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MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

REBUTTAL TESTIMONY

OF

KEENAN B. PATTERSON, PE

UNION ELECTRIC COMPANY,
d/b/a AMEREN MISSOURI

CASE NO. GR-2019-0077

Jefferson City, Missouri
June 2019

** Denotes Confidential Information **

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Introduction

Q. Please state your name and business address.

A. Keenan B. Patterson, P.O. Box 360, Jefferson City, Mo. 65102.

Q. By whom are you employed and in what capacity?

A. I am the Utility Regulatory Engineer in the Procurement Analysis Department with the Missouri Public Service Commission (Commission).

Q. How long have you been employed with the Commission?

A. I commenced employment with the Commission Staff (Staff) in August 2015.

Q. Please describe your educational background and experience.

A. A summary of my background and education is attached as Schedule KBP-r1.

Q. What is the purpose of your testimony in this case?

A. My purpose is to address issues related to school aggregation and the proposals of the Missouri School Boards' Association (MSBA) as introduced in the direct testimony of Mr. Louis R. Ervin, Sr.

Q. What topics will you discuss in our testimony?

A. Most of my testimony will relate to the topic of balancing and MSBA's proposal to change Union Electric Company, d/b/a Ameren Missouri's (Ameren) tariff

provisions for balancing transportation customers. I will also briefly discuss MSBA's proposal to create a separate tariff section for school transportation customers.

Executive Summary

Q. Please summarize your understanding of MSBA's proposal.

A. MSBA has requested two things. First, it desires to change the balancing provisions of Ameren's Natural Gas Transportation Service tariff to remove what it describes as "penalties" on balancing cash outs for school transportation pools. Related to this, MSBA also objects to the use of the Purchased Gas Adjustment (PGA) rate as a basis for pricing cash outs. Second, MSBA recommends the creation of a separate tariff section related to school transportation customers, distinct from the current Natural Gas Transportation Service tariff.

Q. Please summarize Staff's recommendations related to MSBA's proposals.

A. Staff recommends that the Commission reject both of the MSBA proposals. First, MSBA's suggested tariff language is drawn from the recently approved tariff of Spire Missouri West (Spire West), which was put in place to address the unique circumstances of Spire West and it is not applicable to other utilities.

In addition, the MSBA proposal would shift the responsibility for balancing from school pool operators to Ameren. It provides no mechanism for correcting imbalances that may occur. MSBA's proposal practically eliminates balancing requirements for school transportation pools.

Second, Ameren's inclusion of requirements related to school transportation pools in a larger section relating to transportation customers is not especially confusing or burdensome. School pools are operated by gas marketing companies that have expertise in supplying gas through various utilities and interstate pipelines, each with their own unique tariffs.

Balancing

Definition and Purpose of Balancing

Q. What is balancing?

A. Balancing is the process by which a transportation service provider (TSP) and a shipper of gas reconcile the difference between the amount of gas the TSP receives and delivers for a shipper. When a gas corporation delivers gas to a transportation customer, the gas corporation acts as a TSP and the transportation customer is a shipper. For all other customer classes, the gas corporation is a shipper and the interstate pipeline acts as a TSP. Transportation customers must arrange for gas to be shipped on the interstate pipeline to the gas corporation's city gate. It is typical for gas corporations to release a portion of their capacity on the interstate pipeline to school pool operators.

Q. What is a school pool operator?

A. A school pool operator is a gas supplier or gas marketing company that contracts with a not-for-profit school association to aggregate and supply natural gas for a group of schools, or a pool. These companies provide the same kind of services to pools of industrial and commercial customers.

The pool operator runs the day-to-day operations of the pool. They estimate how much gas will be needed in aggregate by the schools in the pool. They arrange for gas supply out of their own resources or from gas they purchase. They also arrange for the shipment of gas on interstate pipelines. Utilities typically release some of their capacity on pipelines to the pool operator, though the operator may use capacity it has from other contracts that allow it to ship an appropriate amount of gas to the city gate.

Q. What is a city gate?

A. A city gate is a location where an interstate pipeline delivers gas to a local distribution company. City gates are equipped with metering and pressure regulating equipment to measure gas flow and adjust the pressure to an appropriate level for the distribution system. City gates are sometimes equipped with devices to measure gas quality.

Q. Why is balancing important?

A. Natural gas pipelines and local distribution companies must assure that the amount of gas they receive into their transmission or distribution system closely matches the amount of gas they deliver to customers. It must be balanced.

Transportation customers' imbalances may impact a gas corporation's management of its gas supply, which can affect the gas costs of its sales customers. Transportation customers' imbalances could cause a gas corporation, such as Ameren, to buy additional, higher-priced gas in the daily gas market for those imbalances, inject or withdraw gas in storage to cover those imbalances, or increase or decrease monthly supply purchases. All of these actions could cause the sales customers' gas costs to be higher than they otherwise would have been.

Q. Does balancing serve other purposes?

A. Yes. Balancing allows TSPs and shippers to be "made whole" by allowing parties to make up for shortfalls or recover any excesses in the difference between the gas delivered and received either with gas or by cash-outs in lieu of gas.

