Exhibit No.:	
Issue(s):	Rate Design, Tariffs
Witness:	Michael W. Harding
Type of Exhibit:	Rebuttal Testimony
Sponsoring Party:	Union Electric Company
File No.:	ER-2019-0335
Date Testimony Prepared:	January 21, 2020

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. ER-2019-0335

REBUTTAL TESTIMONY

OF

MICHAEL W. HARDING

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
January 2020

TABLE OF CONTENTS

REBUTTAL TESTIMONY

OF

MICHAEL W. HARDING

FILE NO. ER-2019-0335

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Michael W. Harding and my business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

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

A. I am the Manager of Rates and Analysis for Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company").

Q. Are you the same Michael W. Harding that submitted direct testimony in this case?

A. Yes, I am.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your rate design rebuttal testimony in this proceeding?

A. The purpose of my rate design rebuttal testimony is to address:

1) The rate decrease allocation recommendations presented by Missouri Public Service Commission Staff ("Staff"), the Missouri Industrial Energy Consumers ("MIEC"), and the Midwest Energy Consumers Group ("MECG");

2) Rate design comments made by Sierra Club and proposed adjustments to the basic Residential rate design proposed by Staff;

3) Staff's normalization and annualization calculations for determining test year operating revenues; and

4) Staff's comments about tariffs to be updated in the Compliance Filing to reflect the Commission's future order in this case and the Company's compliance with a stipulated term in File No. ET-2018-0132.

III. CLASS REVENUE ALLOCATIONS

Q. Please summarize the proposed rate decrease allocations presented.

A. Ameren Missouri's Recommendation:

As presented in direct testimony, the Company has proposed a two-step process similar to what the Commission approved in Ameren Missouri's last rate case. The first step requires making revenue neutral intra-class adjustments toward Class Cost of Service ("CCOS"). The second step applies any annual revenue requirement reduction on an equal basis to customer classes as an equal percentage of current base revenues.

Staff’s Recommendation:

Staff recommends a reduction in revenue requirement of approximately 2.5% for each class on an equal percentage basis, relative to current tariff rates, and irrespective of the temporary tax rider.[1] Staff does not recommend that revenue responsibility be realigned at this time.[2]

[1] Staff CCOS Report, page 28, line 8.

[2] Alternatively however, if the Commission determines that it is appropriate at this time to realign revenue responsibility consistent with class cost of service and an overall revenue decrease of approximately $65 million is ordered for Ameren Missouri, Staff recommends a decrease of approximately $5 million be implemented to the Lighting Classes, a decrease of approximately $15 million be implemented to the Small General Service class, and the remaining decrease of approximately $45 million be allocated to the Residential class. If a smaller decrease is awarded and the Commission determines that it is appropriate at this time to realign revenue responsibility consistent with class cost of service, Staff recommends these amounts be prorated to the indicated classes consistent with the described amounts.

<u>MIEC's Recommendation</u>:

MIEC recommends a revenue-neutral revenue allocation adjustment within 25%-50% of class-cost-of-service results before any decrease. A 25% adjustment should be the minimum movement in MIEC's view, but if the rate decrease awarded to the Company is substantially more than the Company requested, MIEC asserts that the adjustment should be closer to 50%. After those interclass adjustments, any overall decrease should be applied to classes as an equal percentage.

<u>MECG's Recommendation</u>:

The MECG does not oppose the Company's proposed class revenue allocations if the Commission were to award the Company its proposed revenue requirement decrease. If the Commission were to award a revenue requirement decrease even greater than that proposed by the Company, MECG suggests the Commission should allocate the revenue decrease using the following steps:[3]

1) Start with the revenue allocation proposed by the Company at the Company's proposed revenue requirement, with all customer classes receiving the proposed decrease;

2) Allocate any additional decrease to Small General Service ("SGS"), Large General Service ("LGS") and Small Power Service ("SP"), Large Power Service ("LPS"), and Company-Owned Lighting based on their ratio share of the revenue neutral shift required to bring all classes to cost of service.

