

*Exhibit No.:*  
*Issue:* *Block Usage, Rate  
Switching, Customer  
Growth*  
*Witness:* *Kim Cox*  
*Sponsoring Party:* *MoPSC Staff*  
*Type of Exhibit:* *Surrebuttal/True-Up  
Testimony*  
*Case No.:* *ER-2021-0240*  
*Date Testimony Prepared:* *November 5, 2021*

**MISSOURI PUBLIC SERVICE COMMISSION**

**INDUSTRY ANALYSIS DIVISION**

**TARIFF/RATE DESIGN DEPARTMENT**

**SURREBUTTAL / TRUE UP DIRECT TESTIMONY**

**OF**

**KIM COX**

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

**CASE NO. ER-2021-0240**

*Jefferson City, Missouri  
November 2021*

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**SURREBUTTAL / TRUE UP DIRECT TESTIMONY**  
**OF**  
**KIM COX**  
**UNION ELECTRIC COMPANY,**  
**d/b/a Ameren Missouri**  
**CASE NO. ER-2021-0240**

RESPONSE TO AMEREN MISSOURI REGARDING NORMALIZED RESIDENTIAL  
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RESPONSE TO AMEREN MISSOURI REGARDING RATE SWITCHING AND LARGE  
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1           A.       Staff’s cumulative frequency analysis can be explained as using the relationship  
2 between a specific rate block size and both weather normalized average usage per customer and  
3 actual average usage per customer to determine the percentage of total weather normalized  
4 usage that is reasonably billed in the first rate block had the weather for the month been normal.  
5 To provide an understanding, below is the January 2021 bill frequency for the first five bins<sup>2</sup>  
6 that Ameren Missouri provided Staff.

minBound	maxBound	billCount	kWh
0	10	3690	19600
10	20	2863	44276
20	30	2484	62912
30	40	2086	74070
40	50	1981	90101

7  
8 The first line shows how many bills and kWh were in the first 10 kWh for the month of  
9 January 2021. The second line shows how many bills and kWh that fell between 10 kWh and  
10 20 kWh. This continues until all usage and bill counts are accounted for. Below is a chart for  
11 the months of January and February 2021 that displays the actual factor<sup>3</sup> and the weather factor<sup>4</sup>  
12 in each bin. January was warmer than normal, therefore the weather factor was lower than the  
13 actual factor, and vice versa in February.

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17 *continued on next page*

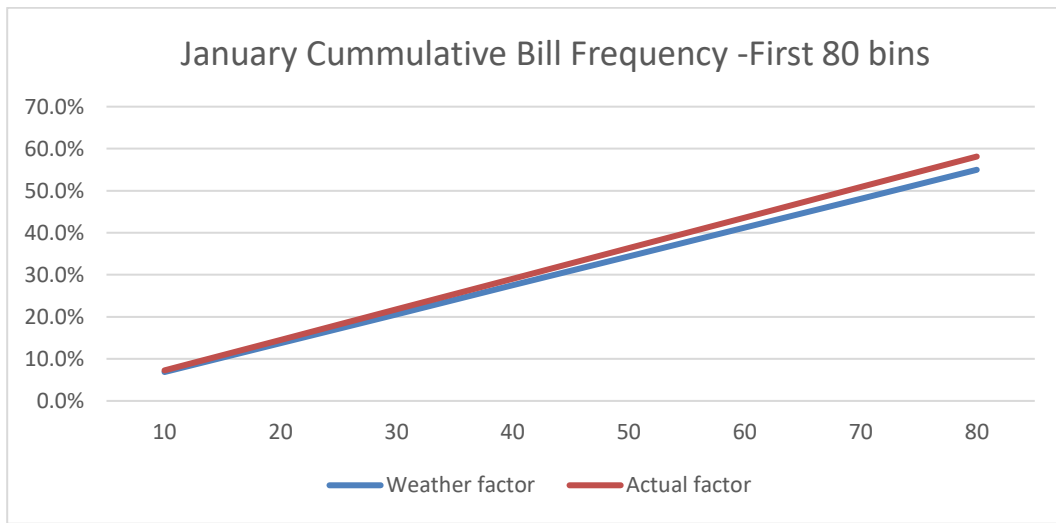
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<sup>2</sup> A bin is the kWh usage and number of bills in increments of 10 kWh.

