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MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPT

SURREBUTTAL TESTIMONY

OF

SARAH L.K. LANGE

UNION ELECTRIC COMPANY,
d/b/a Ameren Missouri

CASE NO. ER-2021-0240

Jefferson City, Missouri
November 2021

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Q. Please state your name.

A. My name is Sarah L.K. Lange.

Q. Are you the same Sarah L.K. Lange that contributed to Staff's Class Cost of Service ("CCOS") and Rate Design Report and who has prefiled Rebuttal Testimony in this matter?

A. Yes.

Q. Who are the witnesses to which you respond in this Surrebuttal testimony?

A. I will respond to portions of the testimonies of Union Electric Company, d/b/a Ameren Missouri ("Ameren Missouri" or "Company") witnesses John J. Spanos, Ahmad Faruqui, Michael Harding, Steven M. Wills, and Thomas Hickman.

CONTINUING PROPERTY RECORD

Q. At page 14 of his Rebuttal testimony, Ameren Missouri consulting witness John J. Spanos states that "In Staff's Class Cost of Service Report there are criticisms of the level of detail in the company's continuing property records." Is this characterization accurate?

A. No. Staff identified specific concerns with accuracy of data within the continuing property record ("CPR"), and Staff described the difficulty encountered during discovery related to the usage and operational characteristics of distribution plant. Staff did not allege that the level of detail within the CPR was improper, rather Staff relayed that Ameren

Missouri personnel could not answer basic questions about the distribution assets recorded in the CPR, when queried about specific assets. Staff understands that the CPR, by design, would not include information about the location of – for example – a $3.7 million dollar switch installed in 2005 – but someone somewhere within the company should be able to identify where this particular unique item is located, or how it is used, as seemingly it is used to open or close an electrical circuit from time to time and would require some level of operation and maintenance.[1] Staff notes that Ameren Missouri has created distribution sub-accounts to track the investment in "Tap"[2] components, and suggests that similar treatment may be a reasonable means of dealing with customer-specific components.

RIDER C

Q. At page 5 of his rebuttal testimony, Ameren Missouri witness Michael Harding states that it is not appropriate to compare the adjustments provided under Rider C to the loss factors provided in this case. He describes Rider C as "a tiny subset of losses included in the system loss study." What information did Ameren Missouri provide in its direct, its workpapers, its Data Request (DR) responses, or its rebuttal about this "tiny subset of losses?"

A. None.[3] Furthermore, Mr. Harding did not respond to Staff's particular recommendation on the issue, which was "Staff recommends the Commission order that

[1] See Ameren Missouri responses to Staff DR No. 0489, attached as Schedule SLKL-s1. Note, in this request Staff inquired into the location and usage of a limited number of high-dollar retirement units, each of which were of a very limited quantity. Staff did not seek to identify the location and usage of individual poles or spans of wire, or more obviously fungible items.

[2] CPR records pertaining to higher voltage distribution lines that may be used for transmission from time to time are kept in their own subaccounts to facilitate movement between the transmission accounts and the distribution accounts.

[3] See Staff CCOS Report at page 53, "In Staff DR 677, Staff requested that Ameren Missouri 'Please provide all workpapers and historical information supporting the factors and credits applied pursuant to Rider B and Rider C.,' In response, Ameren Missouri responded in pertinent part, "No historical information has been

Ameren Missouri perform a full study of the reasonableness of the calculations and assumptions underlying Rider B and Rider C to be filed as part of its direct filing in its next general rate case."[4]

DEFAULT RESIDENTIAL TIME OF USE (TOU) RATE DESIGN

Q. What is Ameren Missouri's Faruqui's testimony concerning Staff's ToU proposal at pages 2-3 of his rebuttal testimony?

A. Ameren Missouri's witness Faruqui testifies that:

> In my opinion, based on decades of working with TOU rates around the U.S. and Canada, and based on my reading of the vast literature on TOU rates in Europe, Asia, Australia, New Zealand, Latin America, and Africa, the proposed modification to the differential is so tiny that it will be ignored by the vast majority of customers.

Note, Ameren Missouri's witness Faruqui misstates Staff's proposal as more aggressive than Staff's actual recommendation. In the Staff's CCOS and Rate Design Report at page 52, Staff recommends "that the existing time-of-use rate differentials for the Daytime/Overnight schedule be increased to $0.01 for summer energy usage and $0.005 for non-summer energy usage." However, Ameren Missouri's witness, Faruqui testifies at page 1 of his rebuttal testimony that Staff recommends to increase the summer differential "**by** one penny per kWh," **[Emphasis added.]** which would produce a differential of $0.015/kWh."

Q. Could you summarize Mr. Will's testimony from the bottom of page 42 to the end of page 45?

identified. No adjustments to Rider C have been proposed in this case so there are no work papers associated with it.'"

[4] See Staff CCOS Report at page 55.

A. Mr. Wills testifies that Staff proposes to triple – rather than double – the rate differentials, adopting Mr. Faruqui's error and extending that error to an additional 8 months. He also opines that "Significantly changing parameters of rate structures and renaming rate options so shortly after the initial rollout of the ToU options creates a significant risk of creating customer confusion and frustration."[5] He goes on to state that "All of that information the customers have relied on, or are relying on, to understand their experience will become inaccurate if the peak/off-peak ratio is tripled the day rates take effect from this case. This appears to be a recipe for customer confusion and frustration."[6] So while Ameren Missouri is unclear on the ToU design recommended by Staff, one witness testifies that it is too small to matter, while another testifies that it is exactly big enough to disrupt the process of implementing default ToU rates recommended by Staff and originally opposed by Ameren Missouri in its last rate case.

Q. What percentage change in customer bills would Staff's recommended ToU design cause for a customer using 1,000 kWh each month?

A. While it is difficult to mix and match changes in rate design and revenue requirement, Staff has prepared the following series of bill estimates, and dollar and percent changes. In summary, Staff's recommended change in differential, excluding the change in revenue requirement, is expected to cause a change in customers' bills of around 0% to 3.16%, depending on the amount of usage a customer uses on peak, with a change in bill between $0.00 and $3.33 per month. The Ameren Missouri requested rate design and the larger increase Ameren Missouri has requested is expected to introduce a change in customers' bills of around

[5] Line 9 – 11, page 43, Wills rebuttal.
[6] Lines 18 – 21, page 44, Wills rebuttal.

4.76%-4.91% per month, with a change in a customer's monthly bill of about $5.02. Note, Ameren Missouri has not proposed to increase the customer charge associated with its riskiest rate plan, causing the riskiest rate plan to appear $24 per year cheaper to the average customer, improving its relative attractiveness, all else being equal.

				Change from Existing Flat Bill		Change From Existing ToU Bill		Change From Existing ToU Design, After Increase	
		Existing Bill	Bill after Increase & RD	$ Change	% Change	$ Change	% Change	$ Change	% Change
Staff Increase, No Change to Differential	Customer Using 1,000 kWh	$ 97.53	$ 106.11	$ 8.58	8.79%				
	If All Usage were on peak	$ 98.92	$ 105.54	$ 8.01	8.21%	$ 6.63	6.70%		
	If All Usage were off peak	$ 95.58	$ 102.21	$ 4.68	4.79%	$ 6.63	6.93%		
Staff Increase, Doubled Differential	If All Usage were on peak		$ 108.88	$ 11.34	11.63%	$ 9.96	10.07%	$ 3.33	3.16%
	If All Usage were off peak		$ 102.21	$ 4.68	4.79%	$ 6.63	6.93%	$ -	0.00%
Ameren Proposal	If All Usage were on peak		$ 110.57	$ 13.03	13.36%	$ 11.65	11.78%	$ 5.02	4.76%
	If All Usage were off peak		$ 107.23	$ 9.70	9.95%	$ 11.65	12.19%	$ 5.02	4.91%

AMEREN MISSOURI'S CHARACTERIZATION OF "ASSIGNMENT"

Q. Aside from the misstatement of Staff's ToU recommendation, what are the most misstated elements of Mr. Wills' testimony?

