MEMORANDUM

TO: Missouri Public Service Commission Official Case File
Case No. GR-2013-0250, Empire District Gas Company

FROM: Phil S. Lock, Regulatory Auditor – Procurement Analysis
Kwang Y. Choe, Ph.D., Regulatory Economist – Procurement Analysis
Lesa Jenkins, P.E., Regulatory Engineer – Procurement Analysis

/s/ David M. Sommerer 12/18/13
Project Coordinator / Date

/s/ Bob Berlin 12/18/13
Staff Counsel's Office / Date

/s/ Lesa Jenkins P.E, 12/18/13
Utility Regulatory Engineer II/ Date

SUBJECT: Staff Recommendation in Case No. GR-2013-0250, Empire District Gas Company 2011-2012 Actual Cost Adjustment Filing

DATE: December 18, 2013

EXECUTIVE SUMMARY

On October 31, 2012, Empire District Gas Company (Empire or Company) filed its Actual Cost Adjustment (ACA) for the 2011-2012 annual period for rates to become effective November 14, 2012. This filing revises the ACA rates based upon the Company's calculations of the ACA balance for the 2011-2012 period.

The Procurement Analysis Unit (Staff) of the Missouri Public Service Commission has reviewed the Company's ACA filing. A comparison of billed revenue recovery with actual gas costs will yield either an over-recovery or under-recovery of the ACA balance.

Staff conducted the following analyses:

- a review of billed revenue compared with actual gas costs,
- a reliability analysis including a review of estimated peak-day requirements and the capacity levels needed to meet these requirements
- a review of the Company's gas purchasing practices to evaluate the prudence of the Company's purchasing decisions for this ACA period; and
- a hedging review to evaluate the reasonableness of the Company's hedging practices for this ACA period.

Based on its review, Staff recommends the following accounting adjustments to the Company's filed ACA balances. Positive adjustments represent an increase in gas costs to consumers and negative or "(bracketed)" adjustments reduce their gas costs:

Description	**South Firm**	**North Firm**	**NW Firm**	**Total**
Southern Star Reservation	($20,099)			($20,099)
Cheyenne Plains allocation	$142,344	($44,623)	($97,721)	$0
Southern Star Imbalances	($516)			($516)
Supplier gas purchases	$404	$626	($1,120)	($90)
Cash-out - End User	$2,764			$2,764
Cash-out - Pool Aggregation	($3,819)	($1,709)	($894)	($6,422)
Hedging allocation	$142,861	($55,930)	($86,931)	$0
Total	$263,939	($101,636)	($186,666)	($24,363)

Staff makes recommendations which are discussed in the Reliability Analysis and Gas Supply and Planning section and the Hedging section of the memorandum.

STAFF'S TECHNICAL DISCUSSION AND ANALYSIS

Staff's discussion of its findings is organized into the following five sections:

Section No.	**Topic**	**Page**
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II	Billed Revenue and Actual Gas Costs	3
III	Reliability Analysis and Gas Supply Planning	5
IV	Hedging	7
V	Recommendation	8

Each section explains Staff's concerns and recommendations.

I. OVERVIEW

Empire separates its gas operations into a South System, a North System, and a Northwest System.

The larger communities served on the South System include Sedalia, Marshall, Higginsville, Lexington, and Richmond in west-central Missouri and Platte City near Kansas City.

On the North System, the larger communities include Chillicothe, Marceline and Trenton in north-central Missouri.

The Northwest System includes Maryville, which is located in the northwestern part of the state.

Southern Star Central Gas Pipeline (SSCGP) serves customers on the South System. Panhandle Eastern Pipeline Company (PEPL) serves customers on the North System while ANR Pipeline (ANR) serves customers on the Northwest System. In addition, Cheyenne Plains Gas Pipeline Company (CPGP) delivers gas from the Cheyenne Hub located south of Cheyenne, Wyoming to Greensburg, Kansas. CPGP delivers gas to all of the interstate pipelines systems (SSCGP, PEPL and ANR) that serve Empire's customers.

During August 2012, there were approximately 27,700 firm sales customers on the South System, 8,925 on the North System, and 5,225 on the Northwest (NW) System.

II. BILLED REVENUE AND ACTUAL GAS COSTS

COMPLIANCE ADJUSTMENTS

SOUTHERN STAR RESERVATION CHARGES

During the month of September 2011, Southern Star reservation charges totaling $20,099 were recovered twice, once as commodity-related charges and once as fixed demand charges. These fixed demand charges should only be recovered once. Because of the over-collection, the cost of gas should be reduced by $20,099 for firm sales customers on the South system.