Responsibility for Balancing

Q. Who is responsible for balancing?

A. Transportation customers and their pool operators are responsible for balancing. School transportation pools are transportation customers that have this

responsibility. Mr. Ervin acknowledged that school pool operators should match the gas they deliver to the city gate to the usage of their customers when he stated, "MSBA agrees that [it] is the School's Pool Operator's responsibility to make intra-month winter nominations in accordance with forecasted temperatures and other available information,"[1] and "[t]he schools' Pool Operator is responsible to make weekly adjustments to its schedule winter deliveries to reflect weather forecasts."[2]

Q. Does the MSBA proposal hold school pool operators responsible for balancing on a daily, weekly or monthly basis?

A. No. Though Mr. Ervin acknowledged the balancing responsibility of school pool operators, the tariff language proposed by MSBA tends to shift responsibility for balancing from the pool operators to the utility.

As a practical matter, MSBA's proposal would make Ameren responsible for preventing school pool imbalances. In order to exercise any other mechanism of accountability open to it in the MSBA proposal, Ameren must first recommend that the school pool operator adjust its nominations. To accomplish this, Ameren would need to independently evaluate the anticipated daily needs of the school pools, compare this to the pool operator's nominations, and contact the pool operator in the event that it believed the operator's nomination was not appropriate.

In addition, MSBA's proposal has no provision for correcting imbalances that may occur. The proposal has no requirement for the calculation or tracking of imbalances or for

[1] Direct Testimony of Louis R. Ervin, Sr., p. 7, ll. 1-3.
[2] Ibid., p. 8, ll. 7-8.

the correction of imbalances by adjusting nominations, supplying or returning gas, cash-out[3] or any other means. It is unclear that imbalances would ever be corrected.

Q. Does the MSBA proposal provide timely and proportionate accountability for school pool imbalances?

A. No. First, the MSBA proposal does not correct imbalances. Under the tariff language recommended by MSBA in the testimony of Mr. Ervin (p. 8, l. 16 - p. 9, l. 11) there is no calculation of imbalances and no provision to correct imbalances that occur, either by cash-out[4], adjustment of nominations in subsequent months or any other method. If the pool operator delivers too little gas, MSBA's proposal would not require the operator to deliver additional gas to make up the shortfall or pay the utility for gas to make up the difference. If the pool operator delivers too much gas, the MSBA proposal would not require the utility to return any gas or make payments for the gas to the pool operator.

Second, the MSBA proposal does not provide for a timely response or correction to imbalances that may occur. MBSA's proposal would require the utility to proactively recommend that the pool operator change nominations to avoid an imbalance before the utility could take any other corrective actions. Before the utility could take corrective action, the pool operator would need to fail to make an adjustment based on the utility's recommendation three times in a 12-month period. Potentially, corrective action may not be available to the utility for almost a year after the first incident, and it may never be available if enough time elapses between incidents. To exercise this option, the utility must closely watch the daily activity of the pool operator and intervene with recommendations.

[3] In a cash-out, the utility bills or pays the transportation customer for gas shortages or overages rather than requiring the customer to make up or take back the gas physically.

[4] In a cash-out, the utility bills or pays the transportation customer for gas shortages or overages rather than requiring the customer to make up or take back the gas physically.

Finally, the MSBA proposal does not provide for responses to imbalances that are proportional to the magnitude or severity of the imbalance. If the pool operator fails to comply with recommendations three times in 12 months, the only action available to the utility is the termination of the transportation program for that pool, returning them to sales customers. Termination is the result whether the magnitude of the imbalances is large or small. Termination is the result whether there are severe imbalances three months in a row or spread out over twelve months. It does not scale with the number, frequency or magnitude of imbalances, it does not correct outstanding imbalances at the termination of the program for a pool and it does not require the correction of prior imbalances before the reinstatement of the program for a previously terminated pool.

Q. Could Ameren override a pool operator's nomination if the operator failed to change its nomination based on the company's recommendation, as Mr. Ervin suggests in his direct testimony?

A. No. Ameren stated in response to Staff Data Request (DR) No. 0288, "Only a Shipper, who has an executed Service Agreement from the pipeline for capacity release or transportation contract, can make a nomination change for that respective contract. Therefore, Ameren Missouri cannot adjust another counterparty's pipeline nominations." Ameren further stated in its response to Staff DR No. 0297, "Ameren Missouri would need to contact the Pool Group Operator to adjust any transporting interstate pipeline nomination. Only the Shipper of the respective interstate pipeline contract can make nominations on their respective pipeline contract."