A. There are several, which I will respond to separately. By testimony volume, the largest issue is Mr. Wills misrepresenting the degree to which Staff seeks to assign revenue requirement responsibility to customer classes or individual customers. At pages 9-21 of his rebuttal, Mr. Wills asserts that "Staff has made a radical departure from standard industry practices, and even past Staff practices, for the treatment of costs, particularly distribution costs, in the CCOSS it prepared for this case." He continues on page 10 that Staff has an "evidently strong preference for assignment of costs over allocation."

Q. Are those statements accurate?

A. No. Staff has not radically departed from past practices at this time, and in fact, provided a minimum-size distribution study based on the Company's own direct-filed allocators

with the noted Staff adjustments to the Ameren Missouri allocators as described in the Staff CCOS and Rate Design Report. Staff attempted to clarify Ameren Missouri's apparent confusion on this topic with its responses to several data requests, particularly its response to Ameren Missouri DR 835. That DR requested that Staff "Please provide a detailed description of all reasons for Staff's stated and apparent preference for direct assignment of costs, in particular costs associated with distribution plant assets including those in mass property accounts, in electric class cost of service studies." Staff responded, indicating the firm basis for Staff's approach found in "Electric Cost Allocation for a New Era," ("RAP Manual") by Jim Lazar, Paul Chernick and William Marcus, edited by Mark LeBel. Staff's answer stated:

> Staff is attempting to incorporate the best practices recommended in the RAP manual. See RAP Manual at pages 21 & 22, and 142-162, which includes language such as the following, found on page 143, 'Although distribution poles come in all sorts of sizes and configurations, the important distinction for functionalization is what sorts of lines the poles carry: only primary, both primary and secondary or only secondary. The proper functionalization of the first category — poles that carry only primary lines — is not controversial; they are required for all distribution load, the sum of load served at primary and the load for which power is subsequently stepped down to secondary. For the second category — poles carrying both primary and secondary lines — some cost of service studies have treated a portion of the pole cost as being due to all distribution load and the remainder as being due to secondary loads, to be allocated only to classes served at secondary voltage.' This phrasing implies that the number of each 'poles that carry only primary lines' and 'poles carrying both primary and secondary lines' are known and the associated costs (either exact cost or average cost) are known. At page 144, language implies that subfunctionalization of known quantities of primary conductor and secondary conductor is appropriate, stating 'Overhead and underground conductors as well as conduit must be subfunctionalized between primary and secondary using special studies of the composition of the utility's distribution system, since secondary conductors are mostly incremental to primary lines.' Additional language on page 144 states 'Within the primary conductor category, utilities use three-phase feeders for areas with high loads and single-phase (or occasionally two-phase) feeders in areas with lower loads. The additional phases (and hence additional conductors) are due to load levels and the use of equipment that specifically requires three-

phase supply (such as some large motors), which is one reason that primary distribution is overwhelmingly load-related and should be so treated in classification. Some utilities subfunctionalize single- and three-phase conductors, treating the single-phase lines as incremental to the three-phase lines (see, for example, Peppin, 2013, pp. 25-26). Classes that use a lot of single-phase lines are allocated both the average cost of the three-phase lines and the average cost of the single-phase lines. This treatment of single-phase service as being more expensive than three-phase service gets it backward. If load of a single-phase customer or area changed in a manner that required three-phase service, the utility's costs would increase; if anything, classes disproportionally served with single-phase primary should be assigned lower costs than those requiring three-phase service. The classification of primary conductor as load-related will allocate more of the three-phase costs to the classes whose loads require that equipment.' This language implies that not only are the voltages at which plant operates known, but the phase is also known. At pages 142-143, the RAP manual provides 'Some plant accounts and associated expenses are easily subfunctionalized. Substations (which are all primary equipment) have their own FERC accounts (plant accounts 360 to 362, expense accounts 582 and 592). In addition, distribution substations take power from transmission lines and feed it into the distribution system at primary voltage. All distribution substations deliver only primary power and therefore should be subfunctionalized as 100% primary. However, many other types of distribution investments pose more difficult questions. The FERC accounts do not differentiate lines, poles or conduit between primary and secondary equipment, and many utilities do not keep records of distribution plant cost by voltage level. This means any subfunctionalization requires some sort of special analysis, such as the review of the cost makeup of distribution in areas constituting a representative sample of the system.' This language 'acknowledges the reasonableness' of allocating these costs with 'sort of special analysis, such as the review of the cost makeup of distribution in areas constituting a representative sample of the system.' The RAP manual at page 156 states '11.3.6 **Direct Assignment of Distribution Plant Direct cost assignment may be appropriate for equipment required for particular customers, not shared with other classes, and not double-counted in class allocation of common costs.** Examples include distribution-style poles that support streetlights and are not used by any other class; the same may be true for spans of conductor to those poles. **Short tap lines from a main primary voltage line to serve a single primary voltage customer's premises may be another example, as they are analogous to a secondary distribution service drop.** Beyond some limited situations, it is not practical or useful to determine which distribution equipment (such as lines and poles) was built for only one class or currently serves only one class and to ensure that the class is properly credited for not using the other

> distribution equipment jointly used by other classes in those locations.' The RAP manual at page 142 acknowledges the common division of distribution costs into two categories, 'Share distribution,' and 'Customer-specific costs, which include: Service drops connecting a customer (or multiple customers in a building) to the common distribution system (a primary line, a line transformer or a secondary line or network). • Meters, which measure each customer's energy use by month, TOU period or hour and sometimes by maximum demand in the month. Advanced meters can also provide other capabilities, including measurement of voltage, remote sensing of outages, and remote connection and disconnection. • Street lighting and signal equipment, which usually can be directly assigned to the corresponding rate classes. • **In some systems with low customer spatial density, a significant portion of primary lines and transformers serving only one customer.**' **See NARUC Manual at page 87, footnote 1, stating 'Assignment or 'exclusive use' costs are assigned directly to the customer class or group with exclusively uses such facilities. The remaining costs are then classified to the respective cost components**.'[7] **[Emphasis added.]**

In summary, first, Staff is seeking the data to identify which portions of each account are comprised of customer-specific plant, so that plant can be assigned to the classes that benefit from the use of that plant. Staff requested that information from Ameren Missouri, and Ameren Missouri did not provide it. In lieu of information to facilitate assignment, Staff requested other information from Ameren Missouri to facilitate development of reasonable allocators. Generally, Ameren Missouri did not provide that information either. Second, Staff requested data from Ameren Missouri to assign costs to service voltages of "HV," "Primary," and "Secondary," but those are voltage classifications, not customer classes.[8] Again, in lieu of information to facilitate assignment, Staff promulgated data requests to obtain information to

[7] See also Staff Response to Ameren DRs 836-844, attached as Schedule SLKL-s2.

