

**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 Decrease Its)
Revenues for Electric Service.) **Case No. ER-2019-0335**

STAFF RESPONSES TO ORDER DIRECTING RESPONSES

COMES NOW the Staff of the Missouri Public Service Commission and respectfully submits the attached Responses to the three questions set forth in the Commission's *Order Directing Responses* issued on March 5, 2020.

Respectfully submitted,

/s/ Jeffrey A. Keevil

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Attorney for the Staff of the
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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed, hand-delivered, or transmitted by facsimile or electronic mail to counsel of record as reflected on the certified service list maintained by the Commission in its Electronic Filing Information System this 9th day of March, 2020.

/s/ Jeffrey A. Keevil

Question 1:

Allowing residential net-metering customers to select any rate options offered to other residential customers.

The Daytime / Overnight Default residential rate will be available to net metered customers. Staff is working with Ameren Missouri to finalize the language to be incorporated into the Daytime/Overnight tariff sheet to specify the application of billing practices to net metered customers, and no alternate stipulation and agreement is necessary to effectuate this proposal.

Staff is opposed to modifying the Evening Savers, Smart Savers, Grandfathered ToU, and Ultimate Savers tariff sheets from the form provided in the Corrected Non-Unanimous Stipulation and Agreement filed on March 2, 2020 ("Stipulation"), for any reason not provided for in the Stipulation, which specifically provides for adjusting the values of rate elements to reflect the stipulated billing determinants and residential revenue requirement, and the specified adjustments to the Smart Savers design. The inclusion of these tariffs in the form contained within the Stipulation was the result of an extensive negotiation process with relative give and take by multiple parties, and are interdependent with agreement on other provisions of the Stipulation.

Further, Ameren Missouri has represented to Staff that its information technology ("IT") systems are not configurable to process billing for net metered customers on these rate structures, and that significant programming changes will be required after a billing procedure is established for each indicated rate structure. Given the multiple time periods, greater differentials, and shorter time periods, clarification of appropriate billing procedures under these rate structures could be complex.

Staff is not opposed to development of appropriate billing procedures for net metered customers on these rate schedules in the next Ameren Missouri rate case, which would include the removal of the in-tariff prohibition of net metering customers from receipt of service on these rate schedules.

Question 2:

Enhancing the default time of use (TOU) rate so that the peak period is significantly shorter and has a much greater pricing differential relative to the off-peak period than the currently proposed default TOU rate.

In Staff's opinion, a short on-peak high differential rate is not a reasonable design for Ameren Missouri's generally applicable residential service rate schedule at this time.¹

Staff cannot see a path forward to an alternate agreement that would result in approximately 106,500 customers being given until the end of this year to opt-out of a rate where a typical customer may experience 25% or greater bill increases in cold winter months or peak summer months.² This abrupt transition would be especially detrimental to vulnerable ratepayers and those that have little to no control over their usage, for whom purchases of "smart" appliances or energy efficient products may be less accessible, or to whom Ameren Missouri's educational efforts may be less reachable – particularly if those as-yet undetermined efforts occur primarily online or electronically. In addition, as a purely practical matter, this approach is not possible in this case given the lack of reliable data to support billing determinants underlying the creation of this rate at appropriate levels to recover Ameren Missouri's residential revenue requirement.³ Finally, given the number of customers likely to opt out of an aggressive ToU design, especially without the appropriate tools, education and time for them to compare rate schedules, this approach would represent abandonment of the intended transition of *all* residential customers to a well-designed time-variant rate structure, which is anticipated to be possible shortly after the beginning of 2026. This approach has been advocated by Staff since the drafting of its recommendation in the Staff Report on Distributed Energy Resources, filed April 5, 2018, in

¹ Given Ameren Missouri's current summer/nonsummer rate period configurations and the energy cost considerations provided in the Staff CCoS Report at pages 29-30, the distribution system considerations provided at pages 30-32, and the understandability and customer impact mitigation process, including the planned phase-in of high-differential, short *seasonally appropriate* on peak pricing (and off-peak reduction) rates at pages 33-36, Staff continues to support the design described in the Unanimous Stipulation.