Ameren may not recall capacity releases to school pools for the purpose of overriding a pool operator's interstate pipeline nominations. As noted in Ameren's tariff, "Company will not recall such capacity unless requested by the school or the school's agent."[5]

Current Balancing Requirements are Typical

Q. Are balancing provisions common in interstate pipeline and gas corporation tariffs?

A. Yes. All of the interstate pipelines that transport gas to Ameren have balancing provisions in their tariffs. The major provisions for balancing in the tariffs of MoGas Pipeline (MoGas, Section 7.14.1), Natural Gas Pipeline of America (NGPL, Part 6.13), Panhandle Eastern Pipe Line (PEPL, Part VI, Section 12), Southern Star Central Gas Pipeline (SSC, General Terms and Conditions, Sections 9.7 - 9.9) and Texas Eastern Pipeline (TETCO, Part 6, Section 8) are attached as Schedule KBP-r2.

All of Missouri's gas corporations also have balancing provisions in their tariffs for transportation customers. In the Ameren tariff, balance provisions appear in the Natural Gas Transportation Service (Sheet Nos. 10 - 16.3), a copy of which is attached as Schedule KBP-r3. Spire Missouri West (Spire West), to which Mr. Ervin makes frequent reference, has unique provisions related to balancing for school pools, though it has more typical balancing for other transportation customers. I will discuss these unusual provisions elsewhere in this testimony, and I have attached a copy of the Spire West's Experimental School Transportation Program (Sheet Nos. 15 - 15.4) and Transportation Provisions (Sheet Nos. 16-16.14) tariffs as Schedule KBP-r4.

[5] Ameren's Natural Gas Transportation Service tariff (Schedule KBP-r3), Sheet No. 13.

Q. How is balancing accomplished under the various tariffs?

A. TSPs have balancing provisions that fit the needs of their systems. Cash-out balancing is a method used by all Missouri gas corporations and by four of the five pipelines that serve Ameren: NGPL, PEPL, SSC and TETCO. The remaining pipeline, MoGas Pipeline, imposes ongoing penalties for uncorrected imbalances.

Because pipelines have resources that utilities typically do not have, they employ other methods of balancing in addition to cash-out. Some pipelines provide for imbalance trading. The large capacity of pipelines also allows them to permit shippers to nominate gas to make up imbalances, subject to the availability of capacity on the pipeline. For NGPL, PEPL, SSC and TETCO, imbalances that are not resolved by other means in a timely fashion are cashed out.

Q. What balancing methods are used by gas corporations for their transportation customers?

A. All of Missouri's gas companies balance their transportation customers using cash-out, with the exception that Spire does not cash-out the school transportation pools, though Spire East requires school pools to balance by adjusting nominations in the month following the month in which an imbalance occurs. Examples can be found in the attached schedules. Ameren's cash-out balancing provisions are in Section I (Sheet Nos. 13.2 - 16) of its Natural Gas Transportation Service tariff (Schedule KBP-r3). The cash-out balancing provision for Spire West's non-school transportation customers are in Section A, Paragraph 9 (Sheet Nos. 16.5 - 16.6) of its Transportation Provisions tariff (Schedule KBP-r4).

Q. What is the advantage of cash-out balancing?

A. Cash-out balancing is administratively simple to implement in comparison to other methods of balancing. Pipelines have pipeline capacity and storage resources that allow them to more easily accommodate imbalance correction through additional receipts or deliveries in a period following the imbalance. However, resources of this scale are not typically available within a utility distribution system. Similarly, pipelines operate systems from capacity release or the exchange of similar resources that accommodates similar systems for imbalance trading, which are not normally part of utility operations.

In addition, cash-outs provide an economic incentive to balance. Pool operators pay or receive a price tied to the amount of the imbalances that recognizes that utility resources are used to deal with imbalances as they happen.

Another advantage of cash-out balancing is that it is a timely economic signal to pool operators about the occurrence and degree of imbalances. Each month the pool operator receives a bill or payment indicating its balancing performance along with the utility's calculation of the imbalance.

Q. You have compared the balance provision in tariffs of interstate pipelines and gas corporations. Is the relationship between a gas corporation and its transportation pool operators similar to the relationship between an interstate pipeline and shippers?

A. Yes. The relationship between a transportation customer and a gas corporation is very similar to the relationship between a shipper and a pipeline. Mr. Ervin acknowledged this in his direct testimony when he states, "The [MSBA Natural Gas] Consortium purchases natural gas on the open market and arranges for gas supply, pipeline delivery, and local utility

transportation."[6] The consortium he refers to is in the role of the not-for-profit school association; it contracts with a pool operator that supplies and ships the gas. He also compared school transportation pools to other transportation customers when he stated, "STP [School Transportation Program] allows schools to transport on the utility delivery system in a similar manner to large commercial and industrial transportation providers."[7]

Q. Who controls capacity released to a pool operator?

A. Pool operators control capacity released to them subject to rules and tariffs applicable to the pipeline. While a pool operator is obligated to deliver gas to the city gate to supply its customers, it may use the capacity released to it as it pleases. A pool operator may use any pipeline capacity, in any combination, in its portfolio to ship gas to customers so long as it has the capacity to reach the needed receipt and delivery locations.

When a pool operator does not need capacity released to it by a utility to serve a school pool, it may use that capacity to serve other customers or support other deals. Similarly, if that capacity is committed, the pool operator may meet its obligation to deliver gas to the city gate by using other contracts or capacity releases on the same pipeline.

