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Witness: Kim Cox
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Case No.: ER-2019-0335
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MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPARTMENT

REBUTTAL TESTIMONY

OF

KIM COX

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

CASE NO. ER-2019-0335

*Jefferson City, Missouri
January 2020*

Staff Exhibit No. 111
Date 3/2/20 Reporter JMB
File No. ER-2019-0335

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UNION ELECTRIC COMPANY,
d/b/a Ameren Missouri

CASE NO. ER-2019-0335

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1 REBUTTAL TESTIMONY

2 OF

3 KIM COX

4 UNION ELECTRIC COMPANY,
5 d/b/a Ameren Missouri

6 CASE NO. ER-2019-0335

7 Q. Please state your name and business address.

8 A. Kim Cox, 200 Madison Street, Jefferson City, Missouri 65101.

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

10 A. I am employed by the Missouri Public Service Commission ("Commission") as
11 a Policy Analyst in the Tariff and Rate Design Department of the Industry Analysis Division
12 of the Commission Staff.

13 Q. Have you previously filed testimony in this case?

14 A. Yes. I provided testimony in the Cost of Service direct filing.

15 Q. What is the purpose of your rebuttal testimony?

16 A. The purpose of my rebuttal testimony is to respond to Union Electric Company,
17 d/b/a Ameren Missouri's ("Ameren Missouri") witness Michael Harding regarding Ameren
18 Missouri's method of normalizing the percentage of kilowatt-hours ("kWh") billed in the first
19 rate block for residential and small general service ("SGS") customers and provide updated
20 weather and days revenue for the Res, SGS, LGS, SPS and LPS rate classes.

21 **RESPONSE TO AMEREN MISSOURI REGARDING NORMALIZED FIRST**
22 **BLOCK USAGE**

23 Q. What is the current rate design on Ameren Missouri's residential tariff?

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1 A. Residential customers are billed a customer charge that is the same amount year
2 round, plus a flat per kWh rate for usage during the months of June, July, August,
3 and September, and a declining block rate for usage over 750 kWh for all other months of
4 the year.

5 Q. What is the current rate design on Ameren Missouri's SGS tariff?

6 A. For the winter months, an SGS customer's usage is divided between Base and
7 Seasonal usage. Seasonal usage is defined as usage greater than 1,000 kWh and in excess of
8 the lesser of a) the kWh use during the preceding May billing period, or b) October billing
9 period, or c) the maximum monthly kWh use during any preceding summer month, which is
10 then billed at a rate that is less than the rate charged for a customer's base usage or a customer's
11 usage under 1,000 kWh. For the summer months, a flat rate per kWh used during the summer
12 months of June, July, August, and September is charged.

13 Q. How did Ameren Missouri determine the amount of normalized kWh that should
14 be billed in the first rate block during the winter months?

15 A. Ameren Missouri used a regression analysis that studied the relationship
16 between the average billing month heating degree days ("HDD") and the percent of actual kWh
17 billed in the first block for each winter month from 2007 to 2018. Then Ameren Missouri
18 applied the outcome of the regression to the normal HDD of the applicable winter month of
19 the test year to find the percent of normalized kWh that should be billed in the first block for
20 the month.

21 Q. Did Staff review Ameren Missouri's data for the winter months for the years
22 2007 through 2018?

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1 A. Yes. The table below from Ameren Missouri's work paper¹ displays that
2 January 2018 had the highest HDDs out of all of the years presented.

3

	January	
	% Block 1	Actual HDD
2007	49.41%	790.4
2008	43.64%	994.2
2009	41.16%	1084.2
2010	38.88%	1196.0
2011	40.35%	1166.5
2012	47.38%	826.6
2013	44.69%	936.1
2014	40.76%	1156.2
2015	44.61%	995.2
2016	48.29%	846.2
2017	44.58%	974.3
2018	41.26%	1209.9

4

5 Q. Does the Company's regression appropriately capture the relationship between
6 weather and usage for current customers?

