MEMORANDUM

TO: Missouri Public Service Commission Official Case File, Case No. GR-2012-0262
Missouri Gas Energy, a Division of Southern Union Company

FROM: Anne Crowe, Regulatory Auditor - Procurement Analysis
Lesa A. Jenkins, PE, Regulatory Engineer - Procurement Analysis
Kwang Choe, PhD, Regulatory Economist

/s/ David M. Sommerer 12/05/13
Project Coordinator/ Date

/s/Bob Berlin 12/05/13
Staff Counsel's Office/ Date

/s/ Lesa Jenkins P.E, 12/05/13
Utility Regulatory Engineer II/ Date

SUBJECT: Staff's Recommendation in Missouri Gas Energy's 2011-2012 Actual Cost Adjustment Filing

DATE: December 5, 2013

I. EXECUTIVE SUMMARY

On October 17, 2012, Missouri Gas Energy (MGE or Company) filed its Actual Costs Adjustment for the 2011-2012 period in case GR-2012-0262. This filing contains the Company's ACA account balance calculation.

In March of this ACA period, Southern Union Company was acquired by Energy Transfer Equity, LP. At that time, MGE was a division of Southern Union.

The Commission's Procurement Analysis Unit (Staff) reviewed and evaluated MGE's billed revenues and actual gas costs for the period of July 1, 2011, to June 30, 2012. The Staff examined MGE's gas purchasing practices to determine the prudence of the Company's purchasing and operating decisions, including:

(1) A reliability analysis of estimated peak cold day requirements and the capacity levels needed to meet those requirements,

(2) The Company's rationale for its reserve margin for a peak cold day,

(3) A review of normal, warm and cold weather requirements and the gas supply plans for meeting these requirements, and

(4) A review of MGE's hedging for the period to determine the reasonableness of the Company's hedging plans.

Staff proposes no dollar adjustments to MGE's ACA account balance for the 2011-2012 ACA period. However, as a result of its review the Staff has provided its comments and recommendations regarding Reliability Analysis and Gas Supply Planning, and Hedging within each of these sections of the memorandum.

Staff recommends the Commission establish the ACA account balance shown in the table below to reflect the under-recovery balance as of June 30, 2012. An under-recovery is an amount that is owed to the Company by its customers and is shown in the table below as a positive number. An over-recovery reflects an amount that is owed to the customer by the Company and would be shown as a negative number. MGE has an under-recovery.

Account	6-30-12 Ending Balance per MGE Filing	Current ACA Period Staff Proposed Adjustment	6-30-12 Staff Recommended Ending Balance
ACA Balance	$ 25,586,145.26	$ 0	$ 25,586,145.26

Additionally, Staff recommends the Commission order the Company to respond to the Staff Recommendation within 45 days.

This ACA Memorandum is organized into the following sections:

Each section explains Staff's concerns and recommendations.

STAFF'S TECHNICAL DISCUSSION AND ANALYSIS

II. BACKGROUND

MGE served an average of 501,574 customers in the Kansas City, Joplin and St. Joseph areas during the 2011-2012 ACA period. MGE transports its gas supply over Panhandle Eastern Pipe Line (PEPL), Southern Star Central Gas Pipeline (SSC), Tallgrass Energy Partners (previously Kinder Morgan Interstate Gas Transmission, KM), and Rockies Express Pipeline (REX).

III. RELIABILITY ANALYSIS AND GAS SUPPLY PLANNING

As a regulated gas corporation providing natural gas service to Missouri customers, the Local Distribution Company (LDC) is responsible for: 1) conducting reasonable long-range supply planning, and 2) the decisions resulting from that planning. One purpose of the ACA process is to review the Company's planning for gas supply, transportation, and storage to meet its customers' needs. For this analysis, Staff reviewed the LDC's plans and decisions regarding estimated peak day requirements and the capacity levels to meet those requirements, peak day reserve margin and the rationale for this reserve margin, and natural gas supply plans for various weather conditions.

Staff has no proposed financial adjustments for the 2010/2011 ACA period related to Reliability Analysis and Gas Supply Planning section.

MGE's primary service areas are: Kansas City, St. Joseph and Joplin. MGE's December 2011 Demand/Capacity Analysis provides a customer count for only the Kansas City and Joplin areas. For the 2011/2012 ACA, MGE reports an average of 438,122 residential customers, 61,982 commercial customers, 272 industrial customers, and 1,198 transport customers, for an average total of 501,574 customers, which is down from its average of 506,385 customers in the 2010/2011 ACA. To assure that each area has sufficient transportation capacity, MGE must consider the capacity available for each area. In its November 2009 Demand/Capacity Analysis (November 2009 Analysis) and its December 2011 Demand/Capacity Analysis (December 2011 Analysis), MGE plans its capacity by service area.

