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Issue:	*Class Cost of Service*
Witness:	*Robin Kliethermes*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*ER-2016-0179*
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MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

OPERATIONAL ANALYSIS DEPARTMENT

TARIFF/RATE DESIGN UNIT

REBUTTAL TESTIMONY

OF

ROBIN KLIETHERMES

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

CASE NO. ER-2016-0179

Jefferson City, Missouri
January 2017

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UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

CASE NO. ER-2016-0179

Q. Please state your name and business address.

A. Robin Kliethermes, 200 Madison Street, Jefferson City, MO 65102.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as a Utility Regulatory Manager of the Tariff and Rate Design Unit, of the Operational Analysis Department of the Commission Staff Division.

Q. Have you previously filed testimony in this case?

A. Yes. I previously filed revenue requirement rebuttal testimony on January 20, 2017.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri") witness William R. Davis regarding Ameren Missouri's minimum distribution system allocation and energy grid access charge for residential and small general service ("SGS") customers. I will also address Renew Missouri and The Sierra Club's witness Douglas B. Jester and Division of Energy's witness Martin Hyman's testimony discussing inclining block rates.

RESPONSE TO AMEREN MISSOURI MINIMUM SIZE METHOD

Q. What is the Minimum-Size Method?

A. The minimum-size method is one of two methods mentioned in the NARUC Cost Allocation manual as a way to allocate distribution costs in FERC accounts 364 through 368 between demand-related costs and customer-related costs. The NARUC Cost Allocation manual states that the minimum-size method involves determining the minimum size pole, conductor, cable, transformer, and service that is currently being installed. The other allocation method discussed in the NARUC manual is the minimum-intercept method, also known as the zero-intercept method, which tries to identify the portion of distribution plant that is related to a hypothetical no-load situation.[1] The zero-intercept method uses regressions to extend a curve representing the relation between costs and capacity of specific distribution equipment through the intercept simulating a zero load requirement. Both of these methods have their strengths and weaknesses, such as the zero-intercept method requires a large amount of data on distribution equipment and the minimum-size method inherently involves setting a minimum demand level for distribution equipment, which in itself is demand related.

Q. Did Ameren Missouri use the minimum-size method in its last rate case, ER-2014-0258?

A. No. Ameren Missouri used the zero-intercept method.

Q. Are the results of the zero-intercept method that Ameren Missouri used in its last rate case ER-2014-0258 the same results that Staff used in this case to allocate between demand related and customer related distribution costs?

A. Yes.

Q. Do you agree with Mr. Davis that using either the minimum-size method or the zero-intercept method to allocate distribution system costs will yield similar results?

[1] Page 92 of the NARUC Cost Allocation Manual.

A. No. Staff applied the results of Ameren Missouri's minimum-size method to Staff's direct filed class cost of service and compared it to Staff's direct filed class cost of service that used Ameren Missouri's zero-intercept method. Staff found that the minimum-size method allocated 45% more distribution costs on the number of customers per class, which resulted in a shift of an additional $20 million dollars in costs to the residential class. Further, using Ameren Missouri's minimum-size method, 49% of total distribution costs were allocated on the number of customers per class. However, when Ameren Missouri's zero-intercept method is used, it allocates 33.7% of distribution costs on the number of customers per class.

Q. What are some of the differences between the results of the zero-intercept method and the minimum-size method?

A. Table 1 below shows the results of the zero-intercept study and the results of the minimum-size study. FERC accounts 364 Poles, Towers and Fixtures and 365 Overhead Conductors and Devices have the greatest difference between the zero-intercept method and the minimum-size method and are also the distribution accounts with the largest gross plant balance accounts.[2]

Table 1: % of Distribution Costs Allocated on Customer Counts

FERC Acct.	Zero-Intercept	Minimum Size
364: Poles, Towers and Fixtures	22.4%	61.51%
365: Overhead Conductors and Devices	40.5%	78.54%
366: Underground Conduit	67.8%	52.62%
367: Underground Conductors & Devices	67.8%	52.62%
368: Line Transformers	57.1%	38.46%

