

Exhibit No. 231

Commission Staff – Exhibit 231
Sarah L.K. Lange
Surrebuttal Testimony
File Nos. ER-2021-0240 & GR-2021-0241

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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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**UNION ELECTRIC COMPANY,
d/b/a Ameren Missouri**

CASE NO. ER-2021-0240

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

10 **RIDER C**

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

16 A. None.³ Furthermore, Mr. Harding did not respond to Staff’s particular
17 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

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

4 **DEFAULT RESIDENTIAL TIME OF USE (TOU) RATE DESIGN**

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

7 A. Ameren Missouri’s witness Faruqui testifies that:

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

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

20 Q. Could you summarize Mr. Will’s testimony from the bottom of page 42 to the
21 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.

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

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

15 A. While it is difficult to mix and match changes in rate design and revenue
16 requirement, Staff has prepared the following series of bill estimates, and dollar and percent
17 changes. In summary, Staff’s recommended change in differential, excluding the change in
18 revenue requirement, is expected to cause a change in customers’ bills of around 0% to 3.16%,
19 depending on the amount of usage a customer uses on peak, with a change in bill between \$0.00
20 and \$3.33 per month. The Ameren Missouri requested rate design and the larger increase
21 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.

1 4.76%-4.91% per month, with a change in a customer's monthly bill of about \$5.02. Note,
2 Ameren Missouri has not proposed to increase the customer charge associated with its riskiest
3 rate plan, causing the riskiest rate plan to appear \$24 per year cheaper to the average customer,
4 improving its relative attractiveness, all else being equal.

5

		Existing Bill		Change from Existing Flat Bill		Change From Existing ToU Bill		Change From Existing ToU Design, After Increase	
			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%

6

7 **AMEREN MISSOURI'S CHARACTERIZATION OF "ASSIGNMENT"**

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

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

17 Q. Are those statements accurate?

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

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

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

1 phase supply (such as some large motors), which is one reason that primary
2 distribution is overwhelmingly load-related and should be so treated in
3 classification. Some utilities subfunctionalize single- and three-phase
4 conductors, treating the single-phase lines as incremental to the three-phase
5 lines (see, for example, Peppin, 2013, pp. 25-26). Classes that use a lot of
6 single-phase lines are allocated both the average cost of the three-phase
7 lines and the average cost of the single-phase lines. This treatment of
8 single-phase service as being more expensive than three-phase service gets
9 it backward. If load of a single-phase customer or area changed in a manner
10 that required three-phase service, the utility's costs would increase; if
11 anything, classes disproportionately served with single-phase primary
12 should be assigned lower costs than those requiring three-phase service.
13 The classification of primary conductor as load-related will allocate more
14 of the three-phase costs to the classes whose loads require that equipment.'
15 This language implies that not only are the voltages at which plant operates
16 known, but the phase is also known. At pages 142-143, the RAP manual
17 provides 'Some plant accounts and associated expenses are easily
18 subfunctionalized. Substations (which are all primary equipment) have
19 their own FERC accounts (plant accounts 360 to 362, expense accounts
20 582 and 592). In addition, distribution substations take power from
21 transmission lines and feed it into the distribution system at primary
22 voltage. All distribution substations deliver only primary power and
23 therefore should be subfunctionalized as 100% primary. However, many
24 other types of distribution investments pose more difficult questions. The
25 FERC accounts do not differentiate lines, poles or conduit between primary
26 and secondary equipment, and many utilities do not keep records of
27 distribution plant cost by voltage level. This means any
28 subfunctionalization requires some sort of special analysis, such as the
29 review of the cost makeup of distribution in areas constituting a
30 representative sample of the system.' This language 'acknowledges the
31 reasonableness' of allocating these costs with 'sort of special analysis, such
32 as the review of the cost makeup of distribution in areas constituting a
33 representative sample of the system.' The RAP manual at page 156
34 states '**11.3.6 Direct Assignment of Distribution Plant Direct cost
35 assignment may be appropriate for equipment required for particular
36 customers, not shared with other classes, and not double-counted in
37 class allocation of common costs.** Examples include distribution-style
38 poles that support streetlights and are not used by any other class; the same
39 may be true for spans of conductor to those poles. **Short tap lines from a
40 main primary voltage line to serve a single primary voltage customer's
41 premises may be another example, as they are analogous to a
42 secondary distribution service drop.** Beyond some limited situations, it
43 is not practical or useful to determine which distribution equipment (such
44 as lines and poles) was built for only one class or currently serves only one
45 class and to ensure that the class is properly credited for not using the other

