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# MISSOURI PUBLIC SERVICE COMMISSION

## FILE NO. ER-2014-0258

# AMENDED REBUTTAL TESTIMONY

## OF

## WILLIAM M. WARWICK

## ON

## BEHALF OF

## UNION ELECTRIC COMPANY
## d/b/a Ameren Missouri

St. Louis, Missouri
January 2015

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# AMENDED REBUTTAL TESTIMONY

# OF

# WILLIAM M. WARWICK

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## I. INTRODUCTION

**Q. Please state your name and business address.**

A. William M. Warwick, Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

**Q. By whom and in what capacity are you employed?**

A. I am Manager of Rate Engineering for Ameren Missouri.

**Q. Are you the same William M. Warwick who filed direct testimony in this case?**

A. Yes, I am.

**Q. What is the purpose of your rebuttal testimony?**

A. The purpose of my rebuttal testimony is to discuss the primary differences in the Class Cost of Service Studies ("CCOSS") presented by the Company and those presented by the Missouri Public Service Commission Staff ("Staff"), the Office of the Public Counsel ("OPC") and the Missouri Industrial Energy Consumers ("MIEC"). The fact that I am not addressing all of the differences between Ameren Missouri's CCOSS and those performed by the other parties should not be construed as an endorsement of the allocation methods employed by those parties; rather, the remaining differences do not drive materially different CCOSS results between the Company and the other parties.

## II. CLASS COST OF SERVICE STUDIES

**Q. Did any parties other than those mentioned above present class cost of service studies in this proceeding?**

A. No parties to the case other than those I previously mentioned filed a class cost of service study.

**Q. What are the primary factors which drive the material differences in the cost-based class revenue requirements presented by the Company, Staff, OPC and MIEC in their respective CCOSS?**

A. The primary factors driving the differences among the Company, Staff, OPC and MIEC studies are:

- The allocation of fixed production plant;
- The allocation of transmission plant;
- The classification of non-fuel, non-labor production operations and maintenance ("O&M") expenses between fixed (demand-related) and variable (energy-related) components;
- The allocation of distribution plant (Accounts 364-368);
- The allocation of off-system sales revenues; and
- The allocation of income taxes.

**Q. Please summarize the position of each of the parties in direct testimony as it relates to the allocation of fixed production plant costs among the Company's rate classes.**

A. The following provides a high level summary of each party's allocation of fixed production plant:

- Company – The Company utilized a four non-coincident peak ("4 NCP") version of the Average and Excess Demand Allocation method ("A&E") that gives weight to both a) class peak demands and b) class energy consumption.
- Staff – The Staff utilized the Base, Intermediate, and Peaking ("BIP") method, which is a time-differentiated method that assigns production plant costs to three rating periods: (1) peak hours; (2) secondary peak, or intermediate hours; and (3) base loading hours. The Staff also performed an Alternative Market-Based Study and a Modified BIP. Staff is not recommending either of these studies and only used them to assess the reasonableness of the results of their detailed BIP study. Therefore, at least for purposes of this case, I will neither address the merits nor the flaws of either of the two methods.
- OPC – The OPC utilized a four coincident peak ("4 CP") version of the Peak and Average method ("P&A") that gives weight to both a) adjusted class peak demands and b) class energy consumption. OPC also prepared a second study that utilized the Average and Excess 4 NCP Demand Allocation method, which is similar to the Company's fixed production allocation method.
- MIEC – MIEC also recommends an A&E method, although MIEC believes the use of the two predominant summer peaks (July and August) is more conceptually correct. However, because there are no significant differences between the resulting allocation factors of the

two methods, MIEC has elected, for this case, to use the results of the Company's recommended 4 NCP version of the Average and Excess Demand Allocation method.

**Q. Have you prepared a table that summarizes, by customer class, the production plant allocation and associated production plant allocation factors that are produced by each of the parties' recommended methods?**

A. Yes, Table 1 below depicts this summary.

**Table 1**

| Production Plant Allocators | | | | | | | |
|---|---|---|---|---|---|---|---|
| Party | Method | RES | SGS | LGS/SPS | LPS | LTS | Lighting |
| Company | A&E 4NCP | 45.34% | 10.67% | 29.05% | 7.74% | 6.50% | 0.70% |
| MPSC Staff | Base-Intermediate-Peak | 45.26% | 10.36% | 28.94% | 7.61% | 7.42% | 0.40% |
| MIEC | A&E 4NCP | 45.34% | 10.67% | 29.05% | 7.74% | 6.50% | 0.70% |
| OPC 2 | A&E 4NCP | 45.34% | 10.67% | 29.05% | 7.74% | 6.50% | 0.69% |
| OPC 1 | P&A 4CP | 41.45% | 9.98% | 29.87% | 9.18% | 9.13% | 0.36% |

