

Exhibit No 056
Issues Weather Normalization of
Test Year Sales
Witness Steven M. Wills
Sponsoring Party Union Electric Company
Type of Exhibit Direct Testimony
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2008-0318

DIRECT TESTIMONY

OF

STEVEN M. WILLS

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
April, 2008

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1 DIRECT TESTIMONY

2 OF

3 STEVEN M. WILLS

4 CASE NO. ER-2008-____

5 I. INTRODUCTION

6 Q. Please state your name and business address.

7 A Steven M Wills, Ameren Services Company ("Ameren Services"), One
8 Ameren Plaza, 1901 Chouteau Avenue, St Louis, Missouri 63103

9 Q. What is your position with Ameren Services?

10 A I am the Managing Supervisor Quantitative Analytics in the Corporate
11 Planning Department

12 Q. What is Ameren Services?

13 A Amcren Services provides various corporate, administrative and technical
14 support services for Ameren Corporation ("Ameren") and its affiliates, including Union
15 Electric Company d/b/a AmerenUE ("Company" or "AmerenUE") Part of that work is
16 performing important analyses, including weather normalization of test year sales for rate
17 proceedings, which is the subject of my direct testimony in this case

18 Q. Please describe your educational background and work experience.

19 A I received a Bachelor's of Music degree from the University of Missouri-
20 Columbia in 1996 I subsequently earned a Master's of Music degree from Rice University
21 in 1998, then a Master's of Business Administration ("M B A ") degree with an emphasis in
22 Economics from St Louis University in 2002 While pursuing my M B A , I interned at
23 Ameren Energy in the Pricing and Analysis Group Following completion of my M B A in

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1 May 2002, I was hired by Laclede Gas Company as a Senior Analyst in its Financial Services
2 Department. In this role I assisted the Manager of Financial Services in coordinating all
3 financial aspects of rate cases, regulatory filings, rating agency studies, and numerous other
4 projects.

5 In June 2004, I joined Ameren Services as a Forecasting Specialist. In this
6 role I developed forecasting models and systems that supported the Ameren operating
7 companies' involvement in the Midwest Independent Transmission System Operator, Inc.'s
8 ("MISO") Day 2 Energy Markets. The forecasts that I developed were the basis for all of the
9 companies' demand bids into the MISO markets. In November 2005, I moved into the
10 Corporate Analysis Department in Ameren Services, where I was responsible for performing
11 load research activities, electric and gas sales forecasts, and assisting with weather
12 normalization for rate cases. In January 2007, I accepted a role I briefly held with Ameren
13 Energy Marketing Company as an Asset and Trading Optimization Specialist before
14 returning to Ameren Services as a Senior Commercial Transactions Analyst in July 2007. I
15 was subsequently promoted to my present position as the Managing Supervisor of the
16 Quantitative Analytics group.

17 **Q. What are your responsibilities in your current position?**

18 **A.** In my current position, I supervise a group of employees with responsibility
19 for short-term electric load forecasting, long-term electric and gas sales forecasting, load
20 research, weather normalization, and various other analytical tasks. My group's day-ahead
21 load forecasts serve as the basis for the Company's demand bids into the MISO energy
22 markets. We also perform forecasts of the Company's electric and gas sales for budgeting.

1 and resource planning purposes. Our load research work supports cost of service studies,
2 settlements, and weather normalization, among other things.

3 **II. PURPOSE OF TESTIMONY/BACKGROUND ON WEATHER**
4 **NORMALIZATION**

5
6 **Q. What is the purpose of your direct testimony in this proceeding?**

7 A The purpose of my testimony is to describe the process AmerenUE used to
8 weather normalize test year sales and to present the results of the weather normalization
9 analysis. Additionally, I calculated a days' adjustment for the test year to apply to sales.

10 **Q. What is weather normalization and why is it necessary?**

11 A The Company's sales are highly dependent on the weather conditions
12 experienced in its service territory. This is primarily due to the large number of customers
13 that heat and cool their premises with electric air conditioning, electric space heating, and gas
14 space heaters that have associated electric blowers. When summer weather is unusually hot,
15 air conditioning equipment must work harder to keep buildings cool. This results in an
16 increase in the Company's sales above expected levels. Similarly, if the summer is
17 particularly mild, air conditioning loads, and therefore electric sales, will decline from
18 expected levels. The converse is true in the winter. Colder temperatures cause increases in
19 space heating-related electric sales, while warm weather reduces them. Weather
20 normalization is the process of determining the level of sales that the Company should be
21 expected to make on an ongoing basis under normal weather conditions.