Q. You mentioned Spire West's balancing provisions for school pools are unique, differing from its provision for other transportation customers and from the balancing provisions of other Missouri gas corporations. Please explain.

A. Prior to the tariff that became effective April 19, 2018, the Spire West Experimental School Transportation Program had typical cash-out balancing requirements for school pools. However, it was not implementing its tariff related to balancing school

[6] Direct Testimony of Louie R. Ervin, Sr., p. 4. ll. 3-4. The MSBA Natural Gas Consortium is sometimes referred to as the Missouri Purchasing Resource Center (MOPURC).
[7] Ibid. p. 4, ll. 14-16.

transportation pools. Staff brought up this issue in prior Actual Cost Adjustment (ACA) Case Nos. GR-2013-0042, GR-2014-0324 and GR-2015-0203. Staff noted:

> According to MGE's tariff Sheet No. 58, the STP customers are subject to Cash Out of their monthly balances. Staff found in this ACA period, as in the prior ACA period, MGE's practice with regard to imbalances of STP customers is not consistent with its tariff. MGE was carrying over STP customers' imbalances from month-to-month rather than Cashing Out the imbalances for these customers on a monthly basis.[8]

Tariff language to correct this oversight in light of the unique situation at Spire West, was arrived at *by a stipulation* that was approved by the Commission in Case No. GR-2017-0216.[9]

The reason Spire West, then MGE, was not balancing in accordance with the tariff at the time was that "[s]chools in the MGE STP were on numerous billing cycles."[10] Schools in the school aggregation programs of other Missouri gas utilities are on the same billing cycle, which allows them to calculate imbalances monthly, but this was not the case for Spire West. Spire West was unable to determine the monthly imbalance for school pools because the meter reading for schools within the pools were taken on different days. This lack of time-coordinated metering data also makes it more challenging for pool operators to match nominations to usage and adjust nominations based on forecasted weather.

Q. Is this unique problem of the timing of school meter reading in Spire West likely to persist?

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[8] *Memorandum: Staff's Recommendation in Missouri Gas Energy's 2014-2015 Actual Cost Adjustment Filing*, filed December 12, 2016, Case No. GR-2015-0203, p. 14. Note that Sheet No. 58 does not appear in the current tariff, and Staff in this instance was referring to the tariff at the time, which had an effective date February 28, 2010. The Experimental School Transportation Program appears on Sheet Nos. 15-15.4 in the current tariff (Schedule KBP-r4).

[9] *Order Approving Joint Stipulation and Agreement Regarding Spire West's (Formerly Known as Missouri Gas Energy) STP Tariff*, issued October 25, 2017, and *Joint Stipulation and Agreement*, Case No. GR-2017-0216.

[10] *Memorandum* filed December 12, 2016, Case No. GR-2015-0203, p. 14.

A. No. Staff anticipates that as a new generation of metering is implemented that incorporates modern communication technology, Spire West will be able to read meters with greater flexibility and frequency. Staff addressed this issue in the Spire West rate case. Staff stated its Class Cost of Service report:

> ** _____
> _____
> _____
> _____ ** it appears MGE may have the ability to match monthly pipeline nominations with STP customers' actual monthly usage and therefore have the ability to cash out its STP customers in accordance with its tariff provisions.[11]

Q. Is it Staff's view that the Spire West balancing provision for school transportation customers that was reached through a stipulation and approved by the Commission is a temporary measure to address Spire West's metering limitations at the time?

A. Yes. When Spire West has the means to balance school transportation customers, Staff anticipates Spire West will balance school pools as it does with other transportation customers.

Q. Are the balancing requirements of Spire East the same at those of Spire West?

A. No. A major difference is that Spire East requires monthly balancing for school pools. Spire East calculates imbalances each month and requires school pool operators to adjust nominations each month to correct imbalances from the previous month. This requirement can be found in Section D (Sheet 15.1) of Spire East's Experimental School Transportation Program tariff, which I have attached as Schedule KBP-r7.

Q. Is the problem of varied meter reading cycles an issue for Ameren?

[11] *Staff Report: Class Cost of Service*, Exhibit No. 208, Case No. GR-2017-0216, p. 39.

A. No. Ameren has metering technology in place that allows it to remotely read daily usage by schools. It uses this data to balance school pool operators each month as described it its tariff, though it is feasible for it to balance school pool operators on a daily basis, as it does with other transportation customers, using the technology it has in place.

Meter data is updated and available to school pool operators daily, which means that pool operators are able to model pool demand based on actual daily usage and weather data. Mr. Ervin acknowledges the availability of this usage data when he refers to "Company's portal metered school data."[12] He also claims that "the school's Pool Operator similarly utilizes a linear regression model starting with historical monthly usage and historic heating degree days then makes intra-month nomination adjustment based on forecasted temperature."

Q. Do school pool operators use the use the type of models suggested by Mr. Ervin?

A. Staff is not aware of all the factors the pool operators use to nominate gas for schools or other customers, though weather is likely one of them. Staff has observed that the nominations of school pool operators may be driven by other factors, especially when they are free of daily balancing requirements.

