BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

Application of Union Electric Company, d/b/a Ameren Missouri for Approval of Decommissioning Cost Estimates and Funding Levels of Nuclear Decommissioning Trust Funds for the Callaway Energy Center and for the Callaway Independent Spent Fuel Storage Installation (ISFSI); Approval of Revised Investment Guidelines; and Approval of Investment Managers for Investment of ISFSI Decommissioning Funds.	)	File No. EO-2015-0253

NON-UNANIMOUS STIPULATION AND AGREEMENT

COME NOW Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company") and the Staff of the Missouri Public Service Commission ("Staff") OPC? (collectively, the "Parties") and submit this Non-Unanimous Stipulation and Agreement to the Missouri Public Service Commission ("Commission") in resolution of File No. EO-2015-0253.

INTRODUCTION[1]

1. On April 1, 2015, Ameren Missouri filed its 2014 Triennial Decommissioning Update for the expected costs for decommissioning of its nuclear plant at Ameren Missouri's Callaway Energy Center ("Callaway"). On August 15, 2014, in File No. EE-2014-0046, Ameren Missouri filed a request to allow it to file its 2014 Triennial Decommissioning Update pursuant to 4 CSR 240-3.185(3) no later than April 1, 2015, due to its license extension request that was pending before the Nuclear Regulatory Commission ("NRC") and the potential impact of that request upon the necessary funding level of its decommissioning trust.[2] The Staff recommended

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[1] See Attachment A for the Callaway Energy Center Decommissioning Trust Fund History

[2] Ameren Missouri's *Request For Variance Of Date For Decommissioning Cost Estimate Filing And Motion For Expedited Treatment* was based in part on the finding of the U.S. Court of Appeals for the D.C. Circuit on June 8, 2012 that some aspects of the 2010 Waste Confidence Rule rulemaking did not satisfy the Nuclear Regulatory Commission's ("NRC") National Environmental Policy Act ("NEPA") obligations and vacated the rulemaking. *New York v. N.R.C.*, 681 F.3d 471 (D.C. Cir. 2012). In response to the Court's decision, (*continued on next page*)

that the Commission grant the variance. The Commission issued an *Order Granting Variance* on August 27, 2014, granting Ameren Missouri's request.

2. Ameren Missouri's April 1, 2015, Application for Approval of Decommissioning Cost Estimate for Callaway Energy Center and Funding Level of Nuclear Decommissioning Trust Fund related that on March 6, 2015, the NRC approved its Application for a 20-year operating license extension to October 18, 2044. The decommissioning cost estimate and funding adequacy analysis presented with Ameren Missouri's April 1, 2015, Application are based on this extended life of the Callaway Energy Center.[3] Attachment 1 to Ameren Missouri's April 1, 2015, Application is the updated decommissioning cost estimates prepared by TLG Services, Inc. ("TLG"), titled *Decommissioning Cost Analysis for the Callaway Energy Center*. The decommissioning trust fund requirement of $864,734,000 in 2014 dollars is based on the March 2015, TLG estimated cost to decommission the Callaway Energy Center employing the DECON alternative process,[4] using an assumed 60-year plant operating life, not including the cost of decommissioning the Independent Spent Fuel Storage Installation ("ISFSI") that has been constructed at Callaway. Attachment 2 to Ameren Missouri's April 1, 2015, Application is the Ameren Missouri updated

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the NRC decided to stop all licensing activities that relied on the Waste Confidence Rule, including the Callaway Energy Center's license renewal. Before the NRC could lift its suspension of all licensing activities that relied on the Waste Confidence Rule, the NRC had to issue a new rule. On July 21, 2014, the NRC staff submitted to the NRC a proposal for the final Waste Confidence Rule. The NRC staff's submittal also included the necessary proposed Waste Confidence Generic Environmental Impact Statement ("GEIS"). The final rule was scheduled to be issued in early October 2014, which required the NRC to act expeditiously to avoid delays. After the final rule was issued, the NRC would be free to rule on the Callaway Energy Center's license renewal.

[3] Ameren Missouri contracted with TLG to perform, under the direction of Ameren Missouri, the site specific cost study to determine the estimated cost for decommissioning the Callaway Energy Center after 2044. Since 1982, TLG has provided engineering and field services for contaminated facilities including estimates of decommissioning costs for nuclear generating units. TLG also is the company that prepared the decommissioning cost estimate that was filed with the Commission by Ameren Missouri in 1991, 1993, 1999, 2002, 2005, 2008 and 2011.

[4] DECON assumes decontaminating and decommissioning immediately following conclusion of power operations in 2044, when the 60-year operating license expires. Work is anticipated to be completed by 2053. DECON consists of removal of fuel assemblies, source material, radioactive fission and corrosion products, and other radioactive materials immediately after cessation of power operations.

funding adequacy analysis calculating the required annual funding levels to cover the estimated cost to decommission the Callaway Energy Center employing the DECON alternative process using an assumed 60-year plant operating life, not including the cost of decommissioning the ISFSI.

3. Since that time, additional decommissioning scope has developed, specifically the addition of decommissioning costs for an ISFSI facility that has been constructed at Callaway.

4. Attached to this Non-Unanimous Stipulation and Agreement, as Attachment 1, is the "*Callaway Energy Center Independent Spent Fuel Storage Installation Decommissioning Cost Analysis*", dated February 1, 2016. This documents the expected cost for decommissioning the ISFSI. This represents an additional cost that was not included in Ameren Missouri's original filing in this case. The Department of Energy ("DOE") had a contract with Ameren Missouri and nuclear customers were paying in rates fees to remove, transport and dispose of spent nuclear fuel assemblies (high-level radioactive waste) from the Callaway Energy Center to a Nevada - Yucca Mountain repository site. With DOE not taking the spent nuclear fuel assemblies for the Yucca Mountain site, Ameren Missouri has been storing and will continue to store these spent nuclear fuel assemblies on site at the Callaway Energy Center. The ISFSI was constructed to hold the 3,782 spent fuel assemblies that are expected to be produced over the 60-year life of Callaway.

5. The current annual contribution of $6,758,605 to Ameren Missouri's nuclear decommissioning trust fund is reasonable given the uncertainties in the numerous forecasted assumptions used to determine the contribution level. The forecasted assumptions include, but are not limited to, capital market expectations, projected decommissioning inflation rates and the costs to decommission Callaway. The Parties agree on the annual contribution level.

6. The *Non-Unanimous Stipulation and Agreement* approved by the Commission in its October 3, 2012 *Order Approving Stipulation and Agreement* in File No. EO-2012-0070, states at paragraph 5:

> 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.

7. Ameren Missouri, after talking with Staff, also revisited its assumptions used in calculating the level of funds required to be collected from its customers in order to fund the Callaway Energy Center and the ISFSI's decommissioning. The updated funding adequacy analysis calculating the required annual funding levels is attached to this document as Attachment 2. Separate analyses were performed for the Callaway Energy Center and for the ISFSI.[5] In addition, the following updates were done to the calculations:

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[5] If decommissioning financial assurance is provided by an external sinking fund, as it is with Callaway, 10 CFR § 50.75(e)(1)(ii) requires that "the total amount of funds would be sufficient to pay decommissioning costs at the time permanent termination of operations is expected." 10 CFR § 50.75(e)(1)(ii) also goes on to state, in part:

> A licensee that has collected funds based on a site-specific estimate under § 50.75(b)(1) of this section may take credit for projected earnings on the external sinking funds using up to a 2 percent annual real rate of return from the time of future funds' collection through the decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate. This includes the periods of safe storage, final dismantlement, and license termination. 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.

Because Ameren Missouri does not contemplate shutting down Callaway prior to the end of its license life, the shutdown date used in the economic analysis, which is Attachment 2 to this Non-Unanimous Stipulation and Agreement is 2044, the year in which Callaway's NRC Operating License expires. Ameren Missouri collects (continued on next page)

A. The starting balance in the decommissioning trust fund was updated to December 31, 2015, from that as of December 31, 2014.

B. The total cost of decommissioning was increased by $9,437,000 (2015 dollars) to reflect the additional costs for decommissioning the ISFSI.

C. Return assumptions were updated to be consistent with the "October 1, 2015 capital market assumptions" provided by Towers Watson, Ameren Missouri's pension plan consultant.

D. Ameren Missouri adjusted the decommissioning inflation rate assumption to 3.5864%.

8. After recalculating the required contribution levels for the Callaway Energy Center and for the ISFSI, Ameren Missouri and the Staff believe that there is no need to increase the total amount collected from Ameren Missouri's customers.

9. The Parties agree with the following:

A. The overall, current contribution level of $6,758,605 annually does not need to be modified at this time.

B. Ameren Missouri will allocate this total contribution amount between the plant and the ISFSI. The majority of the total contribution, $6,314,620 annually, will be used to fund the decommissioning trust fund for the plant. The remainder, $443,985 annually, will be used to fund the decommissioning trust fund for the ISFSI. Due to the relatively small amount of the annual ISFSI contribution, these contributions will be invested in mutual funds. The funds for decommissioning the ISFSI will be maintained

decommissioning funds based on a site specific estimate. The economic analysis assumes credit for earnings at an expected 4.415% annual real pre-tax & expense rate of return through 2043 and at 1.100% thereafter.

in a separate sub-account, separate from the funds needed to fund decommissioning the plant itself.

C. In order to allow the above investment in mutual funds for ISFSI decommissioning, the Parties agree the Commission should order Ameren Missouri to use mutual funds offered by one of the major mutual fund companies for this purpose; specifically, the Parties agree Ameren Missouri should use the Vanguard 500 Index Fund Admiral Shares ("Vanguard 500 Index Fund") for the equity allocation of the ISFSI sub-account and the Vanguard Total Bond Market Index Fund ("Vanguard Bond Index Fund") for the fixed income allocation of the ISFSI sub-account. In addition, Commission approval of the revision to the "Investment Guidelines for the Callaway Plant Nuclear Decommissioning Trust Fund(s)", included as Attachment 3, is requested. The revisions to the guidelines primarily involve the investment of the ISFSI funds in the foregoing mutual fund investments. Certain other revisions were also included to update the guidelines and include certain modifications requested by the investment managers.

10. While not a signatory, the Office of the Public Counsel has authorized counsel to state that OPC does not oppose this Non-Unanimous Stipulation and Agreement.

11. Except as explicitly agreed otherwise herein, none of the Parties to this Non-Unanimous Stipulation and Agreement shall be deemed to have approved or acquiesced in any question of Commission authority, decommissioning methodology, ratemaking principle, valuation methodology, cost of service methodology or determination, depreciation principle or method, rate design methodology, cost allocation, cost recovery, or prudence that may underlie this Non-Unanimous Stipulation and Agreement or for which provision is made in this Non-Unanimous Stipulation and Agreement.

12. If the Commission does not unconditionally approve this Non-Unanimous Stipulation and Agreement without modification, and notwithstanding its provision that it shall become void thereon, neither this Non-Unanimous Stipulation and Agreement nor any matters associated with its consideration by the Commission shall be considered or argued to be a waiver of the rights that any Party has to a hearing on the issues presented by the Non-Unanimous Stipulation and Agreement, regarding cross-examination or a decision in accordance with Section 536.080.1 RSMo. or Art. V, Section 18 Mo. Const. The Parties shall retain all procedural and due process rights as fully as though this Non-Unanimous Stipulation and Agreement had not been presented for approval, and any testimony or exhibits that may have been offered or received in support of or in opposition to this Non-Unanimous Stipulation and Agreement shall thereupon become privileged as reflecting the substantive content of settlement discussions, and shall be stricken from and not be considered as part of the administrative or evidentiary record before the Commission for any further purpose whatsoever.

