Exhibit No.:
Issues: *Conversion to Therm Billing*
Witness: *Daniel I. Beck*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Rebuttal Testimony*
Case No.: *GR-2017-0215 and GR-2017-0216*
Date Testimony Prepared: *October 20, 2017*

MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

ENGINEERING ANALYSIS UNIT

REBUTTAL TESTIMONY

OF

DANIEL I. BECK

SPIRE MISSOURI, INC., d/b/a SPIRE

LACLEDE GAS COMPANY and MISSOURI GAS ENERGY
GENERAL RATE CASE

CASE NOS. GR-2017-0215 AND GR-2017-0216

Jefferson City, Missouri
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Q. Please state your name and business address.

A. My name is Daniel I. Beck. My business address is Missouri Public Service Commission, P.O. Box 360, Jefferson City, MO 65102.

Q. What is your position at the Commission?

A. I am the Manager of the Engineering Analysis Unit, Operational Analysis Department, Commission Staff Division.

Q. Are you the same Daniel I. Beck who sponsored part of the Staff Report – Class Cost of Service, which was filed as direct testimony on September 22, 2017?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the Company's request to convert MGE to therm billing. I recommend that the Commission reject this proposal in this case.

Q. What testimony did MGE submit regarding this issue?

A. Pages 33-34 of the testimony of Company witness Scott A. Weitzel includes a section titled "Conversion of MGE to Therm Billing". However, I would also note the proposed tariffs for MGE contain many references to therms and the workpapers supporting MGE calculations of costs and rates include many therm references.

Q. On page 33 of his direct testimony, Company witness Weitzel discusses billing on a ccf and therm basis and concludes that "[b]oth ways of billing are appropriate and reasonable as long as all of the customers of any operating unit are being billed consistently by using one method or the other." Do you agree with this statement?

A. Not totally. In the Commission's most recent Annual Report, six (6) natural gas companies are listed. LAC bills on a therm basis while the other five (5) natural gas utilities bill on a Ccf basis. For calendar year 2015 for the regulated Missouri natural gas utilities, 647,056 customers were billed on a therm basis while 705,393 customers were billed on a Ccf basis. Therefore, the Commission has already made a determination that both ways of billing are appropriate.

However, it has been my experience that any change in billing methods raises concerns with customers. To alleviate those concerns, there needs to be good reasons for the change and there needs to be a good customer education program to explain the changes.

Q. On page 34, line 1 of his direct testimony, Company witness Weitzel discusses "a number of advantages to having both LAC and MGE bill on a consistent, per therm basis." These advantages are then listed on lines 2-8. What is your impression of the three (3) advantages discussed?

A. First, I would note that only one advantage describes a benefit to the customers. This advantage is that "it will provide customers who may move from the service territory of one operating unit to another, with the same method for billing and tracking usage". While this may benefit a small number of customers that happen to be moving from west Missouri to east Missouri, or vice-versa, Staff is not aware of a large number of customers that have moved from one of Spire's operating divisions to another

or are likely to in the near future. Since other natural gas utilities' service areas are located in close proximity to the Spire operating units, it seems more likely that a customer would move from a Spire service area to one of Missouri's other natural gas utilities' service areas, and converting MGE to a therm basis would increase the likelihood of a difference between billing methods occurring if in fact it is a problem as suggested by Mr. Weitzel. The other two advantages Company witness Weitzel lists appear to be Company related benefits. The first is "it should make it easier to track and reflect lost and unaccounted for gas on a consistent basis." Mr. Weitzel's testimony does not explain why this should be the case, but based on the proposed tariff and the Company's documentation, it appears to assume that performing the conversion on each individual customer is easier than doing the conversion for a group of similarly situated customers. As proposed by the Company, the conversion would take place on each individual customer's bill, and therefore each month the calculation would need to be performed over 600,000 times just for the Residential Class. Staff maintains that performing a conversion from Ccfs to therms on an individual customer is not somehow easier than doing the conversion for a group of similarly situated customers.

The other advantage cited by Company witness Weitzel is that "it will allow the Company to produce consistent financial and operational data for the Commission and other outside sources without having to convert usage and rates in Ccf to a therm basis." Again, the idea that performing a conversion from Ccfs to therms on an individual customer basis is somehow easier than doing the conversion for a group of similarly situated customers does not seem logical. In addition, based on a review of the most recent Annual Reports filed by the Company with the Missouri Public Service Commission, which are primarily the FERC Financial Report or FERC Form No. 2,

Staff concludes that Reporting is done in both Ccfs and therms with no additional conversion required.

Based on its review of the three advantages, Staff concludes that there is little value to the advantages listed by MGE.

Q. When a residential customer's meter is read, is the reading in Ccfs or therms?

A. Ccfs. Meters measure the volume of gas going to the customer. A Ccf is 100 cubic feet which is a volumetric measurement. This is true for both MGE and Laclede.

Q. Would it be possible to install residential meters that measure in therms?

A. Yes, in theory. However, it is my general understanding that it would be cost prohibitive. Instead, using LAC as the example, the Ccfs are measured, read and reported on the bill. On the bill a BTU conversion factor[1] is then applied, which converts the Ccfs into therms. In this case, MGE is proposing to use a 1.02 BTU conversion factor until a system can be put in place to apply the BTU factor on the bill.

Q. How did you determine that MGE is proposing to use a 1.02 BTU factor?

A. Although it wasn't specifically addressed in testimony, MGE's workpapers used a 1.02 factor to convert Ccfs to BTUs and MGE also confirmed that this is the proposed factor in subsequent discussions. In addition, MGE explained to Staff in discussions that at some point in the future, daily BTU factors would be calculated and the process of applying a BTU factor would be similar to the process LAC has in place.