22 When changing rates in a rate case, it is important to normalize sales for the
23 impact of unusual weather. This is because the level of test year sales will become the
24 denominator in the development of new electric rates (cents/kilowatt-hour ("kWh")). If the
25 test year included weather-related increases in sales that are not expected to persist from year

1 The final step in the weather normalization process is to bring together the
2 actual and normal weather data with the statistical relationships of load and weather to
3 calculate the adjustments necessary to bring test year sales to the level expected under normal
4 conditions. These calculations will also be described further below.

5 **III. ACTUAL AND NORMAL WEATHER DATA**

6 **Q. What weather data is required for the weather normalization process?**

7 A It is necessary to obtain actual and normal two-day weighted mean
8 temperatures for each day in the test year that apply to the Company's service territory.

9 **Q. What is a two-day weighted mean temperature ("TDMT")?**

10 A Mathematically, the TDMT is calculated by first taking an average of the high
11 and low temperature reported for each day. This value is referred to as the daily average or
12 mean temperature. Then for each day, the daily mean temperature is averaged with the prior
13 day's daily mean temperature with 2/3 weight on the current day and 1/3 weight on the prior
14 day. This calculation is done because the TDMT is a better predictor of electric loads than
15 the simple daily mean temperature. As an example of why this is the case, electric loads tend
16 to be higher on each successive very hot day. This phenomenon is observable in load data
17 and is largely attributed to heat build-up. When coming off of a very hot day, buildings'
18 internal temperatures are higher than they otherwise would be. Therefore air conditioning
19 units must work harder to cool structures. The TDMT captures this effect by bringing
20 forward the effect of the prior day's temperature into the value being used to explain the
21 current day's electric usage.

22 **Q. What weather station is used to describe the weather in the Company's**
23 **service territory?**

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1 A Weather readings taken at the NOAA station at the St. Louis International
2 Airport (“Lambert Field”) are used in the weather normalization process as representing the
3 Company’s service territory. As the St. Louis Metropolitan Area makes up a large majority
4 of the Company’s customer base and the entire load served by the Company is located in
5 relatively nearby Missouri counties, this is appropriate. The Company acquires this weather
6 data from the Midwestern Regional Climate Center’s (“MRCC”) Midwestern Climate and
7 Information System database.

8 **Q. Are there any adjustments made to the temperatures reported by the**
9 **MRCC before they are used in the weather normalization process?**

10 A Actual temperatures for the test year are used as reported by the MRCC in the
11 Company’s calculations. However, in the calculation of normal weather, it is necessary to
12 make adjustments to the historical readings to account for certain discontinuities in the data
13 that have resulted from known changes made over time in the equipment used at Lambert
14 Field and its location.

15 **Q. Please describe the data used, including the adjustments you just**
16 **mentioned, in the calculation of normal weather.**

17 A As noted earlier, NOAA defines normal for a climatic element as the average
18 of that climatic element computed over three consecutive decades. NOAA’s current
19 definition of normal is the period from 1971-2000. Consistent with both Company and Staff
20 approaches to weather normalization in prior AmerenUE rate cases, the Company is utilizing
21 the 1971-2000 period as its definition of normal.

22 Over this period from 1971-2000, there have been changes made to the
23 weather station at Lambert Field where the temperature measurements are taken. The most

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1 significant of these changes occurred in May 1996, when Lambert Field was changed to an
2 Automated Surface Observing System station. At this time, both the equipment used to
3 record temperatures and the location of that equipment changed in order to introduce a
4 system that records weather data continuously and automatically. The new equipment and
5 location resulted in readings that were lower than they would have been with the previous
6 equipment and location. To illustrate this point, imagine two consecutive days that happen to
7 have identical high and low temperature conditions. At midnight, assume that the weather
8 station is disassembled and reconstructed with new equipment some distance away from
9 where it was. The new equipment happens to read cooler than the equipment it replaced,
10 since it is now in a grassy field instead of near blacktop pavement that absorbs heat. The
11 temperature on the second day now reads more than 1 degree cooler than the first day. It
12 would be inappropriate to use the temperature from the first day without any adjustment in a
13 calculation that will be used on the second day.

14 **Q. Please elaborate on the consequences of not making the appropriate**
15 **adjustments.**

16 **A.** We are using the average temperature from 1971-2000 to determine the
17 normal level of sales for the test year. If the temperature readings from 1971-2000 have a
18 known bias when compared with current readings from Lambert Field, the calculated normal
19 temperatures that are based on those readings will not be applicable to the test year. The
20 important thing is that the calculated normal temperature be accurate relative to the test year
21 temperatures. The difference between the normal temperature and the actual temperature
22 should represent climate variability, not artificial differences that can be introduced by
23 changing observation practices.