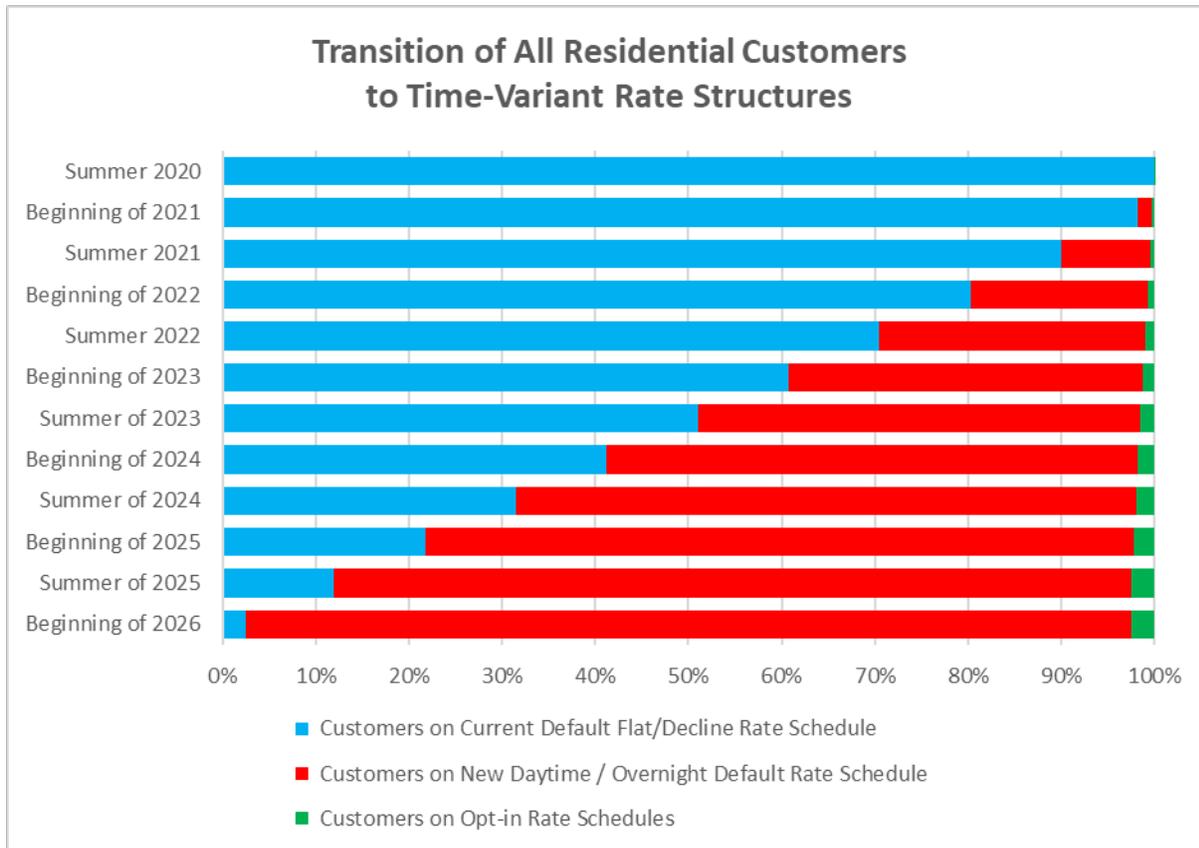
² Based on comparison of Ameren Missouri's as-proposed standard rate and its as-proposed year-round Smart Savers rate.

³ Or modification of the Smart Savers rate to a level that is generally applicable to all rate payers with an expectation of a reasonable recovery of the ordered residential revenue requirement.