13. To assist the Commission in its review of this Non-Unanimous Stipulation and Agreement, the Parties also request that the Commission advise them of any additional information that the Commission may desire from the Parties related to the matters addressed in this Non-Unanimous Stipulation and Agreement, including any procedures for furnishing such information to the Commission.

14. If requested by the Commission, the Staff shall submit to the Commission a memorandum responsive to the Commission's request. Each Party of record shall be served with a copy of any memorandum and shall be entitled to submit to the Commission within five (5) days of receipt of the Staff's memorandum, a responsive memorandum which shall also be served on all Parties. The contents of any memorandum provided by any Party are its own and

are not acquiesced in or otherwise adopted by the other signatory to this Non-Unanimous Stipulation and Agreement, whether or not the Commission approves and adopts this Non-Unanimous Stipulation and Agreement.

15. The Staff also shall provide, at any agenda meeting at which this Non-Unanimous Stipulation and Agreement is noticed to be considered by the Commission, whatever oral explanation the Commission requests. The Staff shall, to the extent reasonably practicable, provide the other Parties with advance notice of when the Staff shall respond to the Commission's request for such explanation once such explanation is requested from the Staff. The Staff's oral explanation shall be subject to public disclosure, except to the extent it refers to matters that are privileged or protected from disclosure pursuant to any Protective Order issued in this case.

16. Because this is a Non-Unanimous Stipulation and Agreement with the sole purpose of addressing the authority requested by the Application of Ameren Missouri, except as specified herein, the Parties to the Non-Unanimous Stipulation and Agreement shall not be prejudiced, bound by, or in any way affected by the terms of this Non-Unanimous Stipulation and Agreement: (a) in any future proceeding; (b) in any proceeding currently pending under a separate docket; and/or (c) in this proceeding, should the Commission decide not to approve the Non-Unanimous Stipulation and Agreement or in any way condition its approval of the same, except as stated herein. Because this is a Non-Unanimous Stipulation and Agreement for the purpose of settling matters in this case, it shall not be cited as precedent or referred to in testimony in any subsequent or pending judicial or administrative proceeding, except that this shall not be construed to prohibit reference to its existence in future proceedings, including proceedings to enforce compliance with its terms.

17. Pursuant to Section 393.292 RSMo. and 4 CSR 240-3.185, the Parties agree that the Commission may review for good cause, including a change of circumstances of a material nature, and authorize changes to Ameren Missouri's rates and charges as a result of a change in the annual accrual of funding for the Missouri jurisdictional account of the Callaway decommissioning trust, after a full hearing, including but not limited to any general rate increase case or excess earnings complaint case, and after considering all facts relevant to such accrual rate.

18. The provisions of this Non-Unanimous Stipulation and Agreement have resulted from numerous discussions/negotiations among the signatory Parties and are interdependent. In the event that the Commission does not approve and adopt the terms of this Non-Unanimous Stipulation and Agreement in total, it shall be void and no Party hereto shall be bound by, prejudiced, or in any way affected by any of the agreements or provisions hereof unless otherwise provided herein.

19. In the event the Commission accepts the specific terms of this Non-Unanimous Stipulation and Agreement, the signatories waive their respective rights: a) to cross-examine witnesses pursuant to Section 536.070(2) RSMo.; b) to present oral argument and written briefs pursuant to Section 536.080.1 RSMo.; c) to the reading of the transcript by the Commission pursuant to Section 536.080.2 RSMo.; and d) to judicial review pursuant to Section 386.510 RSMo. This waiver applies only to a Commission Order respecting this Non-Unanimous Stipulation and Agreement issued in this proceeding, and does not apply to any matters raised in any subsequent Commission proceeding, or any matters not explicitly addressed by this Non-Unanimous Stipulation and Agreement.

WHEREFORE, the Parties hereto request that the Commission issue an Order:

1. Approving the Non-Unanimous Stipulation and Agreement;

2. Receiving into evidence this Non-Unanimous Stipulation and Agreement; Attachment 1 to Ameren Missouri's original April 1, 2015 filing in this case, TLG's "*Decommissioning Cost Analysis for the Callaway Energy Center*," dated March, 2015; Attachment 1 to this Non-Unanimous Stipulation and Agreement, Ameren Missouri and TLG's "*Callaway Energy Center Independent Spent Fuel Storage Installation Decommissioning Cost Analysis*," dated February 1, 2016; and Attachment 2 to this Non-Unanimous Stipulation and Agreement, Ameren Missouri's funding adequacy analysis calculating the required annual funding levels for the Callaway Energy Center and ISFSI decommissioning, which assumes a decommissioning cost escalation rate of 3.5864%;

3. Approve the actuarial assumptions used in Attachment 2 to this Non-Unanimous Stipulation and Agreement, Ameren Missouri's funding adequacy analysis calculating the required annual funding levels for the Callaway Energy Center and ISFSI decommissioning, specifically:

For the Missouri Jurisdictional Callaway Energy Center annual decommissioning expense and contribution amounts:

- $6,314,620 of the total decommissioning expense and contribution amount of $6,758,605 is allocated for Callaway Energy Center decommissioning and is to be contributed to the Callaway Energy Center sub-account
- The beginning balance (after-tax liquidation value) of the Callaway Energy Center sub-account as-of December 31, 2015 is $513,106,633
- The proposed decommissioning expense and contribution amount is to be effective January 1, 2016

For the Missouri Jurisdictional ISFSI annual decommissioning expense and contribution amount:

- $443,985 of the total decommissioning expense and contribution amount of $6,758,605 is allocated for ISFSI decommissioning and is to be contributed to the ISFSI sub-account
- The beginning balance (after-tax liquidation value) of the ISFSI sub-account as-of December 31, 2015 is $0
- The proposed decommissioning expense and contribution amount is to be effective January 1, 2016

For the Missouri Jurisdictional Consolidated Callaway Energy Center and ISFSI annual decommissioning expense and contribution amounts:

- 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 2.300% is assumed for general ("CPI") inflation.
- The pre-tax & expense nominal return on bonds is assumed to be 3.400%.
- The pre-tax & expense real return on bonds is assumed to be 1.100%
- The pre-tax & expense nominal return on equities is assumed to be 8.500%.
- The pre-tax & expense real return on equities is assumed to be 6.200%
- The pre-tax & expense nominal weighted-average return is assumed to be 6.715% through the 2043 date of divestiture of equity investments.
- The pre-tax & expense real weighted-average return is assumed to be 4.415% through the 2043 date of divestiture of equity investments.
- The pre-tax & expense real weighted-average return is assumed to be 1.100% following the 2043 date of divestiture of equity investments.

4. Finding, pursuant to this Non-Unanimous Stipulation and Agreement, that Ameren Missouri's Missouri retail jurisdiction annual decommissioning expense accruals and trust fund payments shall continue at the current level of $6,758,605, with $6,314,620 allocated to decommissioning the Callaway Energy Center and $443,985 allocated to decommissioning the ISFSI;

5. Finding, 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 the Callaway Energy Center, 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;

6. Recognizing that TLG's "*Decommissioning Cost Analysis for the Callaway Energy Center*," dated March, 2015 and Ameren Missouri and TLG's "*Callaway Energy Center Independent Spent Fuel Storage Installation Decommissioning Cost Analysis*," dated February 1, 2016 meet the requirements of 4 CSR 240-3.185(3);

7. Approving, pursuant to 4 CSR 240-20.070(4)(C), the use of a jurisdictional demand allocator of 100.00%;

8. Approving Attachment 3 to this Non-Unanimous Stipulation and Agreement, the revised *"Investment Guidelines for the Callaway Plant Nuclear Decommissioning Trust Fund(s)."*

90. Approving the use of the Vanguard 500 Index Fund and the Vanguard Bond Index Fund for investment of the ISFSI decommissioning contribution amounts (in accordance with 4 CSR 240-20.070(4)(A));

10. Finding that the decommissioning expense and contribution for the ISFSI decommissioning shall be contributed to a separate sub-account of the Company's tax-qualified decommissioning trust unless not allowed by the IRS; if disallowed, then a non-tax qualified trust shall be established and the contributions made to the non-tax qualified trust.

11. Recognizing that any reimbursements for ISFSI decommissioning received by Ameren Missouri from DOE shall be refunded to ratepayers by Ameren Missouri pursuant to a methodology approved by the Commission.

Respectfully submitted,

/s/ *Wendy K. Tatro*
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CERTIFICATE OF SERVICE

I do hereby certify that a true and correct copy of the foregoing document has been hand-delivered, transmitted by e-mail or mailed, First Class, postage prepaid, this 14th day of March, 2016 to counsel for all Parties on the Commission's service list in this case.

/s/ *Wendy K. Tatro*

CALLAWAY ENERGY CENTER DECOMMISSIONING TRUST FUND HISTORY DRAFT 3/7/16 4:00 P.M. STAFF

1. In 1984 in Ameren Missouri's (then d/b/a Union Electric Company ("UE")) Callaway rate case, Ameren Missouri and the Staff stipulated that the decommissioning cost of the Callaway Energy Center was $120 million in 1983 dollars. As a result of the Commission's Callaway *Report and Order*, Ameren Missouri's Missouri retail jurisdictional annual trust fund payment requirement was set at $2.9 million. *Re Union Electric Co.*, Case Nos. EO-85-17 and ER-85-160, 27 Mo.P.S.C.(N.S.) 183, 249 (1985). In Case No. EO-91-300, which was Ameren Missouri's first filing pursuant to 4 CSR 240-20.070,[1] a *Unanimous Stipulation and Agreement* was accepted by the Commission which identified the cost in 1990 dollars to immediately decommission Callaway, as if it had completed 40 years of service, as being $347 million and set Ameren Missouri's Missouri retail jurisdiction annual trust fund accrual and payment requirement as $6,214,184. The great increase in the cost estimate was due principally to a major increase in the projected cost charged by licensed facilities for disposal of low-level radioactive waste. (Low-level radioactive waste should not be confused with high-level radioactive waste and spent nuclear fuel. The federal fee, which was collected with each kilowatt hour of electricity generated by Callaway, relates to disposal facilities for high-level radioactive waste and spent nuclear fuel, not disposal facilities for low-level radioactive waste.)

2. Ameren Missouri's Missouri retail jurisdiction annual decommissioning expense accrual and trust fund payment was again set by the Commission at $6,214,184, in Case No. EO-94-81, *Re Union Electric Co.*, 3 Mo.P.S.C.3d 68 (1994); Case No. EO-97-86, *Re Union Electric Co.*, 7 Mo.P.S.C.3d 117 (1998); Case No. EO-2000-205, *Re Union Electric Co.*, 8 Mo.P.S.C.3d 497 (2000); and Case No. EO-2003-0083, *Re Union Electric Co.*, 12 Mo.P.S.C.3d 68 (2002). In

[1] Prior to April 30, 2003, 4 CSR 240-3.185 Submission of Reports Pertaining to the Decommissioning of Electric Utility Plants was contained in 4 CSR 240-20.070 Decommissioning Trust Funds.

Case Nos. EO-94-81, EO-97-86, EO-2000-205 and EO-2003-0083, *Unanimous Stipulation and Agreements* were accepted by the Commission which identified the costs in 1993, 1996, 1999 and 2002 dollars, respectively, to immediately decommission Callaway, as if it had completed 40-years of service, as being $371,511,680, $419,975,000, $509,451,856 and $515,339,000, respectively.