Although Staff has proposed no financial adjustments, Staff has the following comments, concerns, and recommendations regarding reliability analysis and gas supply planning:

A. CAPACITY PLANNING

For its short term and long-term monthly gas requirements and peak day requirements planning, the Company refers to its December 2011 Analysis that was received by Utility Services on 1/6/2012. The December 2011 Analysis, or a prior draft, may have been available for MGE's planning for the winter of 2011/2012, but because it is not dated until December 2011, MGE may have also relied on its November 2009 Analysis.

Staff's concerns with the MGE methodology it used in calculating peak day requirements (also referred to as design day requirements) are documented in prior ACA recommendations and in testimony in GR-2003-0330. Staff's concerns for the December 2011 Analysis include the following:

1. MGE's Peak Day/ Design Day Estimates for the Three Service Areas

   Staff recommends MGE continue to evaluate whether its peak day methodology is reasonable and revise its planning as necessary to adequately prepare for peak day requirements.

   - MGE's methodology for subtracting a different baseload each winter based on average July/August usage is not reasonably supported. MGE does not support why it would expect usage in July and August to represent baseload usage in the winter months. Customer habits could change for winter months. MGE subtracts the average July/August baseload, a different value each year, and then MGE determines whether it believes another baseload amount (y-intercept) is significant. It treats the y-intercept like a variable, but does not include the variable in the data set considered in its regression analysis. It considers other factors as variables, such as heating degree days (HDD), Trend, and Day-of-Week, and each of these variables has a value in the data considered in the regression analysis.

   - MGE relies on only a few data points over a 10 year period. MGE should consider additional data points for more recent years, excluding older data because customer habits and systems may have changed. The more recent data may still be limited, such as by including only data with temperatures below a specified temperature (data above a specific HDD). A chart of more recent data may assist MGE in determining a reasonable break point for the data to include in the analysis.

   - In its regression analysis MGE sets the y-intercept to zero and reports a high R-square. Literature on regression analysis notes problems with the R-Square calculation when the intercept is set to zero, such as obtaining different outputs using different statistical software and diminishing the model's fit to the data.[1]

   - MGE analyzes data from the winter of 2001/2002 through 2010/2011. For Kansas City and Joplin, MGE's estimate of peak days in future years adds a growth component beginning in 2011/2012. For St. Joseph, MGE uses a factor from its regression analysis to project growth. MGE's workpapers show its growth factor for 2010/2011 as year 11, but MGE's data used in its

[1] Eisenhauer, Joseph. (2003). Regression through the Origin. *Teaching Statistics*, Volume 25, Number 3

regression analysis lists year 2010/2011 as year 10. Because the growth is negative, the MGE estimates for St. Joseph for 2010/2011 through 2014/2015 are lower than they should be. MGE should review how it is applying growth (positive or negative growth) in its estimates for St. Joseph.

2. Capacity and Reserve Margin for MGE's Three Service Areas

   If changes are made to the demand or capacity reported in the MGE Demand/ Capacity Analysis or the capacity available to the citygates is less than the contracted capacity to serve each area (Kansas City, St. Joseph, Joplin), then the actual capacity being relied on for peak day should be clearly documented as part of MGE's process for justifying its reserve and transportation capacity decisions for each area.

   MGE's December 2011 Demand/Capacity Analysis for Kansas City and St. Joseph contains incomplete information regarding the capacity that is available to serve these areas for a peak day. Because MGE has reported that portions of the St. Joseph capacity has been re-assigned to serve the Kansas City area, the actual capacity plans for each area must be included in MGE's assessment of reserve capacity.

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Joplin Service Area:
There continues to be excess capacity to serve the Joplin area. The SSC transportation contracts serving Joplin have expiration dates of 10/1/2013, 2/1/2018, and 12/20/2026. Because of the timing of these pipeline contracts, reserve margin is not an issue for this ACA period.

3. Capacity Changes for Kansas City Service Area

MGE provided information regarding the Kinder Morgan pipeline (now known as "Tallgrass") in an announcement about the conversion of a portion of its natural gas line to an oil pipeline. In addition, MGE made changes to the Tallgrass transportation contracts used to serve the Kansas City service area. These changes begin in October 2012, which is in the 2012/2013 ACA period. MGE has provided the Staff with updates regarding these contract changes along with how the Tallgrass conversion of its pipeline from natural gas to oil has impacted the flow of natural gas on these contracts.

MGE should continue to monitor operation of its newly restructured contracts before, during and after the conversion of the pipeline segment from gas to oil to assure supply reliability of gas flowing into the Kansas City service area. Staff recommends MGE continue to provide updates to Staff regarding this issue.