[8] Mr. Wills' testimony implies that Staff requested data on whether a given pole is closest to a residential customer's home or an SGS customer's store. In fact, Staff's questions were effectively "how many miles of which conductors operate at High Voltage? How about at Secondary voltage? What do the conductors that operate at high voltage cost? How many poles hold those conductors up?"

facilitate allocation. The failure of these efforts were described in Staff's CCOS and Rate Design Report.

Q. Does Mr. Wills mention the RAP or NARUC manuals in his discussion of Staff's distribution study and Staff's discovery dead-ends?

A. Yes. At page 20 he cites a phrase found in one of the references I provided in response to Ameren Missouri DR 835, but neglects to acknowledge its context. The RAP manual at page 156 states '

> 11.3.6 **Direct Assignment of Distribution Plant Direct cost assignment may be appropriate for equipment required for particular customers, not shared with other classes, and not double-counted in class allocation of common costs.** Examples include distribution-style poles that support streetlights and are not used by any other class; the same may be true for spans of conductor to those poles. **Short tap lines from a main primary voltage line to serve a single primary voltage customer's premises may be another example, as they are analogous to a secondary distribution service drop.** Beyond some limited situations, it is not practical or useful to determine which distribution equipment (such as lines and poles) was built for only one class or currently serves only one class and to ensure that the class is properly credited for not using the other distribution equipment jointly used by other classes in those locations.". **[Emphasis added.]**

Mr. Wills ignores the discussion of "Short tap lines from a main primary voltage line to serve a single primary voltage customer's premises may be another example [for direct assignment], as they are analogous to a secondary distribution service drop," which was the focus of many of Staff's unanswered or insufficiently answered data requests in this docket.

Furthermore, while he takes the time to describe the NARUC Manual as "***the*** authoritative source for methodologies that should be used in the state [emphasis

supplied]"[9] he neglects to discuss the NARUC passage Staff included in response to DR 835, namely its provision at page 87, footnote 1, stating "Assignment or 'exclusive use' costs are assigned directly to the customer class or group which exclusively uses such facilities. The remaining costs are then classified to the respective cost components." Those, "exclusive use" costs are the customer-specific costs Staff sought to identify.

RIDER B AND PRIMARY CUSTOMER CUSTOMER-SPECIFIC INFRASTRUCTURE

Q. At page 23 of his rebuttal testimony, Mr. Wills states "Customers who elect to install their own substations initially have to invest hundreds of thousands, or millions, of dollars that displace similar investments that the Company otherwise would have to make. They also bear the on-going cost to operate and maintain those substations. There should be no doubt that the cost of serving these customers is meaningfully lower than the cost of serving similarly situated customers in the same rate class who have not made these initial and on-going investments on their own behalf and instead relied on the Company to make them." What level of investment in these substations was Ameren Missouri able to identify for those customers who did not elect to install their own substations?

A. No cost is associated with those substations in Ameren Missouri's direct CCOS, and data requests to determine the appropriate level of those costs have been unproductive, as discussed in the sections "Distribution Revenue Requirement, and "Stipulation Violations and Recommended Data Retention and Development," in Staff's CCOS and Rate Design Report.

[9] See Wills Rebuttal at page 20 "Q. Do any of the prominent industry reference materials on CCOSS provide useful insight on how to allocate distribution costs (or whether to assign them)? A. Yes. The NARUC Electric Utility Cost Allocation Manual ("NARUC Manual") is a highly authoritative source on the topic. In fact, as Staff points out, with respect to production allocations, recently enacted Missouri law specifically points to the NARUC Manual as ***the*** authoritative source for methodologies that should be used in the state. Mr. Hickman discusses the guidance that the NARUC Manual gives on the topic in more detail in his rebuttal testimony…."

Q. Mr. Wills at page 24 states, "we do not assign [the cost of substation equipment that is dedicated to primary customers to primary customers], we allocate it, along with the costs of all substations that serve all customers, based on the demand that each customer class places on the level of the system at which those substations operate. But the point is that whether assigned or allocated, the costs of that substation equipment are reflected in the cost of serving primary customers. Period." Does allocating these costs "based on the demand that each customer class places on the level of the system at which those substations operate" allocate the cost of customer-specific substations to the customer classes or customers who benefit from those customer-specific substations?

A. No. Not only are the customer-specific costs not allocated to those classes or customers, the imputed revenue requirement that would justify a credit is not imputed or allocated either. Consider a simple example involving a vehicle fleet:

Car	Location	Use	Included in Rates?	Revenue Requirement	Billy	Jim	Bob	Sally	Steve	Mike
Malibu	Lot A	Fleet	Yes	$90	Has Access	Has Access	Has Access	Has Access	Has Access	Has Access
Focus	Lot A	Fleet	Yes	$90						
Dart	Lot A	Fleet	Yes	$110						
Fusion	Lot A	Fleet	Yes	$110						
Accord	Lot A	Fleet	Yes	$100						
Camry	Lot B	Only Steve	Yes	$90						
Impala	Lot C	Only Mike	Yes	$110						Has Access
Nova	Lot D	Only Sally	No					Owns		

In this scenario there is a fleet of cars included in rates, and also a separate car owned by Sally. In this scenario, although Sally, Steve, and Mike each have a dedicated car, they also have to use the Fleet cars to get from Lot A to their respective private lots. Under the initial application of Ameren Missouri's treatment, Billy, Jim, Bob, Steve, and Mike would pay the same amount, $117 towards the first 7 cars, although only Steve and Mike have access to the Camry and the Impala, respectively. Notice that Sally does not pay for the Nova through her rates, as she owns

it outright, yet, Sally's charge would be reduced by a discount. For this example we'll assume the discount is intended to cover the revenue requirement of a car, and so Sally's bill would be $17 instead of $117. However, since the Company would not be willing to forgo that $100 of Sally's discount, it would be reallocated to all of the drivers, as provided below:

	Billy	Jim	Bob	Steve	Mike	Sally	Total
Initial Revenue Req.	$117	$117	$117	$117	$117	$17	$583
Amount to Reallocate	$23	$23	$23	$23	$23	$3	$117
Reallocated Rev. Req.	$140	$140	$140	$140	$140	$20	$700

Q. Is this treatment identical to Ameren Missouri's treatment of substations?

A. Yes. While in this first scenario the allocation is made by customer number rather than class demand, the treatment is exactly that described by Mr. Wills and contained in Mr. Hickman's workpapers.

Q. Are the allocated revenue requirements generated by this first scenario reasonable or equitable?

A. No. There are two blatant problems with the results of this first scenario. First, it should be obvious that Steve and Mike should be paying extra revenue requirements for their use of the Camry or the Impala. It is equally obvious that Sally, Billy, Jim, and Bob should not be paying the revenue requirement of either the Camry or the Impala. While this is a simple example with clearly-defined per-vehicle revenue requirements, reasonable minds could differ on whether it is possible or practical to keep detailed records such that Steve pays exactly for the Camry while Mike pays exactly for the Impala, or whether each should pay an average, or whether the exact or average cost of those two cars should be excluded from the revenue requirement borne by the others. In the utility context, that decision would be guided in part

by data availability and line extension policy design.[10] Second, it should be obvious that Sally should not get a discount to refund her for an amount she is not otherwise paying. Under this set-up, the obvious answer is to simply remove Sally's discount, since the cost of her Nova isn't included to begin with. However, consider that in the course of solving the first problem, we separated our drivers into two classes: Fleet-Only Customers who only use the fleet vehicles, and Fleet-Plus Customers, who use the fleet and have an additional car included in the revenue requirement. In this first example, Sally is included with the Fleet-Only Customers, and does not receive a discount, and the results are both reasonable and equitable in this respect.