<sup>3</sup> Max bin size divided by the average sales per customer.

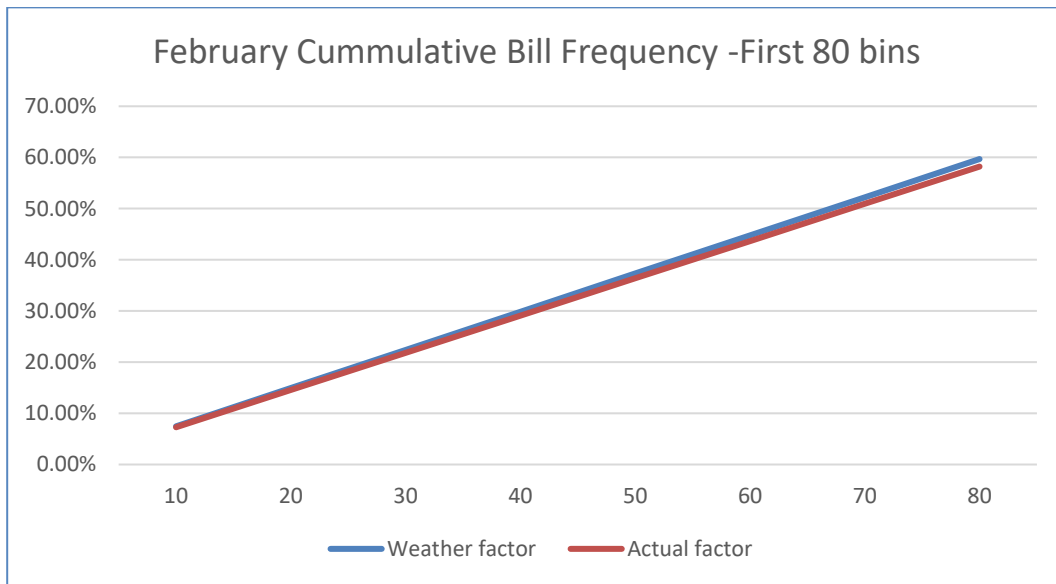
<sup>4</sup> Max bin size divided by the weather normal average sales per customer.

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Staff reviews the Company's cumulative frequency distribution data by month and calculates each bin in the frequency distribution as a percentage of non-weather normalized average usage per customer. Further, Staff applies the monthly weather factor<sup>5</sup> calculated from weather

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<sup>5</sup> The weather factor includes the day adjustment.

1 normalized sales, provided by Staff witness Michael Stahlman in his direct testimony, to the  
2 monthly actual average use per customer to compute a weather normalized average usage  
3 per customer. Staff uses these calculated percentages for the tariffed rate block and the next  
4 closest block size to calculate a weather normalized percentage of usage to be billed in the first  
5 rate block.

6 In this case, the first rate block on the Residential tariff is the first 750 kWh, which  
7 means that the first 750 kWh used by a customer is billed using the first block rate. In general,  
8 a utility's cumulative frequency data provides a range of bin sizes varying from 10 kWh to  
9 100,000 kWh for any given month. The next bin after 750 kWh in the Company's data is  
10 760 kWh.<sup>6</sup> The purpose of using the bin following the specific rate block for which Staff is  
11 calculating weather normalized usage is to use the existing or actual relationship between the  
12 two bins and the relationship that exists after applying the monthly weather factor to the average  
13 use per customer to determine the new percent of total weather normalized kWh that will be  
14 billed in the first rate block.

15 The new percent of total weather normalized kWh that is determined is then applied to  
16 Staff's total weather normalized usage.