1 **Q. How are the magnitudes, direction, and timing of these adjustments**
2 **determined?**

3 A The adjustments that the Company makes to the historical temperature data
4 from Lambert Field are based on a collaborative analysis undertaken by Staff and the
5 Company during Case No EM-96-149. Climatologists engaged by the Company and Staff
6 used a statistical technique called "double-mass analysis" to determine the timing, direction,
7 and magnitude of the necessary adjustments. In the course of this analysis, the climatologists
8 used multiple reference weather stations in close geographic proximity to Lambert Field to
9 identify and characterize the discontinuities in the data. These adjustments were agreed to in
10 Case No EM-96-149 and were used again by both parties most recently in Case No
11 ER-2007-0002.

12 **Q. Please describe the specific adjustments you applied to the historical**
13 **temperatures.**

14 A There are three adjustments made to the historical temperatures. First, on
15 January 11, 1978 a change occurred at Lambert Field that resulted in readings that were 0.3
16 degrees warmer than before. Next, on February 1, 1988 a change occurred that resulted in
17 readings that were 0.45 degrees warmer than those prior. Finally, on May 16, 1996 a change
18 occurred that resulted in temperature readings that were 1.69 degrees cooler than before. All
19 adjustments are applied to the temperature readings before the date of the change. This
20 practice brings historical temperatures in line with current readings at Lambert Field.

21 **Q. Now that you have described the source of and adjustments to historical**
22 **temperature data, please describe the process you use to develop daily normal**
23 **temperatures for the test year.**

1 A First, daily TDMTs are calculated for the period of 1971-2000. Next, a
2 technique called "rank and average" is applied to the historical TDMTs in order to develop
3 normal values to use in the test year. The rank and average technique is used so that the
4 resultant normal temperatures produce appropriate levels of electric usage when applied to
5 the statistical models that capture the relationship between load and temperature. The rank
6 and average technique starts by ranking all of the days within a season or year for each year
7 from the highest TDMT to the lowest. Then for that season or year, the warmest day of each
8 of the 30 years is averaged, the second warmest day of each of the 30 years is averaged, and
9 so on until the coolest day of each of the 30 years is averaged. Through this process we get a
10 series of daily temperatures that represent the normal hottest day for the season or year
11 through the normal coldest day for the season or year. This result is desirable because it
12 gives normal temperatures that also exhibit normal levels of extreme temperatures.

13 **Q. Why is it important to have normal levels of extreme temperatures?**

14 A The response of load to temperature is non-linear. That means that a change
15 in temperature of 1 degree from 40 to 41 degrees has a different impact than a change in
16 temperature from 60 to 61 degrees, which in turn has a different impact than a change from
17 80 to 81 degrees. Because load behaves differently across the spectrum of possible
18 temperatures, it is important to have a representative number of days in each part of the
19 temperature range in order to reproduce the level of load that would be experienced across a
20 year with normal temperature variability. The rank and average technique achieves this
21 objective.

22 **Q. Are there any other considerations that you make when using this**
23 **technique?**

1 A Yes, there are many details to this calculation. In particular, there are various
2 ways to handle certain issues around seasons and days of the week. The Company has
3 performed the calculations consistent with its understanding of Staff's preferred approach
4 and similar to how the Company and Staff ultimately agreed to perform these calculations in
5 Case No. ER-2007-0002.

6 **IV. LOAD – TEMPERATURE RELATIONSHIP**

7 **Q. How is the relationship between load and TDMT established?**

8 A The Company uses the Hourly Electric Load Model to develop statistical
9 models that represent the relationship of load and temperature.

10 **Q. What are the inputs to the HELM model?**

11 A The HELM model requires hourly loads for each customer rate class to be
12 weather normalized. It also requires a calendar that describes the seasons and day-types (i.e.
13 weekends, weekdays, etc.) to be used in the modeling process. Finally, it requires daily actual
14 TDMT for the period being used to develop the model.

15 **Q. Since the Company bills its customers monthly, and therefore reads most
16 of its customers' meters only monthly, how does the Company get hourly load data by
17 customer rate class to input into the model?**

18 A The Company uses hourly load data developed through its Load Research
19 Program in the model. AmerenUE maintains stratified random samples of customers from
20 each rate class, for which it collects hourly load data. Using the hourly loads from the
21 samples, billed sales, and the meter read schedule, the Company uses a statistical technique
22 called ratio analysis to generate hourly class level loads. The class level loads are
23 aggregated, adjusted for transmission and distribution line losses and compared to the system

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1 load by hour The system load is an actual hourly metered value The class level loads are
2 calibrated so that they aggregate up to match the known system loads by hour The resultant
3 calibrated loads by rate class are used in the HELM model