[2] At the time of direct, the plant balance for FERC Acct. 364 was $1,039,924,504, and the plant balance for FERC Acct. 365 was $1,368,713,478

Q. Did Staff find any reasons why the differences between FERC accounts 364 and 365 occurred?

A. Yes. For its minimum system study, Ameren Missouri chose to use a 40-foot wood pole as the minimum pole installed at an average cost of $962 per pole, where the zero-intercept method found the cost of a pole in a no-load situation to be $150.29 per pole. Further, based on Staff Data Request No. 500, Ameren Missouri installed 640 35-foot wood poles[3] from January 1, 2016 to October 31, 2016. Based on this data request response, it would seem unreasonable to use the 40-foot wood pole as the minimum pole installed. If Ameren Missouri had used a 35 foot wood pole at an average cost of $476 per pole, it would reduce the percent of FERC account 364 allocated on class customer counts from 61.5% to 39.9%.

For FERC account 365, Ameren Missouri determined a minimum amount of $1.67 per foot, whereas the zero-intercept found $0.71 per foot. Additionally, Ameren Missouri included the total cost of all lighting arrestors, switches, and reclosers in the calculation of minimum-size or percentage of costs classified as customer-related whereas the zero-intercept percentage does not. Instead of including all of the costs for lighting arrestors, switches, and reclosers in the calculation of the customer-related percent of FERC account 365 Ameren Missouri could have included just a portion of the costs, as mentioned in the NARUC manual. For example, if the portion that resulted from the minimum-size conductor calculation was 50%, then you would include 50% of the costs for lighting arrestors, switches, and reclosers into the percent of costs that are classified as customer-related. If only a portion of the costs for arrestors, switches, and reclosers were included, it would decrease the customer-related

[3] Based on Ameren Missouri's pole records there are approximately 279,104 - 35' wood poles installed and 285,608 – 40' wood poles.

percent for FERC account 365 from 78.5% to 58.9%, and if none of the costs for arrestors, switches and reclosers were included, then the customer-related percent of FERC account 365 would decrease to 44%.

Q. Would these corrections to Ameren Missouri's minimum-size study bring the study results more in line with Staff's CCOS study that used the zero-intercept method?

A. Yes.

RESPONSE REGARDING ENERGY GRID ACCESS CHARGE

Q. What is your understanding of Ameren Missouri's proposed energy grid access charge?

A. It is my understanding that Ameren Missouri is requesting to recover distribution system costs that they allocated to customer classes using the minimum-size method through an additional charge per customer for the residential and small general service ("SGS") classes called the energy grid access charge. Mr. Davis states that the charge reflects the minimum costs related to accessing the grid, including distribution costs such as poles, line transformers, and wires.

Q. Does Ameren Missouri's investment in distribution plant and/or changes in distribution operation and maintenance expense reasonably reflect the need for an additional charge on a customer's bill to recover these costs?

A. No. According to Staff's direct filed accounting schedules, Ameren Missouri's total distribution operation and maintenance expense in this case decreased by approximately $20 million dollars compared to Staff's direct filed accounting schedules in Ameren Missouri's last rate case, File No. ER-2014-0258. Although investment in gross distribution plant increased by approximately $439 million, the total net distribution plant only increased by $218 million. It is important to note that even with the increase in gross plant, net plant

for FERC account 364 Poles, Towers and Fixtures actually decreased by approximately $12 million since Ameren Missouri's last rate case, File No. ER-2014-0258. Table 2 below details the changes in distribution plant investment, distribution depreciation expense, and operation and maintenance expense relating to distribution plant since Ameren Missouri's last rate case, File No. ER-2014-0258. This results in a net change of total distribution cost of $12.9 million for all of Ameren Missouri's customers. Approximately 63% of this is allocated to the residential class. Approximately 43% of the residential share of distribution cost is classified as customer-related using the zero-intercept method and allocated to customer classes based on the number of customer in the class. Based on this approximation, the portion of distribution costs related to the residential class and allocated on the number customers only increased by $3.5 million since the last rate case.