CHEYENNE PLAINS ALLOCATIONS

Staff believes that Cheyenne Plains reservation costs should be allocated based on the Company's normal system requirements for each of its three systems (see details in the Reliability Analysis and Gas Supply Planning section of Staff's memorandum). Staff's proposed adjustment 1) increases the cost of gas for the South system by $142,344; 2) reduces the cost of gas for the Northwest system by $97,721; and 3) reduces the cost of gas for the North system by $44,623. The adjustments do not change the overall cost of gas to the Company.

SOUTHERN STAR PIPELINE IMBALANCES

The beginning pipeline imbalance costs on SSCGP (production and market) were misstated by Empire during the month of July 2012. To reflect the correct pipeline imbalance cost for July, the imbalance cost should be reduced by $516 [$840 Staff - $1,356 filed] for firm sales customers on the South system.

SUPPLIER GAS PURCHASES

During the month of July 2012, gas was purchased from Mieco at a gas daily index rate plus a premium. For purchases on July 26, 2012, the premium billed to Empire was misstated at $0.05 instead of the correct premium rate of $0.005. Staff adjusted the gas supply purchase amount on July 26 using the correct premium rate of $0.005. This reduces the overall cost of gas purchased from Mieco by $90 ($289,190 - $289,280) during the month of July. Staff's adjustment also re-allocates the adjusted balance of $289,190 to Empire's service areas based on the Cheyenne Plains purchases (gross receipts) for the month. As a result, Staff proposes the following adjustments: $404 South, $626 North and ($1,120) NW.

CASH-OUTS – END USER

The monthly cash-out activity for Arnettes Enterprises was filed incorrectly. The filing did not reflect the cash-out charges included in the customer's billings during the months of May 2012 through August 2012. To reflect the customer's billed activity, a $2,764 ($360 + $1,164 + ($792) + $2,032) increase in gas costs should be applied to firm sales customers on the South system.

CASH-OUTS–POOL AGGREGATION

During the month of May 2012, cash-out charges from the Small Volume Pool customer billings did not match the Company's filing. Staff made an adjustment to the Company's Small Volume Pool customers for the North, South and Northwest systems to reflect the customers' "billed" cash-out charges. (Empire's accounting group did not have actual volumes when the cash-out summary was developed in preparation of the filing). As a result, Staff's proposed adjustments are as follows: ($3,819) South, ($1,709) North and ($894) Northwest.

HEDGING ALLOCATION

During the month of February 2012 the Company allocated financial hedges to the South, North and Northwest systems. The Company purchased 179,800 dth of natural gas to match the financial hedges for the month. Approximately 35,000 dth were purchased for delivery into Southern Star for the South system. The balance of 145,000 dth was purchased on Cheyenne Plains and allocated by the Company to the South, North and Northwest systems. Generally, it is the Company's policy to purchase all winter financial hedges for the South system to supplement its smaller storage capability when compared to its system requirements. The Company utilizes storage to implement its hedging plans for both the North and Northwest systems because its storage typically covers 95% to 99% of the North system normal requirements and 84% of the Northwest system normal requirements. In keeping with the Company's policy, Staff recommends that all February 2012 financial hedges be allocated to the South system. Therefore, the cost of gas should be increased by $109,950 ($55,930+$54,020) on the South system, reduced by $55,930 on the North system and $54,020 on the Northwest system.

During the month of March 2012 financial hedges were allocated to the South and Northwest systems. The Company had natural gas purchases of 62,000 dekatherms (dths) to match the financial hedges of 60,000 dth in March. These volumes were purchased for direct delivery into Southern Star which is used to deliver gas to the South system. Again, in keeping with the Company's policy, Staff recommends reallocating the March 2012 financial hedges to the South system. As a result, the cost of gas should be increased by $32,911 for customers on the South system and reduced by $32,911 for customers on the Northwest system.

III. RELIABILITY ANALYSIS AND GAS SUPPLY PLANNING

As a gas corporation providing natural gas service to Missouri customers, Empire is responsible for conducting reasonable long-range supply planning to meet its customer needs. Empire must make prudent decisions based on that planning. One purpose of the ACA process is to examine the reliability of the Local Distribution Company's (LDC) gas supply, transportation, and storage capabilities. For this analysis, Staff reviews the LDCs' plans and decisions regarding estimated peak-day requirements and the LDC's pipeline capacity levels to meet those requirements, the peak day reserve margin, and the rationale for this reserve margin, and the natural gas supply plans for various weather conditions.