3. In Case No. EO-2004-0108, the Commission addressed decommissioning trust funding along with the transfer of Ameren Missouri's MetroEast (Illinois) service territory and property to AmerenCIPS as Ameren Missouri's Missouri jurisdictional demand allocator increased to 97.92% post-transfer. In its *Report and Order on Rehearing* in that case, *Re Union Electric Co.*, 13 Mo.P.S.C.3d 266 (2005), the Commission ordered an increase in Ameren Missouri's annual Missouri decommissioning expense and contribution amount from $6,214,184 to $6,486,378[2] to reflect the increased liability for decommissioning costs assumed by Missouri ratepayers. In Case Nos. EO-2004-0108, EO-2006-0098, and EO-2009-0081, a methodology was utilized by which Missouri ratepayers were responsible for less than 100% of Ameren Missouri's decommissioning liability. Ameren Missouri serves wholesale customers, such as municipals, with power from Callaway. The provision of service to other than Missouri retail ratepayers was recognized by the utilization of an allocation methodology with a Missouri jurisdictional demand allocator of less than 100% to Missouri retail customers. In File No. ER-2011-0028, Ameren Missouri commenced a methodology of the Missouri jurisdictional demand allocator for Callaway increased to 100%; the annual accrual increased to $6,758,605. The Staff followed this methodology in the Ameren Missouri general rate increase case File No. ER-2012-

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[2] *Report and Order on Rehearing* in Case No. EO-2004-0108 contains a typographical error that transposed the second and third digits in the annual contribution amount to the Missouri jurisdictional subaccount. (*See* 13 Mo.P.S.C.3d at 297 and 304 compared to 13 Mo.P.S.C.3d at 296). Because this error has an insignificant impact on trust fund funding, Ameren Missouri used this actual ordered amount as its present annual contribution amount.

0166; Ameren Missouri did not perform an allocation. Callaway was treated as allocated 100% to the Missouri retail jurisdiction; municipal customers, sales, and costs were treated as off-system customers, sales, and costs. The $6,758,605 of annual decommissioning expense accrual was included in the determination of Ameren Missouri retail customer rates approved by the Commission as part of *Re Union Electric Co.*, File No. ER-2011-0028 (July 13, 2011) and the Missouri jurisdictional demand allocator was reflected as 100%. Ameren Missouri and the Staff followed this methodology in File No. EO-2012-0070, Ameren Missouri's most recent prior Triennial Decommissioning Update, and File No. ER-2012-0166, Ameren Missouri's most recent general rate increase case.

4. In the four triennial decommissioning cost study cases prior to Case No. EO-2004-0108, Ameren Missouri's Missouri retail jurisdiction, annual trust fund accrual and payment requirement remained at $6,214,184, as that amount was determined to be adequate for the funding of decommissioning expenses. In Case No. EO-2004-0108, the Missouri retail jurisdiction annual trust fund accrual and payment requirement was increased to $6,486,378 to reflect the increased liability for decommissioning costs assumed by the Missouri retail ratepayers as a result of the MetroEast Property Transfer. In Case No. EO-2006-0098, a *Unanimous Stipulation and Agreement* was accepted by the Commission which identified the costs in 2005 dollars to immediately decommission Callaway, as if it had completed 40 years of service, as being $586,515,200. Ameren Missouri's Missouri retail jurisdiction annual trust fund accrual and payment requirement remained at $6,486,378, as that amount was determined to be adequate for the funding of future decommissioning expenses. The 2011 Cost Study estimated the decommissioning cost for the DECON alternative to be $754,500,000 in 2011 dollars, which was 8.7% higher than the 2008 estimate of $693,907,000 (Case No. EO-2009-0081) and

represented approximately a 2.83% annualized escalation rate over the 3-year period. Ameren Missouri's economic analysis found the annual contribution of $6,758,605 to the nuclear decommissioning trust fund to be reasonable.

Callaway Energy Center
Independent Spent Fuel Storage Installation
Decommissioning Cost Analysis

Prepared for
Ameren Missouri Callaway Energy Center

Prepared by
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St. Louis, MO 63166-6149

Cost Analysis Data provided by:
TLG Services, Inc.
Bridgewater, CT

February 1, 2016

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Introduction

This report presents estimates of the costs to decommission the Callaway Energy Center (Callaway) Independent Spent Fuel Storage Installation (ISFSI) for the prompt decommissioning scenarios following the conclusion of the spent fuel transfer process to the Department of Energy (DOE). The cost estimates developed by TLG Services, Inc. are designed to provide Ameren Missouri with sufficient information to assess its financial obligations, as they pertain to the eventual decommissioning of the ISFSI.

Site Description

The ISFSI facility is located at the Callaway Energy Center in Callaway County, Missouri, approximately 80 miles west of the St. Louis metropolitan area. The facility is located within the plant security area to the northeast of the nuclear unit.

Regulatory Guidance

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI.

In accordance with the rule, a detailed cost estimate for decommissioning the ISFSI at Callaway Energy Center (Callaway) in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402

This report also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

Spent Fuel Management Strategy

The operating license for Callaway, renewed on March 6, 2015, is set to expire on October 18, 2044. Approximately 3,782 spent fuel assemblies are currently projected to be generated over the life of the plant. Because of the breach by the Department of Energy (DOE) of its contract to remove fuel from the site, an ISFSI has been constructed and spent fuel transferred to the dry storage modules located at the ISFSI, to support

[1] U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

continued plant operations. The ISFSI will be operated under a Part 50 General License (in accordance with 10 CFR 72, Subpart K[2]).

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor.[3]

In January 2013, the DOE issued the "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," in response to the recommendations made by the Blue Ribbon Commission on America's Nuclear Future and as "a framework for moving toward a sustainable program to deploy an integrated system capable of transporting, storing, and disposing of used nuclear fuel..."[4] The report stated, "[W]ith the appropriate authorizations from Congress, the Administration currently plans to implement a program over the next 10 years that: …[A]dvances toward the siting and licensing of a larger interim storage facility to be available by 2025 that will have sufficient capacity to provide flexibility in the waste management system and allows for acceptance of enough used nuclear fuel to reduce expected government liabilities; …"

Based upon DOE's latest strategy, Ameren Missouri believes that one or more monitored retrievable storage facilities could be put into place within a reasonable time. Ameren Missouri's current spent fuel management plan for the Callaway spent fuel is based in general upon the spent fuel being fully removed from the Callaway site by 2050.

Ameren Missouri's position is that the DOE has a contractual obligation to accept the spent fuel earlier than the projections set out above consistent with its contract commitments. No assumption made in this study should be interpreted to be inconsistent with this claim.

ISFSI Decommissioning Strategy

At the conclusion of the spent fuel transfer process the ISFSI will be promptly decommissioned (similar to the power reactor DECON alternative).

For purposes of providing an estimate for a funding plan, financial assurance is expected to be provided on the basis of a prompt ISFSI decommissioning scenario. In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear unit.

ISFSI Description

The Callaway ISFSI is based upon Holtec International's (Holtec) HI-STORM UMAX underground system for the dry storage of used nuclear fuel. In this system, spent fuel is stored in a multi-purpose container (MPC) and

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[2] U.S. Code of Federal Regulations, Title 10, Part 72, Subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites."

[3] U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) … DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as …"

[4] "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," U.S. DOE, January 11, 2013

placed within an underground vertical ventilated module (VVM). The ISFSI pad is designed for 48 VVMs, although all the cells may not be needed, depending upon DOE performance.

In addition to the spent fuel stored at the ISFSI, there is projected to be five additional modules used for Greater-than-Class-C (GTCC) waste storage. The multi-purpose containers used for this GTCC waste canister are also expected to be transferred to the DOE at the same time as the spent fuel transfer.

The key constituent of a HI-STORM UMAX VVM is the Cavity Enclosure Container (CEC). The CEC is a closed bottom, open top, thick walled cylindrical vessel that has no penetrations or openings. The closure lid completes the physical embodiment of the HI-STORM UMAX VVM once the loaded MPC is placed inside the CEC. The closure lid is a steel structure filled with plain concrete and is designed to protect the VVM from the impact of the design basis missiles as well as provide an inlet and outlet for air flow.

The wall thickness of the welded steel CEC is approximately ¾ inches. The CEC rests on a foundation pad with a thickness of 2 feet 9 inches, approximately 16 feet 11 inches below the grade-level ISFSI pad.

A divider shell divides the CEC into an inlet flow downcomer and an outlet flow passage. It is a vertical cylindrical shell concentrically situated in the CEC and is not attached to the CEC, which allows its convenient removal for decommissioning.

All exposed surfaces of the CEC are made from ferritic steels that are painted and protected from corrosion. The inside surface of the CECs and the divider shells is protected by paint. In addition, one side of the divider shell is further protected by insulation.

The VVMs are surrounded by controlled low-strength material (CLSM), a self-compacted, cementitious material.

A reinforced concrete slab (ISFSI pad) surrounds the upper portion of the CEC and extends to the underside of the CEC Flange. The ISFSI pad provides robust support for a loaded transporter and to enable rainwater to flow away from the storage array. The concrete ISFSI pad is approximately 2 feet 6 inches thick.

Ameren Missouri's current spent fuel management plan for the Callaway spent fuel would result in 38 MPCs being placed at the ISFSI by the year 2044, excluding GTCC.

The storage modules used for the GTCC canisters (estimated quantity of 5) are not expected to have any interior contamination of residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the station operating until the end of its current license (2044) and the DOE's spent fuel acceptance assumptions, as previously described.

The dry storage vendor, Holtec does not expect the VVMs to have any interior or exterior radioactive surface contamination.[5] It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Any neutron activation of the steel and concrete is expected to be extremely small.[6] This assumption is adopted for this analysis.

The decommissioning estimate is based on the conservative premise that a small percentage of the VVMs would contain very low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an allowance, 6 of the 38 MPCs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of MPCs required for the final core off-load (i.e., 193 offloaded assemblies/unit, 37 assemblies per MPC) which results in a total of 6 VVMs that contain residual radioactivity. It is assumed that these are the final VVMs offloaded; consequently they have the least time for radioactive decay of the neutron activation products.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. It is expected that this assumption would be confirmed as a result of good radiological practice of surveying potentially impacted areas after each spent fuel transfer campaign. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

The ISFSI storage modules were constructed in the original unit 2 excavation after the non-usable sediment was removed and replaced with clean fill. The clean fill was obtained from a borrow pit and suppliers located outside of the Owner Control Area and not radiologically affected by plant Operations. It is assumed that there is no subsurface soil in the proximity of the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

Costs are reported in 2015 dollars and based upon a decommissioning analysis prepared for Callaway in 2014.[7]

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. Ameren Missouri, as licensee, will oversee the site activities; the estimate includes Ameren Missouri's labor and overhead costs.

Low-level radioactive waste packaging, transport and disposal costs are based on rates consistent with the most recently developed decommissioning cost estimate.

Once the ISFSI NRC license is terminated and the facility released for unrestricted use, restoration of the ISFSI site area can commence. The demolition estimate assumes that the ISFSI concrete pad and CEC closure lids are demolished. The CECs and surrounding concrete are then removed to a depth of approximately three feet below the local grade. Concrete is processed for reuse as fill and steel is recovered and disposed of as scrap. Fencing, asphalt, the approach apron and any local structures are also removed with the construction and demolition materials recycled, salvaged and/or disposed of as construction debris.

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[5] Final Safety Analysis Report for the HI-STORM UMAX Canister Storage System, FSAR Report No. HI-2115090, Rev. 1, at page 2-120

[6] Ibid.

