Exhibit No.:
Issue(s): Aluminum Smelter Sales, Weather Normalization Adjustments
Witness: Steven M. Wills
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Union Electric Company
File No.: ER-2016-0179
Date Testimony Prepared: January 20, 2017

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. ER-2016-0179

REBUTTAL TESTIMONY

OF

STEVEN M. WILLS

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

<u>Highly Confidential Information Removed</u>

St. Louis, Missouri
January 2017

Public

TABLE OF CONTENTS

REBUTTAL TESTIMONY

OF

STEVEN M. WILLS

FILE NO. ER-2016-0179

I. INTRODUCTION

Q. Please state your name and business address.

A. Steven M. Wills, Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. What is your position with Ameren Missouri?

A. I am the Director of Rates & Analysis.

Q. Please describe your educational background and employment experience.

A. I received a Bachelor of Music degree from the University of Missouri-Columbia in 1996. I subsequently earned a Master of Music degree from Rice University in 1998, then a Master of Business Administration ("M.B.A.") degree with an emphasis in Economics from St. Louis University in 2002. While pursuing my M.B.A., I interned at Ameren Energy in the Pricing and Analysis Group. Following completion of my M.B.A. in May 2002, I was hired by Laclede Gas Company as a Senior Analyst in its Financial Services Department. In this role, I assisted the Manager of Financial Services in coordinating all financial aspects of rate cases, regulatory filings, rating agency studies and numerous other projects.

In June 2004, I joined Ameren Services as a Forecasting Specialist. In this role, I developed forecasting models and systems that supported the Ameren operating companies' involvement in the Midwest Independent Transmission System Operator, Inc.'s ("MISO")[1] Day 2 Energy Markets. In November 2005, I moved into the Corporate Analysis Department of Ameren Services, where I was responsible for performing load research activities, electric and gas sales forecasts, and assisting with weather normalization for rate cases. In January 2007, I accepted a role I briefly held with Ameren Energy Marketing Company as an Asset and Trading Optimization Specialist before returning to Ameren Services as a Senior Commercial Transactions Analyst in July 2007. I was subsequently promoted to the position of Manager, Quantitative Analytics, where I was responsible for overseeing load research, forecasting and weather normalization activities, as well as developing prices for structured wholesale transactions.

In April 2015, I accepted a position with Ameren Illinois as its Director, Rates & Analysis. In this role I was responsible for the group that performed Class Cost of Service, revenue allocation and rate design activities for Ameren Illinois, as well as maintained and administered that company's tariffs and riders. In December 2016, I accepted a position with the same title at Ameren Missouri.

Q. What are your responsibilities in your current position?

A. In my current position, I am responsible for a group of employees that work on regulatory issues, including electric and gas regulatory rate cases. My team performs Class Cost of Service, class revenue allocations, rate design, bill impact analyses and a variety of other regulatory analytical and support functions. We also

[1] Now known as the Midcontinent Independent System Operator, Inc.

maintain and administer the Company's tariffs, including rate updates under any applicable tariff riders.

II. PURPOSE OF TESTIMONY

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

A. The primary purpose of my testimony is to respond to certain issues raised in the Missouri Public Service Commission Staff ("Staff") Cost of Service Report relating to the appropriate billing units to use for setting rates in this proceeding. I will discuss the appropriate level of sales to be included for the aluminum smelter formerly owned by Noranda Aluminum, Inc. (now Magnitude 7 Metals, LLC). I will also address issues with the method the Staff used to apply weather normalization adjustments to the blocked rate designs for Residential and Small General Service customers.

III. ALUMINUM SMELTER SALES

Q. What level of sales did the Company include for the aluminum smelter in its original filing?

A. The Company did not include any sales to the aluminum smelter in its original filing. At that time, the smelter had minimal load relative to its historical operations and significant uncertainty as to whether it would continue operating at all going forward.

Q. What level of load did Staff include in its Report?

A. Staff correctly observed that there was some amount of usage remaining at the plant, and based its recommendation on the average usage of the plant from July 1, 2016 through September 22, 2016. This captures the decline in usage that occurred after the smelter ceased its primary operations earlier in the year. The end date of the period

chosen by Staff of September 22 seems arbitrary, but may just be a function of the data that was available at the time Staff performed its calculations.