	Fleet-Only Customers				Fleet-Plus Customers		
	Billy	**Jim**	**Bob**	**Sally**	**Steve**	**Mike**	**Total**
Initial Revenue Req. for Fleet Use	$83	$83	$83	$83	$83	$83	$500
Initial Revenue Req. for Driver-Specific Use	$0	$0	$0	$0	$100	$100	$200
Total Initial Revenue Req.	$83	$83	$83	$83	$183	$183	$700

In the alternative, Sally could be included with the Fleet-Plus Customers, and she could share in the costs of the Camry and Impala:

	Fleet-Only Customers			Fleet-Plus Customers			
	Billy	**Jim**	**Bob**	**Sally**	**Steve**	**Mike**	**Total**
Initial Revenue Req. for Fleet Use	$83	$83	$83	$83	$83	$83	$500
Initial Revenue Req. for Driver-Specific Use	$0	$0	$0	$67	$67	$67	$200
Total Initial Revenue Req.	$83	$83	$83	$150	$150	$150	$700

This approach does not cause the Fleet-Only customers to overpay, and it reduces the bills for Steve and Mike, but it is unfair for Sally to pay the $67 for Driver Specific Use when she is not

[10] Ameren Missouri maintains detailed records of substation components, and the locations of substations are at specific geographic locations. However, within the CPR for a particular substation it may or may not be possible to identify those devices that are customer-specific within a larger substation.

obtaining a driver-specific vehicle funded by the Revenue Requirement, she is paying for her own Nova.

However, if Sally is discounted the $67 for Driver Specific Use, the full $700 is no longer collected.

	Fleet-Only Customers			Fleet-Plus Customers			
	Billy	**Jim**	**Bob**	**Sally**	**Steve**	**Mike**	**Total**
Initial Revenue Req. for Fleet Use	$83	$83	$83	$83	$83	$83	$500
Initial Revenue Req. for Driver-Specific Use	$0	$0	$0	$67	$67	$67	$200
Total Initial Revenue Req.	$83	$83	$83	$150	$150	$150	$700
Nova-Owner Discount				$67			$67
Resulting Revenue Req.	$83	$83	$83	$83	$150	$150	$633

Unless an adjustment is made, if standard cost-allocation principles are applied, the cost of supplying Sally with the discount will be borne–at least in part – by the Fleet-Only Customers.[11]

	Fleet-Only Customers			Fleet-Plus Customers			
	Billy	**Jim**	**Bob**	**Sally**	**Steve**	**Mike**	**Total**
Initial Revenue Req. for Fleet Use	$83	$83	$83	$83	$83	$83	$500
Initial Revenue Req. for Driver-Specific Use	$0	$0	$0	$67	$67	$67	$200
Total Initial Revenue Req.	$83	$83	$83	$150	$150	$150	$700
Nova-Owner Discount				$67			$67
Resulting Revenue Req.	$83	$83	$83	$83	$150	$150	$633
Amount to Reallocate	$9	$9	$9	$9	$16	$16	$67
Reallocated Rev. Req.	$92	$92	$92	$92	$166	$166	$700

However, if the value of Sally's Nova is imputed to the Fleet-Plus Customers and Sally's rates are discounted to exclude the imputed cost, then the results are both equitable and reasonable:

[11] Note, that if everything else had been treated properly, the Fleet-Only Customers would bear no cost if Sally's Nova were included in rates.

	Fleet-Only Customers			Fleet-Plus Customers			
	Billy	**Jim**	**Bob**	**Sally**	**Steve**	**Mike**	**Total**
Initial Revenue Req. for Fleet Use	$83	$83	$83	$83	$83	$83	$500
Initial Revenue Req. for Driver-Specific Use	$0	$0	$0	$100	$100	$100	$300
Total Initial Revenue Req.	$83	$83	$83	$183	$183	$183	$800
Nova-Owner Discount				$100			$100
Resulting Revenue Req.	$83	$83	$83	$83	$183	$183	$700

Q. What makes these results reasonable?

A. These results are reasonable because all customers are equitably bearing the costs of the fleet use vehicles, and those customers who have driver-specific cars that are included in rates are paying the costs of those cars, while those customers who do not have driver-specific cars included in rates are not paying the costs of the driver-specific cars of other drivers.

Q. What information is needed to apply this example to distribution costs in general and to Rider B?

A. Under the current Ameren Missouri rate structure, we would need to know the number of LPS and SPS customers who own their own substation or substation components, and the value of LPS customer-specific infrastructure in the distribution accounts, and the value of SPS customer-specific infrastructure in the distribution accounts. From those values, a simple average-per customer by class calculation would be the starting point.[12]

Q. Is this information contemplated within RAP or NARUC?

A. Yes. This information is the specific information described in the quotes cited above.

[12] Because there are different sizes of customers and different service voltages exist in each of these classes, it may be more appropriate to refine this calculation to develop customer or facilities charge that vary with in the class, similar to the approaches in place at utilities such as Every Metro and Evergy West.

Q. Although customers served at secondary voltage are not expected to have dedicated substation equipment, shouldn't they be allocated the costs for the transformation and losses that occur between the primary voltage substation and their meters?

A. Yes, they should bear those costs. However, those costs are not recorded in the same accounts as the customer-specific infrastructure for customers served at primary and HV voltages. Those costs are recorded in the Line Transfomer and Services accounts, which are allocated to secondary customers.

Q. What is the average cost of the dedicated substation equipment required to serve a large customer?

A. Ameren Missouri has not provided that information. [13]

Q. At page 37 of his rebuttal testimony, Mr. Wills states "Staff's request [regarding data retention] is actually a request to perform a massive overhaul of many of the digital systems and processes that the Company relies on to run the Company, in order to capture and correspond different data than that which is needed to operate the business." He continues at page 38 that "To be frank, there would simply be negligible, if any, incremental value brought to the ratemaking process that would result from the Commission ordering the extremely expensive measures that Staff recommends." Are these accurate characterizations?

A. When there is no data it is hard for Staff to estimate what the value of that data would be.

[13] See Staff CCOS Report at page 53, "In Staff DR 677, Staff requested that Ameren Missouri 'Please provide all workpapers and historical information supporting the factors and credits applied pursuant to Rider B and Rider C.,' In response, Ameren Missouri stated 'No historical information has been identified. No adjustments to Rider C have been proposed in this case so there are no work papers associated with it. Adjustments to Rider B in this case are included in the work paper MO_RateDesign_BU21_3_25-21 that was presented along with my direct testimony.' The referenced workpaper simply applies the class-average percent adjustment to the indicated Rider B value."

CUSTOMER CHARGE AND CUSTOMER-SPECIFIC INFRASTRUCTURE

Q. Mr. Wills at page 50 testifies that "There are a number of distribution accounts for which the Staff utilized either the Company's minimum size study, or a variation on it, to allocate the revenue requirements to the classes, but these are omitted from the costs shown in the table on page 49. The costs associated with the minimum size distribution system – including a portion of the costs of poles and overhead and underground conductors and devices – are allocated to classes based on customer counts. These costs are therefore appropriately classified as customer-related costs." Is this approach reasonable or equitable?