Q. Do you observe any trends in the rate decrease allocation proposals submitted?

[3] Midwest Energy Consumers Group Direct Testimony of Steve W. Chriss, at p. 4.

A. Yes. Most of the parties submitting testimony on revenue allocation have proposed a negative revenue-neutral shift for the LGS, SPS, LPS and Lighting customers, should the Commission order a decrease larger than what the Company has proposed. The Company's CCOS study also shows these decreases can be justifiably applied assuming the decrease to Lighting is solely applied to the Company-owned Lighting class.

The proposals from MIEC and MECG take more aggressive steps towards rates that reflect the parties' calculated cost of service than proposed by the Company, and become more aggressive if the approved rate decrease is greater than the requested rate decrease.

Q. What is the Company’s recommendation after reviewing the positions submitted by others?

A. I continue to recommend the Commission approve the Company’s proposed two-step process. The Company’s proposal is consistent with prior Commission orders and Commission-approved stipulations. No party other than Ameren Missouri filed a CCOS study that separately identified costs of the Company-Owned Lighting class and the Customer-Owned Lighting class. If the Commission approves a rate decrease greater than the across-the-board 0.03% reduction in revenue requirement proposed by the Company in direct testimony, I recommend the Commission approve the Company’s proposed revenue shifts to better align rates between the two Lighting classes. In addition, the Company does not oppose the general direction of the proposed intra-class revenue-neutral shifts proposed by MIEC and MECG — decreasing the LGS, SPS, and LPS classes toward the Company's CCOS study results.

IV. RATE DESIGN

Q. Please share your observations related to the non-residential rate design proposals submitted.

A. Staff and MEGC have differing positions on the direction demand-related rates should be shifted in the non-residential energy rates, with Staff requesting any decreases ordered for the LGS, SPS, and LPS rates be applied to the demand-related rates, and MECG recommending the Commission maintain the demand charges for the LGS and SPS customers at current levels.[4] The Company has proposed an equal percentage be applied to the non-residential rate components based on its recommended revenue requirement decrease, but as discussed in the rebuttal testimony of Company witness Steven Wills, the Company believes that applying any LGS and SPS decrease to the energy charges is a reasonable reflection of cost of service and would be appropriate.

Q. Do you agree with Sierra Club's assessment that Customer Charges should not include demand-related expenses?

A. No. The Company agrees with Staff, as detailed on page 11 of their CCOS Report, that there is a portion of the distribution cost that is driven by the number of customers and should be apportioned to the customer-related classification:

> Distribution plant Accounts 364 through 370 involve both demand-related and customer-related costs. The customer-related component of distribution facilities is that portion of costs which varies with the total number of customers served. Generally, the number of poles, transformers, meters, and miles of conductor are directly related to the number of customers on the utility's system, but the size of each of these items are related to the level of energy that they deliver over time. The dollars recorded in distribution system accounts need to be apportioned between the customer- and demand-related classifications to facilitate

[4] *Id*.

> the most reasonable allocation for each portion, and allocated to the various voltages for proper allocation to the classes.

As discussed in Company witness Tom Hickman's direct testimony in this case, Ameren Missouri uses the widely accepted Minimum Distribution Study ("MDS") method to allocate distribution cost between the Customer and Demand functions. At the existing $9 per month customer charge, the majority of demand-related cost that should be included in the Customer Charge per the Company's CCOS study are instead included in the energy charge.

Q. What does Ameren Missouri recommend to the Commission concerning the Residential customer charge?

A. The Company recommends the Commission approve the Company's request to move gradually toward cost-based rates by including more of the Minimum Distribution's Demand-related cost into the proposed $11 Residential customer charge with a corresponding revenue neutral adjustment to the energy charge.

V. NORMALIZATION AND ANNUALIZATION OF RATE REVENUES

Q. Staff has updated the 30-year time period used by both Staff and the Company in prior rate cases for calculating normal weather in this case. Please describe the differences between the proposed normalizations and what has changed from past practices.

