record this 1<sup>st</sup> day of September, 2017.

/s/ Paula N. Johnson  
Paula N. Johnson