Q. Do you agree that this is an appropriate level of sales to include in the test year?

A. No. As I indicated above, Staff correctly observed that there is some level of ongoing usage at the plant, and the Company agrees that it is appropriate to reflect that level in the normalized and annualized sales that will be used as billing units in this proceeding. While the sales level recommended by Staff was quite possibly very reasonable as of the time that Staff performed its calculations, based on the latest information that they were able to consider, further changes in the operations of the facility that occurred well within the true-up period warrant current consideration.

Q. To what changes do you refer?

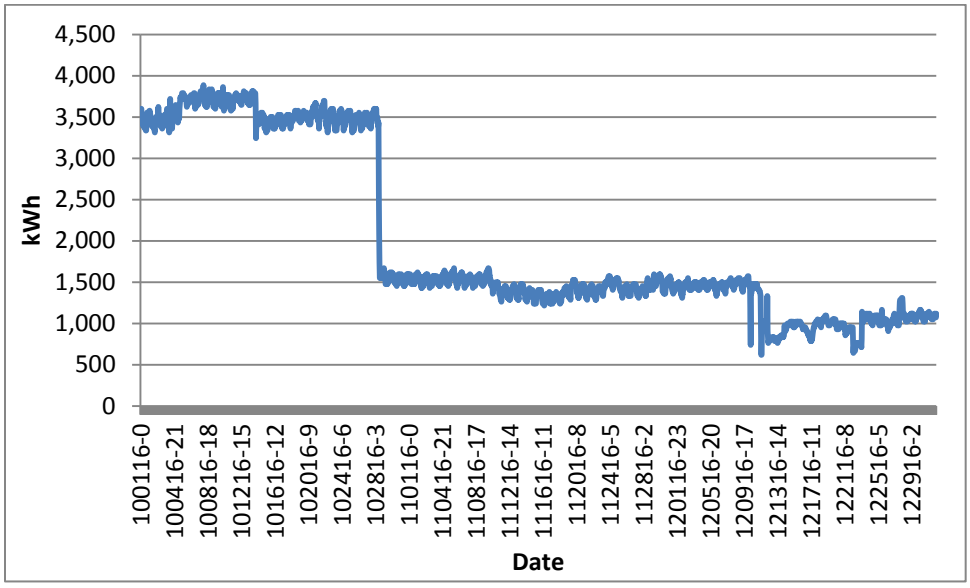
A. A change of ownership of the plant occurred as of October 28, 2016. Almost simultaneously with the new owner taking control of the plant, the load level observed at the facility materially dropped again. Since that date, the facility has not approached the level of load that Staff included in its Report.

Q. What is the ongoing level of load you have observed since the ownership change occurred?

A. Figure 1 below shows the hourly load at the facility from October 1 through December 31, 2016. An obvious step change in load occurred on October 28. The average hourly load from the following day through the end of the year was 1,307.9 kilowatt-hours ("kWh"). I recommend annualizing this hourly value for purposes of

setting rates in this case. Multiplication of this load by the 8,760 hours per year results in annual consumption for the facility of 11,457,399 kWh.

Figure 1: Aluminum Smelter Plant Hourly Load – October through December 2016



Q. Is it appropriate and consistent with past practices to make such an annualization adjustment?

A. Yes. Staff and the Company have historically worked together to make annualization adjustments for known and measurable changes to large customer loads that occur after the test period but prior to the true-up date. This is appropriate because rates should be set based on the billing units that most reasonably reflect the conditions that are expected to exist when those rates go into effect in order to have the greatest likelihood of producing the intended revenues. Since there is no indication in the load data observed that the facility will ever approach the level of usage it had under previous ownership, the most appropriate expectation of the ongoing level is the average observed since the ownership change occurred.

Q. What is the annualized revenue of the smelter associated with this annualized level of usage?

A. As discussed in the rebuttal testimony of Company witness William Davis, the Company recommends continuing to apply the Industrial Aluminum Smelter ("IAS") rate to the smelter's ongoing consumption. Applying the present rates to the annualized sales, I calculated results in annual revenues of **_____**.