A. No. Even if there were no concerns with the underlying data or the lack of rigor in the study, it is simply unreasonable to assign the customer-allocated costs to a given rate class's customer charge. However, the customer-specific portions of the distribution accounts are properly included in the customer or facilities charge.[14]

Q. How does the RAP Manual recommend designing customer charges?

A. At pages 241-242, the RAP Manual states, "use of the minimum system method for determination of residential customer charges is a mistake because it greatly overstates the cost of connecting a customer to the grid. However, some states allow use of the minimum system method for cost allocation between classes but require the narrower basic customer method for the determination of customer charges within classes in the rate design process."[15]

Q. Mr. Wills at pages 39 – 40 of his rebuttal testimony states "Aside from the technical challenges of tracking the information Staff has requested in this list, I would note

[14] Note, it may be appropriate to include the non-customer-specific portion of distribution costs in the facilities or other demand-related (preferably a coincident-demand based) charges under improved rate structures.

[15] The "basic customer method" is treatment of only those costs that actually vary with the number of customers as customer-related.

that Staff has not clearly articulated the specific benefit of retaining this data. Staff claims that '[th]is information will facilitate more accurate calculation of billing determinants for the more sophisticated rate designs Ameren Missouri has begun to deploy, and more accurate assignment or allocation of meter-related costs and expenses within future CCOS Studies. Yet, Staff does not explain what is not accurate about the calculation of current billing determinants. Knowing the specific voltage customers are served at does nothing to change billing determinants for customers or customer classes.' " What is the intent of this information?

A. Staff seeks to identify the costs and expenses associated with customer-specific equipment so that it can be recovered through the customer and/or facilities charge of each class. Staff seeks to identify the level of costs and expenses associated with secondary distribution infrastructure versus primary distribution infrastructure and HV distribution infrastructure so that those costs can be allocated to classes using that infrastructure. This should be a fairly simple exercise. If actual data is unavailable, average data for the type and quantity of equipment should suffice.

MR. HICKMAN'S "VANDAS" STUDY

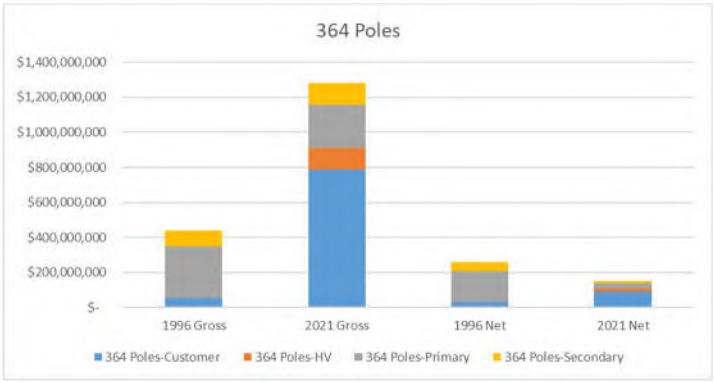
Q. Does Mr. Hickman's testimony conflate Staff's response to a data request concerning the reliability of a specific "Vandas" study with the portion of Mr. Hickman's workpaper in this case that he labeled "Vandas"?

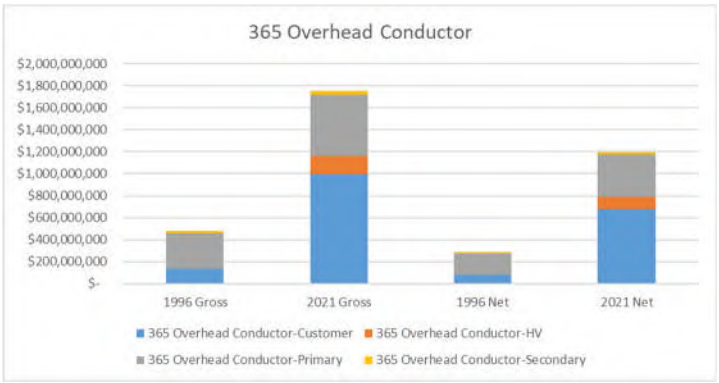
A. Yes. Mr. Hickman at page 21 states that Staff stated, in response to Ameren Missouri's DR 842, "[the Vandas] study appears to result in 'reasonable allocations' to the classifications." Mr. Hickman neglects to include that the Staff response was Staff was referring to 1996 study prepared by a Mr. Vandas. In the current case, there is no discussion of the

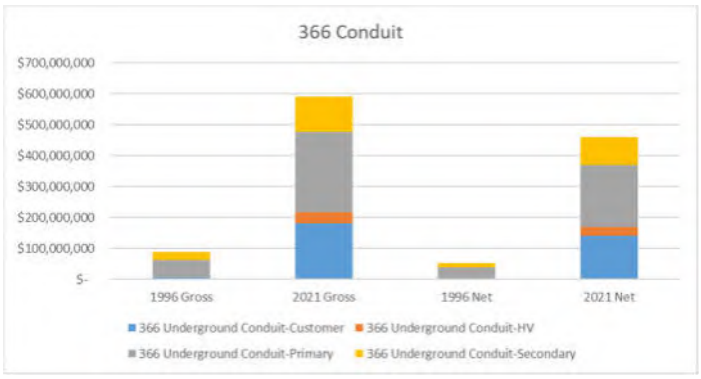
"Vandas study" in Ameren Missouri's direct filing, although Mr. Hickman's workpapers include hard-coded numbers labeled "Vandas." Staff is unaware of the proper witness to answer Commission questions concerning the "study", as there are no identified sponsors of the study or discussion of the study in Ameren Missouri's filing.

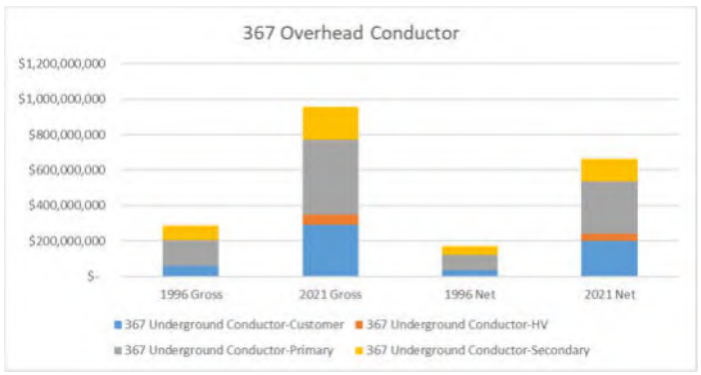
Q. How do the results of the 1996 Vandas study compare to the values provided in Mr. Hickman's workpapers?

