Exhibit No.:
Issues: Revenue Requirement
Witness: Seoung Joun Won
Sponsoring Party: MO PSC Staff
Type of Exhibit: Rebuttal Testimony
Case No.: GR-2014-0086
Date Testimony Prepared: July 11, 2014

MISSOURI PUBLIC SERVICE COMMISSION

REGULATORY REVIEW DIVISION
Tariff, Safety, Economic & Engineering Analysis

REBUTTAL TESTIMONY

OF

SEOUNG JOUN WON, Ph.D.

SUMMIT NATURAL GAS OF MISSOURI, INC.

CASE NO. GR-2014-0086

Jefferson City, Missouri
July 2014

Staff Exhibit No. 121
Date 8-19-14 Reporter KF
File No. GR-2014-0086

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Summit Natural Gas of)
Missouri, Inc's Filing of Revised Tariffs to)
Increase its Annual Revenues For Natural)   File No. GR-2014-0086
Gas Service)

AFFIDAVIT OF SEOUNG JOUN WON, Ph.D.
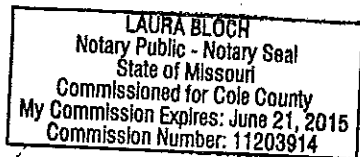
STATE OF MISSOURI   )
) ss
COUNTY OF COLE   )

      Seoung Joun Won, Ph.D., of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of __4__ pages of Rebuttal Testimony to be presented in the above case, that the answers in the following Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

                                    _____
                                        Seoun Joun Won, Ph.D.

Subscribed and sworn to before me this 10th day of July, 2014.

                                    _____
                                      Notary Public

REBUTTAL TESTIMONY

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SUMMIT NATURAL GAS OF MISSOURI, INC.

CASE NO. GR-2014-0086

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5 <div align="center">CASE NO. GR-2014-0086</div>

6 Q.   Are you the same Seoung Joun Won who filed in Staff's Cost of Service

7 Report?

8 A.   Yes I am.

9 ## EXECUTIVE SUMMARY

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

11 A.   The purpose of this testimony is to address the weather data that Summit

12 Natural Gas of Missouri, Inc. ("SNG" or "Company") witness Tyson D. Porter used to

13 perform SNG's weather normalization calculations.

14 Q.   Which part of the Company's weather data used by Mr. Porter are you going to

15 address?

16 A.   I am addressing the following three issues: the time period of climate normals,

17 weather stations of the Gallatin Division, and the reliability of weather data.

18 ## CLIMATE NORMALS

19 Q.   What is a "climate normal"?

20 A.   According to the National Oceanic and Atmospheric Administration

21 ("NOAA"), a "climate normal" is defined as the arithmetic mean of a climatological element,

<div align="center">1</div>

1 such as temperature, computed over three consecutive decades.[1] The most recent U.S.

2 Climate Normals published by NOAA is for the period of January 1, 1981 through December

3 31, 2010.[2]

4   Q.   What is the purpose of calculating climate normals for the rate case?

5   A.   The purpose of calculating climate normals is to restate a twelve-month period

6 of weather-sensitive, actual-customer usage and revenues in order to reflect "normal weather"

7 for that period. Because each year's weather is unique, usage and revenue of weather-

8 sensitive customer rate classes need to be adjusted to normal weather conditions.

9   Q.   What time period did Mr. Porter use for purposes of calculating the Company's

10 normal weather?

11   A.   Mr. Porter used the 30-year period of January 1, 1971 through December 31,

12 2000.

13   Q.   What climate normal time period did Staff use?

14   A.   Staff used the 30-year period of January 1, 1981 through December 31, 2010,

15 which is the latest climate normal period published by NOAA. This is the current 30-year

16 normal period and is more appropriate for a climate normal in this case.

17   Q.   Why didn't Mr. Porter utilize the most recent climate normal period that

18 NOAA provided?

19   A.   In the Company's response to Staff Data Request No.0107, SNG stated that it

20 had mistakenly assumed the 1981-2010 data was not available for the regional climate center

21 cite used by SNG.

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[1] Retrieved on June 27, 2014, http://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climate-normals.

[2] Retrieved on June 27, 2014, http://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climate-normals/1981-2010-normals-data.

1 ## WEATHER STATIONS

2   Q.   What weather stations did Mr. Porter used?

3   A.   The Company used St. Joseph Rosecrans Airport ("STJ") located in St. Joseph,

4 Missouri for the Gallatin district. SNG used the Springfield Regional Airport ("SGF")

5 weather data for its Branson and Rogersville districts, while the Sedalia ("SDL") weather data

6 was used for SNG's Warsaw and Lake of the Ozarks districts.

7   Q.   Does Staff agree with the weather station used by Mr. Porter for its Gallatin

8 district?

9   A.   No. The STJ is not a proper weather station for calculating climate normals of

10 the Gallatin district.

11   Q.   Why is the STJ weather station considered an improper weather station?

12   A.   It is improper because the observed temperature data during the period is not

13 reliable. More than 15 percent of data is missing during the 30-year period. Specifically, the

14 temperature data from April 21, 1992 through September 30, 1996 is missing.

15   Q.   Is there any other appropriate weather station for the Gallatin division?

16   A.   Yes. Kansas City International Airport ("MCI") is a first-order weather

17 station[3] and was used by Staff in its 30-year weather normalization computation for SNG's

18 Gallatin district. The temperature data set of MCI has no missing data during the 30-year

19 period, and the distance between the MCI and STJ weather stations is only 30 miles. The

20 distance between MCI and SNG's Gallatin district is about 50 miles, while the distance

21 between STJ and SNG's Gallatin district is about 40 miles.

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[3] First–Order refers to weather stations that are professionally maintained, primarily through the National Weather Service or Federal Aviation Administration. http://www.ncdc.noaa.gov/faqs/climfaq25.html

WEATHER DATA

Q.   What does the weather data consist of?

A.   The weather data consists of daily maximum temperature ("T_{max}") and daily minimum temperature ("T_{min}") observations.   These daily temperatures are used for developing a set of mean daily temperature ("MDT") values.[4]   Heating Degree Days ("HDD") are based on the difference of the MDT from a comfort level of 65°F.   HDDs are calculated as the difference between 65°F and the MDT when the MDT is below 65°F, and are equal to zero when the MDT is above 65°F.[5]

Q.   What is Staff's concern about the weather data used by Mr. Porter?

A.   Staff's concern is that the weather data used by Mr. Porter is not reliable.   For instance, Mr. Porter improperly compares calendar month normal HDDs and the billing month test year HDDs even though the calendar month does not always match the billing month.   This mismatch generates a bias in SNG's weather normalization.   In addition, SNG made a calculation error when calculating the billing month HDD.

Q.   Is there a specific example of this calculation error of the billing month HDD?

A.   Yes, with regard to the Sedalia-Springfield HDD.   In SNG's workpaper for its Gallatin-Warsaw Retail Demand for the April 2013 billing month, HDDs is reported as "108" when it should be "519."

Q.   Does this conclude your rebuttal testimony?

A.   Yes, it does.

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[4] By National Climatic Data Center convention, MDT is average of daily maximum temperature (T_{max}) and daily minimum temperature (T_{min}) e.g. MDT = (T_{max} + T_{min}) /2
[5] Where MDT < 65°F, HDD = 65 – MDT; otherwise, HDD = 0.