Q. Do you have an example?

A. Yes. Staff observed that a school pool operated in the Ameren system by ** _____ ** did not appear to deliver gas based on weather in ** _____ . ** The background data for this example comes from Ameren's response to MSBA DR 11, and is attached as part of Confidential Schedule KBP-r5.

[12] Direct Testimony of Louie R. Ervin, Sr., p. 7, l. 10.

This is illustrated by figures I have attached as Confidential Schedule KBP-r6. Figure 1 shows the metered daily usage for the pool for ** _____ _____ . ** It also shows the gas delivered for the pool by ** _____ ____. ** The gas used varies day to day from approximately ** _____ _____ ** deliveries of gas were either approximately ** _____ _____ .**

Figure 2 show this in a slightly different way. It plots both gas usage (the square points) and delivered gas (the circular points) against the heating degree days (HDD). The usage tends to increase or decrease with HDD, which is typical. The delivered gas does not appear to follow a pattern related to HDD.

The day ** _____ ** was the ** _____ . ** It was the third highest day of the month for gas usage ** _____ . **

In this example the correlation coefficient between gas usage and HDD was 0.83, indicating that they tend to move together, which is typical. The correlation coefficient between gas delivered and HDD is 0.13, indicating that there is very little correlation between them. Because gas delivered is poorly coordinated with HDD, its correlation coefficient with usage is also low, 0.08.

Q. What is the correlation coefficient, and how may it be interpreted?

A. The correlation coefficient is a measure of linear dependence. If you think of comparing two things by plotting one against the other, the correlation coefficient

would indicate if the resulting points come close to forming a straight line or if they are more scattered.

The correlation coefficient is a number that can range from -1 through 1. If the coefficient is positive, it indicates that the factors increase and decrease together. If it is negative, it indicates that one factor increases as the other decreases and vice-versa. As the magnitude of the correlation coefficient decreases, when it gets closer to zero, it indicates the points are more scattered and less correlated. As its magnitude increases, when it gets closer to -1 or 1, it indicates the points are closer to a straight line and more correlated.

Q. How do your observations related to this school pool contrast with a non-school pool?

A. Staff compared the same school pool to a non-school pool with daily balancing for the same period. The background data comes from Ameren's response to DR No. 0038 in Case No. GR-2018-0346, and it is attached as part of Confidential Schedule KBP-r5.

Figure 3 in Confidential Schedule KBP-r6 shows the metered daily usage for the pool for ** _____ ** and the gas delivered for the non-school pool by ** _____

_____

_____ .**

Figure 4 plots both gas usage (the square points) and delivered gas (the circular points) against HDD. Both gas usage and delivered gas tend to increase and decrease with HDD, which is typical. Contrast this with the delivered gas for the schools shown in Figure 2, which has no apparent relationship with HDD.

In this example the correlation coefficient between gas usage and HDD was 0.91, indicating they move together, which is typical. The correlation coefficient between delivered gas and HDD was 0.79, which is also reasonably well correlated. This is in contrast to the school pool, for which the correlation coefficient was 0.13. The comparison of gas usage and delivered gas resulted in correlation coefficient of 0.78. One might expect this type of correlation of usage strongly correlates to HDD and nominations for gas delivery are based on reasonably good forecasts of HDD.

Q. Was the pool operator's gas deliveries to the school pool responsive to factors other than gas?

A. There are some indications that the pool operator's nominations for the school pool in my first example was responsive to price. **

** is shown on Figure 5 in Confidential Schedule KBP-r6.

Q. Does the monthly balancing of school pools open the opportunity for arbitrage to pool operators?

A. Yes. Arbitrage is the buying and selling of assets in different markets to take advantage of price differences. School pool operators have two markets in which to operate: the open market for gas and the utility. If the daily market price is higher than the pool operator would expect to pay the utility, the operator can deliver less than usage, essentially buying gas from the utility at a lower than market rate. Similarly, when gas prices are lower than they would expect to pay the utility, the operator can deliver more gas than usage, essentially selling gas to the utility at greater than market rates.

Because school pools are balanced on a monthly basis, rather than on the daily basis that applies to other transportation customers, the pool operator can adjust nominations over the course of a month to avoid or reduce costs related to imbalances.

Costs Associate with Balancing and Basis of Cash Outs

Q. Do market prices reflect the incremental cost to the utility of managing the imbalances of transportation customers?

A. The market price does not always reflect the costs to a utility to manage transportation customer imbalances. When a transportation customer, such as a school pool, has an imbalance, whether it delivers more or less gas than it uses, it makes use of the gas, storage, transportation and distribution resources of the utility. To manage imbalances, a utility must either buy gas on the market at the daily price to make up for shortfalls or make unplanned injections or withdrawals from storage.

When a pool operator does not match deliveries and usage, it does not make up for the imbalance by buying or selling gas on the market that day. Instead, the utility manages the imbalance with its resources. It is appropriate for the utility to recover all of the associated costs from the pool operator, including gas, transportation and distribution costs, as outlined in Section 393.310.4.(2) RSMo.