As discussed in the Rebuttal Testimony of Sarah L.K. Lange, at page 23 and elsewhere, the Smart Savers rate design – while not unacceptable as a limited-scale opt in rate is not appropriate for use as an opt-out rate due to certain defects in design. For the non-summer billing periods, Staff noted the design would send an improved price signal and better reflect cost causation if only the period of approximately November 15 – March 15 were subject to the indicated three-period price, with the "spring" and "fall" subject to only off-peak and intermediate pricing. Also, Staff has not observed loading conditions that would support discontinuance of on-peak pricing for weekends and holidays as distinct from weekdays. Staff also noted the billing period / calendar month alignment issues, which causes the Smart Savers rate to send inappropriate price signals to customers regarding the differential cost of energy from a high-cost summer month and a low-cost shoulder month. The significant differentials found within the Smart Savers rate or any other high-differential design are wholly inappropriate when the applicable billing periods are staggered for over a month from the stated calendar month.

File No. EW-2017-0245, concerning residential and utility-wide rate design,⁴ which the Commission accepted “and determine[d] that they promote good public policy, and that it would be advisable to further consider the specific merits of each in the appropriate case where the impacted parties will have an opportunity to be heard”.

The following graph demonstrates the expected transition schedule of residential customers given Ameren Missouri’s 5-year capital plan and the limitations of Section 393.1400.⁵



Dr. Faruqi, retained for this proceeding by Ameren Missouri, endorsed the concept behind the new Daytime/Overnight Default Rate Schedule during the March 4, 2020, on the record presentation of the Stipulation, stating, “what I picked up was the sentiment I think at least it was the Staff testimony that let’s do it gradually – and I think Steve Wills mentioned this as well. **Let’s first bring in the notion that there is time of use and let’s very mildly differentiate a default rate, then as the years go by let’s begin**

⁴ See Staff CCoS Report, pages 33-34, quoting excerpts of EW-2017-0245 from pages 50-53, reproduced for convenience at the end of this document.

⁵ “...For each of the first five years that an electrical corporation is allowed to make the deferrals provided for by subsection 2 of this section, the purchase and installation of smart meters shall constitute no more than six percent of the electrical corporation’s total capital expenditures during any given year under the corporation’s specific capital investment plan...” Section 393.1400.4

to ramp it up. And I guess they were calling it “training wheel” I’ve heard it called gradualism. So if that is the intent to gradually ramp it up and make it a robust differentiation, on peak off peak maybe two to one, and have a shorter peak period **then I suspect this is probably the best way to do it.”⁶**

As noted, due to the limitations of Section 393.1400, Ameren Missouri cannot expend more than 6% of its total capital expenditures on AMI. The following table presents a numerical representation of the expected transition to the New Daytime / Overnight Rate Schedule under the statutory limitation.

	Customers with AMI Meters	Customers on New Daytime / Overnight Default Rate Schedule	Customers on Current Default Flat/Decline Rate Schedule	Customers on Opt-in Rate Schedules	Total Percent of Customers on Time Variant Rates
Summer 2020	17,750	-	1,064,879	121	0.01%
Beginning of 2021	106,500	16,863	1,045,475	2,663	1.8%
Summer 2021	213,000	101,175	958,500	5,325	10.0%
Beginning of 2022	319,500	202,350	854,663	7,988	19.8%
Summer 2022	426,000	303,525	750,825	10,650	29.5%
Beginning of 2023	532,500	404,700	646,988	13,313	39.3%
Summer of 2023	639,000	505,875	543,150	15,975	49.0%
Beginning of 2024	745,500	607,050	439,313	18,638	58.8%
Summer of 2024	852,000	708,225	335,475	21,300	68.5%
Beginning of 2025	958,500	809,400	231,638	23,963	78.3%
Summer of 2025	1,065,000	910,575	127,800	26,625	88.0%
Beginning of 2026	1,065,000	1,011,750	26,625	26,625	97.5%