17 Q. Dr. Bowden provides a formula,  $\text{NormBlock1} = A + 75 \times [(1/\text{WF}) - 1] \times B$ .<sup>7</sup>  
18 He states that this is Staff's method for computing the number of kWh that will move across  
19 the threshold and result in weather normalized block.<sup>8</sup> Does Staff agree that Dr. Bowden's  
20 formula is correct?

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<sup>6</sup> The size of the distribution blocks is generally determined by the utility. Staff generally requests that one block be sized to match the tariffed rate block.

<sup>7</sup> Dr. Bowden's rebuttal testimony, page 22, line 13-15.

<sup>8</sup> Dr. Bowden's rebuttal testimony, page 22, line 13-15.

1           A.     No. Dr. Bowden asserts in this formula that Staff’s normal block one calculation  
2 includes a factor of 75, and it simply does not.

3           Q.     Dr. Bowden asks, on page 24 of his rebuttal testimony, “Why is the number  
4 multiplied by 75?” He states there are two possible answers.<sup>9</sup> Does Staff agree with either of  
5 Dr. Bowden’s possible answers?

6           A.     No. There is no variable in Staff’s calculation that is multiplied by 75. Staff is  
7 not sure what Dr. Bowden is referring to in his one page of rebuttal testimony<sup>10</sup> addressing this  
8 specific question.

9           Q.     Dr. Bowden states that Staff’s method shifts an arbitrary number of kWh across  
10 the threshold that defines the bins and calls those block weather normalized.<sup>11</sup> Does Staff agree  
11 with Dr. Bowden’s conclusion?

12          A,     No. Dr. Bowden appears to misinterpret Staff’s calculation to be moving kWh  
13 between the 750 bin and the 760 bin. However, that is not at all what Staff’s calculation is  
14 doing. It is using the relationship that exists between the bin sizes to create a new weather  
15 normalized distribution of usage and then estimates a new percent of usage billed in the first  
16 rate block. Staff’s calculation can work with more than a two block rate design; however,  
17 because Ameren Missouri’s residential class only consists of two blocks it is only necessary to  
18 calculate the first block and then all other kWh is billed in the second block.

19          Q.     Does Dr. Bowden characterize the kWh that is billed between 740 and 750 kWh  
20 accurately?

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<sup>9</sup> One answer: This is simply the mathematical result of combining all the terms in Staff’s method. Another answer: This is the result of the location of the threshold and the size of the bins.

<sup>10</sup> Dr. Bowden rebuttal testimony, page 24, lines 5-23 and page 25, lines 1-3.

<sup>11</sup> Dr. Bowden rebuttal testimony, page 25, lines 7-9

1           A.     No. Dr. Bowden characterizes the 750 kWh bin as only consisting of kWh billed  
2 between 740 and 750 kWh and again, this is untrue as to how Staff used the 750 kWh bin in its  
3 calculation.

4           It is true that Staff used a 750 kWh bin, however Staff calculates cumulative billed  
5 usage, so Staff's 750 kWh bin includes all kWh billed from 0 to 750 kWh which matches the  
6 Company's first rate block on its Residential tariff.

7           Q.     Has Staff simplified its analysis to assist in understanding Staff's methods?

8           A.     Yes. To start, Staff uses cumulative frequency data because the logic is that  
9 weather will not affect all usage billed in the first rate block. For example, customers who have  
10 a monthly bill consisting of 1,000 kWh, will have usage billed in the second rate block and  
11 therefore, the customer's usage in the second rate block is affected by weather but not their  
12 usage billed in the first rate block.<sup>12</sup> To simplify Staff's direct filed calculation, Staff simply  
13 applied the monthly weather factor to the portion of usage billed in the first rate block that  
14 pertained to customers whose monthly usage was equal to or less than 750 kWh. The result of  
15 this simplified approximation yielded very similar results as Staff's direct filed calculation.  
16 Staff provided workpapers with this filing. Below is a comparison of the first rate block percent  
17 of usage Staff's direct filed method and the simplified method. As displayed below, the results  
18 are within .02%.