**Q. Please explain the differences between the A&E method, which was used by the Company, MIEC, and in OPC's second study, versus the P&A 4 CP method, which is used in OPC's first study.**

A. The A&E method first allocates production plant investment based on the average demand on the Company's system by the various customer classes. Any excess demand above the average demand is then allocated based on each class' contribution to these excess demands. The P&A method also initially allocates production plant investment to customer classes based on average demand, but instead of allocating just the excess average demand to the cost causing classes, the P&A method allocates the entire peak demand to the classes.

**Q. Are there issues with OPC's P&A method that are of concern?**

A. Yes. It has been pointed out in the Company's more recent electric cases that OPC's P&A method is inherently flawed because it double counts the average demand of customer classes. This double counting results from the use of class average demand for a portion of production plant allocation and the use of class peak or non-coincident peak demands, which include an average demand component for the remaining allocation of production plant. More specifically, this double counting causes customers with higher load factors to be allocated an inequitable share of production plant investment. Also, because higher-load factor customers demonstrate a better correlation between average demands and peak demands than do lower-load factor customers, higher-load factor customers receive a disproportionate share of the non-average demand portion of production plant investment under the P&A method.

**Q. Has the Missouri Public Service Commission ("Commission") previously ruled on OPC's P&A method?**

A. Yes, the Commission specifically found in two of the Company's recent rate cases – File Nos. ER-2010-0036 and ER-2011-0028 - the use of the P&A method is flawed because it double counts the average demand of customer classes.

**Q. What did the Commission's Report and Order in each of those cases state regarding the OPC's use of a P&A production plant investment allocation method?**

A. In File No. ER-2010-0036, at page 85 of the Commission's Report and Order, it states in finding of facts number 14: "The Peak and Average method, in contrast, initially allocates average costs to each class, but then, instead of allocating just

the excess of the peak usage period to the various classes to the cost causing classes, the method reallocates the entire peak usage to the classes that contribute to the peak. Thus, the classes that contribute a large amount to the average usage of the system but add little to the peak, have their average usage allocated to them a second time. Thus, the Peak and Average method double counts the average system usage, and for that reason is unreliable."

Again, in File No. ER-2011-0028, at page 114 of the Report and Order it states, "Public Counsel's study uses an Average and Peak allocation method that the Commission has rejected as unreliable in previous cases." At page 115 of that same Order, the Commission further states that, "[T]he Peak and Average method double counts the average system usage, and for that reason is unreliable."

**Q. Please comment on the Staff's use of the BIP method for allocating fixed production plant versus the Company's use of the 4 NCP A&E method.**

A. As with the A&E method, the BIP method gives weighting to the energy requirements of customer classes. The BIP method is one of the methods for production plant investment allocation that is listed in the National Association of Regulatory Commissioners' ("NARUC") Electric Utility Cost Allocation Manual. It appears the Staff's application of the BIP method for the Company's production plant results in approximately 66% of production demand being allocated on an energy basis – an allocation that produces results similar to my study. Therefore, at least for purposes of this case, I will not argue the merits of the 4 NCP A&E method versus the BIP method for the allocation of the Company's generation assets.

**Q. Please summarize the Company's overall position regarding the allocation of fixed production plant costs.**

A. The Company's net investment in fixed production assets represents approximately 72% of net original cost rate base in this case. Consequently, any substantive variations with respect to the allocation of the cost of these assets can contribute materially to significant differences among the parties in class cost of service requirements. As can be seen from Table 1, with the exception of OPC's P&A method, all of the parties' fixed production plant allocators are identical or reasonably close.

The Commission should continue the use of the A&E 4 NCP method for allocation of fixed production plant. The Company is not suggesting there is a single method that can be deemed the absolute, correct, and only method for the allocation of fixed production plant. However, the Commission has specifically adopted the A&E 4 NCP method in the Company's adjudicated electric rate case, File No. ER-2010-0036, which is the last time the Commission made a class cost of service determination in an Ameren Missouri case. It would be desirable to continue use of the A&E 4 NCP method in this case as well because there has been no material change in the Company's load characteristics, the relative short time period between cases, and also because such consistency affords all parties the ability to rely upon a standardized method whose results can be reasonably predicted. These considerations promote CCOSS stability in that they contribute to the prevention of material case-to-case swings in class revenue responsibility for the most significant portion of the Company's investment in rate base.