IV. WEATHER NORMALIZATION OF SALES IN BLOCK RATES

Q. Please describe the next issue you will discuss.

A. The Company's Residential and Small General Service rate classifications utilize rate designs known as declining block rates in the non-summer period (October through May). Under these rate designs, customers pay one rate for the first "block" of usage (i.e., the first 750 kWh per month for residential customers), and a lower rate for subsequent usage. When the Company and Staff make adjustments to test year sales to adjust for the impact of abnormal weather, it is necessary to assign those adjustments to appropriate blocks in order to determine the prices to apply to them to establish normalized revenue levels.

Q. Did the Staff and the Company approach this adjustment similarly in this case?

A. At a high level, yes. Both parties used statistical relationships based on historical monthly block sales and a related variable (weather data in the Company's case, total monthly class use per customer in Staff's case) to calculate the adjustment. However, the details of the calculations performed by the two parties are quite different, and yield materially different results. I will describe flaws in the Staff's calculations that

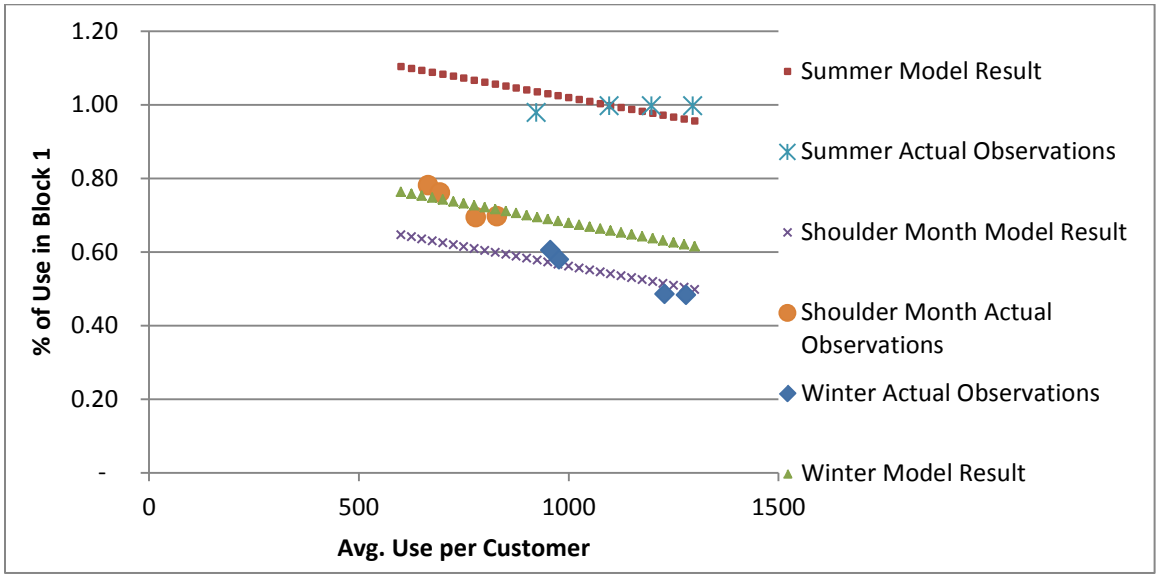
HC

result in too much of the weather adjustment being assigned to the first block, which then overstates the normalized level of test year revenues.

Q. What is the concern you have with the Staff's methodology?

A. Both the Staff and the Company developed statistical models designed to ascertain the appropriate proportion of monthly sales that occur in each block (i.e., how many kWh should be priced at the first block price vs. the second block price) for the non-summer months in the test year. However, the Staff includes summer months in its statistical model used to establish this relationship. Ameren Missouri's summer rates are *not* block rates (i.e., there is only one rate applicable to all kWh). Consequently, it is inappropriate to include summer months in the calculation of non-summer block sales. While it can be difficult to explain this type of statistical issue clearly and understandably, it can be very useful to visualize the problem. Figure 2 below shows a graphical representation of the Staff's statistical model used to assign sales to blocks.

Figure 2: Staff Block Normalization Model



Q. Please walk through Figure 2 to explain what it means.

A. Staff's model was based on the relationship between the percentage of class sales in a given month that occurred in the first usage block and the total use per customer observed in that month. The model was designed to differentiate between summer months, winter months and shoulder (spring and fall) months. There are three series on the scatter plot (one for each season and each labeled as "Actual Observations"), each of which are test year results that actually occurred. The summer season observations should jump out as obvious outliers.