A. A side-by-side comparison indicates an explosion in costs allocated on customer count from 1996 to 2021.









	1996 Gross	2021 Gross	1996 Net	2021 Net	1996%	2021%		
364 Poles-Customer	$ 51,838,000	$ 786,126,910	$ 30,680,000	$ 93,126,658	12%	61%	1417%	Growth in Customer
364 Poles-HV		$ 127,222,719		$ 15,071,137		10%		
364 Poles-Primary	$ 297,979,000	$ 244,399,414	$ 176,354,000	$ 28,952,196	68%	19%	25%	Growth in HV/Primary
364 Poles-Secondary	$ 89,486,000	$ 124,601,778	$ 52,961,000	$ 14,760,654	20%	10%	39%	Growth in Secondary
365 Overhead Conductor-Customer	$ 134,566,000	$ 995,332,542	$ 79,653,000	$ 677,932,135	28%	57%	640%	Growth in Customer
365 Overhead Conductor-HV		$ 163,114,697		$ 111,099,246		9%		
365 Overhead Conductor-Primary	$ 326,852,000	$ 563,980,893	$ 193,442,000	$ 384,133,699	68%	32%	122%	Growth in HV/Primary
365 Overhead Conductor-Secondary	$ 19,227,000	$ 29,609,435	$ 11,379,000	$ 20,167,318	4%	2%	54%	Growth in Secondary
366 Underground Conduit-Customer	$ 5,024,000	$ 181,268,130	$ 2,973,000	$ 140,659,264	6%	31%	3508%	Growth in Customer
366 Underground Conduit-HV		$ 36,040,578		$ 27,966,533		6%		
366 Underground Conduit-Primary	$ 58,670,000	$ 259,859,078	$ 34,723,000	$ 201,643,757	65%	44%	404%	Growth in HV/Primary
366 Underground Conduit-Secondary	$ 26,016,000	$ 114,631,527	$ 15,397,000	$ 88,951,027	29%	19%	341%	Growth in Secondary
367 Underground Conductor-Customer	$ 62,278,000	$ 292,614,772	$ 36,858,000	$ 202,989,247	22%	31%	370%	Growth in Customer
367 Underground Conductor-HV		$ 58,179,039		$ 40,359,272		6%		
367 Underground Conductor-Primary	$ 143,383,000	$ 419,481,379	$ 84,859,000	$ 290,997,644	50%	44%	233%	Growth in HV/Primary
367 Underground Conductor-Secondary	$ 84,002,000	$ 185,045,646	$ 49,715,000	$ 128,367,669	29%	19%	120%	Growth in Secondary
364 - 367 Consolidated-Customer	$ 253,706,000	$ 2,255,342,353	$ 150,164,000	$ 1,114,707,305	20%	45%	789%	Growth in Customer
364 - 367 Consolidated-HV	$ -	$ 384,557,033	$ -	$ 194,496,189	0%	8%		
364 - 367 Consolidated-Primary	$ 826,884,000	$ 1,487,720,764	$ 489,378,000	$ 905,727,297	64%	37%	126%	Growth in HV/Primary
364 - 367 Consolidated-Secondary	$ 218,731,000	$ 453,888,386	$ 129,452,000	$ 252,246,667	17%	10%	108%	Growth in Secondary

Q. Do these variations appear reasonable?

A. No. While there is an explosion in the portion of the distribution network accounts that is allocated on a customer basis that makes it difficult to track the change in the

portion of plant that is considered to operate at secondary voltage, the shift away from HV and Primary cost classification does not appear reasonable and Ameren Missouri has not provided any explanation for this shift. Staff is unable to recommend the Commission accept the "Vandas" results which are unsupported by testimony or other evidence as reasonable.

Q. Does this conclude your surrebuttal 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 Adjust Its Revenues for Electric Service	)))	Case No. ER-2021-0240

AFFIDAVIT OF SARAH L.K. LANGE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SARAH L.K. LANGE, and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Surrebuttal Testimony of Sarah L.K. Lange*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah L.K. Lange
SARAH L.K. LANGE

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 4th day of November, 2021.

Diana L. Vaught
Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2023
Commission Number: 15207377

Ameren Missouri's
Response to MPSC Data Request - MPSC
ER-2021-0240
In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Electric Service

No.: MPSC 0489

Please refer to the "Query Data" tab of Mr. Hickman's workpaper. Please explain in detail the location of each of the following assets as identified by asset ID, including whether it is the name on the account associated with the property and the rate schedule on which service is taken, if located on a customer's property. Please include a description of the utility property – for example, the circuit name and description, or description of the device or other utility plant, and identify the customer or customers served by said plant. DR requested by Sarah Lange (sarah.lange@psc.mo.gov).

vintage	asset id	retirement unit	activity quantity	activity cost	average cost
2005	1159775	SWITCH,DISCONNECT	1	$ 3,749,154	$ 3,749,154
2009	19484670	SWITCH,GANG-OPERATED,OVER 27,000V	1	$ 1,210,642	$ 1,210,642
2019	36315382	RECLOSER,14.4KV,1PHASE	1	$ 791,661	$ 791,661
2019	36315712	SWITCH,DISCONNECT,69KV	2	$ 1,103,138	$ 551,569
2019	38308211	RECLOSER,34KV,3PHASE	2	$ 960,659	$ 480,330
2019	37597222	SWITCHGEAR,PADMOUNT	1	$ 474,077	$ 474,077
2019	37763671	SWITCHGEAR,WALL,MOUNT	2	$ 897,388	$ 448,694
2006	3636641	SWITCH,GANG-OPERATED,OVER 27,000V	1	$ 439,666	$ 439,666
2018	36959622	SWITCHGEAR,WALL,MOUNT	2	$ 848,488	$ 424,244
2019	37091862	SWITCHGEAR,WALL,MOUNT	1	$ 420,932	$ 420,932
2017	32569871	RECLOSER,34KV,3PHASE	1	$ 379,860	$ 379,860
2008	7587100	SWITCH,GANG-OPERATED,OVER 27,000V	1	$ 345,052	$ 345,052

RESPONSE

Prepared By: Andy Wichmann
Title: Plant Accounting Supervisor
Date: 06/07/2021

The assets identified are electric distribution mass assets – 365 overhead conductors and devices and 367 underground conductors and devices. Assets in these groups are not identified by a specific location nor are they stored in the asset management system by location.

Ameren Missouri's
Response to MPSC Supplemental - MPSC
ER-2021-0240
In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Electric Service

No.: MPSC 0489s1

Please refer to the "Query Data" tab of Mr. Hickman's workpaper. Please explain in detail the location of each of the following assets as identified by asset ID, including whether it is the name on the account associated with the property and the rate schedule on which service is taken, if located on a customer's property. Please include a description of the utility property – for example, the circuit name and description, or description of the device or other utility plant, and identify the customer or customers served by said plant. DR requested by Sarah Lange (sarah.lange@psc.mo.gov).

vintage	asset id	retirement unit	activity quantity	activity cost	average cost
2005	1159775	SWITCH,DISCONNECT	1$	3,749,154	$ 3,749,154
2009	19484670	SWITCH,GANG-OPERATED,OVER 27,000V	1$	1,210,642	$ 1,210,642
2019	36315382	RECLOSER,14.4KV,1PHASE	1$	791,661	$ 791,661
2019	36315712	SWITCH,DISCONNECT,69KV	2$	1,103,138	$ 551,569
2019	38308211	RECLOSER,34KV,3PHASE	2$	960,659	$ 480,330
2019	37597222	SWITCHGEAR,PADMOUNT	1$	474,077	$ 474,077
2019	37763671	SWITCHGEAR,WALL,MOUNT	2$	897,388	$ 448,694
2006	3636641	SWITCH,GANG-OPERATED,OVER 27,000V	1$	439,666	$ 439,666
2018	36959622	SWITCHGEAR,WALL,MOUNT	2$	848,488	$ 424,244
2019	37091862	SWITCHGEAR,WALL,MOUNT	1$	420,932	$ 420,932
2017	32569871	RECLOSER,34KV,3PHASE	1$	379,860	$ 379,860
2008	7587100	SWITCH,GANG-OPERATED,OVER 27,000V	1$	345,052	$ 345,052

RESPONSE

Prepared By: Mitch Lansford
Title: Director Regulatory Accounting
Date: July 20, 2021

This supplemental response provides further details as to the accounting requirements for categories of mass property, which demonstrates that the location associated with the above costs is not known.