[7] "Decommissioning Cost Analysis for the Callaway Energy Center," TLG Document A22-1690-001, Rev. 0, dated March 2015

The remaining subsurface portion of the CEC is then backfilled with concrete waste. The ISFSI site area is covered with a layer of topsoil and stabilized.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.[8]

Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2 and 3. The cost has been organized into four phases, including:

- An initial planning phase - empty VVMs are characterized and the specifications and work procedures for the decontamination (MPC support structure removal) developed.
- The remediation phase - residual radioactivity is removed. The empty VVMs are used as waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.
- Site restoration - removal of structures and site facilities to a nominal depth of three feet below grade and the limited restoration of the site.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor to perform the verification survey), Ameren Missouri's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it should be conservatively assumed that all expenditures will be incurred in the year 2051, the year following all spent fuel removal.

Results

The analysis to estimate the costs to decommission Callaway ISFSI relied upon the site specific technical information and information developed for a previous nuclear unit decommissioning analysis prepared in 2014. While not an engineering study, the estimates provide the plant owner with sufficient information to assess its financial obligations, as they pertain to the eventual decommissioning of the ISFSI.

The estimates described in this report are based on numerous fundamental assumptions, including regulatory requirements, project contingencies, low-level radioactive waste disposal practices, and site restoration requirements.

The cost projected to promptly decommission Callaway ISFSI facility, assuming prompt decommissioning following the conclusion of the spent fuel transfer process to the Department of Energy (DOE)., is estimated to be $9.4 million. The majority of this cost (approximately 78%) is associated with the physical decontamination and dismantling of the ISFSI so that the operating license can be terminated. The remaining 22% is for the demolition of the designated structures and limited restoration of the site.

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[8] "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (feet)	Width (feet)	Depth (feet)	Residual Radioactivity
ISFSI Pad	157.5	143.6	2.5	No

ISFSI HI-STORM UMAX

Item	Value	Notes (all dimensions are nominal)
Cavity Enclosure Container Inside Height (inches)	181	
Cavity Enclosure Container Inside Diameter (inches)	86	
Quantity (total)	43	Spent Fuel (38) + GTCC (5)
Quantity (with residual radioactivity)	6	Equivalent to the number of VVMs used to store last complete core offload)
Potentially Activated Steel and Concrete (pounds)	847,767	
Misc. Low-Level Radioactive Waste (pounds)	3,289	
Low-Level Radioactive Waste (cubic feet)	13,299	Excluding transfer cask
Low-Level Radioactive Waste (packaged density)	64	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of VVMs used for GTCC storage	5	No residual radioactivity

Table 2

ISFSI Decommissioning Costs[1] and Waste Volumes

	Costs (thousands, 2015 dollars)						**Waste Volume**	**Person-Hours**	
	Removal	Packaging	Transport	Disposal	Other	Total	Cubic Feet	Craft	Oversight and Contractor
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	221	221	-	-	1,024
Remediation (activated metal removal)	528	97	94	2,285	-	3,003	13,299	7,472	-
License Termination (radiological surveys)	-	-	-	-	1,102	1,102	-	9,549	-
Subtotal	**528**	**97**	**94**	**2,285**	**1,323**	**4,327**	**13,299**	**17,021**	**1,024**
Supporting Costs									
NRC and NRC Contractor Fees	-	-	-	-	414	414	-	-	776
Insurance	-	-	-	-	119	119	-	-	-
Property Taxes	-	-	-	-	94	94	-	-	-
Plant Energy Budget	-	-	-	-	57	57	-	-	-
Corporate A&G	-	-	-	-	337	337	-	-	-
Security (industrial)	-	-	-	-	205	205	-	-	4,971
Ameren Missouri Oversight	-	-	-	-	350	350	-	-	3,771
Subtotal	-	-	-	-	**1,575**	**1,575**	-	-	**9,519**
Total (w/o contingency)	**528**	**97**	**94**	**2,285**	**2,899**	**5,902**	**13,299**	**17,021**	**10,543**
Total (w/25% contingency)	**660**	**121**	**117**	**2,857**	**3,623**	**7,377**			

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2051

Table 3

ISFSI Demolition and Restoration Costs[1]

	Costs (thousands, 2015 dollars)						**Person-Hours**	
	Removal	Packaging	Transport	Disposal	Other	Total	Craft	Oversight and Contractor
Decommissioning Contractor								
Excavation and Demolition	75	-	-	-	-	75	664	-
Steel Removal	512	-	-	-	-	512	7,523	-
Concrete Processing	110				23	133	459	-
Backfill	284	-	-	-	-	284	618	-
Tooling	-	-	-	-	21	21	-	-
Final Report	-	-	-	-	24	24	-	160
Subtotal	**981**	**-**	**-**	**-**	**67**	**1,049**	**9,265**	**160**
Supporting Costs								
Property Taxes	-	-	-	-	-	47	-	-
Heavy Equipment	105	-	-	-	-	105	-	-
Plant Energy Budget	-	-	-	-	-	28	-	-
Corporate A&G	-	-	-	-	-	169	-	-
Security (industrial)	-	-	-	-	-	102	-	2,486
Ameren Missouri Oversight	-	-	-	-	-	147	-	1,543
Subtotal	105					599	-	4,029
Total (w/o contingency)	**1,087**	**-**	**-**	**-**	**67**	**1,648**	**9,265**	**4,189**
Total (w/25% contingency)	**1,250**	**-**	**-**	**-**	**78**	**2,060**		

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2051

Ameren Missouri
Callaway Energy Center Tax-Qualified Nuclear Decommissioning Trust Fund Projection
Missouri Jurisdiction
Decommissioning Expense Calculation

Decommissioning Cost Estimate

	Plant Decommissioning	ISFSI Decommissioning	
License Termination Decommissioning Expenditures	$ 692,622,000	$ 7,377,000	
Spent Fuel Management Decommissioning Expenditures	57,716,000	-	
Site Restoration Decommissioning Expenditures	114,396,000	2,060,000	
Total Decommissioning Cost Estimate:	$ 864,734,000	$ 9,437,000	
Estimate in Terms of Year xxxx Dollars	2014	2015	
Estimate Based On:	March 2015 TLG Study	February 1, 2016 TLG Study	
Decommissioning Inflation:	3.5864%	3.5864%	3.5864%

	DECOMMISSIONING EXPENSE CALCULATION PLANT DECOMMISSIONING				DECOMMISSIONING EXPENSE CALCULATION ISFSI DECOMMISSIONING				DECOMMISSIONING EXPENSE CALCULATION COMBINED
Year	2014$ Decommissioning Expenses	# of Years of Inflation	Inflation Factor At 3.586% Decommissioning Inflation Rate	(Inflated $$) Decommissioning Expenses	2015$ Decommissioning Expenses	# of Years of Inflation	Inflation Factor At 3.586% Decommissioning Inflation Rate	(Inflated $$) Decommissioning Expenses	(Inflated $$) Decommissioning Expenses
TOTALS:	$ 864,734,000			$ 2,856,166,842	$ 9,437,000			$ 33,552,543	$ 2,889,719,386
2015	$ -	1	1.0359	$ -	$ -	0	1.0000	$ -	$ -
2016	$ -	2	1.0730	$ -	$ -	1	1.0359	$ -	$ -
2017	$ -	3	1.1115	$ -	$ -	2	1.0730	$ -	$ -
2018	$ -	4	1.1514	$ -	$ -	3	1.1115	$ -	$ -
2019	$ -	5	1.1926	$ -	$ -	4	1.1514	$ -	$ -
2020	$ -	6	1.2354	$ -	$ -	5	1.1926	$ -	$ -
2021	$ -	7	1.2797	$ -	$ -	6	1.2354	$ -	$ -
2022	$ -	8	1.3256	$ -	$ -	7	1.2797	$ -	$ -
2023	$ -	9	1.3732	$ -	$ -	8	1.3256	$ -	$ -
2024	$ -	10	1.4224	$ -	$ -	9	1.3732	$ -	$ -
2025	$ -	11	1.4734	$ -	$ -	10	1.4224	$ -	$ -
2026	$ -	12	1.5263	$ -	$ -	11	1.4734	$ -	$ -
2027	$ -	13	1.5810	$ -	$ -	12	1.5263	$ -	$ -
2028	$ -	14	1.6377	$ -	$ -	13	1.5810	$ -	$ -
2029	$ -	15	1.6964	$ -	$ -	14	1.6377	$ -	$ -
2030	$ -	16	1.7573	$ -	$ -	15	1.6964	$ -	$ -
2031	$ -	17	1.8203	$ -	$ -	16	1.7573	$ -	$ -
2032	$ -	18	1.8856	$ -	$ -	17	1.8203	$ -	$ -
2033	$ -	19	1.9532	$ -	$ -	18	1.8856	$ -	$ -
2034	$ -	20	2.0233	$ -	$ -	19	1.9532	$ -	$ -
2035	$ -	21	2.0958	$ -	$ -	20	2.0233	$ -	$ -
2036	$ -	22	2.1710	$ -	$ -	21	2.0958	$ -	$ -
2037	$ -	23	2.2488	$ -	$ -	22	2.1710	$ -	$ -
2038	$ -	24	2.3295	$ -	$ -	23	2.2488	$ -	$ -
2039	$ -	25	2.4130	$ -	$ -	24	2.3295	$ -	$ -
2040	$ -	26	2.4996	$ -	$ -	25	2.4130	$ -	$ -
2041	$ -	27	2.5892	$ -	$ -	26	2.4996	$ -	$ -
2042	$ -	28	2.6821	$ -	$ -	27	2.5892	$ -	$ -
2043	$ -	29	2.7783	$ -	$ -	28	2.6821	$ -	$ -
2044	$ 17,507,000	30	2.8779	$ 50,383,459	$ -	29	2.7783	$ -	$ 50,383,459
2045	$ 98,024,000	31	2.9811	$ 292,220,854	$ -	30	2.8779	$ -	$ 292,220,854
2046	$ 168,804,000	32	3.0880	$ 521,271,595	$ -	31	2.9811	$ -	$ 521,271,595
2047	$ 173,361,000	33	3.1988	$ 554,543,057	$ -	32	3.0880	$ -	$ 554,543,057
2048	$ 103,926,000	34	3.3135	$ 344,358,353	$ -	33	3.1988	$ -	$ 344,358,353
2049	$ 103,642,000	35	3.4323	$ 355,733,476	$ -	34	3.3135	$ -	$ 355,733,476
2050	$ 73,664,000	36	3.5554	$ 261,906,810	$ -	35	3.4323	$ -	$ 261,906,810
2051	$ 46,547,000	37	3.6829	$ 171,429,568	$ 9,437,000	36	3.5554	$ 33,552,543	$ 204,982,111
2052	$ 65,042,000	38	3.8150	$ 248,136,392	$ -	37	3.6829	$ -	$ 248,136,392
2053	$ 14,217,000	39	3.9518	$ 56,183,279	$ -	38	3.8150	$ -	$ 56,183,279
2054	$ -	40	4.0936	$ -	$ -	39	3.9518	$ -	$ -

Ameren Missouri
Callaway Energy Center Tax-Qualified Nuclear Decommissioning Trust Fund
Missouri Jurisdiction

Reconciliation of December 31, 2014 Ending Balance with December 31, 2015 After-Tax Liquidation Value
Used As Beginning Balance for Funding Adequacy Analysis

December 31, 2014		Total Market Value of Fund:	$	548,726,306.87
	+	Contributions to Fund - January 1, 2015 through December 31, 2015		6,758,605.00
	+	Investment Income - January 1, 2015 through December 31, 2015		6,046,304.96
	-	Management & Trust Fees - January 1, 2015 through December 31, 2015		434,144.46
	-	Tax Expense - January 1, 2015 through December 31, 2015		4,837,000.00
December 31, 2015	=	Total Market Value of Fund:	$	556,260,072.37