Staff has the following comments and concerns regarding the reliability analysis:

1. **Peak Day Estimate**

   Empire conducted regression analyses of recent winter data for each system and used the output from that analysis and a historical peak heating degree day (HDD) to estimate the peak day for each system. Empire's peak day estimates for each system do not include any estimate for variability such as standard error or estimates based on the upper 95% confidence interval factors that would result in a larger peak day estimate. Consideration of variability in the peak day estimate is appropriate because actual usage varies around the line predicted by a regression equation.

   The peak day estimate and estimates of customer growth are used by the Company when planning for future transportation capacity requirements. The Company peak day estimate and contracted capacity are not concerns for this ACA period. However, as Empire considers the peak day estimates and appropriate transportation contract volumes moving forward, especially when it is planning for extension or revision of expiring contracts, Staff recommends Empire consider variability in its peak day estimates.

2. **Cheyenne Plains Pipeline Charges Allocation**

The Company has transportation and storage contracts specific to each system. Southern Star contracts are applicable to the South System, Panhandle Eastern contracts are applicable to the North System and ANR contracts are applicable to the Northwest System.

The Company also has a transportation contract on Cheyenne Plains that delivers natural gas to field capacity on Southern Star, Panhandle Eastern and ANR pipeline systems for ultimate delivery to the South, North and/or Northwest systems.

The Company could purchase supply for its peak day and monthly requirements on the pipelines that are serving each area - ANR for the Northwest system, SSCGP for the South system, and PEPL for the North system. The Company can utilize the Cheyenne Plains capacity for operational flexibility to flow gas to any of the three systems. This capacity was acquired at a time when flowing gas on Cheyenne Plains was expected at times to have a lower price for each of its systems.

The Company provided its allocation of the Cheyenne Plains charges, most of which are fixed reservation charges. There is also a credit for some of the capacity that is released in three months. There are also volumetric charges associated with the natural gas that flows on the Cheyenne Plains capacity.

Staff reviewed the Company allocation of these costs, requested clarification information, and held several conference calls with the Company to obtain a better understanding of the Company planning process and the allocation of the Cheyenne Plains charges. Based on this information, the Staff has no change to the overall cost, but recommends that the Company make a reallocation to each service area as shown in the table below.

Cheyenne Plains Reservation & Volumetric Charges	Northwest - ANR	South - SSCGP	North - PEPL	Total
Company Allocation	$272,907.52	$645,714.80	$321,505.20	$1,240,127.52
Staff Allocation	$175,186.26	$788,058.86	$276,882.40	$1,240,127.52
Difference	$97,721.26	($142,344.06)	$44,622.80	$0.00
Staff Allocation as % of Company Allocation	64.2%	122.0%	86.1%	100.0%

Staff's allocation of the reservation charge and capacity release credit is based on Empire's estimates for total annual sales for each system, which the Company calculates from a regression analysis of monthly data, heating degree day data, and customer numbers for each system. Empire obtains a normal estimate for each system by using the regression factors with normal heating degree days and the expected number of customers for each month. Using the normalized sales volumes, the reservation charge and capacity release credit are allocated to the Northwest, South, and North systems at 14.1%, 63.6%, and 22.3% respectively. The volumetric charges are allocated to the specific system where the natural gas flows and the pipeline invoices provide the supporting detail to allocate costs to the system where the volumes flowed.

IV. HEDGING

The Company has individual gas supply hedging portfolios for each of its three service areas. Staff's comments are provided for each.

Empire's hedging planned target was at 70 to 90% of normal winter requirements while actual coverage was 82% based on the 2011/2012 normal winter volumes.

For the South system, Empire hedged about 75% of the normal winter requirements through a combination of storage (34%), and financial instruments (41%). Empire purchased the financial hedges between fall 2010 and fall 2011.

For the North and Northwest systems, Empire depended on storage for its hedging strategies. For the North system, Empire hedged about 99% of its normal requirements by using storage, while about 84% of the Northwest system's normal requirements came from storage.