4 **Q. Please discuss the modeling process that occurs in HELM.**

5 A HELM matches up daily load values (the sum of the 24 hourly values) with
6 daily TDMTs and plots them on a scatter plot graph with TDMT on the horizontal axis and
7 load on the vertical axis The data points are grouped onto separate scatter plots by seasons
8 and day-types For example, all of the load-TDMT pairs for weekdays in July may be
9 combined with the weekdays in August to form one group The groupings are logical For
10 example, July and August are both hot summer months, so loads in those months are likely to
11 behave similarly and are thus grouped together On an 80 degree day in July you would
12 expect the load to be similar to an 80 degree day in August because most customers are
13 running their air conditioners consistently during these months However, on an 80 degree
14 day in May, many customers may not have turned on their air conditioners, so you would
15 typically expect a lower load than you would see in July and August Using the tools in
16 HELM, all months are combined into appropriate seasonal groupings Similar groupings are
17 made by day-type For example, it is logical that for some customer classes, Saturdays and
18 Sundays would have a similar load pattern, so weekends may be grouped together

19 **Q. Once the months have been grouped into seasons and the appropriate**
20 **day-types have been grouped together, what is the next step?**

21 A Then the relationship between load and TDMT is established The HELM
22 model uses regression models with linear splines to statistically represent the load-
23 temperature relationship A regression model is a statistical technique that is used to

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1 determine the best-fitting line through a group of data points. The term “linear splines”
2 simply means that the line that is fit through the data points may be made up of several
3 distinct line segments that describe different relationships at different temperatures.

4 **Q. Please provide an example of this.**

5 A Consider a model that is being fit through the load-TDMT pairs for the spring
6 months of April and May. During this time, both heating and cooling equipment may be
7 used by the Company’s customers. The model may determine that when the temperature is
8 between 40 and 50 degrees, a particular customer class’ usage may increase by 100-
9 megawatt hours (“MWhs”) for each degree it gets colder. That means that when the TDMT
10 falls from 42 to 41 degrees, space heating equipment works harder, resulting in 100 MWhs of
11 increased usage. In this case, the HELM model would show a line segment with a slope of -
12 100 through the load-TDMT pairs in that temperature range on our scatter plot. However,
13 this same model may indicate that from 70 to 80 degrees, the same class’ usage increases by
14 150 MWhs for each degree warmer that it gets. This is because as temperature increased,
15 heating equipment was switched off and air conditioning equipment was switched on. Over
16 the data points on this part of the scatter plot, a line segment with a slope of 150 will be
17 shown. The model establishes across all relevant temperature ranges what is expected to
18 happen to customer loads as the temperature changes.

19 **Q. How are these models used to normalize customer loads?**

20 A For each day, actual and normal TDMTs have been paired based on the
21 normal weather calculations described above. For a given day, assume that the actual TDMT
22 was 74 degrees and normal is 78 degrees. We will look to the statistical relationships
23 developed in HELM, which may indicate that in this temperature range, each additional

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1 degree causes usage to increase by 100 MWhs So in order to normalize load we will take
2 the number of degrees that the actual temperature deviated from normal (78 degree normal -
3 74 degree actual = 4 degree adjustment from actual to normal) and multiply it by the usage
4 per degree described by the model (4 degrees x 100 MWhs/degrec = 400 MWhs) On that
5 day, normal usage is 400 MWhs higher than the actual usage was

6 **V. NORMALIZING BILLED AND CALENDAR SALES**

7 **Q. Once you have normalized the daily loads that you developed in your**
8 **load research process, how does this translate into normal sales for billing months?**

9 A The Company's billings for a given month do not necessarily represent all of
10 the energy used within the calendar days of that month This is because the Company's
11 customers have their meters read in 21 groups (or cycles) each month according to a
12 published schedule So an August bill for one customer may be based on the period July 14
13 through August 13, while for another customer the August bill may include usage from
14 July 26 through August 26 Groups of customers that have their meters read on the same
15 date are referred to as sharing a billing cycle In the weather normalization process, the
16 Company is normalizing each billing cycle independently We start with billed sales for each
17 billing cycle (group of customers whose meters are read together) for each month Since we
18 know the dates the meters were read for each billing cycle, it is possible to estimate how
19 much usage occurred on each day Take for example a hypothetical billing cycle that began
20 on July 14 and ended on August 13 A particular class of customers (e g , Residential, Small
21 General Service, etc) may have been billed for 150,000 MWhs of usage in that period by the
22 customers on that billing cycle We then look at the total estimated class daily usage (from
23 load research) for those dates We may find that the total class used 3,000,000 MWhs over