For the reasons stated above, OPC's P&A 4 CP method should be rejected by the Commission.

**Q. Are there differences among the parties' CCOSS regarding allocation of transmission costs?**

A. The Company and Staff allocated transmission costs on the basis of the twelve coincident peak ("12 CP") demands of each class, and MIEC used this same method despite expressing reservations. OPC allocated transmission costs to customer classes using their respective production capacity allocation factors.

**Q. Do you agree with OPC's use of its fixed production plant allocator to allocate transmission costs?**

A. No. Transmission investment and associated expenses should not be allocated based on a fixed production allocation factor that gives weight to both class peak demands and class energy consumption. The transmission system must be constructed to handle maximum system peak loads. Considering such, it is more appropriate that transmission plant costs be allocated using a method which incorporates class peak demands rather than a method which incorporates both peak demands and average demands.

**Q. What is the difference between the parties regarding the classification and allocation of production non-fuel operations and maintenance expense?**

A. Staff, MIEC, and OPC categorized all production non-fuel O&M expenses as fixed, and then allocated those costs based on each party's respective fixed production plant allocator. In contrast, the Company categorized non-fuel labor as fixed, and allocated such based on its fixed production allocator. The remaining balance, or "other" non-fuel production O&M, was split into fixed and variable categories following an approach prescribed in the NARUC Electric Utility Cost Allocation Manual for

classification of such costs. This approach strikes a balance of these non-fuel, non-labor "other" expenses between fixed and variable that most closely follows cost causation for our plants. The fixed component was then allocated based on the Company's fixed production allocator and the variable component was allocated on the Company's energy kilowatt-hour ("kWh") allocator.

**Q. What is included in the category of production non-fuel operations and maintenance costs designated as "other"?**

A. The category "other" includes materials and indirect labor costs associated with operating and maintaining the Company's production plant. Relevant to the allocation differences between the parties, a cursory review of the "other" O&M accounts in question indicates, among other things, substantial expenses associated with items that should be classified as variable in nature. For example, variable water treatment chemical costs, fuel additives and other similar expenses are variable in nature.

**Q. Do you agree with MIEC witness Maurice Brubaker's statement that "the vast majority of these costs do not vary in any appreciable way with the number of kWh generated, but occur primarily as a function of the existence of the plants, the hours of operation and the passage of time"?**

A. No, I do not. A cursory review of the O&M accounts in question indicates expenses in those accounts – e.g., expenses for valve repair, temporary non-company labor, fuel additives and other similar expenses — are variable in nature. Furthermore, "the hours of operation" that Mr. Brubaker referred to is a rough definition of kWh generated – also a variable component. For example, a one megawatt ("MW") plant

operating for one hour produces 1,000 kWh of energy whereas a one MW plant operating for 100 hours produces 100,000 kWh of energy.

**Q. What would be the effect on the Company's CCOSS if it were to allocate all non-fuel production O&M using its fixed production plant allocator?**

A. Table 2 below shows the shift in class revenues, per the Company's original CCOSS filing, which splits non-fuel, non-labor expenses ("other") between fixed and variable, compared to Staff's, MIEC's and OPC's method, which classify these expenses as fixed only.

**Table 2**

| Class Revenue Requirements Shift per Company's Class-Cost-Of-Service ($1,000's) | | | | | | |
|---|---|---|---|---|---|---|
| | RES | SGS | LGS/SPS | LPS | LTS | Lighting |
| Present Revenues | $1,230,497 | $302,850 | $804,460 | $202,782 | $159,333 | $37,876 |
| Company's CCOSS Based Rev. Req. | $1,425,335 | $318,180 | $813,493 | $221,361 | $181,869 | $41,660 |
| As Adjusted | $1,431,762 | $319,018 | $811,388 | $219,320 | $178,589 | $41,821 |
| Rev. Req. Shift | $6,427 | $838 | $(2,105) | $(2,041) | $(3,280) | $161 |
| % Difference* | 0.52% | 0.28% | -0.26% | -1.01% | -2.06% | 0.43% |

* As a percent of as filed present revenues.