December 31, 2015		Total Market Value of Fund:	$	556,260,072.37
	-	Total Book Value of Fund:		340,492,877.26
	=	Total Unrealized Gains	$	215,767,195.11
		Consolidated Federal & State Income Tax Rate		20.00%
		Income Tax Liability on Unrealized Gains	$	43,153,439.02
		Total Market Value of Fund:	$	556,260,072.37
	-	Income Tax Liability on Unrealized Gains	$	43,153,439.02
December 31, 2015	=	After-Tax Liquidation Value of Fund (Use for Beginning Balance for Funding Adequacy Analysis)	$	513,106,633.35

Ameren Missouri
Callaway Energy Center Tax-Qualified Nuclear Decommissioning Trust Fund Projection
Missouri Jurisdiction
Plant Decommissioning Fund Projection

December 31, 2015	Fund Balance:	$ 513,106,633	Equity Allocation:	65.00%	Federal Income Tax Rate:	20.00%
December 31, 2053	EOY Fund Balance:	$ 0	Bond Allocation:	35.00%	Missouri State Income Tax Rate:	0.00%
			Switch Out of Equities at End-Of-Year:	2043	Percentage of Federal Taxes Deductible on MO Taxes:	50.00%
Current contribution:		$ 6,758,605			Composite Federal & State Income Tax Rate:	20.0000%
Revised contribution:		$ 6,314,620	Nominal Pre-Tax & Expense Returns			
			Bonds:	3.400%	Management & Trust Fees: (BP)	15.00
CPI Inflation:		2.300%	Equities:	8.500%		
Decommissioning Inflation:		3.5864%	Weighted Average - Bonds & Equities:	6.715%		
Effective Date of Revised Annual Contribution			Real Pre-Tax & Expense Returns			
	Year:	2016	Bonds:	1.100%		
	Quarter:	1	Equities:	6.200%		
			Weighted Average - Bonds & Equities:	4.415%		

Fund Projections

Year Ending December 31, 20xx	Beginning-of-Year Balance	Annual Cash Inflow From Contributions To Fund	Pre Tax & Fee Income	Investment Management & Trust Fees	Federal & State Income Taxes	After Tax & Fee Income	Decommissioning Expenses (Inflated $$)	End-Of-Year Balance
TOTAL		$ 183,546,382	$ 2,772,136,687	$ 72,744,403	$ 539,878,457	$ 2,159,513,827	$ 2,856,166,842	
December 31, 2015								$ 513,106,633
2016	513,106,633	6,425,616	34,670,850	800,482	6,774,074	27,096,295	-	546,628,544
2017	546,628,544	6,314,620	36,918,120	852,367	7,213,151	28,852,602	-	581,795,766
2018	581,795,766	6,314,620	39,279,599	906,889	7,674,542	30,698,168	-	618,808,554
2019	618,808,554	6,314,620	41,765,008	964,273	8,160,147	32,640,588	-	657,763,762
2020	657,763,762	6,314,620	44,380,850	1,024,667	8,671,237	34,684,946	-	698,763,329
2021	698,763,329	6,314,620	47,133,971	1,088,231	9,209,148	36,836,592	-	741,914,540
2022	741,914,540	6,314,620	50,031,575	1,155,131	9,775,289	39,101,155	-	787,330,315
2023	787,330,315	6,314,620	53,081,244	1,225,542	10,371,140	41,484,561	-	835,129,496
2024	835,129,496	6,314,620	56,290,959	1,299,648	10,998,262	43,993,048	-	885,437,165
2025	885,437,165	6,314,620	59,669,119	1,377,644	11,658,295	46,633,180	-	938,384,965
2026	938,384,965	6,314,620	63,224,564	1,459,732	12,352,966	49,411,866	-	994,111,450
2027	994,111,450	6,314,620	66,966,597	1,546,128	13,084,094	52,336,375	-	1,052,762,446
2028	1,052,762,446	6,314,620	70,905,012	1,637,058	13,853,591	55,414,363	-	1,114,491,428
2029	1,114,491,428	6,314,620	75,050,113	1,732,761	14,663,470	58,653,882	-	1,179,459,930
2030	1,179,459,930	6,314,620	79,412,748	1,833,485	15,515,852	62,063,410	-	1,247,837,960
2031	1,247,837,960	6,314,620	84,004,332	1,939,496	16,412,967	65,651,869	-	1,319,804,449
2032	1,319,804,449	6,314,620	88,836,882	2,051,070	17,357,162	69,428,649	-	1,395,547,718
2033	1,395,547,718	6,314,620	93,923,043	2,168,500	18,350,909	73,403,634	-	1,475,265,972
2034	1,475,265,972	6,314,620	99,276,123	2,292,092	19,396,806	77,587,225	-	1,559,167,817
2035	1,559,167,817	6,314,620	104,910,132	2,422,170	20,497,592	81,990,370	-	1,647,472,807
2036	1,647,472,807	6,314,620	110,839,812	2,559,075	21,656,147	86,624,590	-	1,740,412,017
2037	1,740,412,017	6,314,620	117,080,680	2,703,165	22,875,503	91,502,013	-	1,838,228,650
2038	1,838,228,650	6,314,620	123,649,067	2,854,816	24,158,850	96,635,401	-	1,941,178,671
2039	1,941,178,671	6,314,620	130,562,161	3,014,426	25,509,547	102,038,188	-	2,049,531,479
2040	2,049,531,479	6,314,620	137,838,052	3,182,412	26,931,128	107,724,512	-	2,163,570,612
2041	2,163,570,612	6,314,620	145,495,780	3,359,214	28,427,313	113,709,253	-	2,283,594,485
2042	2,283,594,485	6,314,620	153,555,383	3,545,294	30,002,018	120,008,071	-	2,409,917,176
2043	2,409,917,176	6,314,620	162,037,952	3,741,140	31,659,362	126,637,449	-	2,542,869,245
2044	2,542,869,245	6,626,026	85,713,678	3,845,771	16,373,581	65,494,326	50,383,459	2,564,606,138
2045	2,564,606,138	-	82,228,854	3,689,415	15,707,888	62,831,551	292,220,854	2,335,216,835
2046	2,335,216,835	-	70,535,755	3,164,773	13,474,196	53,896,786	521,271,595	1,867,842,025
2047	1,867,842,025	-	54,079,397	2,426,415	10,330,596	41,322,385	554,543,057	1,354,621,353
2048	1,354,621,353	-	40,203,034	1,803,816	7,679,844	30,719,375	344,358,353	1,040,982,375
2049	1,040,982,375	-	29,345,932	1,316,683	5,605,850	22,423,399	355,733,476	707,672,298
2050	707,672,298	-	19,608,442	879,785	3,745,732	14,982,926	261,906,810	460,748,414
2051	460,748,414	-	12,751,143	572,114	2,435,806	9,743,224	171,429,568	299,062,070
2052	299,062,070	-	5,949,792	266,953	1,136,568	4,546,271	248,136,392	55,471,949
2053	55,471,949	-	930,931	41,769	177,832	711,329	56,183,279	0
2054	0	-	0	0	0	0	-	0

Ameren Missouri
Callaway Energy Center Tax-Qualified Nuclear Decommissioning Trust Fund Projection
Missouri Jurisdiction
ISFSI Decommissioning Fund Projection

December 31, 2015	Fund Balance:	$ -	
December 31, 2051	EOY Fund Balance:	$ -	
	Revised contribution:	$ 443,985	
	CPI Inflation:	2.300%	
	Decommissioning Inflation:	3.5864%	

Effective Date of Revised Annual Contribution

Year:	2016
Quarter:	1

Equity Allocation:	65.00%
Bond Allocation:	35.00%
Switch Out of Equities at End-Of-Year:	2043

Nominal Pre-Tax & Expense Returns

Bonds:	3.400%
Equities:	8.500%
Weighted Average - Bonds & Equities:	6.715%

Real Pre-Tax & Expense Returns

Bonds:	1.100%
Equities:	6.200%
Bonds & Equities	4.415%

Federal Income Tax Rate:	20.00%
Missouri State Income Tax Rate:	0.00%
Percentage of Federal Taxes Deductible on MO Taxes:	50.00%
Composite Federal & State Income Tax Rate:	20.0000%
Management & Trust Fees: (BP)	15.00

Fund Projections

Year Ending December 31, 20xx	Beginning-of-Year Balance	Annual Cash Inflow From Contributions To Fund	Pre Tax & Fee Income	Investment Management & Trust Fees	Federal & State Income Taxes	After Tax & Fee Income	Decommissioning Expenses (Inflated $$)	End-Of-Year Balance
TOTAL		**$ 12,786,464**	**$ 26,742,143**	**$ 784,544**	**$ 5,191,520**	**$ 20,766,079**	**$ 33,552,543**	
December 31, 2015								$ -
2016	-	332,989	11,180	258	2,184	8,738	-	341,726
2017	341,726	443,985	37,854	874	7,396	29,584	-	815,295
2018	815,295	443,985	69,654	1,608	13,609	54,437	-	1,313,717
2019	1,313,717	443,985	103,123	2,381	20,148	80,594	-	1,838,295
2020	1,838,295	443,985	138,348	3,194	27,031	108,123	-	2,390,404
2021	2,390,404	443,985	175,422	4,050	34,274	137,098	-	2,971,486
2022	2,971,486	443,985	214,442	4,951	41,898	167,593	-	3,583,064
2023	3,583,064	443,985	255,510	5,899	49,922	199,688	-	4,226,737
2024	4,226,737	443,985	298,732	6,897	58,367	233,468	-	4,904,191
2025	4,904,191	443,985	344,223	7,947	67,255	269,021	-	5,617,196
2026	5,617,196	443,985	392,102	9,053	76,610	306,439	-	6,367,620
2027	6,367,620	443,985	442,492	10,216	86,455	345,821	-	7,157,426
2028	7,157,426	443,985	495,528	11,441	96,817	387,270	-	7,988,681
2029	7,988,681	443,985	551,347	12,730	107,723	430,894	-	8,863,560
2030	8,863,560	443,985	610,095	14,086	119,202	476,807	-	9,784,352
2031	9,784,352	443,985	671,926	15,513	131,283	525,130	-	10,753,467
2032	10,753,467	443,985	737,002	17,016	143,997	575,989	-	11,773,441
2033	11,773,441	443,985	805,493	18,597	157,379	629,517	-	12,846,943
2034	12,846,943	443,985	877,579	20,262	171,463	685,854	-	13,976,781
2035	13,976,781	443,985	953,448	22,013	186,287	745,148	-	15,165,914
2036	15,165,914	443,985	1,033,298	23,857	201,888	807,553	-	16,417,452
2037	16,417,452	443,985	1,117,339	25,797	218,308	873,233	-	17,734,670
2038	17,734,670	443,985	1,205,790	27,839	235,590	942,360	-	19,121,016
2039	19,121,016	443,985	1,298,883	29,989	253,779	1,015,115	-	20,580,116
2040	20,580,116	443,985	1,396,862	32,251	272,922	1,091,689	-	22,115,790
2041	22,115,790	443,985	1,499,982	34,632	293,070	1,172,280	-	23,732,055
2042	23,732,055	443,985	1,608,514	37,137	314,275	1,257,101	-	25,433,141
2043	25,433,141	443,985	1,722,742	39,775	336,593	1,346,374	-	27,223,500
2044	27,223,500	465,880	933,519	41,885	178,327	713,307	-	28,402,688
2045	28,402,688	-	965,691	43,328	184,473	737,890	-	29,140,578
2046	29,140,578	-	990,780	44,454	189,265	757,061	-	29,897,639
2047	29,897,639	-	1,016,520	45,609	194,182	776,729	-	30,674,368
2048	30,674,368	-	1,042,928	46,794	199,227	796,908	-	31,471,275
2049	31,471,275	-	1,070,023	48,009	204,403	817,611	-	32,288,887
2050	32,288,887	-	1,097,822	49,257	209,713	838,852	-	33,127,739
2051	33,127,739	-	555,950	24,944	106,201	424,805	33,552,543	-
2052	-	-	-	-	-	-	-	-
2053	-	-	-	-	-	-	-	-
2054	-	-	-	-	-	-	-	-