Q. What gas price reflects the utility's cost to supply gas to manage daily imbalances of school pools and other transportation customers?

A. The Purchase Gas Adjustment (PGA) reflects the average cost of gas for the utility. Commission regulations define the PGA clause as "the adjustment procedure approved by the commission to recognize variations in the cost of purchased gas."[13]

If the daily gas price is greater than the PGA, it would reflect the price the utility may have purchased on that day. In addition to allowing the utility to recover its costs, using the daily gas price when it is higher than PGA informs the pool operator of the full cost it would have paid if it had fully supplied usage from the market.

Q. Is it appropriate for the utility to charge a rate the greater of the PGA or daily market price when it makes up for shortfalls in the deliveries of school pool operators and other transportation customers?

A. Yes. When a pool operator delivers too little gas to meet usage, it makes use of the gas supply, transportation and distribution resources of the utility, for which it does not normally pay. It is appropriate for the utility to recover the costs from those customers as allowed by Section 393.310.4.(2) RSMo.

[13] 4 CSR 240-13.015(1)(Y).

Q. Is it appropriate for a utility to pay cash-outs to transportation customers at a rate less than the market price when such customers deliver more gas than they use?

A. Yes. Even when a pool operator over-supplies gas, the utility must apply its resources to addressing the imbalances, such as by making additional or unplanned injections to storage. School pools and other transportation customers do not normally pay for these resources. It is appropriate for the utility to adjust cash-outs to transportation customers to recognize these costs, which the utility is allowed to recover in Section 393.310.4.(2) RSMo.

Q. Is this difference in cash-out pricing common?

A. Yes. In addition to Ameren, The Empire District Gas Company applies similar cash-out provisions that are adjusted based on the direction and severity of the imbalance. Utilities that do not have such graduated adjustments to the cash-outs typically have other fees related to the imbalances to recover costs, such as the overrun charge in the tariff of Liberty Utilities (MNG) and the Unauthorized Use Charges in the tariffs of Spire East.[14]

Q. If a utility does not recover imbalance costs from school pools and transportation customers, who pays for it?

A. The utility passes it gas costs to sales customers through the PGA. If the utility does not fully recover gas costs associated with transportation customers from those customers, the remaining cost would flow through the PGA to sales customers.

Q. Is it appropriate for sales customers to pay for any of the costs a utility incurs to manage the imbalances of school transportation customers?

A. No. Though I am not an attorney, my understanding of the law that authorized school transportation programs states the Commission "shall approve such tariffs upon

[14] Spire East's Experimental School Transportation Program (Schedule KBP-r7), paragraph G, Sheet No. 15.3.

finding that the implementation of the aggregation program set for in such tariffs will not have any negative financial impact on the gas corporation, its other customers or local taxing authorities."[15] This principle is acknowledged in the Spire West Experimental School Transportation Program tariff because the balancing fee "shall be credited to the Purchase Gas Adjustment Clause."[16]

Q. Does the Illinois Commerce Commission (ICC) case sited by Mr. Ervin address the appropriateness of the PGA as a basis for imbalance cash-outs?

A. No. In his direct testimony, Mr. Ervin discussed an Ameren Illinois (AIC) case before the ICC. He suggested that the ICC rejected the use of the PGA as a basis for billing imbalance cash outs to transportation customers because a market price is the only appropriate price.

In the case in question, AIC had requested to change its tariff so that transportation customers "would receive the lower of the PGA cost or the market price when they over-deliver and [pay] the higher of the PGA cost or the market price when they under deliver."[17] AIC was concerned that its "current gas balancing cashout provisions are flawed; they do not create enough incentive to deter some Transportation Customers from arbitrage; creating system imbalances."[18]

The ICC acknowledged the concerns of parties in this case, but these issues were related to arbitrage and the potential subsidization of one class of customers by another. When the ICC concluded that it would reject the AIC proposal, its stated reason was that

[15] Section 393.310.5 RSMo. A copy of Section 393.310 RSMo. appears as Appendix 1 in the Direct Testimony of Louie R. Ervin, Sr.
[16] Spire West tariff (Schedule KBP-r4), Sheet No. 15.1.
[17] Illinois Commerce Commission, *Order*, issued April 12, 2016, Docket No. 15-0439, p. 21. A copy of this page appears as Appendix 5 in the Direct Testimony of Louie R. Ervin, Sr.
[18] Ibid.

"[t]he Commission finds that this record does not contain an extensive analysis to support a change in the imbalance cashout provisions for Transportation Customers."[19]

Q. Does the ICC order acknowledge AIC's concerns about the opportunities for arbitrage open to its transportation customers?

A. Yes. The ICC noted that an uncontested change to the AIC tariff would "help reduce the opportunity for arbitrage."[20]

Q. Has the ICC permitted the use of the PGA as a basis for cash-outs of transportation customer imbalances?

A. Yes. Northern Illinois Gas Company (Nicor) has balancing provisions similar to those proposed by AIC in ICC Docket No. 15-0439.