⁶ As transcribed from the hearing audio, beginning at approximately one hour and forty two minutes, “What can be said positively about this very mild default rate is that it makes all the customers that Ameren Missouri has aware of something called “time of use” because most of them probably today don’t think of electricity as having a time of use character. So it will increase awareness and consciousness that there is time variation. Now it admittedly, it is very mild in the differentiation it is really very mild. And so you could well say why have it in the first place why bother people with such a mild differentiation as I said on the positive side well now they are aware of the fact that there is time of use. And I think philosophically, if I was following the discussions earlier when the case was being filed and conversations were taking place, I was not in those conversations, but what I picked up was the sentiment I think at least it was the Staff testimony that let’s do it gradually – and I think Steve Wills mentioned this as well. Let’s first bring in the notion that there is time of use and let’s very mildly differentiate a default rate, then as the years go by let’s begin to ramp it up. And I guess they were calling it “training wheel” I’ve heard it called gradualism. So if that is the intent to gradually ramp it up and make it a robust differentiation, on peak off peak maybe two to one, and have a shorter peak period then I suspect this is probably the best way to do it. But if the idea is to stay with this and just market it indefinitely, there’s a part of me that says you might be better off just keeping it as a flat rate and encouraging people to the other time of use rates that are the genuine real time of use rates. So you know I find myself somewhat in an ambivalent here. Not having been part of the negotiations and what the pros and cons were but reading the Staff testimony I got the sense that they were supportive of default time of use rates they just wanted to start with a relatively flat differential with the expectation that it will ramp up over time. Again I am putting words perhaps into somebody else’s mouth, but that would be one scenario in which I would find myself supporting this concept. Again I am not a party to the settlement or part of the conversations and in my discussions with Steve Wills and others at Ameren have certainly indicated that this is a starting point but the real benefit is the awareness for all of the population and perhaps to direct them to the other rates the Smart Savers and the Ultimate Savers being kind of like the real time of use rates....”

As part of its review of Ameren Missouri’s direct filed case and requested rate options, Staff prepared bill comparisons for various customer profiles across the rate options. The comparison of Ameren Missouri’s proposed standard rate and its year-round Smart Savers rate is provided below, on a monthly basis, and with annual total impact where month-to-month variation is netted:

	Example Monthly Bill Under Ameren Missouri Proposed Standard	Example Monthly Bill Under Ameren Missouri Proposed Smart Saver	Difference \$	Difference %
All Electric House Summer Month	\$ 188.06	\$ 235.32	\$ 47.26	25%
All Electric House Spring/Fall Month	\$ 71.15	\$ 73.87	\$ 2.72	4%
All Electric House Winter Month	\$ 133.08	\$ 152.27	\$ 19.19	14%
Non-all Electric House Summer Month	\$ 188.06	\$ 235.32	\$ 47.26	25%
Non-all Electric House Spring/Fall Month	\$ 71.15	\$ 73.87	\$ 2.72	4%
Non-all Electric House Winter Month	\$ 75.71	\$ 80.78	\$ 5.07	7%
All Electric Apartment Summer Month	\$ 86.09	\$ 95.85	\$ 9.77	11%
All Electric Apartment Spring/Fall Month	\$ 46.93	\$ 49.02	\$ 2.08	4%
All Electric Apartment Winter Month	\$ 61.07	\$ 58.12	\$ (2.95)	-5%

	Example Annual Bill Under Ameren Missouri Proposed Standard	Example Annual Bill Under Ameren Missouri Proposed Smart Saver	Difference \$	Difference %
All Electric House	\$ 1,569	\$ 1,846	\$ 276.68	18%
Non-all Electric House	\$ 1,340	\$ 1,560	\$ 220.22	16%
All Electric Apartment	\$ 776	\$ 812	\$ 35.60	5%

As shown above, the estimated impact to residential customers from immediate implementation of a high-differential time-variant rate would be bill increases during peak periods of up to 25% for certain customers. While Ameren Missouri designed the rate to produce exactly the same level of bill savings as bill increases on a class-wide basis in a normalized year, the most favorable bill impacts would accrue to customers who do not use more than 750 kWh in non-summer months.

As an alternative to immediate movement to robust, cost-based time-variant rates, Staff’s recommended approach is a phase-in of a modernized time-variant rate structure for all of Ameren Missouri’s residential customers.