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B. SUPPLY BID ANALYSIS & SUPPLY SELECTION

MGE has an Excel spreadsheet attachment which summarizes the Winter 2011/2012 supply bids that it received in response to its Supply Request for Proposal (RFP). In its spreadsheet, MGE does not summarize the bids for term supply (gas that flows every day of the month) separately from the bids for calls (gas that can be nominated up to its maximum quantity, but may not flow at all on any given day). The MGE RFP response analysis summary does not indicate which bids were accepted by the company. Although the MGE RFP analysis contains some highlighted cells that match the awarded supply, there are some highlighted cells that do not show the supply agreements that were awarded. Some cells are not highlighted that were awarded supply agreements. MGE needs to clearly show which bids are awarded supply contracts. MGE needs to point out when the lowest cost bid was not awarded a supply agreement and explain the rationale for the award made.

C. MONTHLY SUPPLY PLANS

1. MGE Supply/Demand Summary
One of the documents used by MGE for its monthly supply planning is its monthly Supply/Demand Summary.

For the 2011/2012 ACA, MGE's Monthly Supply/Demand Summary takes its peak day for December 2011 from the MGE November 2009 Demand/Capacity Analysis, Table F-4, but it uses MGE's peak day estimate for 2010/2011 and not the peak day for 2011/2012 that applies to this ACA period.

For 2011/2012, MGE's Monthly Supply/Demand Summary takes its peak day for January 2012 from the MGE December 2011 Demand/Capacity Analysis, Table F-4, but it uses MGEs peak day estimate for 2010/2011 and not the peak day for 2011/2012 that applies to this ACA period.

This is not a material issue for this ACA period, but MGE should review its planning to ensure that it uses the correct estimates from its Demand/Capacity Analyses.

2. Supply Planning for Warm Weather

MGE's Monthly Supply/Demand Summaries contain daily estimates for "Average Ultimate Warm" and "Average Ultimate Cold." These estimates are different from the warm and cold estimates in MGE's December 2011 Demand/Capacity Analysis. MGE reviews its daily supply plans for a warm day because the company could have much lower supply requirements for a warm day when compared to the supply requirements needed for a warm month.

It is reasonable for MGE to consider daily extremes for each month, but its estimates for "Average Ultimate Warm" should be updated routinely and the MGE calculation methodology should be re-evaluated. MGE's "Average Ultimate Warm" estimates in its Monthly Supply/Demand Summaries are of concern to Staff because MGE's support for these estimates is from an older MGE October 2004 Demand/Capacity Analysis, which considered usage data from 1997/1998 to 2003/2004. MGE should have updated its estimates using more recent data that it had available from the four studies it conducted after 2004: the January 2006 Demand/Capacity Analysis, the November 2007 Demand/Capacity Analysis, the November 2009 Demand/Capacity Analysis, and the December 2011 Demand/Capacity Analysis

D. SCHOOL AGGREGATION CAPACITY RELEASE

Staff commented in the 2010/2011 ACA that Capacity Release Requirements are not clear for schools that are SGS customers or LGS customers.
To address the Staff's questions and concerns voiced in the previous ACA, Staff recommended that MGE work with Staff to amend the following tariff sheets no later than the Company's next general rate case.

- School Transportation Program (STP), Tariff Sheet Nos. 54 to 58.4
- Small General Gas Service (SGS), Tariff Sheet Nos. 27 to 29.1:
- Large General Gas Service (LGS), Tariff Sheet Nos. 30 to 35:

This issue continues for the 2011/2012 ACA. MGE currently has a rate case pending, GR-2014-0007.

IV. HEDGING

In its review of MGE's purchasing practices, the Staff reviewed the Company's hedging transactions. The Staff also reviewed the Company's natural gas hedging policy, natural gas trading procedures, and its 2011 – 2012 hedging strategy.

The Company executed the hedging transactions for the 2011-2012 ACA period based on the 24-month hedging plan. MGE combined storage and financial instruments to hedge portions of the volumes needed for the winter heating season, November 2011 through March 2012. MGE utilized swaps for its financial instruments and the Company started placing the financial hedges from late 2009 and continued purchasing them through fall 2011. MGE hedged 66% of normal winter requirements with storage and swaps. The Company employed both time-based as well as discretionary approaches to execute its financial hedging transactions. Nevertheless, the discretionary purchases contained the larger portion of the financial hedging transactions.