1 distribution equipment jointly used by other classes in those locations.’
2 The RAP manual at page 142 acknowledges the common division of
3 distribution costs into two categories, ‘Share distribution,’ and ‘Customer-
4 specific costs, which include: Service drops connecting a customer (or
5 multiple customers in a building) to the common distribution system (a
6 primary line, a line transformer or a secondary line or network). • Meters,
7 which measure each customer’s energy use by month, TOU period or hour
8 and sometimes by maximum demand in the month. Advanced meters can
9 also provide other capabilities, including measurement of voltage, remote
10 sensing of outages, and remote connection and disconnection. • Street
11 lighting and signal equipment, which usually can be directly assigned to
12 the corresponding rate classes. • **In some systems with low customer
13 spatial density, a significant portion of primary lines and transformers
14 serving only one customer.’ See NARUC Manual at page 87, footnote
15 1, stating ‘Assignment or ‘exclusive use’ costs are assigned directly to
16 the customer class or group with exclusively uses such facilities. The
17 remaining costs are then classified to the respective cost components.’⁷
18 **[Emphasis added.]****

19 In summary, first, Staff is seeking the data to identify which portions of each account are
20 comprised of customer-specific plant, so that plant can be assigned to the classes that benefit
21 from the use of that plant. Staff requested that information from Ameren Missouri, and Ameren
22 Missouri did not provide it. In lieu of information to facilitate assignment, Staff requested other
23 information from Ameren Missouri to facilitate development of reasonable allocators.
24 Generally, Ameren Missouri did not provide that information either. Second, Staff requested
25 data from Ameren Missouri to assign costs to service voltages of “HV,” “Primary,” and
26 “Secondary,” but those are voltage classifications, not customer classes.⁸ Again, in lieu of
27 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?”

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

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

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

8 **11.3.6 Direct Assignment of Distribution Plant Direct cost assignment**
9 **may be appropriate for equipment required for particular customers,**
10 **not shared with other classes, and not double-counted in class**
11 **allocation of common costs.** Examples include distribution-style poles
12 that support streetlights and are not used by any other class; the same may
13 be true for spans of conductor to those poles. **Short tap lines from a main**
14 **primary voltage line to serve a single primary voltage customer's**
15 **premises may be another example, as they are analogous to a**
16 **secondary distribution service drop.** Beyond some limited situations, it
17 is not practical or useful to determine which distribution equipment (such
18 as lines and poles) was built for only one class or currently serves only one
19 class and to ensure that the class is properly credited for not using the other
20 distribution equipment jointly used by other classes in those locations.”.
21 **[Emphasis added.]**

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

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

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

6 **RIDER B AND PRIMARY CUSTOMER CUSTOMER-SPECIFIC INFRASTRUCTURE**

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

16 A. No cost is associated with those substations in Ameren Missouri’s direct CCOS,
17 and data requests to determine the appropriate level of those costs have been unproductive, as
18 discussed in the sections “Distribution Revenue Requirement, and ”Stipulation Violations and
19 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 CCOS 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....”

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

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

13

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		

14

15 In this scenario there is a fleet of cars included in rates, and also a separate car owned by Sally.

16 In this scenario, although Sally, Steve, and Mike each have a dedicated car, they also have to
17 use the Fleet cars to get from Lot A to their respective private lots. Under the initial application
18 of Ameren Missouri’s treatment, Billy, Jim, Bob, Steve, and Mike would pay the same amount,
19 \$117 towards the first 7 cars, although only Steve and Mike have access to the Camry and the
20 Impala, respectively. Notice that Sally does not pay for the Nova through her rates, as she owns

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1 | it outright, yet, Sally's charge would be reduced by a discount. For this example we'll assume
2 | the discount is intended to cover the revenue requirement of a car, and so Sally's bill would be
3 | \$17 instead of \$117. However, since the Company would not be willing to forgo that \$100 of
4 | 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

5 |
6 |
7 | Q. Is this treatment identical to Ameren Missouri's treatment of substations?

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

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

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

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

	Fleet-Only Customers				Fleet-Plus Customers		Total
	Billy	Jim	Bob	Sally	Steve	Mike	
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

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

	Fleet-Only Customers			Fleet-Plus Customers			Total
	Billy	Jim	Bob	Sally	Steve	Mike	
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

15 This approach does not cause the Fleet-Only customers to overpay, and it reduces the bills for
16 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.

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

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

	Fleet-Only Customers			Fleet-Plus Customers			Total
	Billy	Jim	Bob	Sally	Steve	Mike	
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

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

	Fleet-Only Customers			Fleet-Plus Customers			Total
	Billy	Jim	Bob	Sally	Steve	Mike	
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

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10
11 However, if the value of Sally's Nova is imputed to the Fleet-Plus Customers and Sally's rates
12 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.

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	Fleet-Only Customers			Fleet-Plus Customers			Total
	Billy	Jim	Bob	Sally	Steve	Mike	
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 Every West.

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

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

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

10 A. Ameren Missouri has not provided that information.¹³

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

18 A. When there is no data it is hard for Staff to estimate what the value of that data
19 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."

1 **CUSTOMER CHARGE AND CUSTOMER-SPECIFIC INFRASTRUCTURE**

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

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

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

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

19 Q. Mr. Wills at pages 39 – 40 of his rebuttal testimony states “Aside from the
20 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.

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

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

15 **MR. HICKMAN’S “VANDAS” STUDY**

16 Q. Does Mr. Hickman’s testimony conflate Staff’s response to a data request
17 concerning the reliability of a specific “Vandas” study with the portion of Mr. Hickman’s
18 workpaper in this case that he labeled “Vandas”?