Before implementing more aggressive ToU as the default rate for all residential customers, customers need the tools to understand how their usage fits into the time periods and to what extent and how their usage can be modified. The majority of customers will need visuals to understand that using a lot of electrical equipment at the same time other customers are also using electrical equipment makes the system cost more for everybody, but there are some times when energy is really not very expensive. This enables customers to decide if investing in equipment or changing behavior is “worth it” to them, at relative prices that should be more or less stable over time. However, at this time, customers have not been educated, and do not have the tools to visualize the following concepts:

- 1) Energy is generally more expensive during the day, and less expensive overnight.
- 2) Energy is more expensive on summer afternoons, and winter mornings and evenings;
- 3) Energy is less expensive during the spring and fall, especially in the middle of the night.

Customers will need an opportunity to learn how their individual usage fits within these concepts in order to make informed decisions regarding their usage patterns and rate options.

In Staff’s opinion, the first necessary step to transition the residential rate schedule to a modern rate structure comprised of highly-differentiated on-peak and off peak elements is to introduce all customers to a low-differential, with relatively long on-peak periods. The Stipulation’s phased-in approach would accomplish this transition for all customers by approximately 2027.

Staff has the following additional comments related to use of a high-differential, short peak ToU rate for Ameren Missouri’s generally-applicable residential rate schedule:

1. It is likely that more customers will opt out of a prematurely aggressive ToU design, impeding the goal of billing all of Ameren Missouri’s customers using robust cost-based time-variant rate schedules.
2. A very aggressive outreach program is crucial before expanding the differentials within the rate that will be applicable to 1.065 million residential customers by June of 2025.

Because of the low differential and long peak, the currently proposed timeline allows for implementation of the ToU “training wheel” rate as the default rate within 6 months of installation of a customer’s AMI meter. Customer usage varies significantly throughout the year, and a full year’s data would be the absolute minimum amount necessary for a customer to determine whether a high-differential, short peak ToU rate is right for that customer without any changes in behavior or electrical equipment, wrong for that customer, or something the customer may be able to respond to eventually.

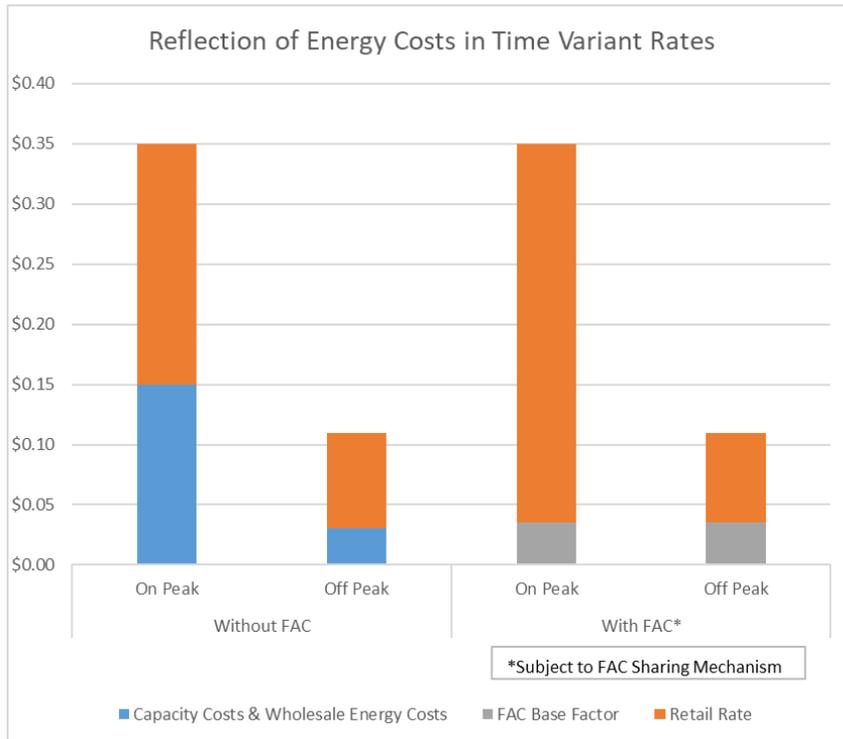
While even a full year’s data may not be enough for a customer to adequately determine the suitability of that customer to a specific TOU rate, acquiring that minimal amount of data is necessary to avoid bill shock by facilitating the opt-out of customers for whom the rate is

unsuitable and allowing customers who remain on the rate to respond to the rate prior to experiencing bill shock.