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21 *Continued On Next Page*

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<sup>12</sup> 750 kWh of the customer's 1,000kWh bill would be billed in the first rate block and all remaining kWh would be billed in the second rate block.



Surrebuttal & True-Up Testimony of  
Kim Cox

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	May-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21
Staff's Direct filed 1st block	74.74%	73.22%	71.08%	55.57%	43.24%	44.79%	51.50%	67.36%
Staff's simplified anaylis	74.77%	73.23%	71.09%	55.56%	43.23%	44.79%	51.52%	67.35%
	-0.02%	-0.01%	-0.01%	0.01%	0.01%	-0.01%	-0.01%	0.02%

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Q. Does Staff agree with Dr. Bowden's analysis of the impact of Ameren Missouri's method and Staff's?

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A. No. Staff is unsure which weather normalized residential blocks are Dr. Bowden's position. Dr. Bowden filed Schedule NSB-R2 and provided rebuttal workpapers. The weather normalized residential blocks in Dr. Bowden's schedule and rebuttal workpapers are not the same. I pointed out in my rebuttal testimony, page 4, lines 1 – 6, that Ameren Missouri did not use its regression results for the months of October, January, and May 2020. Dr. Bowden chose what months he would and would not apply the regression results to calculate the weather normalized first and second block. Dr. Bowden also chose what months he would apply the actual usage in one block and only applied the change in weather to the other block. In Dr. Bowden's rebuttal workpaper he once again did not use the regression results for the months of October, November, and May 2020, as well as February 2021. For the months of October and November the decrease due to weather was only applied to the first block. In Dr. Bowden's direct filed case he applied the regression results to the month of November, however in his rebuttal workpaper he choose to use the actual second block usage. For the months of May and February the decrease was only applied to the second block.

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Q. Does it make sense to only apply the impact of weather on usage to only one block, whether it be the first or second rate block?

1           A.     No. Based on the cumulative frequency distribution of customer bills, there are  
2 customers who have bills that include less than 750 kWh and more than 750 kWh. Since it is  
3 reasonable that all or mostly all residential customers are impacted by weather to some degree,  
4 it is reasonable to assume that weather will impact both blocks. It is likely weather will not  
5 impact both blocks equally, but the amount of kWh billed in each rate block should result in  
6 some change due to weather.

7           Q.     Does Staff agree with Dr. Bowden's rebuttal testimony<sup>13</sup> when he states that  
8 Staff allocates 30,138,554 kWh more to the first block than the Company's method?

9           A.     It depends whether Dr. Bowden is referring to Schedule NSB-R2 or his  
10 rebuttal workpapers. For instance, for the month of February the actual first block kWh  
11 usage of 652,787,150 was applied, instead of the regression result of 670,147,789 kWh. If  
12 Dr. Bowden would have applied his regression results to all twelve months, the difference  
13 would be 30,138,554 kWh.

14          Q.     What method should be used to calculate the percent of weather normalized  
15 usage billed in the first rate block?

16          A.     Staff's cumulative frequency analysis should be used. As explained earlier,  
17 Staff's analysis uses the relationship of a specific rate block size and the weather normalized  
18 average usage per customer and the actual average usage per customer to determine the percent  
19 of total weather normalized usage. Unlike Dr. Bowden, Staff did not choose how to apply or  
20 when to apply the percent of increase or decrease to each block in the twelve months ending  
21 April 2021. Staff applied its results of the cumulative bill frequency analysis the same way

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<sup>13</sup> Rebuttal testimony, Nicholas Bowden, PhD., page 25, lines 15-19.

1 for each winter month to calculate weather normalized usage billed in the first and second  
2 rate block.