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1 the dates between July 14 and August 13. Perhaps the total class usage on July 14th was
2 100,000 MWhs. Therefore, 3.33% of the class' usage occurred that day (100,000 MWhs of
3 class daily usage / 3,000,000 MWhs of class usage over the billing period). That 3.33% is
4 applied to the sales of the actual billing cycle that is being normalized (150,000 MWhs x
5 3.33% = 5,000 MWhs on July 14th). Using this methodology the actual billed sales are
6 estimated by day for each billing cycle. Then for each day, the actual billed sales are
7 adjusted based on the daily normalized loads produced by HELM. We know that the total
8 class used 100,000 MWhs on July 14th, and through the HELM process the normal load for
9 July 14th was determined to be 110,000 MWhs. So for that day, normal usage was 110% of
10 actual (110,000 MWhs normal load / 100,000 MWhs actual load = 110%). So the billing
11 cycle that used 5,000 MWhs on July 14th has a normal load for that day of 5,500 MWhs
12 (5,000 MWhs actual usage x 110% normal/actual ratio = 5,500 MWhs normal usage). For
13 every customer class, month, and billing cycle combination, this calculation is done for each
14 day that falls between the applicable meter reading dates. The sum of the daily billed actual
15 sales across all months and billing cycles tie to the Company's billings for the year for the
16 customer class being normalized. The sum of the daily billed normal sales across all months
17 and billing cycles is the normal level of the Company's billings for the year.

18 **Q. How are calendar month actual and normal sales estimated in this**
19 **process?**

20 **A.** When going through the calculations of actual and normal billed sales, daily
21 actual and normal sales by billing cycle are developed. These sales are then just aggregated
22 according to the days within a calendar month rather than according to meter read schedules.

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VI. DAYS' ADJUSTMENT

Q. What is a days' adjustment?

A The billed sales in the test year are based on the Company's meter reading schedule. Based on a number of factors, including when holidays occur, the billed usage for the year may include more or fewer days than a normal year. In the test year of April 2007 through March 2008, the average customer was billed for 367.1 days of usage. Test year sales should be adjusted to a level that would be realized if the average customer usage was metered for 365.25 days (one out of every 4 years is a leap year with one extra day, hence the 25 days added to the 365 days in non-leap years).

Q. How is the days' adjustment applied?

A The ratio of normal days to test year days is calculated ($365.25 / 367.10$). Each month's sales are then multiplied by this ratio to adjust sales to a normal number of days.

VII. RESULTS

Q. Please describe the results of your weather normalization analysis.

A At the time of filing the case, the analysis has been completed for the first nine months of the test year. In aggregate, the test year so far has been warmer than normal. Summer loads were normalized down to levels reflective of cooler normal summer temperatures. August 2007 in particular was one of the warmest calendar months on record in the Company's service territory. This month had a significant downward normalization adjustment. The months in the analysis that normally have heating load associated with them (November and December) have been normalized higher to account for the increase in heating sales that would be associated with normal (colder) weather. A table of all of the

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1 results by calendar month and by rate class is attached as Schedule SMW-E1 Results by
2 billing month and the days' adjustment referred to earlier are presented in Schedules
3 SMW-E2 and SMW-E3, respectively

4 **Q. Will you be updating your results in this case?**

5 A Yes I will be completing the weather normalization analysis for the last three
6 months of the test year (January – March 2008) when the data is all available The updated
7 analysis will be provided with the supplemental direct testimony to be filed by the Company

8 **Q. To whom did you provide your results?**

9 A I provided my results to AmerenUE witness James R Pozzo in the
10 Company's Missouri Regulatory Services Department, who used those results to develop
11 normal billing units which were in turn used by AmerenUE witness Wilbon L Cooper to
12 calculate the proposed rates, by rate class I also provided my results to Mr Weiss, the
13 Manager of Regulatory Accounting, who used them to develop certain allocation factors
14 necessary to properly allocate costs among production, distribution and transmission, and to
15 develop normalized net output for use in the production cost modeling used to support the
16 Company's revenue requirement in this case

17 **Q. Does this conclude your direct testimony?**

18 A Yes, it does

EXECUTIVE SUMMARY

Steven Wills

*Managing Supervisor, Quantitative Analytics in the Corporate Planning
Department for Ameren Services Company*

The purpose of my testimony is to introduce the methodology employed by AmerenUE ("Company") to weather normalize test year sales. Test year sales are used to develop billing determinants that are used to calculate new rates. Unusually warm or cool weather in a test year can cause the calculated rates to be set at a level that is likely to result in the Company either over-collecting or under-collecting its revenue requirement. Weather normalization is the process of determining the level of test year sales that will set a rate most likely to accurately collect the intended revenue requirement. Additionally, weather normalized sales are needed to perform production cost modeling and to develop variable cost allocation factors.