3. Ameren Missouri's load research data is not sufficient to support development of the cost-basis for a high-differential, short duration rate design, and there is not a reasonable means of establishing billing determinants to support a high-differential, short duration rate design. Put another way, no one is certain how much energy Ameren Missouri sold last year in the 4 o'clock hour versus the 3 o'clock hour or the 5 o'clock hour, or any other hour. That information is critical to the cost-justification of a short-period time-variant rate, and is absolutely indispensable when it comes to the estimation of billing determinants to design the rate to recover the ordered revenue requirement.
4. Ameren Missouri's current customer bills show the energy charge as a single dollar value line item, year round so customers currently do not have information for them to understand how rates work.
5. A significant issue that is addressed in part within the Stipulation but as-yet uncorrected in Ameren Missouri's billing system is that Staff found that Ameren Missouri's current billing cycles have been staggered over the years to the point where customers are receiving their appropriate billing month bill before the first of the named calendar month. For example, in 2019 customers could have had their meter read as early as September 24, 2019 for the October 2019 billing month. Since a billing cycle, on average, includes 30 days of usage, these customers' bills would have included some usage that occurred in August 2019. However, because it is the customer's October bill, all the usage on the bill, including the customer's usage that occurred in August, would be charged a winter rate.⁷ This misalignment would cause a high-differential short-peak rate to send inappropriate price signals to customers regarding the differential cost of energy from a high-cost summer month and a low-cost shoulder month. Therefore, this issue, which is partially addressed by the Stipulation, must be corrected before moving forward with a more aggressive time-variant rate.
6. The issue of misalignment is also related to Staff's concerns that the system utilization and energy pricing experienced by Ameren Missouri are very different in December, January, and February than the system utilization and energy pricing experienced in October, April, and May. However, these months constitute a single billing season under Ameren Missouri's rate paradigm. Staff would prefer that the Daytime period begin at 6 am in the true winter months, but such an early start is not appropriate for the other Non-Summer months. So the options are (A) use one start time year round, even though it is pretty late for the true winter months or (B) use a different start time in the Summer versus the Non-Summer, even though the start time in the Non-Summer is inappropriate for four or five of the eight Non-Summer months. Both are counter-intuitive to a short-period time-variant rate.

⁷ See the Staff CCoS Report at pages 39-40 for additional information.

7. The base factor for Ameren Missouri’s FAC is not time differentiated. The concept of a high-differential ToU rate is primarily supported by the energy costs and capacity costs that are avoidable during those intervals. Ameren Missouri is nearly fully insulated from those costs, but customers are assessed the variation in those costs through the FAC based on gross energy usage – not time-differentiated energy usage. So when certain customers pay more due to high usage during on-peak hours, all customer will pay again – later – to compensate Ameren Missouri for the additional energy costs associated with that increased usage. The additional revenue acquired by Ameren Missouri due to those additional on-peak sales will not reduce the net energy costs borne by customers through the FAC. Similarly, if weather is milder than expected, Ameren Missouri will recoup less revenue through on-peak charges, but will still be required to refund the reduced energy costs through the FAC. Without addressing FAC treatment, a broadly-deployed high-differential ToU rate will expose Ameren Missouri to a very wide and inappropriate level of revenue volatility. An example is provided below:



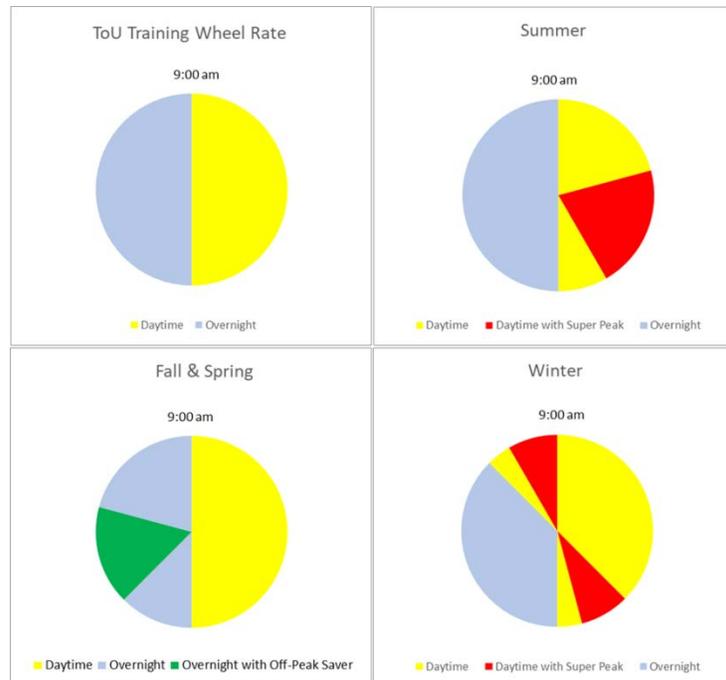
Staff continues to support the “training wheels” approach agreed to in the Stipulation in order to provide education and bill impact information to all customers in conjunction with other educational efforts. These efforts will enable customers to understand the concept that energy prices change due to the time of the day and the season of the year, as opposed to the bills they are used to - how much total energy is consumed in a month, and whether or not that month is in the summer.

Finally, Staff continues to recommend that, in a future case, an adder be applied to energy consumed on summer afternoons, and to energy consumed in the mornings and evenings in the true winter months, as well as that a reduction be applied to the energy consumed in the very early morning hours during the spring and fall. The mapping of the proposed time periods to approximations of likely future recommendations are provided in the graphic below.

ToU Training Wheel Rates				Rate Elements			Except	
Summer Daytime	\$ 0.11959	9 am - 8:59 pm	→	Summer Daytime	9 am - 8:59 pm	2 pm - 7 pm	Super Peak Adder	
Summer Over Night	\$ 0.11321	9 pm - 8:59 am	→	Summer Over Night	9 pm - 8:59 am			
Non-Summer Daytime	\$ 0.08055	9 am - 8:59 pm	→	Spring/Fall Daytime	9 am - 8:59 pm			
Non-Summer Overnight	\$ 0.05498	9 pm - 8:59 am	→	Spring Fall Overnight	9 pm - 8:59 am	12 am - 4 am	Super Off-Peak Saver	
					Winter Daytime	6 am - 9:59 pm	7 am - 9 am; 6 pm - 9 pm	Super Peak Adder
					Winter Overnight	10 pm - 5:59 am		
					Peak Demand Period	9 am - 8:59 pm		

Please note, the above graphic depicts Staff's direct rate proposals. Staff agreed to modify the non-summer treatment as part of the process of negotiating the Stipulation.

The consistency of Staff's recommended Daytime period with the time periods that may be termed "intermediate" or "shoulder" or "wrap" on the rate schedules of various utilities is demonstrated on the below graphic.



Question 3: Submitting to the Commission timely status reports after the monthly customer engagement meetings identified in Paragraph 27 of the Corrected Non-Unanimous Stipulation and Agreement. The status reports would detail the agreed to educational/communication programs. In addition, Ameren Missouri would present at Agenda in either June or July 2020, details of the customer outreach plans prior to their initiation.