A. Prior to this case, the Company has updated the 30-year weather used to normalize its revenues on a 10-year schedule aligned with when the National Oceanic and Atmospheric Administration ("NOAA") releases their updated 30-year normal data. Staff and the Company have both agreed on this weather treatment in the last several rate cases. The Company's analysis in this case reflected the 30-year normal weather from the 1981-

2010 time period consistent with past practices. In this case, Staff has proposed updating the 30- year weather through 2016 beginning with 1987 to reflect more current data. The Company does not oppose the updated period proposed by Staff as it allows for the inclusion of more current data.

Q. Are there other differences in how the Company and Staff calculated the appropriate adjustment to total class sales in order to apply these normal weather variables?

A. Yes. Although not substantive methodological differences, Staff did conduct a separate statistical analysis of the relationship of load and weather from the analysis the Company provided in its direct case. The Company and Staff's methodologies are substantially similar, but the Staff incorporates six months of more recent load data in their analysis, due to the timing of their filing. The Company believes the Staff's models are an appropriate representation of the impact of weather on sales, and does not object to using the Staff's models.

Q. Does Ameren Missouri recommend using the method that Staff utilized to apply the weather adjustments to the Residential and Small General Service block sales to determine normalized revenues?

A. No, the Company disagrees with the methodology used by Staff to calculate the normalized usage that is allocated into the first and second residential blocks, which affects the magnitude of the revenue adjustment for a given change in sales due to weather. Staff states in its Cost of Service Report that it "…used the bill frequency provided by Ameren Missouri to determine the predicted first block."[5] Staff does not elaborate on *how*

[5] Staff Cost of Service Report, Page 48 Line 20 through Page 49 Line 1.

the bill frequency data was used, but a review of Staff's workpapers suggests that its method is not a reasonable means of allocating the weather adjustment to the rate blocks, impacting the total revenue adjustment calculated by Staff. Staff's calculation relies on assumptions about how the weather adjustment calculated for total sales within a month relates to sales in different blocks, rather than specifically studying how block sales actually historically have responded to weather.

In contrast, the Company's allocation of the weather adjustment to rate blocks was informed by a statistical analysis of the relationship between historical block sales and weather, by month. This statistical relationship of this task is more relevant for conducting an analysis of normalized block sales.

Q. Does Ameren Missouri recommend using Staff's 365-day adjustment?

A. No. Recall that the days adjustment is necessary because some customers, depending on the meter reading dates for their billing cycle from year to year, may have more or less than 365 days of usage reflected in their bills for the test year (meter reading dates vary year to year due to how weekends and holidays fall, etc.). In the past several rate cases, the Company and Staff have used the same method to ensure the test year revenues are based on usage associated with no more and no less than 365 days. That method is specifically designed to calculate usage associated with the 365 calendar days of the test year or test year update period (in the case of the update period, usage associated with July 1, 2018 through June 30, 2019). The Company used that same method to determine its days adjustment in this case.

Staff, however, developed a new methodology for this case. That method still results in 365 days of usage for all customers being reflected in test year revenues.

However, the usage is not specifically related to the calendar days of the test year. It varies for different customers, depending on their billing cycle and the corresponding meter read dates. For example, test year update period usage for the Company's first billing cycle covered the dates of May 30, 2018 through May 29, 2019, whereas billing cycle 21 has updated test year usage associated with June 27, 2018 through June 26, 2019. While this might sound like a trivial matter since both the Company and Staff's analysis arrive at 365 days of usage, there is a factor that complicates the use of the days of each billing cycle instead of the actual test year days.

Q. What is that factor?

A. The weather normalization process both parties use incorporates a procedure known as "rank and average." This technique first determines the normal temperature for 365 days in a year, and later determines the order which those 365 temperatures will be arranged in an actual test year. Because, from year to year, the normal temperatures fall in a different order, using different days of usage for different billing cycles actually results in the application of different normal temperatures to the usage reflected in the test year. As an illustration, I have calculated the average normal temperature for the test year update period for each of the Company's 21 billing cycles, as reflected in Staff's analysis, and show those temperatures in Table 1 on the following page. Note that the normal average temperature for the year based on Staff's analysis is 57.17 degrees, and that 57.17 degrees is the normal temperature that applies to every customer's usage when using the Company's method for the days adjustment.