[1] LAC's customer bills label the conversion factor from Ccfs to therms as a "BTU Factor". A BTU is the abbreviation for a British Thermal Unit and measures the heat content of the natural gas. The calculation of the BTU factor divides actual BTUs by 100,000 BTUs to determine the factor.

Q. Would the point in the future be the operation of law date for this case?

A. No. Staff was told that the system could not be put in place by the operation of law date. It is unclear when this system would be in place.

Q. Could you briefly describe your understanding of the LAC BTU factor calculation?

A. Yes. LAC has divided its service territory into 4 areas to calculate BTU factors. For each area, a daily calculation of the BTU factor takes into account the volumes and heat content of the natural gas at each of the points where gas can flow into or out of the area. The daily values are then averaged over the billing month for the customer and the average is used to adjust that customer's Ccfs to therms.

Q. Has MGE determined what the areas would be for its service territory and does it have the measuring equipment in place to determine the BTU factor?

A. No. MGE has not determined what the areas would be, therefore, the locations of all of the points that define the areas' borders are not known and it has not performed the necessary calculations of the heat content of the natural gas which flows into those undefined areas on a daily basis. Additionally, it is likely that additional measuring equipment will be required at some of these points in order to make the necessary calculations.

Q. Does Staff find the 1.02 BTU factor to be reasonable?

A. No. LAC provided Staff data that shows an average BTU factor for the period of May 1, 2016, to April 30, 2017, to be 1.031, 1.029, 1.029 and 1.025 for its 4 areas. In addition, The United States Energy Information Administration ("EIA") reports a BTU factor of 1.037 for calendar year 2016. Both the LAC data and the EIA data show that a factor of 1.02 is too low.

Q. Why would a low factor be a concern?

A. In this case, the use of a 1.02 factor would result in lower billing units. When these billing units are divided into the revenue requirement, the result is a rate that is higher than it should be and the higher rate would result in an over-collection of revenues. In addition, if the actual factors are indeed higher, then additional revenues would be collected for both the higher rate and the higher usage. The proper application of a BTU factor should not result in either additional revenue or loss of revenue for the Company.

Q. What would be a reasonable method to determine a BTU factor for adjusting the billing units?

A. A calculation based on historic data would be a reasonable way to determine a BTU factor. However, no historic values were used to develop the 1.02 factor.

Q. What is your understanding of reasons that "[f]or many decades, LAC has billed its customers on a therm basis"?

A. In the early days, LAC was primarily a lighting company and the gas was manufactured gas. Manufactured gas was produced from coal, coal and oil mixtures, or from petroleum. Over time, LAC transitioned from manufactured gas to natural gas from pipelines and heating became the most prominent end use for gas. Manufactured gas often had a BTU value that that was almost half the value of pipeline natural gas today so measuring the BTU content was important. Manufactured gas often resulted in significant environmental impacts and by the mid-1960s, all gas manufacturing had ceased in Missouri and the United States. For utilities that relied on pipeline gas, the day-to-day variation in the BTU content was very small and the simplicity of billing in

Ccfs was often preferred. However, LAC also used propane from its storage facilities to meet peak day demands; and the heat content of gas that is combined with propane injection is typically at a higher BTU content than normal pipeline levels.

Q. Are there any other instances where converting Ccfs to therms is needed to address an issue?

A. Yes. For gas utilities that serve customers at different altitudes in states such as Colorado, BTU factors are developed that adjust for the altitude at which the gas is delivered. This has historically not been a reason for BTU adjustments in Missouri.

Q. Does MGE use propane injection to meet its peak load?

A. No.

Q. Do you have any other concerns about this proposal?

A. Yes. It has been my experience, when handling complaints and inquiries here at the PSC, that LAC customers have questioned the use of the BTU factor in the past. To be fair, in discussions with customers, similar concerns have been expressed for any factor that raises their bill but the BTU factor is no exception. Staff would expect that there would need to be a public education process to help customers understand this change. Staff is not aware of any plans that MGE has to educate the public in conjunction with this proposal.

In addition, once the areas are determined, each customer would need to be assigned to a specific area. With over one-half million customers, this is not a small task.

Q. Based on your review of MGE's proposed conversion from Ccf to therm billing, do you believe that MGE's proposal is reasonable?

A. No, MGE has simply proposed a general concept but much of the work that would be required to implement this proposal has not been done and will not be done

by the operation of law date. If MGE still wants to pursue this in the future, it should better explain why the conversion is needed, define the areas, install the equipment, develop historic data, assign the customers to the areas and develop a customer education program.

Q. Is Staff agreeing to implement this program in a future case if the items above are completed?

A. No. Staff would conduct a review in a future case in the same manner it has in this case. Staff continues to have serious concerns about the need to change MGE's billing from Ccfs to therms. The items listed above would give Staff enough information to properly evaluate the proposal but the results of that evaluation could not be known until the information is available.

Q. What is your recommendation regarding the conversion of MGE to therm billing?

A. I recommend that the Commission reject this proposal in this case.

Q. Does this complete your rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Laclede Gas Company's Request to Increase Its Revenues for Gas Service	)))	Case No. GR-2017-0215
In the Matter of Laclede Gas Company d/b/a Missouri Gas Energy's Request to Increase Its Revenues for Gas Service	)))	Case No. GR-2017-0216

AFFIDAVIT OF DANIEL I. BECK, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW DANIEL I. BECK, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Daniel I Beck PE
DANIEL I. BECK, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 20th day of October, 2017.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin
Notary Public