Table 2: Distribution Plant

Rate Base	Gross Dist. Plant	Net Dist. Plant	ROR	Return on Investment
ER-2014-0258	$ 5,162,322,625	$ 2,740,449,405	0.07501	$ 205,561,110
ER-2016-0179	$ 5,601,673,662	$ 2,958,932,046	0.0708	$ 209,492,389
Difference	$ 439,351,037	$ 218,482,641		$ 3,931,279
Expenses	Depreciation Exp.	Operation & Maintenance		
ER-2014-0258	$ 136,747,727	$ 163,805,129		
ER-2016-0179	$ 166,430,944	$ 143,161,133		
Difference	$ 29,683,217	$ (20,643,996)		
Net Change in Total Distribution Cost		$ 12,970,500		

Q. What rate is Ameren Missouri prosing to charge Residential and SGS customers as the energy grid access charge?

A. Ameren Missouri has proposed a rate of $4.89 per customer per month.

Q. How much revenue would this generate per year for the residential and SGS classes?

A. There are 1,048,353 residential customers and 136,956 SGS customers, which would result in approximately $61,517,354 per year for the residential class and $8,036,578 per year for SGS. Just the revenue generated by Ameren Missouri's requested grid access charge for the residential class is greater than Staff's recommended increase for all rate classes.

Q. On a functionalized cost basis and based on Staff's direct filed class cost of service study, how much distribution costs are allocated to the residential and SGS classes based on the zero-intercept study?

A. On a functionalized[4] basis, approximately $162.6 million of total distribution costs is allocated to the residential class based on the zero-intercept study and $20.5 million is allocated to the SGS class.

Q. Is it reasonable to collect these costs through a per customer type charge, given Ameren Missouri's distribution system?

A. No. While Staff does find that there is a reasonable relationship between the number of customers in a class and the percent of Ameren Missouri's distribution system that is related to serving that class, it is unlikely that an additional customer will increase costs on the distribution system by $155.06 per year.[5] In fact, the cost per customer per year has decreased since the last rate case. Table 3 below shows the functionalized distribution costs in the last case, the number of customers, and cost per customer per year, if all costs that were

[4] Functionalized costs represent return on distribution plant, distribution plant operation and maintenance expense, distribution plant depreciation expense, and distribution plant's share of common cost such as administrative and general expenses and income tax.

[5] Based on other available allocators such as the number of kWh purchased by each class or the MW of capacity required to serve a class on an annual basis, Staff determined that the number of customers per class was the most reasonable available allocator that would allocate a proper weighting of distribution costs to the classes. If additional research is performed on Ameren Missouri's distribution system, it is likely that a more accurate allocator could be developed. For example, some measure of line-miles per class may be a reasonable basis for the allocation of these costs.

classified as customer-related using the zero-intercept method and allocated on number of customers per class were recovered from the residential class through a per customer type charge, such as Ameren Missouri's energy grid access charge proposal.

Table 3: Costs per Customer

	Number of Residential Customers	Functionalized Distribution Cost allocated on Zero-Intercept	Per Customer Per year
ER-2014-0258	1,039,866	$164,825,174	$158.51
ER-2016-0179	1,048,353	$162,556,083	$155.06