Table 1 – Average Normal Temperature by Billing Cycle

Billing Cycle	Beginning Read Date	End Read Date	Days	Average Normal Temperature
1	5/30/18	5/29/19	365	57.21
2	5/31/18	5/30/19	365	57.20
3	6/1/18	5/31/19	365	57.18
4	6/2/18	6/3/19	367	57.24
5	6/5/18	6/4/19	365	57.18
6	6/6/18	6/5/19	365	57.22
7	6/7/18	6/6/19	365	57.24
8	6/8/18	6/7/19	365	57.25
9	6/9/18	6/10/19	367	57.35
10	6/12/18	6/11/19	365	57.22
11	6/13/18	6/12/19	365	57.18
12	6/14/18	6/13/19	365	57.15
13	6/15/18	6/14/19	365	57.12
14	6/16/18	6/17/19	367	57.23
15	6/19/18	6/18/19	365	57.07
16	6/20/18	6/19/19	365	57.05
17	6/21/18	6/20/19	365	57.04
18	6/22/18	6/21/19	365	57.04
19	6/23/18	6/24/19	367	57.15
20	6/26/18	6/25/19	365	57.10
21	6/27/18	6/26/19	365	57.13

Small differences in temperature can have significant impacts on sales when applied to millions of customers' usage. So this flaw can have a real impact on the determination of normal test year revenues. Based on the inconsistent normal temperatures associated with Staff's method, and the fact that there is no good reason to deviate from the practice that the Company and Staff have both agreed on in the past, I recommend continuing to base the days adjustment on the normalized sales associated with the 365 calendar days of the year.

I would also note an additional issue unrelated to the methodology for calculating the days adjustment: the days adjustment calculated by Staff was not reflected in its calculation of billing units due to what I believe was simply a formula error in Staff's Excel spreadsheet workpaper. While I expect this issue to be resolved, it is worth noting that the Staff's normalized revenues included in its filing omitted this adjustment.

Q. Does Ameren Missouri have any concerns regarding Staff's LPS adjustments for annualization of customers switching rate classes?

A. Yes. While this issue is also likely accidental given Staff's supporting testimony, adjustments made by Staff in workpapers to adjust for interclass rate-switching between the LPS and the SPS classes during period ending June 2019, have added 4 months of usage for a customer switching onto the LPS class, while only removing 3 corresponding months of usage from the SPS class. This results in an overstatement of normalized revenues in Staff's model of $165,885.

Q. Are there any differences between methods used by the Company and Staff to annualize the impacts of the Company's energy efficiency programs on updated test year sales and revenues?

A. The Company and Staff appear to be aligned on methodology for performing this calculation, but minor errors were identified in the calculation of the Energy Efficiency adjustments performed by both Staff and the Company. Having identified these issues, I do not anticipate a material difference in the true-up through December.

Q. Please discuss the impact that solar rebates provided for by Senate Bill 564 had on test year sales and how that should be appropriately reflected in normalized revenues.

A. SB 564 called for the Company to provide rebates for its retail customers that install solar panels behind their meter. This generated renewed solar activity in the Company's service territory. Those behind the meter solar generators reduce the sales the Company makes to the customers that have adopted them. The associated reduction in revenue should be reflected in the test year revenues used to set rates in order for rates to reflect the level of solar generation that is expected going forward.

The Company did not make such an adjustment in its direct case, because its load analysis applied to the original test year reflecting very little solar activity. However, as 2019 unfolded, it became apparent that solar installations would have a material impact associated with the update period and true-up in this case. The Company provided information about these solar installations in data request responses to Staff for consideration in the case. Staff's Cost of Service Report included a footnote that acknowledged this as a potential adjustment, but also said that Staff did not have enough information to calculate it. The Company has now responded to all pending data requests on the topic, and has also calculated what it believes to be an appropriate adjustment. This is important, again, to ensure that rates are set in a manner that reflects the hundreds of new customer generators on the system, with many megawatts of new solar capacity, and the impacts that will have on revenues going forward. The Company's calculation of this adjustment uses the actual installed capacity of new customer-owned solar facilities through the true-up date, and estimated production of those facilities derived from actual metered solar generation in the service territory. I have used the date that each customer received its bi-directional meter, i.e., when systems are authorized to begin operation, to determine the amount of the year to which to apply the adjustment. Table 2 below shows appropriate kilowatt-hour adjustments by month and by rate class to apply to test year sales.