The process of weather normalizing sales includes developing statistical models that describe the relationship between customer class loads and weather in the test year, calculating normal weather variables to put into this statistical model, and calculating sales by billing month and calendar month based on the modeled results.

The inputs into the statistical model are hourly loads by customer class, daily two-day weighted mean temperature ("TDMT"), and the test year calendar. Hourly loads are obtained from the Company's load research program. TDMTs are calculated from temperature observations at St. Louis International Airport ("Lambert Field"). The purpose of calculating the TDMT is to introduce information about both the current day's and the prior day's temperatures into the model to help explain variation in load. The calendar input

uses the actual calendar for the test year with seasons and days included in groups that have similar load characteristics. For example, weekends tend to have similar load patterns, so Saturdays and Sundays may be included in a group.

Once the inputs have been developed and the model has been executed in order to create the statistical relationship between weather and load, that relationship is used to adjust loads for the difference between the actual weather that occurred and normal weather. In order to do this, it is necessary to develop a normalized temperature for each day in the test year. Normal weather is based on temperatures realized over the years from 1971 - 2000. This time period is consistent with the definition of normal weather used by the National Oceanic and Atmospheric Administration ("NOAA") and by both the Company and the Missouri Public Service Commission Staff ("Staff") in recent cases. Historical temperature observations are adjusted to remove bias that has been introduced by changes in the temperature sensing equipment and location of the weather station. These adjustments are based on an agreement between the Company and the Staff first made in Case No. EM-96-149 that was relied upon again most recently by both parties in Case No. ER-2007-0002. The adjusted temperatures are run through a procedure called "rank and average." The rank and average procedure was used by the Company and Staff in Case No. ER-2007-0002. This procedure develops daily normal temperatures that will appropriately produce normal levels of load when run through the statistical models.

The statistical models of load and temperature are used in conjunction with the daily normal temperature data to develop daily normal loads for each rate class that is to be normalized. When this is complete, we have developed actual and normal daily loads. These two series of data are then used to adjust actual customer billing data from the test year to a

normal level. The result of this process is normal loads for each billing month and calendar month within the test year.

At the time of preparing the initial case, the first nine months of the test year have been weather normalized. An update will be provided that will include the months of January through March of 2008. The period from April through December 2007 was generally warmer than normal. This was particularly true of August 2007, which was one of the warmest months on record in the Company's service territory. Based on this, the weather normalization analysis has resulted in reductions to test year sales in the summer months, as unusually warm temperatures resulted in increased air conditioning usage. The winter months were generally normalized by increasing test year sales to account for the higher level of space heating related electric sales that would be expected to occur in normal colder months.

Test Year Actual and Normal Calendar Month Sales (kWh)

| Ameren UE - Residential Sales - Calendar Month - 2007 | | | |
|---|---------------|---------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 848,505,571 | 782,045,894 | 92 2% |
| 5 | 976,749,485 | 837,585,042 | 85 8% |
| 6 | 1,257,539,078 | 1,172,212,854 | 93 2% |
| 7 | 1,436,915,777 | 1,491,405,611 | 103 8% |
| 8 | 1,777,519,004 | 1,344,133,890 | 75 6% |
| 9 | 1,106,423,561 | 937,767,917 | 84 8% |
| 10 | 884,496,035 | 807,401,839 | 91 3% |
| 11 | 977,036,234 | 1,016,249,465 | 104 0% |
| 12 | 1,392,544,801 | 1,447,003,466 | 103 9% |

| Ameren UE - LGS Sales - Calendar Month - 2007 | | | |
|---|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 636,907,770 | 625,826,833 | 98 3% |
| 5 | 703,457,895 | 667,993,210 | 95 0% |
| 6 | 743,085,998 | 723,464,139 | 97 4% |
| 7 | 792,259,726 | 798,994,610 | 100 9% |
| 8 | 873,307,453 | 799,974,520 | 91 6% |
| 9 | 721,309,850 | 683,364,607 | 94 7% |
| 10 | 697,697,571 | 662,921,770 | 95 0% |
| 11 | 610,241,419 | 615,925,552 | 100 9% |
| 12 | 665,271,301 | 679,689,297 | 102 2% |

| Ameren UE - LPS Sales - Calendar Month - 2007 | | | |
|---|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 333,186,328 | 333,332,825 | 100 0% |
| 5 | 366,909,091 | 355,967,296 | 97 0% |
| 6 | 367,148,900 | 364,280,975 | 99 2% |
| 7 | 390,669,565 | 393,623,427 | 100 8% |
| 8 | 420,798,211 | 401,390,419 | 95 4% |
| 9 | 351,815,978 | 345,837,209 | 98 3% |
| 10 | 390,401,709 | 383,320,645 | 98 2% |
| 11 | 331,657,702 | 331,002,311 | 99 8% |
| 12 | 320,958,995 | 323,377,366 | 100 8% |