Staff's model would tell you that the actual results would be expected to follow the red, downward sloping line. The actual results, however, do not fit the trend line Staff's model produces at all; rather, the actual results are completely flat (i.e., if you draw a line through the actual summer observations, the line is flat). This is to be expected since, as noted, there are no block rates in the summer. But the Staff has included these summer results in developing its model; i.e., the slope of the trend line for all three seasons was developed using the flat, actual summer results (note that the slope of the trend line is the same for all three seasons, i.e., they are parallel). Had the Staff properly omitted the non-block summer months from developing its trend line for the shoulder and winter seasons, when there are blocked rates in effect, the slope of the trend lines for the shoulder and winter would have been steeper. A steeper trend line applied to the calculations that assign the weather adjustments to blocks would have resulted in a higher percentage of shoulder and winter sales being assigned to the second block, which has lower rates (e.g., the Residential rate for the first winter block is $0.0858; for the second winter block it is $0.0573).

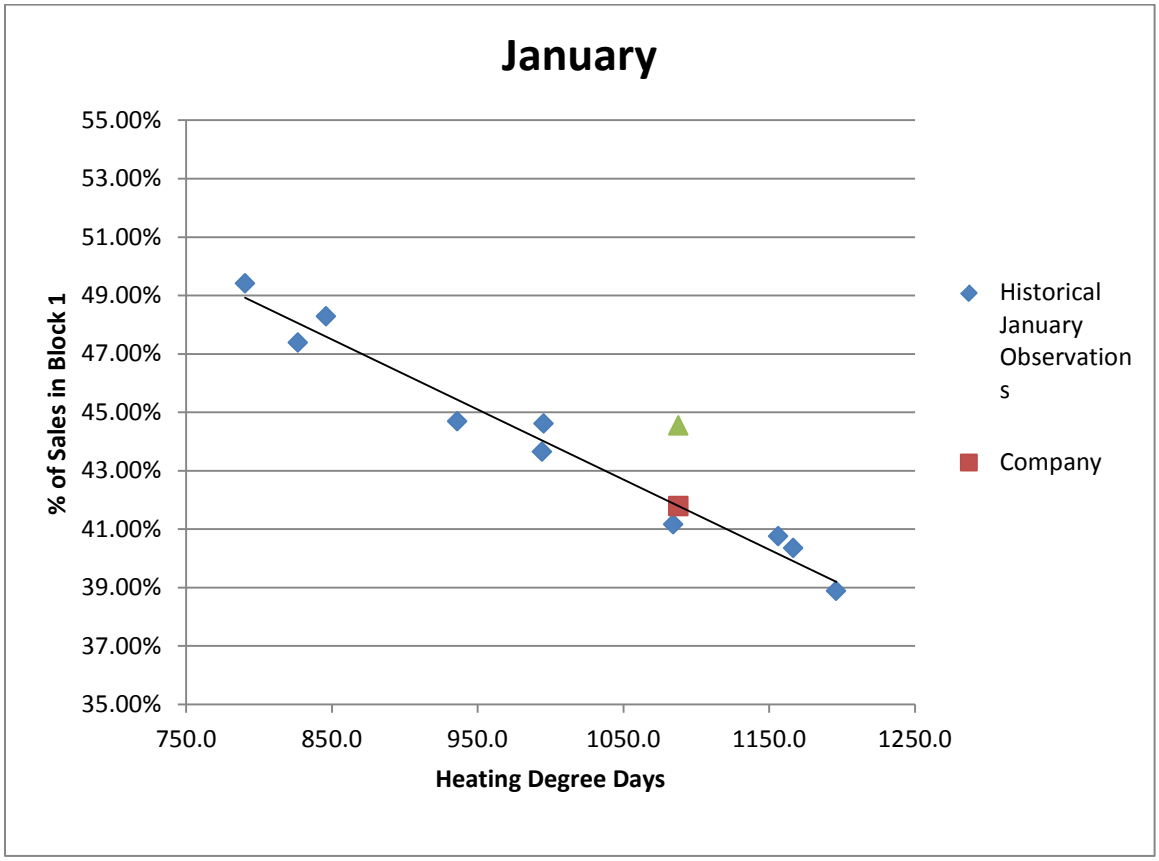
One can see that the lines for the shoulder and winter are too flat by isolating each season and looking to see whether the line created by the Staff model result for a given season passes through the middle of the observations for that season. Note that in both the winter period and the shoulder period, Staff's model result is clearly too low for the lower usage months (actual observations are above Staff's trend line) and clearly too high in the higher usage months (actual observations are below Staff's trend line).