Staff is concerned about the continued negative financial impacts from the hedging transactions in this ACA period. While Staff reviews the prudence of a Company's decision-making based on what the Company knew or should have known at the time it made its hedging decisions, the Company's hedging planning should be flexible enough to incorporate changing market circumstances. Staff believes the Company should evaluate its hedging strategy in response to changing market dynamics as to how much the existing hedging strategy actually benefits its customers while balancing market price risk. For example, the Company should evaluate whether extensive reliance on swaps and the volumes associated with them are appropriate. Additionally, the Company should continue to evaluate its current strategy of financially hedging summer storage injections under the current market.

Recent Empire hedging updates incorporate 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 calls may have a strike price that still affords reasonable protection in the current market but at a reduced premium cost.

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 a quantification of the benefits/costs based on the outcomes from the hedging strategy; and an evaluation of any potential improvements on the future hedging plan and its implementation. For example, the Company should provide a summary of how the Company's hedges (swaps) have performed against market pricing. This would be useful for understanding the impact of purchases without the hedges. A hedge performance or mark-to-market summary conducted over an extensive historical period would be helpful in seeing the long term financial impact of the hedge program. Because of the need to better understand the impact of the hedging program, the Staff recommends Empire develop this summary in future ACA periods.

V. RECOMMENDATIONS

The Staff recommends that the Commission issue an order requiring Empire to:

1. Adjust the balances in its 2011/2012 ACA filing to reflect the ending (over)/under recovery balances for the ACA, TOP, TC, and Refund accounts per the following table:

TABLE 1

Description + Under-recovery (-) Over-recovery	8-31-12 Ending Balances Per Filing	Commission Approved Adjustments prior to 2011-2012 ACA (A)	Staff Adjustments For 2011-2012 ACA	8-31-12 Staff Recommended Ending Balances
South System: Firm ACA	$480,010	$0	(B) ($20,099) (C) $142,344 (D) ($516) (E) $404 (F) $2,764 (G) ($3,819) (H) $142,861	$743,949
Interruptible ACA	$0	$0	$0	$0
Take-or-Pay (TOP)	$0	$0	$0	$0
Transition Cost (TC)	$0	$0	$0	$0
Refund	$0	$0	$0	$0
North System: Firm ACA	$991,981	$0	(C) ($44,623) (E) $626 (G) ($1,709) (H) ($55,930)	$890,345
Interruptible ACA	$0	$0	$0	$0
Take-or-Pay (TOP)	$0	$0	$0	$0
Transition Cost (TC)	$0	$0	$0	$0
Refund	$0	$0	$0	$0
Northwest System: Firm ACA	$361,974	$0	(C) ($97,721) (E) ($1,120) (G) ($894) (H) ($86,931)	$175,308
Interruptible ACA	$0	$0	$0	$0
Take-or-Pay (TOP)	$0	$0	$0	$0

Transition Cost (TC)	$0	$0	$0	$0
Refund	$0	$0	$0	$0

A) All prior period adjustments (included in Case GR-2012-0124) have been adopted by the Company in Case GR-2014-0096.

B) Southern Star reservation costs

C) Cheyenne Plains allocations

D) Southern Star imbalances

E) Supplier gas purchases

F) Cashout – End user

G) Cashout – Pool Aggregation

H) Hedging allocation - ($109,950 Feb + $32,911 Mar) South; ($55,930) Feb – North; [($54,020) Feb + ($32,911) Mar] NW. Source DR 75 – Cost Summary.

2. Respond to Staff's recommendations in the Hedging section.

3. Respond to Staff's recommendation in the Reliability Analysis and Gas Supply Planning section related to peak day estimate.

4. Respond to recommendations included herein within 45 days.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Empire District Gas Company's Purchased Gas Adjustment Tariff Filing	))	Case No. GR-2013-0250

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 9 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 18th 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 Empire District Gas Company's Purchased Gas Adjustment Tariff Filing	))	Case No. GR-2013-0250

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 9 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 18th 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 Empire District Gas Company's Purchased Gas Adjustment Tariff Filing	))	Case No. GR-2013-0250

AFFIDAVIT OF PHIL S. LOCK

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Phil S. Lock, being of lawful age, on his oath states: that as a Utility Regulatory Auditor III in the Procurement Analysis Unit of the Utility Services Department, he has participated in the preparation of the foregoing memorandum consisting of 9 pages to be presented in the above case; that he 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 his knowledge and belief,

Phil S. Lock

Phil S. Lock

Subscribed and sworn to before me this 18th day of December, 2013.

D. Suzie Mankin

Notary Public

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