Test Year Actual and Normal Calendar Month Sales (kWh)

| Ameren UE - SGS Sales - Calendar Month - 2007 | | | |
|---|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 263,584,702 | 253,542,442 | 96 2% |
| 5 | 300,446,483 | 274,937,399 | 91 5% |
| 6 | 332,640,360 | 319,843,979 | 96 2% |
| 7 | 355,205,514 | 360,710,712 | 101 5% |
| 8 | 406,300,385 | 354,653,981 | 87 3% |
| 9 | 309,944,048 | 286,916,815 | 92 6% |
| 10 | 288,107,015 | 271,648,052 | 94 3% |
| 11 | 268,910,174 | 273,690,929 | 101 8% |
| 12 | 316,168,825 | 324,933,829 | 102 8% |

| Ameren UE - SPS Sales - Calendar Month - 2007 | | | |
|---|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 318,104,304 | 316,267,744 | 99 4% |
| 5 | 351,104,945 | 341,942,461 | 97 4% |
| 6 | 360,350,946 | 355,079,311 | 98 5% |
| 7 | 379,261,954 | 381,612,178 | 100 6% |
| 8 | 400,445,343 | 378,727,834 | 94 6% |
| 9 | 353,600,187 | 344,703,636 | 97 5% |
| 10 | 341,260,701 | 330,374,139 | 96 8% |
| 11 | 303,876,563 | 304,122,717 | 100 1% |
| 12 | 302,082,861 | 304,351,656 | 100 8% |

| Ameren UE - Wholesale Sales - Calendar Month - 2007 | | | |
|---|------------|------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 44,257,797 | 43,357,650 | 98 0% |
| 5 | 50,836,680 | 47,084,926 | 92 6% |
| 6 | 56,565,422 | 54,143,243 | 95 7% |
| 7 | 61,650,711 | 62,916,437 | 102 1% |
| 8 | 72,667,650 | 61,655,539 | 84 8% |
| 9 | 54,539,592 | 50,079,602 | 91 8% |
| 10 | 48,625,480 | 45,608,495 | 93 8% |
| 11 | 46,176,311 | 46,935,503 | 101 6% |
| 12 | 52,675,108 | 54,106,181 | 102 7% |

Test Year Actual and Normal Billing Month Sales (kWh)

| Ameren UE - Residential Sales - Billing Month - 2007 | | | |
|--|---------------|---------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 878,693,135 | 898,981,661 | 102.3% |
| 5 | 863,522,942 | 781,988,828 | 90.6% |
| 6 | 1,070,855,731 | 946,315,797 | 88.4% |
| 7 | 1,368,012,104 | 1,346,743,403 | 98.4% |
| 8 | 1,545,815,252 | 1,410,354,861 | 91.2% |
| 9 | 1,491,643,670 | 1,161,509,835 | 77.9% |
| 10 | 1,026,645,871 | 857,498,678 | 83.5% |
| 11 | 850,921,169 | 843,214,355 | 99.1% |
| 12 | 1,182,161,852 | 1,231,840,180 | 104.2% |

| Ameren UE - LGS Sales - Billing Month - 2007 | | | |
|--|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 643,561,725 | 650,834,833 | 101.1% |
| 5 | 642,246,764 | 624,658,861 | 97.3% |
| 6 | 706,220,585 | 675,248,266 | 95.6% |
| 7 | 769,610,924 | 761,719,921 | 99.0% |
| 8 | 793,091,532 | 772,585,900 | 97.4% |
| 9 | 814,180,450 | 751,788,973 | 92.3% |
| 10 | 719,752,755 | 671,847,187 | 93.3% |
| 11 | 638,538,643 | 627,627,689 | 98.3% |
| 12 | 661,172,350 | 670,659,445 | 101.4% |

| Ameren UE - LPS Sales - Billing Month - 2007 | | | |
|--|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 332,359,689 | 324,926,093 | 97.8% |
| 5 | 343,036,990 | 340,638,982 | 99.3% |
| 6 | 365,922,637 | 356,442,300 | 97.4% |
| 7 | 370,007,249 | 368,352,021 | 99.6% |
| 8 | 389,797,027 | 388,793,661 | 99.7% |
| 9 | 408,796,271 | 391,612,511 | 95.8% |
| 10 | 361,451,172 | 354,666,098 | 98.1% |
| 11 | 369,840,193 | 364,454,528 | 98.5% |
| 12 | 337,337,768 | 337,465,530 | 100.0% |