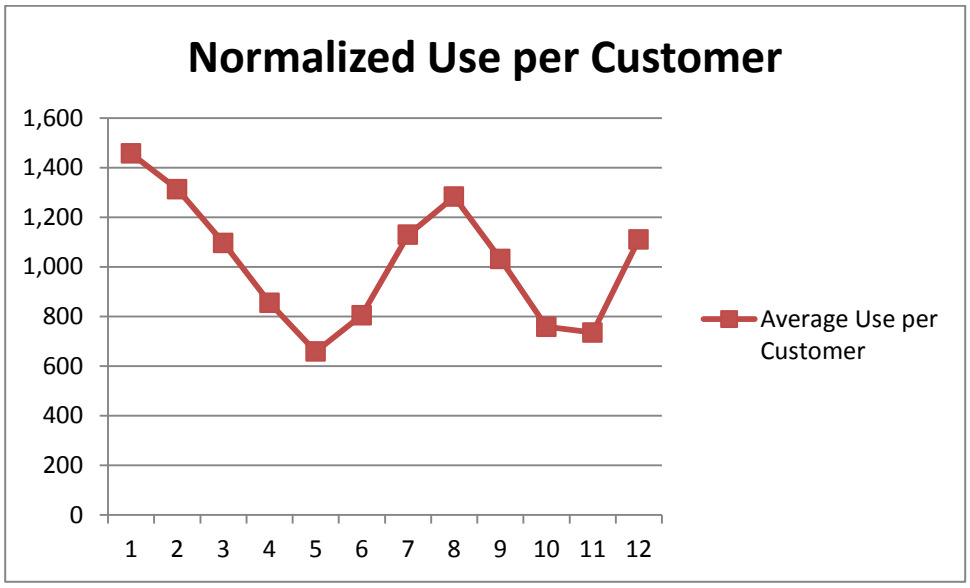
Q. Is Ameren Missouri requesting an energy grid access charge for any other classes such as Large General Service or Small Primary Service?

A. No.

RESPONSE REGARDING INCLINING BLOCK RATES

Q. How would Ameren Missouri's current definition of winter months for the purposes of rate design impact revenue stability if the Commission would migrate towards inclining block rates, as recommended by Mr. Jester?

A. Ameren Missouri's current rate structure is made up of two blocks: the first 750 kWh, and over 750 kWh; with a flat rate for the four summer months of June, July, August, and September and a declining rate for the remaining eight months. Currently Mr. Jester is advocating that the current declining block rate structure for the eight months of the year that are not June, July, August, or September be changed to an inclining block; however, average customer usage for those eight months of the year is drastically different, and one rate design may not work for all eight months. For example, the graphs below show the average usage per customer per month for a residential customer.



It is important to note that the average use per customer for the months of April, May, October, and November, which are designated as winter months, is quite different from the other winter months of January, February, March, and December. Shifting revenue recovery from the first block (declining block rate) to the tail block (inclining block rate) in these months can cause a greater variability in revenue.

Ameren Missouri must obtain kWh through either the MISO market or self-generation. That kWh will have a cost, and that cost will be accounted for through the operation of Ameren Missouri's Fuel Adjustment Clause ("FAC").

Q. Are there concerns with the interaction of Ameren Missouri's FAC and an inclining block rate design, as it relates to revenue stability for both Ameren Missouri and its customers?

A. Yes. In general, when more customers use more energy, the cost of energy is higher. For example, if a given month included an above average number of below average temperature winter days, it is likely that the market price of energy for those hours would also be above average. For that same month, we would expect that more customers would have

usage in the 2nd block, and that usage per customer would be greater than average. Using an inclining block rate design would mean that there would be greater-than-linear increases to company revenues as a result.

Without an FAC, the greater-than-linear increases to company revenues would be netted by a greater-than-linear increase to the cost to obtain market energy to serve that load (or the cost of peaking energy, if the utility fully supplies its own energy independent of the market). However, with Ameren Missouri's FAC, the company is made whole for those above-average energy costs per kWh. This example would result in the company over-recovering. Notably, the inverse is true in atypically mild weather.

Q. Have you reviewed Mr. Hyman's testimony regarding adjusting billing units by a price elasticity factor to incorporate reduced usage that may or may not occur due to an inclining block rate structure?

