

Exhibit No.:
Issues: Weather Normals
Witness: Seoung Joun Won
Sponsoring Party: MO PSC Staff
Type of Exhibit: Rebuttal Testimony
Case No.: ER-2012-0345
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MISSOURI PUBLIC SERVICE COMMISSION

REGULATORY REVIEW DIVISION

REBUTTAL TESTIMONY

OF

SEOUNG JOUN WON

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2012-0345

*Jefferson City, Missouri
January 2013*

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Q. Please state your name and business address.

A. My name is Seoung Joun Won and my business address is Missouri Public Service Commission, P.O. Box 360, Jefferson City, Missouri, 65102.

Q. What is your present position?

A. I am a Regulatory Economist in the Economic Analysis Section, Energy Rate Design/Tariffs Unit, Tariff, Safety, Economic and Engineering Analysis Department, Regulatory Review Division of the Missouri Public Service Commission.

Q. Are you the same Seoung Joun Won who provided testimony in Staff's Cost of Service Report?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to address the Direct Testimony ("testimony") of The Empire District Electric Company ("Company") witness, Aaron J. Doll.

Q. Which part of Mr. Doll's testimony are you going to address?

A. I will address the historical temperature data of the Springfield Regional Airport weather station ("SGF") for the period of January 1, 1982, through December 31, 2011, that Mr. Doll used to determine normal weather.

Q. What was the source of the historical temperature data used by Mr. Doll?

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1 A. According to his testimony (page 4, lines 3-4), Mr. Doll used “the National
2 Oceanic and Atmospheric Administration (“NOAA”) statistics from Springfield, Missouri.”

3 Q. What were the “NOAA statistics” Mr. Doll used?

4 A. According to his email on November 2, 2012, Mr. Doll used “the weather data
5 that Staff used in a prior case and just updated it [to] include the most recent 30 years.” Based
6 on Staff’s analysis of the Company’s workpaper, Mr. Doll used two sets of temperature data
7 from NOAA which were also used by Staff in the last rate case, Case No. ER-2011-0004.
8 One was 30-year NOAA 1971-2000 normals for the period 1982-2000. The other was the
9 actual temperature data from NOAA for the period 2001-2011.

10 Q. What was the difference between NOAA normals used by Mr. Doll and the
11 updated NOAA normals which were used by Staff in this case?

12 A. NOAA published updated 30-year (1981-2010) normals in July 2011. NOAA
13 not only updated its 30-year time period from 1971 through 2000 to 1981 through 2010, but
14 also used a different method from previous normals, using *homogenization*¹ of temperature
15 series via a pairwise comparison algorithm, because the previous normals did not properly
16 remove the bias from undocumented changes.²

17 Q. In light of these differences, do you consider Mr. Doll’s historical temperature
18 data to be reliable for use at this time?

19 A. No. Mr. Doll’s historical temperature data are based on out-of-date NOAA
20 normals which were updated by NOAA to reflect the most recent 30-year time period and to
21 improve methodology.

¹ Homogenization is the act of making something homogeneous or uniform in composition.
<http://wordnetweb.princeton.edu/perl/webwn?s=homogenization>

² Menne, M. J., and C. N. Williams, Jr., (2009) Homogenization of temperature series via pairwise comparisons.
J. Climate, **22**, 1700-1717.

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1 Q. Would you summarize why Staff used the new NOAA methodology of
2 historical temperature data?

3 A. Staff used the most recent revised 30-year NOAA 1981-2010 normals which
4 were developed using an improved methodology accepted by the climatology community to
5 adjust for inconsistencies due to location or instrumentation changes in meteorological
6 observation time series. In addition, Staff directly communicated with NOAA to confirm the
7 validity of historical temperature data and to revise incorrect Time of Observation bias
8 adjustments.

9 In addition, Staff recommends the Commission use a method that allows for
10 consistency in weather normalization between utilities. This concept has been adopted by the
11 Commission in prior cases. For example, in its Report and Order issued in Case No.
12 GR-2006-0422³ on March 22, 2007, the Commission stated:

13 The Commission continues to use the 30-year normal and finds that it should be
14 consistent when applying a method of weather normalization between utilities. In the
15 absence of more convincing evidence that this methodology should be changed, the
16 commission will continue to adopt the 30-year weather normalization as proposed by
17 Staff.

18 The use of the most recent NOAA normal weather will allow consistency when
19 applying a method of weather normalization between utilities.

20 Q. Does that complete your testimony?

21 A. Yes, it does.

³ *In the Matter of Missouri Gas Energy's Tariffs Increasing Rates for Gas Service Provided to Customers in the Company's Missouri Service Area*, Case No. GR-2006-0422, *Report and Order* issued March 22, 2007, page 15.