The following FERC Accounts are accounted for as mass property at Ameren Missouri. Note that the excerpt from the Company's records in this data request includes a column heading of "Retirement Unit". This column heading would be more appropriately named "Description of Retirement Unit or Category of Mass Property"; however, such a naming convention would not work in our existing systems. Mass property is appropriate when there are large quantities of lower value investments, such as poles, wires, pipe, meters, etc:

- 364 Poles, towers and fixtures
- 365 Overhead conductors and devices
- 366 Underground conduit
- 367 Underground conductors and devices
- 368 Line transformers
- 369 Services
- 370 Meters
- 373 Street lighting and signal systems

The FERC Uniform System of Accounts ("USoA") clarifies the difference in requirements for those investments accounted for as a retirement unit versus those that are categories of mass property as follows:

8. *Continuing plant inventory record* means company plant records for retirement units and mass property that provide, as either a single record, or in separate records readily obtainable by references made in a single record, the following information:

A. For each retirement unit;

(1) The name or description of the unit, or both;

(2) The location of the unit;

(3) The date the unit was placed in service;

(4) The cost of the unit as set forth in Plant Instructions 2 and 3 of this part; and

(5) The plant control account to which the cost of the units is charged; and

B. For each category of mass property;

(1) A general description of the property and quantity;

(2) The quantity placed in service by vintage year;

(3) The average cost as set forth in Plant Instructions 2 and 3 of this part; and

(4) The plant control account to which the costs are charged.

Each of the selections made by Staff in this Data Request are investments accounted for as mass property. Accordingly, the information available to the Company and Staff is items B.(1)-(4) above. No location information exists in the Company's property accounting records for mass property investments, nor is it required to be maintained by the FERC USoA.

When a retirement is processed for a mass property account, the original cost of plant is reduced by the quantity to be retired and at the average cost of a historical investment. The related vintage years and asset ID's to be retired are determined based on the depreciation studies, rates, and curves implemented as part of a rate case. Company field personnel identify the quantity to be retired and the remainder of the process of recording the related retirement entry is system driven. The Company uses a software referred to as PowerPlan to process this information. This software is common within the utilities industry.

The typical journal entry for any retirement (when using group depreciation) is to reduce the original cost of plant and reserve by the same amount. This results in no change to rate base. If retirements were to occur earlier or later than expected, subsequent adjustments to depreciation rates would be proposed as part of a depreciation study.

Data Request No.	0836
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Has Staff ever performed a class cost of service study for an investor owned electric utility where direct assignment was the predominant method for relating the costs of distribution assets, particularly those in mass plant distribution accounts (such as Account 364-370), to customers or customer classes instead of allocation? If so, please provide the name of the utility that was the subject of the study and the docket number that it was associated with.
Response	Staff is not asserting that direct assignment should be the predominant method for relating the costs of distribution assets to customers or customer classes. Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0837
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	At page 4 of its Class Cost of Service Report, Staff states, "Staff recommends the Commission order Ameren Missouri to undertake data collection to facilitate more reasonable allocation or assignment of labor and non-labor distribution expenses in future rate cases". Has Staff ever performed any class cost of service study for an investor owned electric utility in a rate case where the subject utility provided what Staff believed was an adequate amount of detail regarding its distribution assets and expenses, such that Staff was able to perform "reasonable allocations or assignment" of such costs based on the Staff's standard in this case. If so, please provide the name of the utility that was the subject of the study and the docket number that it was associated with.

Response	This question misstates Staff's testimony, which recommends Ameren Missouri undertake steps to facilitate improvement of the reasonableness of a process. Current Staff is unaware of a case in which the recommended improved process was undertaken, which is why Staff is recommending that the data to improve the process be retained. Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0838
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Please estimate the percent of dollars of investment in distribution plant accounts, particularly those subject to mass property treatment, that have been directly assigned to customers or customer classes instead of allocated to those customers or customer classes in the electric class cost of service study where Staff believes they made the greatest use of direct assignment as a means of relating distribution costs to customers or customer classes. Please identify the docket where this study was performed.
Response	See response to DR 841 Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0839
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Please estimate the percent of dollars of investment in distribution plant accounts, particularly those subject to mass property treatment, that Staff has been able to perform "reasonable allocations" of, such that Staff is

	satisfied with the reliability of those allocations based on its standard expressed in this case, in the electric class cost of service study where Staff believes they made the most reasonable allocation of distribution costs to customers or customer classes. Please identify the docket where this study was performed.
Response	See response to DR 841 Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0840
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Please see the testimony related to the data requested of Ameren Missouri in the meetings held pursuant to the 2019 stipulation. Has Staff ever requested distribution plant account detail at this level granularity from another Missouri investor owned electric utility in the context of that utility's rate case? If so, please describe in detail the extent to which that data was made available. Please identify the responding utility and the docket number where such detail was made available.
Response	Yes, identical requests were made of Empire in its most recent rate case and discovery is ongoing. Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0841
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry

Brief Description	Class Cost of Service
Description	Is Staff aware of any electric utility or any stakeholder intervened in an electric utility rate case in any jurisdiction that has performed a class cost of service study that predominantly used direct assignment instead of allocation as a means to relate the cost of the assets in distribution plant accounts, including mass property accounts, to customers or customer classes? If so, please identify, for each such circumstance, the utility that was the subject of the class cost of service study, the jurisdiction, the docket number, and the sponsoring party of the study.
Response	Staff has not undertaken the analysis requested in this question. Sarah Lange is not asserting that "predominantly used direct assignment instead of allocation as a means to relate the cost of the assets in distribution plant accounts, including mass property accounts, to customers or customer classes," this question appears to conflate Staff's stated recommendation for direct assignment of distribution asset to the voltage level at which the asset operates or facilitates operation and Staff's stated recommendation for identification of customer-specific assets for assignment of those assets to the classes of customers so served. Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0842
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Is Staff aware of any electric utility or any stakeholder intervened in an electric utility rate case in any jurisdiction that has performed a class cost of service study that was based on sufficient detail that it resulted in "reasonable allocations" of distribution plant accounts to customers or customer classes based on the Staff's standard expressed in this case? If so, please identify, for each such circumstance, the utility that was the subject of the class cost of service study, the jurisdiction, the docket number, and the sponsoring party of the study.