7 A. No. For example, January 2018 had a higher percentage of usage billed in the
8 first rate block compared to January 2009, 2010, 2011 and 2014 where the percent of usage
9 billed in the first block was lower than January 2018 even though there were fewer HDDs on
10 average. Given the relationship between HDDs and customer usage, the Company's regression
11 fails to capture that variables other than weather have impacted a customer's overall response
12 to weather. Further, the Company's individual monthly regressions for the months of May,
13 October, November and December result in questionably low R² values. The closer the
14 R² value is to 1.0 the more reasonable it is to assume that the variance of weather explains the
15 variance of usage.

¹ Harding, Work paper RES and SGS Block Normalization.

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Month	Company Calculated % for Block 1	Adjusted R ²
January	42.14%	0.93178
February	46.47%	0.96130
March	53.13%	0.97941
April	62.89%	0.94884
May	73.09%	0.49695
October	71.85%	0.81987
November	69.13%	0.67494
December	52.55%	0.80472

2

3 Q. Did the results of Ameren Missouri's study determine a reasonable amount of
4 normalized kWh for the first rate block?

5 A. No. For example, for the months of January and April 2019, Ameren Missouri
6 applied a 98.5 and 92.6 weather factor² to normalize actual usage for those months. This can
7 be interpreted as January and April 2019 were colder than normal months and customers used
8 more kWh than normal. Therefore, total kWh would need to decrease by 98% and 93% in order
9 to normalize the usage or similarly customers would have used less kWh if January and April
10 2019 were normal. Given this example, normalized kWh in either of Ameren Missouri's two
11 residential rate blocks should decrease since Ameren Missouri has both customers whose usage
12 does not exceed 750 kWh in a winter month, and whose usage does exceed 750 kWh in a given
13 winter month. However, Ameren Missouri's percentage of kWh to be billed in January and
14 April's first residential rate block, as determined by the Company's regression, resulted in the
15 "actual" first residential rate block and only the second block was adjusted.

² Weather factor = Normal Weather usage (kWh)/ Actual Weather usage (kWh).

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1 Q. Is this a reasonable result?

2 A. No. If the weather factor was less than one, then both blocks should decrease
3 by some percentage.

4 Q. How did Staff determine the amount of normalized kWh for the residential class
5 that should be billed in the first rate block during the winter months for the residential class?

6 A. Staff reviewed actual monthly cumulative frequency distribution data³ for the
7 residential class and performed an analysis using the change in average usage per customer
8 when kWh is normalized to develop a normalized percentage of usage for the first rate block.

9 Q. What is the difference between the actual monthly usage provided by Ameren
10 Missouri and the cumulative frequency distribution data?

11 A. The cumulative frequency data only includes usage from customers who
12 received a full bill in the month, so any customer who received a partial bill was excluded.
13 Therefore, the total number of customers and kWh in the cumulative frequency data does not
14 exactly match the test year billing determinants that are being normalized; however,
15 the cumulative frequency is still reasonable to use because it reflects the blocking for a full
16 month customer.

17 Q. Why did Staff use this method over a regression that provides the relationship
18 between average usage per customer and the percent of kWh billed in the first block?

19 A. Staff did attempt to use a regression for the Residential class; however, the
20 results during the winter months did not produce a reasonable outcome.

21 Q. Did Staff use this same method for the SGS class?

³ Cumulative frequency distribution data is the distribution of customer bills and kWh over various block sizes. This data shows how many customers and how much kWh exceed or do not exceed certain rate blocks.

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1 A. No. Staff used a regression and tested its reasonableness against the cumulative
2 frequency distribution and kWh billed sales for the month.

3 **UPATED WEATHER AND DAYS REVENUE**

4 Q. Why did Staff update the weather and days revenue?

5 A. Staff witness Michael L. Stahlman provided updated weather normalization
6 factors. Staff adjusted the billing units by the updated factors Mr. Stahlman provided and
7 applied the current rates to determine the updated weather normalization revenues.
8 Mr. Stahlman discusses the update to weather in his rebuttal testimony.

9 Q. Does this conclude your rebuttal testimony?

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

AFFIDAVIT OF KIM COX

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

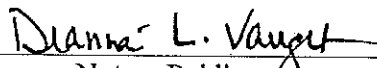
COMES NOW KIM COX and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Rebuttal Testimony of Kim Cox*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.


_____)
KIM COX

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 16th day of January, 2020.


_____)
Notary Public

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