**Q. Please describe the major difference among the various studies in regard to the allocation of distribution Accounts 364-368.**

A. The major difference is the allocation of customer-related costs to the rate classes. The Company, Staff and MIEC equitably allocated these costs to the various customer classes based on the ratio of number of customers. OPC used what is described as a weighted meter investment allocator.

**Q. Do you believe OPC's use of a weighted meter investment allocator to allocate these costs is reasonable?**

A. No. This approach has no merit because it incorrectly assumes there is a relationship between weighted meter investment and investments in Accounts 364 through 368. The Company's investment in meters is not directly related to its investment in poles, overhead or underground conductors and conduit, or line transformers (Accounts 364 through 368). At most, weighted meter investment allocators have a direct relationship to meter investment and associated expenses only, and therefore would only be a reasonable allocator for Account 370 (meters) and meter-related O&M expense. Table 3 below shows the difference between a customer count allocator and OPC's weighted meter investment allocator. The large differences between the results of OPC's allocation method and the results produced by the methods used by the Company, Staff, and MIEC show that the weighted meter investment allocator used by OPC has little relationship to the number of customers served by Ameren Missouri's system. By incorrectly using an assumed weighted meter count instead of customer counts for its allocation, OPC's method inappropriately decreases the share of these costs allocated to the residential class by approximately 17%.

**Table 3**

| Party | Method | RES | SGS | LGS/SPS | LPS | LTS | Lighting |
|---|---|---|---|---|---|---|---|
| Company | Customer Counts | 83.17% | 11.62% | 0.82% | 0.01% | 0.00% | 4.39% |
| MPSC Staff | Customer Counts | 83.21% | 11.51% | 0.81% | 0.01% | 0.00% | 4.46% |
| MIEC | Customer Counts | 83.17% | 11.62% | 0.82% | 0.01% | 0.00% | 4.39% |
| OPC 2 | Weighted Meter Investment | 65.98% | 19.43% | 13.45% | 1.03% | 0.00% | 0.09% |

**Q. What would the effect be on the Company's CCOSS if it were to allocate the customer-related costs of Accounts 364-368 using OPC's weighted meter investment allocator?**

A. Table 4 below shows the shift in class revenues, per the Company's original CCOSS filing, compared to OPC's weighted meter investment allocation method.

**Table 4**

| Class Revenue Requirements Shift per Company's Class-Cost-Of-Service ($1,000's) | | | | | | |
|---|---|---|---|---|---|---|
| | RES | SGS | LGS/SPS | LPS | LTS | Lighting |
| Present Revenues | $1,230,497 | $302,850 | $804,460 | $202,782 | $159,333 | $37,876 |
| Company's CCOSS Based Rev. Req. | $1,425,335 | $318,180 | $813,493 | $221,361 | $181,869 | $41,660 |
| Per OPC's Method | $1,383,441 | $336,083 | $842,856 | $223,753 | $181,869 | $33,896 |
| Rev. Req. Shift | $(41,895) | $17,903 | $29,364 | $2,393 | - | $(7,764) |
| % Difference* | -3.40% | 5.91% | 3.65% | 1.18% | - | -20.50% |

* As a percent of as filed present revenues.

**Q. Are there other issues with OPC's allocation of costs in distribution Accounts 364-368 that you want to address?**

A. Yes, OPC incorrectly allocates the demand-related costs of these accounts using a CP allocation method and, for the demand-related costs categorized as primary voltage, OPC uses loads at the generation level rather than at the primary voltage level.

Distribution facilities are sized to meet local area loads and should be allocated based on class NCPs and individual customer maximum demands. Typically, facilities located closer to a customer's premises experience lower-load diversity, and cost causation principles would suggest an allocation based on individual customer maximum demands. Conversely, facilities farther from a customer's premises experience higher-load diversity, which would suggest an allocation based on a class NCP method.

**Q. Please explain differences among the parties with respect to the allocation of off-system sales revenues.**

A. The Company and MIEC allocated off-system sales revenues based on their respective energy (kWh) allocators, which is consistent with the method approved in File No. ER-2010-0036, where the Commission states, "the Commission finds that AmerenUE's class cost of service study, modified to allocate revenues from off-system sales on the basis of class energy requirements, is the most reliable of the submitted studies." The OPC's allocation of off-system sales revenues is based on its production capacity (demand) allocator, and Staff allocated the portion of off-system sales revenues equal to off-system sales fuel using its production energy (kWh) allocator, and allocated the balance of off-system sales revenues, or off-system sales margin, using their fixed production allocator.