Table 2 - Solar Annualization Adjustment by Rate Class (kWh)

Month	Residential	SGS	LGS	SPS	LPS
Jul-18	962,165	917,504	944,414	19,273	11,689
Aug-18	821,791	783,645	806,629	16,461	9,984
Sep-18	799,958	762,826	785,199	16,024	9,718
Oct-18	552,964	527,297	542,762	11,076	6,718
Nov-18	283,324	270,173	278,097	5,675	3,442
Dec-18	308,877	294,539	303,178	6,187	3,752
Jan-19	233,570	226,426	230,545	4,779	2,898
Feb-19	251,520	255,310	260,790	5,691	3,452
Mar-19	427,887	450,305	506,255	11,088	6,725
Apr-19	451,116	478,059	561,547	13,050	7,915
May-19	521,136	518,653	631,214	6,582	10,519
Jun-19	384,253	363,017	476,322	0	4,694

VI. OTHER STAFF SUGGESTIONS

A. Tariffs to be Updated with Compliance Filing

Q. On pages 42 and 43 of Staff's CCOS report, Staff recommends three tariffs be updated in the Compliance Filing to reflect the Commission's future order in this case. Does Ameren Missouri agree to such tariff updates?

A. Yes. Margin rates included in Rider Energy Efficiency Investment Charge ("EEIC") must be recalculated using compliance rates set in this case to ensure the Company's recovery of the throughput disincentive associated with its energy efficiency programs is based on current rates.

To the extent that any costs that are currently reflected in the Company's filed Renewable Energy Standard Rate Adjustment mechanism ("RESRAM") rates are included in the revenue requirement in this case, the Base Amount and RESRAM base amounts in the RESRAM tariff should be updated.

Finally, the Community Solar pricing should be reviewed and updated, if appropriate. The Company did not update that tariff with its direct case, only because the 0.03% rate reduction resulted in a rate impact that did not change the Community Solar rate at the decimal precision that would be reflected in the tariff. To the extent that the final decrease has a measureable impact on the rate, that tariff will also be updated.

B. Line Extension Commitments Compliance

Q. On page 44 of Staff's CCOS report, Staff stated, at that time, Ameren Missouri was not in compliance with a Stipulation and Agreement in File No. ET-2018-0132 by not providing voltage and class information associated with line extensions. Do you agree?

A. No. Ameren Missouri is fully compliant with the commitments made in the Stipulation and Agreement in File No. ET-2018-0132, and has provided the rate and voltage information associated with Staff's follow-up data requests MPSC 470.1 & 0470.2. As mentioned in the data request responses, the Company is currently in the process of replacing its existing software used to record line extension requests with new software anticipated to be in service in 2021, and is investigating steps required to make the gathering and analysis of this data easier moving forward. The modifications to the line extension calculations were implemented in April of 2019, with the current systems being reconfigured as quickly as possible to accommodate the required changes. The Company continues to work on improving the manner in which the line extension changes are integrated with the existing systems, but the collection and retrieval process of the data is not ideal, with the process requiring the querying of two separate software systems to extract all the required data in addition to the separate extraction of attached Excel documents where marginal cost analysis is performed, if required. The Company has a strong interest in making the collection and retrieval of this information more streamlined with the adoption of the new software.

Q. Does this conclude your rate design rebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

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

AFFIDAVIT OF MICHAEL W. HARDING

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

COMES NOW Michael W. Harding, and on his oath declares that he is of sound mind and lawful age; that he has prepared the foregoing *Rebuttal Testimony*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Michael W. Harding

Subscribed and sworn to before me this 21st day of January, 2020.

Geri A. Best
Notary Public

My commission expires:

GERI A. BEST
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: February 15, 2022
Commission Number: 14839811