Staff is not opposed to Ameren Missouri submitting to the Commission timely status reports after the monthly engagement meetings identified in Paragraph 27 of the Stipulation. In Staff's opinion, an alternate stipulation and agreement is not necessary to effectuate this commitment.

i. Understandability and Customer Impact Mitigation

At this time, based on rate impact mitigation and energy-cost drivers, Staff recommends the on-peak period be defined as beginning at 9:00 am and ending at 8:59 pm, in all months.

In the Staff Report on Distributed Energy Resources, filed April 5, 2018, in File No. EW-2017-0245, concerning residential and utility-wide rate design, Staff recommended the following:

Initial steps to be taken during or prior to applicable rate cases:

a. Residential Rate Design:

- i. Improve customer education regarding cost composition and energy cost differences over time of day and season.
- ii. Review rates on an unbundled basis, with potential to provide tariffed rates on an unbundled basis.
- iii. Implement a Low-differential TOU rate design related only to energy price difference or existing rate design blocks, with relatively long on-peak periods.
- iv. Study determinants for an on-peak demand charge.

c. Utility-wide

- i. Study bifurcating Fuel and Purchased Power costs into the TOU time periods for recovery of differences through bifurcated FACs.
- ii. Study distribution of DER on existing system.
- iii. Identify locations on the distribution and transmission systems where DER may be an alternative to expansion or replacement of the system.
- iv. Develop strategies to encourage strategic placement and deployment of DER to reduce overall system investment needs and operation expenses, including transmission congestion including study of locational rate designs and location-dependent compensation schemes.
- v. Study located DER scenarios as part of Chapter 22 planning consistent with Staff's recommendations contained in *Section VII. Changes to IRP process or Chapter 22*.
- vi. Study energy cost distribution and system utilization to find opportunities for efficient utilization and pricing – for example, some utilities experience significant winter night and evening usage – to refine time periods applicable to time of use rates and develop super on-peak or super off-peak rates.

Phase 2 (approximately 2025 time frame, will vary by utility and rate case timing):

a. Residential:

- i. Continued and increased customer education regarding cost composition and energy cost differences over time of day and season.
- ii. Increase TOU differential to recover some generation capacity costs on-peak.
- iii. Incorporate super on-peak and super off-peak TOU elements, which may vary by season.

iv. Implement a 12 month demand charge for recovery associated with local distribution facilities.

c. Utility-wide

- i. Study distribution locational pricing determinants for locational rate designs; study location-dependent compensation schemes.
- ii. Revenue Decoupling.
- iii. Based on outcomes of studies of beneficial DER location, locate DER or incent the location of DER using reasonably designed compensation designs.

Anticipated goals (approximately 2030 time frame, will vary by utility and rate case timing):

a. Residential:

- i. Continued and increased customer education regarding cost composition and energy cost differences over time of day and season.
- ii. Implement on-peak demand charge to nearly fully recover generation capacity costs on peak, not already included in on-peak and super on-peak elements.
- iii. Consider and implement, if appropriate, distribution locational rates or rate elements.

c. Utility-wide

- i. Study distribution locational pricing determinants.
- ii. Based on outcomes of studies of beneficial DER location, locate DER or incent the location of DER using reasonably designed compensation designs.

A low-impact, low-differential, long time period time-of-use rate design is an excellent customer education opportunity. As provided below, Staff's rate design recommendation is intended to produce little to no bill variation to customers. However, this rate design will impart to customers the concept that, in general, energy used during the daytime is more cost-intensive, and energy used during the night time is less cost-intensive.

ii. ToU Rates and Bill Impacts

Staff's proposed ToU rate design, on a revenue neutral basis, designed based on current customer charges is provided below²¹:

	Off Peak	On Peak
Summer	\$ 0.1245	\$ 0.1277
Non-summer	\$ 0.0600	\$ 0.0876

²¹ These bill calculations do not include the customer charge, MEEIA, FAC, or RESRAM.

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d/b/a Ameren Missouri's Tariffs to Decrease)
Its Revenues for Electric Service) File No. ER-2019-0335

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 reviewed the facts contained within the foregoing *Staff Response*; 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 9th day of March, 2020.

Dianna L. Vaught
Notary Public