A. Yes.

Q. Are changes to a given customer's energy consumption that may or may not result in future time periods as a function of price elasticity known and measureable at the time rates are set?

A. No. In order to calculate what Mr. Hyman describes, one would have to assume a certain decrease in kWh that may occur in the immediate future due to an inclining block rate design. This is essentially allowing the utility to recover a greater amount of revenue upfront for the possibility of reduced kWh in the future that may or may not occur at an unknown point in time in the future.

Q. Given the usage levels described above, is a flat or inclining block design the best tool available to address policy objectives to use rate design to encourage conservation?

A. Respectfully, probably not. For example, a large residence with a high number of occupants could be doing all possible measures to conserve energy above and beyond the level that is cost effective under any rate design and still receive a higher bill under inclining block. Conversely, a customer could be very inefficient, but if small enough, not receive any price signal to conserve. Given these considerations, as well as the policy desire for price signals to minimize production and distribution capacity costs, time-differentiated rates such as time-of-use rate designs can accomplish the same goals as inclining block rates, with greater precision and fewer unintended consequences, such as revenue instability and disproportionate economic impact to ratepayers of varying sizes.

Q. Based on this information, do you agree with Mr. Jester that the Commission should migrate away from declining block rates and towards inclining block rates?

A. Not exactly. Staff is not opposed to moving towards flat or inclining block rates; however, coupling inclining block rates with Ameren Missouri's current distinction of winter months as the remaining eight months of the year that are not June, July, August, or September could negatively impact revenue stability. Also, given the design of Ameren Missouri's FAC, certain cost-based assumptions that may underlie inclining block designs in other jurisdictions are inapplicable to Ameren Missouri rates at this time. However, if any significant restructuring of residential rates is to occur, Staff recommends a move towards time-variable rates over a move to inclining block rates.

Q. What is Staff's recommendation if the Commission wanted to move towards inclining block rates?

A. First, Staff would recommend that Ameren Missouri, for rate design purposes, define the winter months as the months of December, January, February, and March and

create a third group, designating the months of October, November, April, and May as shoulder months. Staff would recommend inclining rates be designed for only the Summer and Winter billing months, with flat or declining rates in place for the shoulder months for the reasons described above. Finally, Staff recommends that a gradual approach be used to mitigate rate shock with a no more than 50% reduction to the existing differential in this case for the peak winter months of December, January, February, and March.

CORRECTIONS TO STAFF'S DIRECT FILED CLASS COST OF SERVICE

Q. Does Staff have any changes to its direct filed class cost of service ("CCOS")?

A. Yes. Staff was made aware that the allocator that was used to allocate FERC account 902 customer meter reading expense was based on incorrect information.

Q. Did Staff update its CCOS based on this new information?

A. Yes. While updating Staff found that customer meter reading expense had increased from $8.8 million in the last rate case to $22.4 million in this case. Staff further confirmed that the change in cost was due to an adjustment to move costs from FERC account 586 Operation Distribution Expense Meters to FERC account 902 Meter Reading Expense.

Since the majority of the costs in account 902, meter-reading expense, were due to the adjustment in costs from account 586, Staff used the meter allocator for account 586 to allocate cost in account 902.

Q. Is Staff aware of any other potential changes?

A. Yes. Staff found that solar rebate amortization costs were inadvertently left in FERC account 908 customer assistance expense rather than placed in account 407: solar rebate amortization. The costs in FERC account 908 are included in the calculation of the customer charge whereas costs in 407 are not. Staff auditors are in the process of verifying this information and moving the costs out of FERC account 908 and into 407.

Q Will both of these changes impact Staff's customer charge calculation?

A. Yes. however, until the final adjustment is made it is difficult to determine the exact impact the changes will have on the customer charge calculation but it will mostly likely not increase from direct.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF ROBIN KLIETHERMES

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW ROBIN KLIETHERMES and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

ROBIN KLIETHERMES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 23rd day of January, 2017.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public