Staff is concerned about the continued negative financial impacts from the hedging transactions in this ACA period. While Staff reviews the prudence of the Company's decision-making based on what the Company knew at the time it made its hedging decisions, the Company's hedging planning should be flexible enough to incorporate changing market circumstances. The Company should evaluate its hedging strategy in response to changing market dynamics in light of how much the existing hedging strategy actually benefits its customers while balancing market price risk. For example, the Company should evaluate the costs and benefits of its current strategy of financially hedging summer storage injections under the current market at a time when the market prices have become less volatile. Additionally, the Company should evaluate whether extensive reliance on swaps and the volumes associated with them are appropriate. The Staff does note that MGE updated its price risk management and procurement program (PRIMAP) that in part reflects the current market. The update incorporates call options in its hedging program to supplement the use of swap instruments. Call options allow participation in downward price movements albeit at the cost of a premium for the option. For example, out-of-the-money call options may have a strike price that still affords significant protection near current market prices but at a reduced premium cost. A part of the Company's hedging strategy was based on price view, that is, where the Company executed some of its hedging transactions when the Company viewed the prices were relatively low. Nevertheless, the Company should be aware of any fundamental shifts in the market dynamics, while being cautious on the market views.

Finally, the Staff recommends the Company continue to assess and document the effectiveness of its hedges for the 2012-2013 ACA period and beyond in a meaningful way. The analysis should include identifying the benefits/costs based on the outcomes from the hedging strategy; and evaluating any potential improvements on the future hedging plan and its implementation. For example, a summary of how the Company's hedges (swaps) have performed against market pricing, i.e., the impact of purchases without the hedges is useful. This hedge performance or mark-to-market summary over an extensive historical period is helpful in seeing the long term financial impact of the hedge program. The Staff recommends that MGE develop this summary in future ACA periods.

V. RECOMMENDATIONS

The Staff recommends that MGE:

1. Establish the following ACA account balance shown in the table below to reflect the (over)/under-recovery balance as of June 30, 2012. An over-recovery reflects an amount that is owed to the customer by the Company and is shown as a negative number. An under-recovery is an amount that is owed to the Company by its customers and is shown in the table below as a positive number. MGE has an under-recovery.

Account	6-30-12 Ending Balances per MGE Filing	Current ACA Period Staff Proposed Adjustment	6-30-12 Staff Recommended Ending Balances
ACA Balance	$ 25,586,145.26	$ 0	$ 25,586,145.26

3. Respond to the Staff comments, concerns, and recommendations in the Reliability Analysis and Gas Supply Planning Improvement section related to capacity planning, supply bid analysis and supply selection, monthly supply plans, and school aggregation capacity release.

4. Respond to the concerns / comments expressed by Staff in the Hedging Section.

5. File a written response to all recommendations included herein within 45 days.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri Gas Energy's Optional Purchased Gas Adjustment Filing	))	File No. GR-2012-0262

AFFIDAVIT OF KWANG Y. CHOE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

Kwang Y. Choe, being of lawful age, on his oath states: that as a Regulatory Economist II in the Procurement Analysis Unit of the Utility Services Department, he has participated in the preparation of the foregoing memorandum consisting of 10 pages to be presented in the above case; that he has knowledge of the matters set forth in the Memorandum pertaining to *Hedging*; and that such matters are true and correct to the best of his knowledge and belief,

Kwang Y. Choe

Kwang Y. Choe

Subscribed and sworn to before me this 5th day of December, 2013.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D. Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri Gas Energy's Optional Purchased Gas Adjustment Filing	))	File No. GR-2012-0262

AFFIDAVIT OF ANNE M. CROWE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

Anne M Crowe, being of lawful age, on her oath states: that as a Utility Regulatory Auditor IV in the Procurement Analysis Unit of the Utility Services Department, she has participated in the preparation of the foregoing memorandum consisting of 10 pages to be presented in the above case; that she has knowledge of the matters set forth in the Memorandum pertaining to *Billed Revenues and Actual Gas Costs*; and that such matters are true and correct to the best of her knowledge and belief,

Anne M. Crowe

Anne M. Crowe

Subscribed and sworn to before me this 5th day of December, 2013.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri Gas Energy's Optional)
Purchased Gas Adjustment Filing) File No. GR-2012-0262

AFFIDAVIT OF LESA JENKINS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Lesa Jenkins, being of lawful age, on her oath states: that as a Utility Regulatory Engineer II in the Procurement Analysis Unit of the Utility Services Department, she has participated in the preparation of the foregoing memorandum consisting of 10 pages to be presented in the above case; that she has knowledge of the matters set forth in the Memorandum pertaining to *Reliability Analysis and Gas Supply Planning*; and that such matters are true and correct to the best of her knowledge and belief,

Lesa A. Jenkins

Lesa Jenkins

Subscribed and sworn to before me this 5th day of December, 2013.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin

Notary Public