When transportation customers deliver too little gas to meet usage, it is classified in the Nicor tariff as "authorized use" or "unauthorized use".[21] I have attached selected pages of the Nicor tariff as Schedule KBP-r8.

Nicor charges transportation customers for these imbalances on the basis of the higher of the PGA rate, which it refers to as "Rider 6 Gas Cost (GC)", or the market rate. This is described in the tariff for General Transportation Service in these terms:

> (h) Requested Authorized Use Charge
>
> For each therm of Requested Authorized Use, the charge shall be the higher of: (a) the Rider 6 Gas Cost (GC); or (b) the Market Price as defined in the Terms and Conditions of this rate.
>
> (i) Authorized Use Charge
>
> For each therm of Authorized Use, the charge shall be the higher of: (a) the Rider 6 Gas Cost (GC); or (b) the Market Price as defined in the Terms and Conditions of this rate.

[19] Ibid.

[20] Ibid.

[21] Nicor, *Schedule of Rates for Gas Service (Ill. C. C. No. 16)* (Schedule KBP-r7), Sheet No. 51.

> (j) Unauthorized Use Charge
>
> For each therm of Unauthorized Use, the charge shall be the sum of $6.00 plus the higher of: (a) the Rider 6 Gas Cost (GC); or (b) the Market Price as defined in the Terms and Conditions of this rate.
>
> Revenues arising from the application of the $6.00 per therm charge hereunder shall be credited to Rider 6, Gas Supply Cost.[22]

The same language is used in Nicor's tariffs for other classes of transportation customers.[23]

Nicor also charges transportation customers for storage services provided to manage imbalances that occur when a transportation customer delivers more gas than it uses. These charges are described in the General Transportation tariff as:

> (c) Storage Banking Service Charge
>
> 0.52¢ per therm per month for all therms of Storage Banking Service capacity.
>
> Customers may annually select Storage Banking Service capacity with a minimum selection of 1 times their Maximum Daily Contract Quantity (MDCQ) subject to provisions included in the Terms and Conditions.
>
> For each therm of Company-supplied Gas delivered und this service, the charges shall be considered Authorized Use....
>
> (g) Excess Storage Charge
>
> 10¢ per therm of the maximum amount in storage in excess of Customer's Storage Banking Service capacity on any day during the billing period. If such maximum excess amount is less than five percent of the Customer's Storage Banking Service capacity, the Excess Storage Charge shall not apply. Revenues arising through the application of the Excess Storage Charge will be credited to Rider 6, Gas Supply Cost.[24]

The same language is used in Nicor's tariffs for other classes of transportation customers.[25]

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[22] Ibid., Sheet No. 20.

[23] Ibid., Sheet Nos. 21.5, 23 and 26.

[24] Ibid., Sheet No. 19.

[25] Ibid., Sheet Nos. 21.4, 21.5, 22, 23 and 26.

The Nicor tariff has no special provisions for schools or school pools. However, it does provide a pooling service that allows sales customers to transport customer-supplied gas in Rider 25 Firm Transportation Service and Rider 34 Supplier Firm Transportation Service. These customers are subject to the same excess storage charge as transportation customers. For imbalances classified as Authorized Use, they pay the Commodity Gas Cost for stored or delivered customer-supplied gas and they pay the rate they would pay in their normal classification as a sales customer for gas supplied by the utility, which includes the Gas Cost rider (PGA). Large General Service and Large Volume Service customers are subject to the same Unauthorized Use Charge as transportation customers.[26]

Q. Are there differences between gas corporations that could account for their different approaches to balancing?

A. Yes. For instance, Spire East has on-system storage and high-pressure pipes that allow it to store gas in its system. This gives it flexibility in addressing imbalances without necessarily resorting to using storage on the interstate pipeline or purchasing additional gas. It also allocates a portion of its costs for these facilities to transportation customers.

In contrast, Ameren does not have on-system storage or high-pressure pipes. If it experiences a significant imbalance, it must make unplanned injections or withdrawals from storage on the interstate pipeline or purchase additional gas to deal with the situation, and incur associate costs.

[26] Ibid., Sheet Nos. 77 and 87.

Balancing in Relation to the Aggregation and Balancing Fee

Q. An aggregation and balancing fee is authorized by Section 393.310.4(2) RSMo. What is the purpose of the aggregation and balancing fee?

A. The fee is authorized in Section 393.310.4.(2) RSMo., which states:

> 4. The tariffs required pursuant to section 3 of this section shall...(2) Provide for the resale of natural gas supplies, including related transportation service costs, to the eligible school entities at the gas corporation's cost of purchasing of such gas supplies and transportation, plus all applicable distribution costs, plus and aggregation and balancing fee to be determined by the commission.[27]

The aggregation and balancing fee is mentioned in the context of permitting the gas corporation to charge the school pool the costs of resources it provides to support transportation services. The aggregation and balancing fee allows the utility to recover the costs of providing aggregation and balancing services.