Test Year Actual and Normal Billing Month Sales (kWh)

| Ameren UE - SGS Sales - Billing Month - 2007 | | | |
|--|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 270,880,433 | 268,475,237 | 99 1% |
| 5 | 274,187,016 | 259,696,682 | 94 7% |
| 6 | 307,055,379 | 286,019,970 | 93 1% |
| 7 | 345,962,411 | 341,281,213 | 98 6% |
| 8 | 367,660,870 | 352,086,439 | 95 8% |
| 9 | 362,173,825 | 320,897,313 | 88 6% |
| 10 | 309,403,192 | 283,330,400 | 91 6% |
| 11 | 265,823,477 | 261,225,128 | 98 3% |
| 12 | 297,968,770 | 304,889,345 | 102 3% |

| Ameren UE - SPS Sales - Billing Month - 2007 | | | |
|--|-------------|-------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 325,338,256 | 319,191,199 | 98 1% |
| 5 | 330,810,333 | 325,812,769 | 98 5% |
| 6 | 340,461,179 | 333,119,261 | 97 8% |
| 7 | 376,669,190 | 374,180,586 | 99 3% |
| 8 | 374,974,147 | 369,433,395 | 98 5% |
| 9 | 385,191,428 | 367,291,078 | 95 4% |
| 10 | 351,012,440 | 339,328,506 | 96 7% |
| 11 | 317,069,090 | 311,889,638 | 98 4% |
| 12 | 323,670,165 | 324,712,836 | 100 3% |

| Ameren UE - Wholesale Sales - Billing Month - 2007 | | | |
|--|------------|------------|--------|
| Month | Actual | Normal | Ratio |
| 4 | 49,068,097 | 51,070,246 | 104 1% |
| 5 | 43,978,410 | 43,058,548 | 97 9% |
| 6 | 51,344,937 | 47,631,476 | 92 8% |
| 7 | 58,853,523 | 56,665,897 | 96 3% |
| 8 | 61,716,031 | 62,325,868 | 101 0% |
| 9 | 77,891,460 | 66,898,683 | 85 9% |
| 10 | 48,233,074 | 44,168,654 | 91 6% |
| 11 | 47,865,510 | 45,406,142 | 94 9% |
| 12 | 49,104,082 | 49,833,238 | 101 5% |

Test Year Days' Adjustment

| Test Year Days Adjustment - Billing Month | | | | |
|---|-------|------------------|---------------------|-----------------|
| Year | Month | Avg Billing Days | Normal Billing Days | Days Adjustment |
| 2007 | 4 | 30 33 | 30 18 | 99 497% |
| 2007 | 5 | 29 81 | 29 66 | 99 497% |
| 2007 | 6 | 30 86 | 30 70 | 99 497% |
| 2007 | 7 | 30 43 | 30 28 | 99 497% |
| 2007 | 8 | 29 71 | 29 56 | 99 497% |
| 2007 | 9 | 30 52 | 30 37 | 99 497% |
| 2007 | 10 | 29 71 | 29 56 | 99 497% |
| 2007 | 11 | 30 10 | 29 94 | 99 497% |
| 2007 | 12 | 31 71 | 31 55 | 99 497% |
| 2008 | 1 | 33 62 | 33 45 | 99 497% |
| 2008 | 2 | 30 57 | 30 42 | 99 497% |
| 2008 | 3 | 29 71 | 29 56 | 99 497% |
| Annual | | 367 10 | 365 25 | 99 497% |

| Test Year Days Adjustment - Calendar Month | | | | |
|--|-------|---------------|----------------------|-----------------|
| Year | Month | Calendar Days | Normal Calendar Days | Days Adjustment |
| 2007 | 4 | 30 00 | 30 00 | 100 000% |
| 2007 | 5 | 31 00 | 31 00 | 100 000% |
| 2007 | 6 | 30 00 | 30 00 | 100 000% |
| 2007 | 7 | 31 00 | 31 00 | 100 000% |
| 2007 | 8 | 31 00 | 31 00 | 100 000% |
| 2007 | 9 | 30 00 | 30 00 | 100 000% |
| 2007 | 10 | 31 00 | 31 00 | 100 000% |
| 2007 | 11 | 30 00 | 30 00 | 100 000% |
| 2007 | 12 | 31 00 | 31 00 | 100 000% |
| 2008 | 1 | 31 00 | 31 00 | 100 000% |
| 2008 | 2 | 29 00 | 28 25 | 97 414% |
| 2008 | 3 | 31 00 | 31 00 | 100 000% |
| Annual | | 366 00 | 365 25 | 99 795% |