Ameren Missouri
Callaway Energy Center Tax-Qualified Nuclear Decommissioning Trust Fund Projection
Missouri Jurisdiction
Consolidated Plant & ISFSI Decommissioning Fund Projection

		Equity Allocation:	65.00%	Federal Income Tax Rate:	20.00%
		Bond Allocation:	35.00%	Missouri State Income Tax Rate:	0.00%
		Switch Out of Equities at End-Of-Year:	2043	Percentage of Federal Taxes Deductible on MO Taxes:	50.00%
Current Total Contribution:	$ 6,758,605			Composite Federal & State Income Tax Rate:	20.0000%
Revised Total Contribution:	$ 6,758,605	Nominal Pre-Tax & Expense Returns			
		Bonds:	3.400%	Management & Trust Fees: (BP)	15.00
CPI Inflation:	2.300%	Equities:	8.500%		
Decommissioning Inflation:	3.5864%	Weighted Average - Bonds & Equities:	6.715%		
Effective Date of Revised Annual Contribution		Real Pre-Tax & Expense Returns			
Year:	2016	Bonds:	1.100%		
Quarter:	1	Equities:	6.200%		
		Bonds & Equities	4.415%		

Fund Projections

Year Ending December 31, 20xx	Beginning-of-Year Balance	Annual Cash Inflow From Contributions To Fund	Pre Tax & Fee Income	Investment Management & Trust Fees	Federal & State Income Taxes	After Tax & Fee Income	Decommissioning Expenses (Inflated $$)	End-Of-Year Balance
TOTAL		**$ 196,332,846**	**$ 2,798,878,830**	**$ 73,528,947**	**$ 545,069,977**	**$ 2,180,279,906**	**$ 2,889,719,386**	
December 31, 2015								$ 513,106,633
2016	513,106,633	$ 6,758,605	$ 34,682,031	$ 800,740	$ 6,776,258	$ 27,105,032	$ -	546,970,270
2017	546,970,270	$ 6,758,605	$ 36,955,974	$ 853,241	$ 7,220,546	$ 28,882,186	$ -	582,611,061
2018	582,611,061	$ 6,758,605	$ 39,349,253	$ 908,497	$ 7,688,151	$ 30,752,604	$ -	620,122,271
2019	620,122,271	$ 6,758,605	$ 41,868,131	$ 966,653	$ 8,180,295	$ 32,721,182	$ -	659,602,058
2020	659,602,058	$ 6,758,605	$ 44,519,198	$ 1,027,861	$ 8,698,267	$ 34,793,070	$ -	701,153,732
2021	701,153,732	$ 6,758,605	$ 47,309,393	$ 1,092,282	$ 9,243,422	$ 36,973,689	$ -	744,886,026
2022	744,886,026	$ 6,758,605	$ 50,246,017	$ 1,160,083	$ 9,817,187	$ 39,268,747	$ -	790,913,379
2023	790,913,379	$ 6,758,605	$ 53,336,754	$ 1,231,442	$ 10,421,062	$ 41,684,250	$ -	839,356,234
2024	839,356,234	$ 6,758,605	$ 56,589,691	$ 1,306,546	$ 11,056,629	$ 44,226,517	$ -	890,341,355
2025	890,341,355	$ 6,758,605	$ 60,013,342	$ 1,385,591	$ 11,725,550	$ 46,902,201	$ -	944,002,161
2026	944,002,161	$ 6,758,605	$ 63,616,665	$ 1,468,785	$ 12,429,576	$ 49,718,304	$ -	1,000,479,070
2027	1,000,479,070	$ 6,758,605	$ 67,409,090	$ 1,556,344	$ 13,170,549	$ 52,682,196	$ -	1,059,919,872
2028	1,059,919,872	$ 6,758,605	$ 71,400,540	$ 1,648,499	$ 13,950,408	$ 55,801,632	$ -	1,122,480,109
2029	1,122,480,109	$ 6,758,605	$ 75,601,459	$ 1,745,490	$ 14,771,194	$ 59,084,775	$ -	1,188,323,489
2030	1,188,323,489	$ 6,758,605	$ 80,022,842	$ 1,847,571	$ 15,635,054	$ 62,540,217	$ -	1,257,622,311
2031	1,257,622,311	$ 6,758,605	$ 84,676,258	$ 1,955,010	$ 16,544,250	$ 66,176,999	$ -	1,330,557,915
2032	1,330,557,915	$ 6,758,605	$ 89,573,884	$ 2,068,086	$ 17,501,160	$ 70,004,638	$ -	1,407,321,159
2033	1,407,321,159	$ 6,758,605	$ 94,728,536	$ 2,187,097	$ 18,508,288	$ 74,033,151	$ -	1,488,112,915
2034	1,488,112,915	$ 6,758,605	$ 100,153,702	$ 2,312,354	$ 19,568,270	$ 78,273,079	$ -	1,573,144,599
2035	1,573,144,599	$ 6,758,605	$ 105,863,580	$ 2,444,184	$ 20,683,879	$ 82,735,517	$ -	1,662,638,721
2036	1,662,638,721	$ 6,758,605	$ 111,873,110	$ 2,582,932	$ 21,858,036	$ 87,432,143	$ -	1,756,829,469
2037	1,756,829,469	$ 6,758,605	$ 118,198,019	$ 2,728,962	$ 23,093,811	$ 92,375,246	$ -	1,855,963,320
2038	1,855,963,320	$ 6,758,605	$ 124,854,857	$ 2,882,655	$ 24,394,440	$ 97,577,762	$ -	1,960,299,686
2039	1,960,299,686	$ 6,758,605	$ 131,861,044	$ 3,044,414	$ 25,763,326	$ 103,053,304	$ -	2,070,111,595
2040	2,070,111,595	$ 6,758,605	$ 139,234,914	$ 3,214,663	$ 27,204,050	$ 108,816,201	$ -	2,185,686,401
2041	2,185,686,401	$ 6,758,605	$ 146,995,762	$ 3,393,845	$ 28,720,383	$ 114,881,533	$ -	2,307,326,539
2042	2,307,326,539	$ 6,758,605	$ 155,163,897	$ 3,582,432	$ 30,316,293	$ 121,265,172	$ -	2,435,350,317
2043	2,435,350,317	$ 6,758,605	$ 163,760,694	$ 3,780,915	$ 31,995,956	$ 127,983,823	$ -	2,570,092,745
2044	2,570,092,745	$ 7,091,906	$ 86,647,197	$ 3,887,656	$ 16,551,908	$ 66,207,633	$ 50,383,459	2,593,008,826
2045	2,593,008,826	$ -	$ 83,194,546	$ 3,732,744	$ 15,892,360	$ 63,569,442	$ 292,220,854	2,364,357,413
2046	2,364,357,413	$ -	$ 71,526,535	$ 3,209,227	$ 13,663,462	$ 54,653,846	$ 521,271,595	1,897,739,664
2047	1,897,739,664	$ -	$ 55,095,917	$ 2,472,024	$ 10,524,778	$ 42,099,114	$ 554,543,057	1,385,295,721
2048	1,385,295,721	$ -	$ 41,245,963	$ 1,850,609	$ 7,879,071	$ 31,516,283	$ 344,358,353	1,072,453,651
2049	1,072,453,651	$ -	$ 30,415,955	$ 1,364,692	$ 5,810,253	$ 23,241,010	$ 355,733,476	739,961,184
2050	739,961,184	$ -	$ 20,706,265	$ 929,041	$ 3,955,445	$ 15,821,779	$ 261,906,810	493,876,153
2051	493,876,153	$ -	$ 13,307,093	$ 597,058	$ 2,542,007	$ 10,168,028	$ 204,982,111	299,062,070
2052	299,062,070	$ -	$ 5,949,792	$ 266,953	$ 1,136,568	$ 4,546,271	$ 248,136,392	55,471,949
2053	55,471,949	$ -	$ 930,931	$ 41,769	$ 177,832	$ 711,329	$ 56,183,279	0
2054	0	$ -	$ 0	$ 0	$ 0	$ 0	$ -	0

Effective: mm-dd-yyyy

UNION ELECTRIC COMPANY
(d/b/a AmerenUE)

INVESTMENT GUIDELINES FOR THE CALLAWAY PLANT NUCLEAR DECOMMISSIONING TRUST FUND(S)

Effective: [mm – dd – yyyy]

I. SCOPE OF INVESTMENT GUIDELINES

These guidelines shall be applicable to any nuclear decommissioning trust fund established by Union Electric Company (UE), including any tax-qualified or non-tax qualified trust fund.

II. PURPOSE OF THE TRUST FUNDS

The sole purpose of the Callaway Plant Nuclear Decommissioning Trust Fund(s) are to invest contributions and investment proceeds and to accumulate assets in order to cover the costs and expenses associated with decommissioning Union Electric's Callaway Nuclear Plant and its associated Independent Spent Fuel Storage Installation (ISFSI).

Each trust fund is a single, individual trust fund under a single trustee.

The trust funds shall be apportioned into jurisdictional sub-accounts, as directed by UE.

As of the effective date of these guidelines, the tax qualified trust fund is apportioned into Missouri and Federal Energy Regulatory Commission (FERC) jurisdictional sub-accounts.

No non-tax qualified trust fund exists as of the effective date of these guidelines. Should one subsequently be established, these guidelines shall likewise apply to it and it shall likewise be apportioned into sub-accounts, as directed by UE.

The jurisdictional sub-accounts may be further sub-divided into additional sub-accounts, as directed by UE (e,g,, Missouri jurisdictional equity portfolio sub-account, Missouri jurisdictional fixed income portfolio sub-account, etc.)

II. COMPLIANCE WITH REGULATIONS

Effective: mm-dd-yyyy

The tax-qualified trust fund has been established and shall be operated in accordance with Sections 468A(e)(4)(c) of the Internal Revenue Code.

Management of all trust funds shall be in full compliance with all federal and state laws; and with all orders issued by any applicable federal or state regulatory authorities, including but not necessarily limited to the following:

- The Missouri Public Service Commission (MPSC)
- The Federal Energy Regulatory Commission (FERC)
- The Internal Revenue Service (IRS)
- The United States Treasury Department
- The Nuclear Regulatory Commission (NRC)

No investments shall be made which would in any way conflict with any federal or state laws, nor with any orders, regulations or requirements of the foregoing.

III. INVESTMENT PHILOSOPHY AND OBJECTIVES

The overall investment philosophy of the trust funds shall be to prudently select, monitor, and manage a diversified portfolio of investments in such a manner as to minimize aggregate risk while concurrently maximizing after-tax and after-expense total return. Total return is defined as the combination of current income and capital appreciation or depreciation. It is recognized that although a risk-return tradeoff exists, the investment manager(s) shall strive to balance these objectives for the overall benefit of the trust funds in a way that minimizes the risk of large losses.

It is also recognized that investment objectives will be different at different points in the lives of the trust funds. Callaway Plant decommissioning is not anticipated to begin until 2044. No withdrawals, other than for payment of taxes and trust fund operational expenses, will be made until actual decommissioning begins. Due to the long time horizon before any significant amounts of money will be required from the trust funds, they shall initially be considered as having long-term investment horizons.