Q. Does the aggregation and balancing fee accomplish balancing?

A. It is unclear to Staff how balancing is accomplished through the aggregation and balancing fee. This fee is applied at a unit rate to all gas delivered for a school pool. It does not account for the magnitude of the imbalance or whether the imbalance is negative or positive. It does not return gas, credits or cash-out payments to pool operators when they deliver more gas than is used.

Q. Do all utilities require balancing and charge an aggregation and balancing fee?

A. It is typical for utilities to both require balancing and charge the aggregation and balancing fee. For instance Spire East's Experimental School Transportation Program (Schedule KBP-r7) charges an aggregation and balancing fee of $0.004 per therm (Section F, Sheet 15.2) and requires pool operators to adjust nominations to correct imbalances that

[27] A copy of Section 393.310 RSMo. is included in Appendix 1 of the Direct Testimony of Louie R. Ervin, Sr.

occurred in the previous month (Section 3, Sheet 15.1). Ameren's Natural Gas Transportation Service Tariff (Schedule KBP-r3) charges an aggregation and balancing fee of $0.44 per CCF (Section 2, Sheet No. 10) and requires monthly cash-out balancing for monthly imbalances (Sheet No. 5). In these cases, the aggregation and balancing fees appear to be for services and resources provided by the utility, and balancing is accomplished by other means.

Q. Why are aggregation and balancing fees for Spire West different from those of other utilities?

A. As I previously discussed, Spire West cannot presently balance school pools because schools that are not required to have telemetry are on different billing cycles, and their meters are read on different dates. As part of a settlement to address this issue,[28] the Spire West tariff has a separate balancing fee as described on Sheet 15.1 of its tariff (Schedule KBP-r4):

> An ESE [eligible school entity] enrolled in the STP [Experimental School Transportation Program] shall be assessed a Balancing Fee of $0.002 per CCF for all gas delivered through the meter of which EGM [electronic gas measurement] equipment is not installed. The fee is intended to recover costs of such customers associated with any difference between actual daily deliveries and actual daily consumption. The fee shall be credited to the Purchased Gas Adjustment Clause and is subject to adjustment on an annual basis.

This balancing fee is a payment made in lieu of balancing schools in a pool that do not have EGM equipment. Schools that have EGM equipment that would support balancing are pooled separately from the schools that do not, as specified in Section 6 of Spire West's STP tariff (Schedule KBP-r4, Sheet No. 15), which states "ESEs enrolled in the STP with EGM shall not be pooled with ESEs enrolled in the STP without EGM." Schools that have EGM equipment are pooled separately because it is possible to calculate an imbalance; a pool

[28] *Joint Stipulation and Agreement*, Case No. GR-2017-0216.

operator could balance EGM-equipped schools by adjusting nominations in the subsequent month as they are allowed to do in the Spire East tariff.

As previously mentioned, Staff anticipates that new metering technology will eventually permit Spire West to calculate imbalances for all customers in a school pool on the same schedule. In that case, Spire West should be able to return to having more typical balancing provisions in its tariff instead of applying a special fee in lieu of balancing.

Separation of School Transportation Program Tariffs

Q. Should the Commission order Ameren to create a stand-alone tariff for school transportation customers?

A. No. While Staff does not object to the idea of organizing the tariff in this fashion, it is not necessary. The elements that are unique to school transportation customer are distinguished in the Ameren tariff.

In addition, the pool operator is a gas marketing company with expertise in gas trading. It provides services in commercial, industrial and utility customers in multiple utilities and states. In light of the many tariffs such a company must understand, including interstate pipeline tariffs, it should not be a hardship for a pool operator to gain an understanding of the Ameren tariff as it is.

Q. Are there other tariffs in which the school transportation provisions are incorporated into a more general section related to transportation customers?

A. Yes. The tariffs of The Empire District Gas Company incorporate school transportation tariff into a larger section related to transportation services.

Recommendations

Q. What action does staff recommend in relation to MSBA's proposals?

A. Staff has two recommendations related to the MSBA proposals.

1. Staff recommends that the Commission deny MSBA's proposal to change the balancing provisions in Ameren's tariff. It is typical for utilities to balance transportation customers by cash-out or other means. Gas corporations are permitted to recover gas supply, transmission, distribution and other costs associated with providing transportation services to school pools as provide in Section 393.310.4.(2) RSMo. These tariffs must also protect the gas corporation and other customers from financial harm as specified in Section 393.310.5 RSMo.

2. Staff recommends that the Commission deny MSBA's proposal to create a separate tariff section for school transportation customers. Special provisions related to school pools are identified in the tariff, and the pool operators are gas marketing companies that have sufficient expertise to understand these and other transportation tariffs.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase its Revenues for Natural Gas Service	)))	Case No. GR-2019-0077

AFFIDAVIT OF KEENAN B. PATTERSON, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW KEENAN B. PATTERSON, 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.

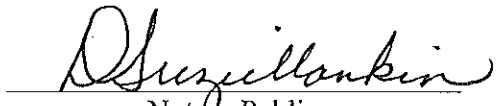
Further the Affiant sayeth not.

KEENAN B. PATTERSON, 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 5th day of June 2019.

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



Notary Public