**Q. What would be the effect on the Company's CCOSS results if OPC or Staff's allocation method of off-system sales revenues were employed?**

A. Table 5 below shows the shifts in class revenues per the Company's CCOSS filing using OPC's or Staff's method of allocating off-system sales revenues to the customer classifications. As shown, OPC's proposed method decreases the revenue requirement of the residential, small general service and lighting classes, and increases the revenue requirement of the large general service, small primary service, large primary service and large transmission service classes. Staff's method has the same results only of lesser magnitude.

**Table 5**

| Class Revenue Requirements Shift per Company's Class-Cost-Of-Service ($1,000's) | | | | | | |
|---|---|---|---|---|---|---|
| | RES | SGS | LGS/SPS | LPS | LTS | Lighting |
| Present Revenues | $1,230,497 | $302,850 | $804,460 | $202,782 | $159,333 | $37,876 |
| Company's CCOSS Based Rev. Req. | $1,425,335 | $318,180 | $813,493 | $221,361 | $181,869 | $41,660 |
| Per OPC Method | $1,405,294 | $315,568 | $820,056 | $227,725 | $192,097 | $41,158 |
| Rev. Req. Shift | $(20,041) | $(2,612) | $6,564 | $6,364 | $10,228 | $(502) |
| % Difference* | -1.63% | -0.86% | 0.82% | 3.14% | 6.42% | -1.33% |
| | | | | | | |
| Per Staff's Method | $1,413,428 | $316,328 | $817,393 | $225,142 | $187,946 | $41,362 |
| Rev. Req. Shift | $(11,907) | $(1,552) | $3,900 | $3,781 | $6,077 | $(298) |
| % Difference* | -0.97% | -0.51% | 0.48% | 1.86% | 3.81% | -0.79% |

* As a percent of as filed present revenues.

**Q. Please explain the differences among the parties' respective CCOSS with respect to the allocation of income taxes.**

A. The Company and OPC allocate income tax as a percentage of net rate base. Staff and MIEC have allocated income tax based on the current taxable income of each class.

**Q. Why is it more appropriate to allocate income tax to classes based on a percentage of net rate base than on the taxable income of each class?**

A. The purpose of the Company's CCOSS is to determine, as near as practical and based on cost causation principles, the final revenue requirement of each class on an equalized rate of return basis. For the determination of final (including increases) cost-based revenue requirements, where the goal or objective should be an equivalent rate of return on the existing customer class net rate base, the allocation of

income taxes on the basis of rate base is appropriate and allocates each class its fair share of income tax.

As MIEC correctly points out, on a current basis, each class is not providing the same rate of return. However, rates are not determined on a current basis. Using MIEC's method, a class with a lower than average rate of return would be under-allocated its fair share of income tax on an equivalent rate of return basis utilizing the Company's proposed revenue requirement.

**Q. Can you please elaborate about why net rate base is the driver for income taxes?**

A. The reason Ameren Missouri has income to be taxed in the first place is because of its return-on-invested capital. The amount of invested capital subject to such return in a rate case is represented by net rate base. Since net rate base is allocated to customer classes as a part of the CCOSS, return is a direct function of net rate base, and income taxes are a direct function of return, it follows that both return and income taxes should be allocated to customer classes based on the class responsibility with respect to net rate base.

**Q. Does this conclude your rebuttal testimony?**

A. Yes, it does.

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

| | | |
|---|---|---|
| In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service. | ) ) ) | File No. ER-2014-0258 |

**AFFIDAVIT OF WILLIAM M. WARWICK**

**STATE OF MISSOURI** )
) **ss**
**CITY OF ST. LOUIS** )

William M. Warwick, being first duly sworn on his oath, states:

1. My name is William M. Warwick. I work in the City of St. Louis, Missouri and I am employed by Union Electric Company d/b/a Ameren Missouri as a Manager, Rate Engineering.

2. Attached hereto and made a part hereof for all purposes is my Amended Rebuttal Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 15 pages, and Schedule(s) N/A, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

William M. Warwick

Subscribed and sworn to before me this 27th day of January, 2015.

Beckie J. Eaves
Notary Public

My commission expires:

BECKIE J. EAVES
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis City
My Commission Expires: February 21, 2018
Commission Number: 14938572