Response

It is unclear whether the distribution system study presented in the Direct Testimony of Ameren witness Michael E. Vandas in Case No. EO-96-15 attempted to address Staff's concern related to customer-specific infrastructure included in the poles, conduits, and conductors accounts as discussed within the RAP manual at page 156 stating "11.3.6 Direct Assignment of Distribution Plant Direct cost assignment may be appropriate for equipment required for particular customers, not shared with other classes, and not double-counted in class allocation of common costs. Examples include distribution-style poles that support streetlights and are not used by any other class; the same may be true for spans of conductor to those poles. Short tap lines from a main primary voltage line to serve a single primary voltage customer's premises may be another example, as they are analogous to a secondary distribution service drop." These Vandas results were represented by Ameren witness Wilbon L. Cooper to have been incorporated into the Class Cost of Service Study he provided in direct testimony in Case No. EO-96-15. To the extent Mr. Vandas accurately represents his study method in his testimony, it appears generally consistent with the RAP manual recommendation at pages 142-143, providing "Some plant accounts and associated expenses are easily subfunctionalized. Substations (which are all primary equipment) have their own FERC accounts (plant accounts 360 to 362, expense accounts 582 and 592). In addition, distribution substations take power from transmission lines and feed it into the distribution system at primary voltage. All distribution substations deliver only primary power and therefore should be subfunctionalized as 100% primary. However, many other types of distribution investments pose more difficult questions. The FERC accounts do not differentiate lines, poles or conduit between primary and secondary equipment, and many utilities do not keep records of distribution plant cost by voltage level. This means any subfunctionalization requires some sort of special analysis, such as the review of the cost makeup of distribution in areas constituting a representative sample of the system," in that Mr. Vandas represents that he did a detailed review of the cost makeup of distribution in an area he determined constituted a representative sample of the system. Thus, for purposes of classification of the distribution system investment by voltage, this study appears to result in "reasonable allocations" to the classifications. Staff has not performed a recent review of the reasonableness of any other aspect of this study, and Staff who reviewed this study at the time of its filing are deceased. Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0843
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Is Staff aware of any class cost of service manual, scholarly article or study, or any other authoritative reference material, that indicates that the assets in distribution plant accounts, including mass property accounts, should be predominantly or entirely directly assigned to customers or customer classes in a class cost of service study? If so, please provide all such references, including citations to the specific sections of text in such documents that Staff believes support this concept. Do those references also acknowledge the reasonableness of allocating those costs if direct assignment is not feasible?
Response	Sarah Lange is not asserting that "that the assets in distribution plant accounts, including mass property accounts, should be predominantly or entirely directly assigned to customers or customer classes in a class cost of service study," The RAP manual at page 156 states "11.3.6 Direct Assignment of Distribution Plant Direct cost assignment may be appropriate for equipment required for particular customers, not shared with other classes, and not double-counted in class allocation of common costs. Examples include distribution-style poles that support streetlights and are not used by any other class; the same may be true for spans of conductor to those poles. Short tap lines from a main primary voltage line to serve a single primary voltage customer's premises may be another example, as they are analogous to a secondary distribution service drop. Beyond some limited situations, it is not practical or useful to determine which distribution equipment (such as lines and poles) was built for only one class or currently serves only one class and to ensure that the class is properly credited for not using the other distribution equipment jointly used by other classes in those locations." The RAP manual at page 142 acknowledges the common division of distribution costs into two categories, "Share distribution," and "Customer-specific costs, which include: Service drops connecting a customer (or multiple customers in a building) to the common distribution system (a primary line, a line transformer or a secondary line or network). • Meters, which measure each customer's energy use by month, TOU period or hour and sometimes by maximum demand in the month. Advanced meters can also provide other capabilities, including measurement of voltage, remote

sensing of outages, and remote connection and disconnection. • Street lighting and signal equipment, which usually can be directly assigned to the corresponding rate classes. • In some systems with low customer spatial density, a significant portion of primary lines and transformers serving only one customer." Sarah Lange (sarah.lange@psc.mo.gov)

Data Request No.	0844
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2021-0240
Date Requested	9/21/2021
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeff Keevil
Requested By	Teneisha Perry
Brief Description	Class Cost of Service
Description	Is Staff aware of any class cost of service manual, scholarly article or study, or any other authoritative reference material, that indicates with any specificity the level of detailed information about distribution plant accounts that is necessary to perform "reasonable allocations" of assets in those distribution plant accounts in a class cost of service study? If so, please provide all such references, including citations to the specific sections of text in such documents that Staff believes support this concept. Do those references also acknowledge the reasonableness of allocating those costs with less detailed information if the ideal level of detail is not available?
Response	"See NARUC Manual at page 87, footnote 1, stating ""Assignment or 'exclusive use' costs are assigned directly to the customer class or group with exclusively uses such facilities. The remaining costs are then classified to the respective cost components."" See RAP Manual at pages 21 & 22, and 142-162, which includes language such as the following, found on page 143, ""Although distribution poles come in all sorts of sizes and configurations, the important distinction for functionalization is what sorts of lines the poles carry: only primary, both primary and secondary or only secondary. The proper functionalization of the first category — poles that carry only primary lines — is not controversial; they are required for all distribution load, the sum of load served at primary and the load for which power is subsequently stepped down to secondary. For the second category — poles carrying both primary and secondary lines — some cost of service studies have treated a portion of the pole cost as being due to all distribution load and the remainder as being due to

secondary loads, to be allocated only to classes served at secondary voltage."" This phrasing implies that the number of each ""poles that carry only primary lines"" and ""poles carrying both primary and secondary lines"" are known and the associated costs (either exact cost or average cost) are known. At page 144, language implies that subfunctionalization of known quantities of primary conductor and secondary conductor is appropriate, stating ""Overhead and underground conductors as well as conduit must be subfunctionalized between primary and secondary using special studies of the composition of the utility's distribution system, since secondary conductors are mostly incremental to primary lines."" Additional language on page 144 states ""Within the primary conductor category, utilities use three-phase feeders for areas with high loads and single-phase (or occasionally two-phase) feeders in areas with lower loads. The additional phases (and hence additional conductors) are due to load levels and the use of equipment that specifically requires three-phase supply (such as some large motors), which is one reason that primary distribution is overwhelmingly load-related and should be so treated in classification. Some utilities subfunctionalize single- and three-phase conductors, treating the single-phase lines as incremental to the three-phase lines (see, for example, Peppin, 2013, pp. 25-26). Classes that use a lot of single-phase lines are allocated both the average cost of the three-phase lines and the average cost of the single-phase lines. This treatment of single-phase service as being more expensive than threephase service gets it backward. If load of a single-phase customer or area changed in a manner that required threephase service, the utility's costs would increase; if anything, classes disproportionally served with single-phase primary should be assigned lower costs than those requiring threephase service. The classification of primary conductor as load-related will allocate more of the three-phase costs to the classes whose loads require that equipment."" This language implies that not only are the voltages at which plant operates known, but the phase is also known. At pages 142-143, the RAP manual provides ""Some plant accounts and associated expenses are easily subfunctionalized. Substations (which are all primary equipment) have their own FERC accounts (plant accounts 360 to 362, expense accounts 582 and 592). In addition, distribution substations take power from transmission lines and feed it into the distribution system at primary voltage. All distribution substations deliver only primary power and therefore should be subfunctionalized as 100% primary. However, many other types of distribution investments pose more difficult questions. The FERC accounts do not differentiate lines, poles or conduit between primary and secondary equipment, and many utilities do not keep records of distribution plant cost by voltage level. This means any subfunctionalization requires some sort of special analysis, such as the review of the cost makeup of

distribution in areas constituting a representative sample of the system."" This language ""acknowledges the reasonableness"" of allocating these costs with ""sort of special analysis, such as the review of the cost makeup of distribution in areas constituting a representative sample of the system."" Sarah Lange (Sarah.lange@psc.mo.gov)