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

Surrebuttal Testimony of
Sarah L.K. Lange

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

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

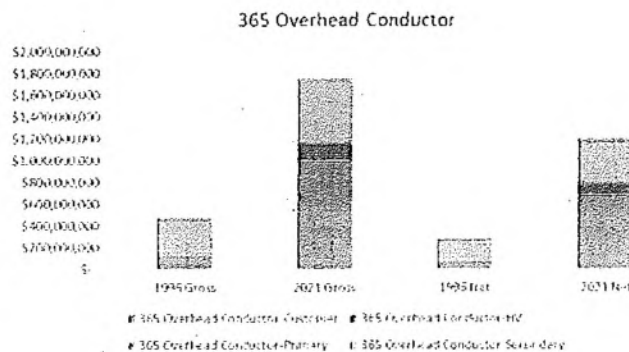
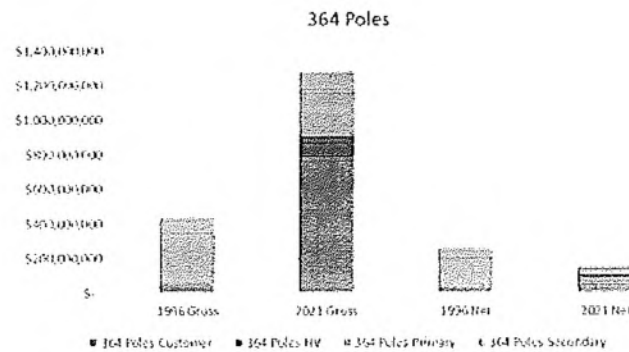
7 A. A side-by-side comparison indicates an explosion in costs allocated on customer
8 count from 1996 to 2021.

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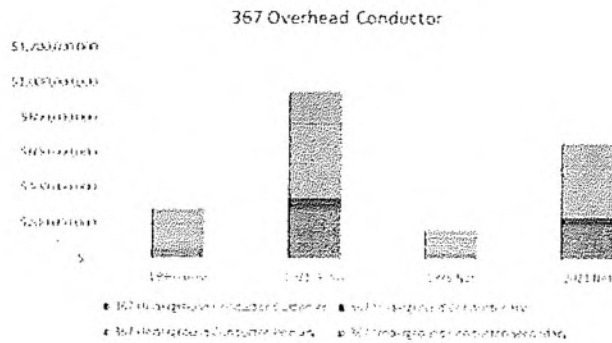
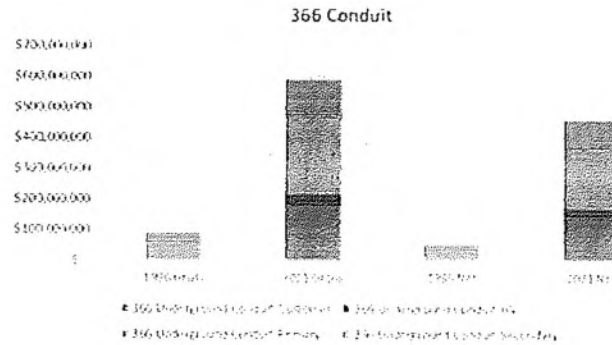
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Surrebuttal Testimony of Sarah L.K. Lange

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	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

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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

Surrebuttal Testimony of
Sarah L.K. Lange

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

5 Q. Does this conclude your surrebuttal testimony?

6 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)
)
COUNTY OF COLE) ss.

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.

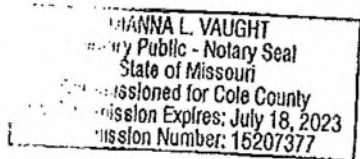
Further the Affiant sayeth not.

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. Vaughn
Notary Public



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
20051159775	SWITCH,DISCONNECT1\$	3,749,154\$	3,749,154	
200919484670	SWITCH,GANG-OPERATED,OVER 27,000V1\$	1,210,642\$	1,210,642	
201936315382	RECLOSER,14.4KV,1PHASE1\$	791,661\$	791,661	
201936315712	SWITCH,DISCONNECT,69KV2\$	1,103,138\$	551,569	
201938308211	RECLOSER,34KV,3PHASE2\$	960,659\$	480,330	
201937597222	SWITCHGEAR,PADMOUNT1\$	474,077\$	474,077	
201937763671	SWITCHGEAR,WALL,MOUNT2\$	897,388\$	448,694	
20063636641	SWITCH,GANG-OPERATED,OVER 27,000V1\$	439,666\$	439,666	
201836959622	SWITCHGEAR,WALL,MOUNT2\$	848,488\$	424,244	
201937091862	SWITCHGEAR,WALL,MOUNT1\$	420,932\$	420,932	
201732569871	RECLOSER,34KV,3PHASE1\$	379,860\$	379,860	
20087587100	SWITCH,GANG-OPERATED,OVER 27,000V1\$	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

Response 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.
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.

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 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 disproportionately 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." Sarah Lange (Sarah.lange@psc.mo.gov)