3 **RESPONSE TO AMEREN MISSOURI REGARDING RATE SWITCHING AND**  
4 **LARGE CUSTOMER NORMALIZATION ADJUSTMENT**

5 Q. Dr. Bowden states in his rebuttal testimony that Staff did not remove any  
6 demand or reactive power billing units from a Small Primary Service (“SPS”) customer that  
7 switched rate classes during the test year. Does Staff agree with the Company that the demand  
8 should be removed when a customer leaves a rate class and switches to another?

9 A. Yes. After reviewing Dr. Bowden’s rebuttal testimony, Staff submitted another  
10 DR requesting the demand so that it could be removed. Staff removed the eleven months of  
11 demand for the one SPS customer that switched to Large Power Service (“LPS”) and provided  
12 that update in true up workpapers.<sup>14</sup>

13 **TRUE-UP FOR CUSTOMER GROWTH**

14 Q. What is the purpose of your true-up direct testimony in this proceeding?

15 A. The purpose of my true-up testimony is to address the customer growth  
16 adjustment. As stated in my direct and rebuttal testimony, Staff reviewed and made necessary  
17 adjustments to the RES, SGS, LGS, and SPS number of customer bills per month.

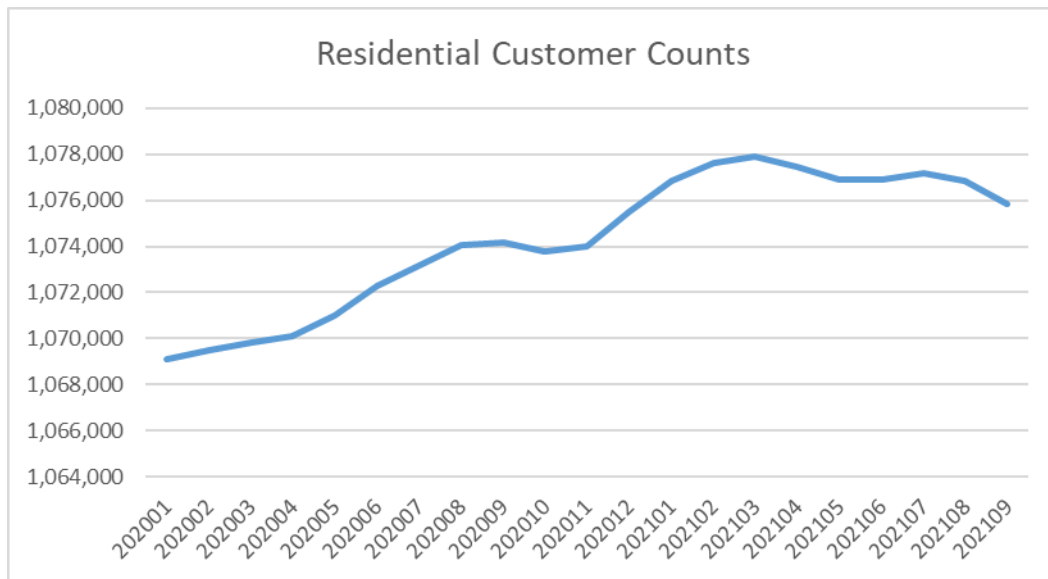
18 The chart below is the actual number of Residential customer bills starting in  
19 January 2020 through September 2021.<sup>15</sup>

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<sup>14</sup> Cox Sales and Revenue Adjustments sps weather, kW, and growth.

<sup>15</sup> Supplement DR 494.

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Q. After reviewing the actual number of bills, what is Staff's true-up direct position?

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A. Staff's residential customer growth true-up direct position is to apply August 2021 customer counts to the twelve months ending April 2021. Staff finds that August 2021 is reflective of the most recent customer counts. Depending on when Ameren Missouri runs its reports, the monthly customer counts can be different due to processing of bills and customer request. Therefore, Staff applied August 2021 instead of September 2021.

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Q. Did Staff apply August 2021 customer counts for the SGS, LGS, and SPS rate classes?

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A. Yes, Staff applied August 2021 customer counts to the rate classes for the same reasons stated above.

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Q. Does this conclude your surrebuttal and true up testimony?

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A. Yes.