In the early-to-middle stages of the trust funds' lives, investments shall be made with the objective of maximizing the expected total return over the life of the trust fund rather than maximizing current income. During this period, it is recognized that the market value of the trust funds' investments will fluctuate in value. This is acceptable since adequate time remains at this point to "ride out" downward trends in market cycles, thus allowing moderate risk levels to be tolerated at this stage.

Toward the latter stages of the trust funds' lives (approximately one to five years prior to significant decommissioning), the investment objective shall shift from maximization of total return toward more emphasis on conservation of principal and stability of market value. By the time significant decommissioning begins, the investment objective shall be completely focused on preservation and stability of market value, in conjunction with assuring that adequate liquidity exists to meet decommissioning obligations as they become due.

IV. INVESTMENT MANAGEMENT RESPONSIBILITY

Day-to-day management of the trust funds shall be the responsibility of investment managers selected by UE. Investment managers shall be obligated at all times to adhere to a standard of care, whether in investing or otherwise, that a prudent investor would use in the same circumstances. The term "prudent investor" shall have the same meaning as set forth in the FERC's "Regulations Governing Nuclear Plant Decommissioning Trust Funds" at 18 CFR 35.32(a)(3), or any successor regulation.

Neither UE nor its subsidiaries, affiliates or associates may serve as investment manager or otherwise engage in day-to-day management of the fund or mandate individual investment decisions (unless so requested by the Trustee after the removal or resignation of an acting investment manager and then only until a new investment manager has been appointed, as evidenced by an executed investment management agreement). The investment managers shall be responsible for the selection of specific securities to invest in. UE shall not direct any investment manager to invest in any specific, individual securities; however, UE does retain the right to instruct investment managers to <u>not</u> invest in certain securities, as it deems appropriate.

In certain cases when a segregated sub-account may contain an amount of assets that is too small to invest by direct purchase and ownership of securities (i.e., individual equity and fixed income securities), and when the periodic contributions are likewise too small to invest in this manner, it is acceptable for UE to specify that the assets be invested in shares of mutual funds that will provide the appropriate asset allocations. In these cases, the mutual fund managers will be responsible for day-to-day management and individual investment decisions associated with the respective mutual funds.

UE shall be responsible for establishing and implementing general, overall investment policies and practices; including, but not necessarily limited to:

1) The selection of trustees, investment managers, advisors, consultants, etc.;
2) The selection of allowable investment vehicles or classes (e.g. various styles of equities, fixed income securities or other asset categories);
3) The specification of allocations between investment vehicles or classes;

4) The specification of allocations between investment managers;
5) Directing contributions to selected investment vehicles or classes / investment managers and directing reallocations between investment vehicles or classes / investment managers.

The overall investment policies established by UE shall be set forth in these written investment guidelines. These investment guidelines shall be reviewed and approved, as required, by all applicable federal and state regulatory authorities in accordance with all federal and state laws and with all orders issued by such applicable federal or state regulatory authorities.

All instructions from UE to any other parties necessary to implement the overall investment policies and practices established by these investment guidelines shall likewise be in accordance with said guidelines and with all federal and state laws and with all orders issued by applicable federal or state regulatory authorities.

V. EQUITY ALLOCATION LIMITATIONS

A. GENERAL CRITERIA

"Equity securities" shall include all shares of common stock directly owned by the trust funds or shares of equity mutual funds directly owned by the trust.

The "market value equity allocation percentage" for a particular jurisdictional sub-account shall be measured by dividing the total market value of the equity securities in the jurisdictional sub-account by the total market value of the entire jurisdictional sub-account. The "book value equity allocation percentage" for a particular jurisdictional sub-account shall be measured by dividing the total book value of the equity securities in the jurisdictional sub-account by the total book value of the entire jurisdictional sub-account.

The trustee(s) shall maintain an ongoing record of the assets in each jurisdictional sub-account such that the current equity allocation percentages can be readily determined at any time and shall make this information available to UE in a timely manner.

The equity investment manager(s) shall monitor the composition of the equity portfolios and shall perform re-balancing as necessary to maintain the appropriate weightings of securities within each jurisdictional sub-account's portfolio, relative to the index whose returns the jurisdictional sub-account's portfolio is intended to replicate. Transaction costs should be considered, and re-balancing should only be performed when it is deemed cost effective to do so by the investment manager(s).

Effective: mm-dd-yyyy

B. MISSOURI JURISDICTIONAL SUB-ACCOUNT

A targeted market value equity allocation percentage of sixty-five percent (65%) has been established for the Missouri jurisdictional sub-account.

The total book value of investments in equity securities in all of the Missouri jurisdictional sub-accounts shall not exceed sixty-five percent (65%) of the total book value of all of the Missouri jurisdictional sub-accounts.

UE shall monitor the actual equity allocation value, and shall direct the investment manager(s) regarding the appropriate actions to take to adjust the jurisdictional sub-account to fall within the targeted equity allocation, when necessary. As stated in Section IV, the investment managers shall be responsible for the selection of specific securities to invest in. UE shall not direct any investment manager to invest in any specific securities.

C. FERC JURISDICTIONAL SUB-ACCOUNT

A targeted market value equity allocation percentage of sixty-five percent (65%) has been established for the FERC jurisdictional sub-account.

UE shall monitor the actual equity allocation value, and shall direct the investment manager(s) regarding the appropriate actions to take to adjust the jurisdictional sub-account to fall within the targeted equity allocation, when necessary.

VI. ALLOWABLE INVESTMENTS - MISSOURI JURISDICTIONAL SUB-ACCOUNT

A. FIXED INCOME INVESTMENTS

Acceptable Fixed Income Investments

The following securities and financial instruments are acceptable fixed income investments for the Missouri jurisdictional sub-account:

1) Public debt securities of the United States or any agency thereof;

2) Tax-exempt and taxable state or municipal bonds;

3) Debt securities issued by United States corporations, including:

- Mortgage Bonds;

- Debentures and Subordinated Debentures;
- Commercial Paper;
- Asset-Backed Securities;
- Mortgage Securities, including Mortgage TBAs.

4) Debt securities issued by certain non – United States (U.S.) domiciled issuers meeting the following criteria:

- U.S. Securities & Exchange Commission (SEC) Registered
- United States Dollar (US$) Denominated
- Included in a domestic bond index (e.g., Barclay's Government/Credit)

5) Shares of fixed income mutual funds

- Mutual fund investments are only allowed in the Missouri jurisdictional independent spent fuel storage installation (ISFSI) sub-account

No other types of fixed income investments shall be made in the Missouri jurisdictional sub-account unless allowed by a written amendment to or revision of these guidelines.

Restrictions on Fixed Income Investments

The following restrictions apply to all fixed income investments in the Missouri jurisdictional sub-account:

1) All debt instruments shall, as a minimum, be of investment grade credit quality at the time of purchase. "Investment grade credit quality" shall be defined as a Standard & Poor's rating of "BBB-" or higher; a Moody's rating of "Baa3" or higher or a Fitch rating of "BBB-" or higher. The overall portfolio of debt instruments shall have an average credit quality rating of at least an "A-". For split rated securities, the middle of three, lower of two or one rating should be used.

2) "Unrated" securities may be purchased if, in the opinion of the fixed income investment manager, they meet the equivalent of the foregoing minimum credit rating requirements. The investment manager purchasing such securities shall notify UE of this opinion in writing.

3) No debt securities which are in default as to principal or interest payments shall be purchased.

Effective: mm-dd-yyyy

4) If a debt instrument's credit quality rating is downgraded or if it defaults on a principal or interest payment following its purchase, the trust fund shall not be required to sell it; but, at the discretion of the fixed income investment manager, may retain it in the portfolio.

5) The total investment in any single issuer of debt (with the exception of the U.S. Government or agency thereof) shall not exceed 5% of the current market value of the overall jurisdictional sub-account portfolio.

   The trustee(s) shall maintain an ongoing record of each jurisdictional sub-account portfolio indicating the current percentage of the jurisdictional sub-account's market value represented by each individual debt issuer. The trustee(s) shall make this information available to UE in a timely manner, such that UE can provide instructions to the fixed income investment manager regarding the adjustment of investments, as necessary.

6) The fixed income investment manager shall be responsible for determining the average duration of the fixed income portfolio to optimize returns without incurring excessive interest rate risk. In general, the average fixed income portfolio's duration should not exceed the duration of the liabilities that the trust funds are intended to cover.

7) No fixed income investments shall be made in any debt instrument of any corporation known by the fixed income investment manager to be an owner or operator of a nuclear generating plant (with the exception of the U.S. Government). If a corporation assumes ownership or operation of a nuclear plant following the investment by the trust funds, the investment manager shall sell the affected securities.

   The "Owner / Operators" named in the "List of Power Reactor Units" on the NRC's website shall be considered as known owners or operators of nuclear generating plants for this prohibition.

8) All debt securities purchased must be denominated in United States dollars, and be issued in accordance with United States securities laws.

The reasoning for the foregoing criteria is to assure diversification and to assure that the trust funds do not take excessive risks in order to chase high yields. The trust funds are not "speculative" portfolios; and should not be making high-risk investments in speculative securities, such as "junk bonds". By investing only in debt instruments rated at least investment grade, and maintaining a relatively high overall portfolio rating, reasonable security of market value and liquidity is maintained.

Likewise, the trust funds should not be arbitrarily forced to sell a security that slips below an investment grade credit quality rating following its purchase. This may force a sale at a security's lowest price, while, if the security were held, its rating may be upgraded and the price subsequently recover. Therefore, a sale decision is considered best left to the discretion of the investment manager, who is expected to have the expertise to make these.

B. EQUITY INVESTMENTS

Acceptable Equity Investments

The following securities and financial instruments are acceptable investments for the equity category of the Missouri jurisdictional sub-account:

1) Common stock in corporations included in the Standard & Poor's (S&P) 500 Index.

2) Shares of equity mutual funds

   - Mutual fund investments are only allowed in the Missouri jurisdictional independent spent fuel storage installation (ISFSI) sub-account

No other types of equity investments shall be made in the Missouri jurisdictional sub-account unless allowed by a written amendment to or revision of these guidelines.

Restrictions on Equity Investments

The following restrictions apply to all equity investments in the Missouri jurisdictional sub-account:

1) In cases where common stocks are purchased in the Missouri jurisdictional sub-account, the equity holdings shall be weighted in such a manner that the overall equity investments replicate the total return of the S&P 500 Index as closely as practicable, adjusted for investment restrictions contained herein.

2) No common stock shall be purchased for any corporation known by the equity investment manager to be operating under bankruptcy protection.

3) No common stock of any corporation known by the equity investment manager to be the owner or operator of a nuclear power plant shall be purchased. If a corporation

assumes ownership or operation of a nuclear plant following the equity investment by the trust funds, the equity investment manager(s) shall thereafter sell the affected shares.

The "Owner / Operators" named in the "List of Power Reactor Units" on the NRC's website shall be considered as known owners or operators of nuclear generating plants for this prohibition.

4) No index fund, mutual fund or pooled fund shall be purchased in which more than fifteen percent (15%) of the assets are issued by owners or operators of nuclear power plants.

C. CASH

Cash may be invested in money market accounts or other interest-bearing short-term investment accounts. It may also be invested in cash equivalents (treasury bills), and/or time or demand deposits in insured accounts at banks, savings & loans, or credit unions located within the United States (i.e., certificates of deposits, savings accounts, cash).

The trustee(s) and investment manager(s) shall be responsible for investing the cash under their respective control as indicated above.

D. OTHER INVESTMENT CONSIDERATIONS

No "derivative products" (such as futures and options) other than those specifically allowed in Section VI.A.3 shall be used as a trust fund investment; nor to hedge the trust funds' risk characteristics, nor to attempt to enhance returns.