Q. Please contrast this with the Company's approach to normalizing the block sales.

A. The Company developed a separate statistical relationship, using multiple years of historical observations, for *each month* of the year and then used the eight non-summer months to develop its adjustment. This avoids the problem that occurred in Staff's model, where the summer months that were clear outliers and do not bear any relationship to the blocks in the non-summer period were able to artificially flatten out the slope of the trend lines in the Staff model. Figure 3 below shows a graphical representation of the Company's model for the month of January.[2] Notice in Figure 3 how the black trendline, which represents the Company model results, passes neatly through the middle of the historical observations. There is a clear and logical relationship that is obvious in the historical data, and the fact that the trendline developed by the Company's model fits the data shows that the model represents the relationship that is apparent in the actual data.

[2] There are 10 yearly observations, each from January covering the period from 2007 through 2016.

Figure 3: Company Model of First Block Residential Sales vs. Monthly Heating Degree Days



Q. What does the data point labeled "Staff" (the green triangle) in the legend of Figure 3 represent?

A. I have overlaid the result of Staff's model for the month of January with the rest of the data on the graph to put it into both historical context and contrast it with the Company's model result (labeled in the legend as "Company"). Staff's result is a clear outlier. If Staff's model were accurate, the green triangle should be close to the trendline produced by the actual data.

Note that the level of first block sales utilized by the Staff to calculate normal revenues in this case is so high, that it is only matched in history by observations in months that are at least 8.5% milder than normal. I calculated this by taking the percent

difference in heating degree days for January 2015 (995.2) from normal (1,087.8). The point that represents January 2015 is the one directly to the left of the point labeled "Staff" on the graph. Staff's result is such a clear outlier that it should not be relied upon for setting rates.

Attached as Exhibit SMW-R1 is a similar graph of all of the monthly statistical models developed by the Company, and which also shows the Staff modeled result in that context. This exhibit demonstrates that the phenomenon I described above is true of non-summer months as well.

Q. Are there other advantages to the Company's approach?

A. Yes. By relying on multiple years of data for each month, there is a more robust relationship to generate the statistical models. Also, by separating each month into its own model, unique seasonal and/or monthly factors that impact different months in different ways are treated distinctly. For example, the January billing month is usually significantly longer than other billing months in the year because of the presence of multiple holidays that interrupt the business days of the month.[3] This means that higher usage in January may tend to be driven by different factors than in other months. As such, a model that treats January as discretely different from, for example, February, is more appropriate.

Q. What is your recommendation to the Commission on this issue?

A. I recommend that the allocation of weather adjustments for the Residential and Small General Service rate classes be made based on the relationships developed by the Company's models. The relationships developed by Staff's model are skewed because

[3] Holidays, just like weekends, are days when no bills are sent out. Because there are more such days with no billing represented in customers' January bills, the meter reads for this month tend to include more days of usage than for other months of the year.

of the improper use of summer (no blocks) month data to develop the slope of the trendline for the non-summer (with blocks) months.

Q. Does this conclude your 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 Increase Its Revenues for Electric Service.	)))	**File No. ER-2016-0179**

AFFIDAVIT OF STEVEN WILLS

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

Steven Wills, being first duly sworn on his oath, states:

1. My name is Steven Wills. I work in the City of St. Louis, Missouri, and I am employed by Ameren Services Company as Director, Rates and Analysis.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 12 pages and Schedule(s) SMW - R1, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Steven M. Wills
Steven Wills

Subscribed and sworn to before me this 17th day of January, 2017.

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, 2018
Commission Number 14839811

Schedule SMW-R1 Residential Monthly Block Normalization Model Relationships