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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

Staff Exhibit No. 232

Date 10/20/17 Reporter AE

DANIEL I. BECK

File No. GR-2017-0215 GR-2017-0216

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
October 2017*

1 REBUTTAL TESTIMONY

2 OF

3 DANIEL I. BECK

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

5 LACLEDE GAS COMPANY and MISSOURI GAS ENERGY
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8 Q. Please state your name and business address.

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

11 Q. What is your position at the Commission?

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

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

16 A. Yes.

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

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

21 Q. What testimony did MGE submit regarding this issue?

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

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

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

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

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

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

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

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

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

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

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

7 A. Ccfs. Meters measure the volume of gas going to the customer. A Ccf is
8 100 cubic feet which is a volumetric measurement. This is true for both MGE and
9 Laclede.

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

11 A. Yes, in theory. However, it is my general understanding that it would be
12 cost prohibitive. Instead, using LAC as the example, the Ccfs are measured, read and
13 reported on the bill. On the bill a BTU conversion factor¹ is then applied, which converts
14 the Ccfs into therms. In this case, MGE is proposing to use a 1.02 BTU conversion factor
15 until a system can be put in place to apply the BTU factor on the bill.

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

17 A. Although it wasn't specifically addressed in testimony, MGE's
18 workpapers used a 1.02 factor to convert Ccfs to BTUs and MGE also confirmed that this
19 is the proposed factor in subsequent discussions. In addition, MGE explained to Staff in
20 discussions that at some point in the future, daily BTU factors would be calculated and
21 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.

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

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

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

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

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

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

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

20 A. No. LAC provided Staff data that shows an average BTU factor for the
21 period of May 1, 2016, to April 30, 2017, to be 1.031, 1.029, 1.029 and 1.025 for its
22 4 areas. In addition, The United States Energy Information Administration ("EIA")
23 reports a BTU factor of 1.037 for calendar year 2016. Both the LAC data and the EIA
24 data show that a factor of 1.02 is too low.

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1 Q. Why would a low factor be a concern?

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

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

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

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

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

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

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

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

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

10 A. No.

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

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

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

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

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

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

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

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

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

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

15 Q. Does this complete your rebuttal testimony?

16 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) Case No. GR-2017-0215
Gas Service)

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

AFFIDAVIT OF DANIEL I. BECK, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

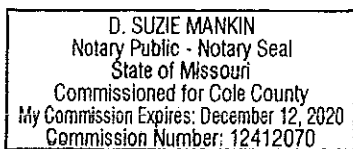
COMES NOW DANIEL I. BECK, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to his best knowledge and belief.

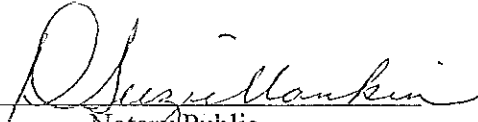
Further the Affiant sayeth not.


DANIEL I. BECK, PE

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.




Notary Public