No "self-dealing" shall be allowed. By this, it is meant that no investment shall be permitted in any securities or assets of UE or its affiliated companies; nor in any securities or assets of the trustee(s), investment manager(s) or their affiliated companies. This limitation does not include time or demand deposits offered through the trustee(s') or investment manager's(s') affiliated banking operations.

VIII. ALLOWABLE INVESTMENTS - FERC JURISDICTIONAL SUB-ACCOUNT

A. FIXED INCOME INVESTMENTS

Effective: mm-dd-yyyy

Acceptable Fixed Income Investments

The following securities and financial instruments are acceptable fixed income investments for the FERC jurisdictional sub-account:

1) Public debt securities of the United States or any agency thereof;

2) Tax-exempt and taxable state or municipal bonds;

3) Debt securities issued by United States corporations, including:

- Mortgage Bonds;
- Debentures and Subordinated Debentures;
- Commercial Paper;
- Asset-Backed Securities;
- Mortgage Securities, including Mortgage TBAs.

4) Debt securities issued by certain non – United States (U.S.) domiciled issuers meeting the following criteria:

- U.S. Securities & Exchange Commission (SEC) Registered
- United States Dollar (US$) Denominated
- Included in a domestic bond index (e.g., Barclay's Government/Credit)

No other types of fixed income investments shall be made in the FERC jurisdictional sub-account unless allowed by a written amendment to or revision of these guidelines.

Restrictions on Fixed Income Investments

The following restrictions apply to all fixed income investments in the FERC jurisdictional sub-account:

1) All debt instruments shall, as a minimum, be of investment grade credit quality at the time of purchase. "Investment grade credit quality" shall be defined as a Standard & Poor's rating of "BBB-" or higher; a Moody's rating of "Baa3" or higher or a Fitch rating of "BBB-" or higher. The overall portfolio of debt instruments shall have an average credit quality rating of at least an "A-". For split rated securities, the middle of three, lower of two or one rating should be used.

2) "Unrated" securities may be purchased if, in the opinion of the fixed income investment manager, they meet the equivalent of the foregoing minimum credit rating

requirements. The investment manager purchasing such securities shall notify UE of this opinion in writing.

3) No debt securities which are in default as to principal or interest payments shall be purchased.

4) If a debt instrument's credit quality rating is downgraded or if it defaults on a principal or interest payment following its purchase, the trust fund shall not be required to sell it; but, at the discretion of the fixed income investment manager, may retain it in the portfolio.

5) The total investment in any single issuer of debt (with the exception of the U.S. Government or agency thereof) shall not exceed 5% of the current market value of the overall jurisdictional sub-account portfolio.

The trustee(s) shall maintain an ongoing record of each jurisdictional sub-account portfolio indicating the current percentage of the jurisdictional sub-account's market value represented by each individual debt issuer. The trustee(s) shall make this information available to UE in a timely manner, such that UE can provide instructions to the fixed income investment manager regarding the adjustment of investments, as necessary.

6) The fixed income investment manager shall be responsible for determining the average duration of the fixed income portfolio to optimize returns without incurring excessive interest rate risk. In general, the average fixed income portfolio's duration should not exceed the duration of the liabilities that the trust funds are intended to cover.

7) No fixed income investments shall be made in any debt instrument of any corporation known by the fixed income investment manager to be an owner or operator of a nuclear generating plant (with the exception of the U.S. Government). If a corporation assumes ownership or operation of a nuclear plant following the investment by the trust funds, the investment manager shall sell the affected securities.

The "Owner / Operators" named in the "List of Power Reactor Units" on the NRC's website shall be considered as known owners or operators of nuclear generating plants for this prohibition.

8) All debt securities purchased must be denominated in United States dollars, and be issued in accordance with United States securities laws.

The reasoning for the foregoing criteria is to assure diversification and to assure that the trust funds do not take excessive risks in order to chase high yields. The trust funds are not "speculative" portfolios; and should not be making high-risk investments in speculative securities, such as "junk bonds". By investing only in debt instruments rated at least investment grade, and maintaining a relatively high overall portfolio rating, reasonable security of market value and liquidity is maintained.

Likewise, the trust funds should not be arbitrarily forced to sell a security that slips below an investment grade credit quality rating following its purchase. This may force a sale at a security's lowest price, while, if the security were held, its rating may be upgraded and the price subsequently recover. Therefore, a sale decision is considered best left to the discretion of the investment manager, who is expected to have the expertise to make these.

B. EQUITY INVESTMENTS

<u>Acceptable Equity Investments</u>

The following securities and financial instruments are acceptable investments for the <u>equity</u> category of the FERC jurisdictional sub-account:

- Common stock in corporations included in the S&P 100 Index.

No other types of equity investments shall be made in the FERC jurisdictional sub-account unless allowed by a written amendment to or revision of these guidelines.

<u>Restrictions on Equity Investments</u>

The following restrictions apply to all equity investments in the FERC jurisdictional sub-account:

1) In cases where common stocks are purchased in the FERC jurisdictional sub-account, the equity holdings shall be weighted in such a manner that the overall equity investments replicate the total return of the S&P 100 Index as closely as practicable, adjusted for investment restrictions contained herein.

2) No common stock shall be purchased for any corporation known by the equity investment manager to be operating under bankruptcy protection.

3) No common stock of any corporation known by the equity investment manager to be the owner or operator of a nuclear power plant shall be purchased. If a corporation

assumes ownership or operation of a nuclear plant following the equity investment by the trust funds, the equity investment manager(s) shall thereafter sell the affected shares.

The "Owner / Operators" named in the "List of Power Reactor Units" on the NRC's website shall be considered as known owners or operators of nuclear generating plants for this prohibition.

C. CASH

Cash may be invested in money market accounts or other interest-bearing short-term investment accounts. It may also be invested in cash equivalents (treasury bills), and/or time or demand deposits in insured accounts at banks, savings & loans, or credit unions located within the United States (i.e., certificates of deposits, savings accounts, cash).

The trustee(s) and investment manager(s) shall be responsible for investing the cash under their respective control as indicated above.

D. OTHER INVESTMENT CONSIDERATIONS

No "derivative products" (such as futures and options) other than those specifically allowed in Section VIII.A.3 shall be used as a trust fund investment; nor to hedge the trust funds' risk characteristics, nor to attempt to enhance returns.

No "self-dealing" shall be allowed. By this, it is meant that no investment shall be permitted in any securities or assets of UE or its affiliated companies; nor in any securities or assets of the trustee(s), investment manager(s) or their affiliated companies. This limitation does not include time or demand deposits offered through the trustee(s') or investment manager's(s') affiliated banking operations.

IX. PERFORMANCE MEASUREMENT

A. GENERAL REQUIREMENTS

1) The trustee(s) shall be responsible for the computing and reporting of the trust funds' performance returns.

2) Rates of return shall be computed quarterly. These quarterly returns shall be linked geometrically to compute period returns. Annualized rates of return shall be computed each quarter for the latest 1, 3, 5, and 10 year periods, and for the to-date period since the trust funds' inception.

Effective: mm-dd-yyyy

3) The rate of return calculation shall use the accrual method to recognize ordinary income as well as realized and unrealized capital gains/losses.

4) The tax adjusted rate of return computation shall replicate the actual calculations done on the tax return. The three components of return are identified as:

- Income (actual tax due on income earned)
- Realized Capital Gains and Losses (actual tax due on realized gains/losses)
- Unrealized Capital Gains and Losses (potential tax due assuming total liquidation)

5) The trustee shall report benchmark rates of return applicable to the fixed income investment portfolio, as specified by Ameren Missouri.

6) The equity portfolio investment manager(s) shall report benchmark rates of return to UE on a monthly basis. These include the rate of total return on the S&P 500 and on the S&P 100, as well as the "customized" S&P 500 and S&P 100 (the overall S&P 500 and S&P 100, excluding the securities prohibited by these investment guidelines).

B. COMPUTATION AND REPORTING OF RATES OF RETURN

Reporting Methodology

1) Returns shall be computed and reported in such a manner as indicated on Attachment 1.

Frequency of Reporting

Performance reports shall be provided to UE at the end of each calendar quarter. Reports shall be issued within sixty days following the close of each calendar quarter.

Format of Reports

Performance reports shall be provided in the format shown in Attachment 1.

Method of Providing Reports

Performance Reports shall be transmitted electronically via e-mail, in the form of an Excel spreadsheet.

Effective: mm-dd-yyyy

UNION ELECTRIC COMPANY, d/b/a AmerenUE:

Ryan J. Martin, Date
Vice President & Treasurer,
Union Electric Company, d/b/a AmerenUE

Acknowledged by:

TRUSTEE - CALLAWAY PLANT TAX QUALIFIED NUCLEAR DECOMMISSIONING TRUST FUND:

James F. Shanley, Jr. Date
Vice President,
The Bank of New York - Mellon

Accepted by:

FIXED INCOME INVESTMENT MANAGER:

Alex Over Date
Managing Director, Global Product Strategy
Standish – Mellon Asset Management Company, LLC

EQUITY INVESTMENT MANAGER:

E. Timothy Hennig, Date
Senior Vice President & Director
Nuveen Asset Management, LLC

Effective: mm-dd-yyyy

BNY MELLON
ASSET SERVICING

UNION ELECTRIC COMPANY (D/B/A AMEREN MISSOURI)
Tax Qualified Decommissioning Trust
Performance Measurement Report for the Quarter-Ending
mm - dd - yyyy

	Qtr	YTD	1 Yr	3 Yrs	5 Yrs	10 yrs	Since Inception	Inception
Missouri Jurisdiction - Nuveen								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	10/31/1992
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Missouri Jurisdiction - BNY								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	9/30/1985
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Missouri Juridiction - Nuveen & BNY Consolidated								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	9/30/1985
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Missouri Jurisdiction - ISFSI - Equity Fund								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	xx/xx/xxxx
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Missouri Jurisdiction - ISFSI - Bond Fund								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	xx/xx/xxxx
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Missouri Jurisdiction - ISFSI - Consolidated								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	xx/xx/xxxx
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Missouri Juridiction - Nuveen, BNY & ISFSI Consolidated								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	9/30/1985
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	

Attachment 1 to the
Investment Guidelines for the Callaway Plant Nuclear Decommissioning Trust Fund(s)
Effective xx-xx-xxxx

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Effective: mm-dd-yyyy

BNY MELLON
ASSET SERVICING

UNION ELECTRIC COMPANY (D/B/A AMEREN MISSOURI)
Tax Qualified Decommissioning Trust
Performance Measurement Report for the Quarter-Ending
mm - dd - yyyy

	Qtr	YTD	1 Yr	3 Yrs	5 Yrs	10 yrs	Since Inception	Inception
FERC Jurisdiction - Nuveen								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	11/30/1996
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
FERC Jurisdiction - BNY								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	8/31/1986
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
FERC Juridiction - Nuveen & BNY Consolidated								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	8/31/1986
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
ALL Jurisdiction's - Nuveen								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	10/31/1992
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
ALL Jurisdiction's - BNY								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	9/30/1985
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
All Juridictions Consolidated								
Before Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Before Taxes & After Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
After Taxes & Before Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	9/30/1985
After Taxes & Expenses	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
Assuming Liquidation	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	
BENCHMARK VALUES REPORTED BY TRUSTEE (BNY - MELLON):								
BARCLAYS GOVT/CREDIT BOND INDEX	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	08/31/1985
INDEX VALUES REPORTED BY NUVEEN (EQUITY PORTFOLIO MANAGER):								
S & P 500	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	09/30/1992
MODIFIED S & P 500	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	09/30/1992
S & P 100	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	11/30/1996
MODIFIED S & P 100	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	x.xx%	11/30/1996

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Effective xx-xx-xxxx

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