MEMORANDUM

TO: Missouri Public Service Commission Official Case File
Case No. GR-2014-0108, Empire District Gas Company

FROM: Phil Lock, Regulatory Auditor – Procurement Analysis
Kwang Choe, Ph.D., Regulatory Economist – Procurement Analysis
Kathleen McNelis, Utility Engineering Specialist III – Procurement Analysis

/s/ David M. Sommerer 12/18/14
Project Coordinator / Date

/s/John Borgmeyer 12/18/14
Staff Counsel's Office / Date

/s/ Lesa Jenkins P.E, 12/18/14
Utility Regulatory Engineer II/ Date

SUBJECT: Staff Recommendation in Case No. GR-2014-0108, Empire District Gas Company 2012-2013 Actual Cost Adjustment Filing

DATE: December 18, 2014

EXECUTIVE SUMMARY

On October 23, 2013, Empire District Gas Company ("Empire" or "Company") filed its Actual Cost Adjustment (ACA) for the 2012-2013 annual period for rates to become effective November 7, 2013. This filing revises the ACA rates based upon the Company's calculations of the ACA balance for the 2012-2013 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. An over-recovery, represented by a negative ACA balance, must be returned to the Company's customers; an under-recovery (a positive ACA balance) must be recovered from customers.

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
- 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.

Description	South Firm	North Firm	NW Firm	Total
Cheyenne Plains allocation	$232,630	($131,977)	($100,653)	$0
Cashout – Large Volume	($9,405)	$1,340	($3,163)	($11,228)
Cashout – Pool Aggregation	($58,933)	($27,679)	($14,492)	($101,104)
Total	$164,292	($158,316)	($118,308)	($112,332)

The Cheyenne Plains allocation adjustment is discussed in greater detail in the Reliability Analysis and Gas Supply Planning section. Additionally, Staff makes recommendations which are discussed in the Reliability Analysis and Gas Supply 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:

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.

There was an average of 28,268 firm sales customers on the South System, 9,163 on the North System, and 5,437 on the Northwest (NW) System. There were no interruptible sales customers during this ACA.

II. BILLED REVENUE AND ACTUAL GAS COSTS

CHEYENNE PLAINS ALLOCATIONS

Staff recommends Cheyenne Plains reservation costs 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 recommended adjustment: 1) increases the cost of gas for the South system by $232,630; 2) reduces the cost of gas for the North system by $131,977; and 3) reduces the cost of gas for the Northwest system by $100,653. This adjustment re-allocates the costs and does not change the overall cost of gas to the Company.

CASH-OUTS – LARGE VOLUME AND POOL AGGREGATION CUSTOMERS

Empire noted some discrepancies in its initial calculation of cash-outs during this ACA period (Cash-out Summary – DR 34 response):

- ** ______ ** (SSCGP) Sept 12 through Aug 2013 cash-out summary was calculated using an incorrect value but customer was billed correctly.
- ** ______ ** was not included in total cash-out summary for Panhandle for Sept 2012. Customer was billed correctly.
- Small Volume Pools for all pipelines were incorrect in Mar 2013.
- ** ______ ** Small Volume Pool on Panhandle and ** ______ ** ANR FF were incorrect for Oct 2012.

In each case it appears Empire corrected these discrepancies and billed the customers correctly, but the updated cash-out amounts were not reflected in the 2012-2013 ACA filing. Therefore, Staff will adjust for these changes in this ACA filing.

Staff made another cash-out adjustment: During March 2013 the *Natural Gas Week* high and low index prices (used to cash out monthly imbalances for Large Volume and Pool Aggregation customers) were misstated in the Company's filing for the North, South and Northwest systems. As with the discrepancies above, Empire billed customers correctly but did not include the updated cash-out values in the 2012-2013 ACA filing. Staff will include these changes in

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this ACA filing. The resulting changes, along with the ones previously described, are included in the table below.

Cash-Out	South	North	Northwest	Total
Large Volume Transportation	($9,405)	$1,340	($3,163)	($11,228)
Pool Aggregation	($58,933)	($27,679)	($14,492)	($101,104)
Total	($68,338)	($26,339)	($17,655)	($112,332)

In summary, the total cost of gas should be reduced by $68,338 for firm sales customers on the South system; reduced by $26,339 for firm sales customers on the North system and reduced by $17,655 for firm sales 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. **Cheyenne Plains Pipeline Charges Allocation**

Empire 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. Empire also has a transportation contract on Cheyenne Plains that provides Empire with the flexibility to deliver natural gas supply into any of the three interstate pipeline systems (Southern Star, Panhandle Eastern and ANR) that feed its South, North and/or Northwest systems respectively. Empire acquired this capacity at a time when flowing gas on Cheyenne Plains was expected at times to have a lower price for each of its systems.

Empire provided its allocation of the Cheyenne Plains charges, most of which are fixed reservation charges. There is also a miscellaneous service charge credit in one month and volumetric charges associated with the natural gas that flows on the Cheyenne Plains capacity.

Staff recommended an adjustment to reallocate the Cheyenne Plains pipeline reservation and volumetric charges in the 2011-2012 ACA, GR-2013-0250. There is a similar issue in the 2012-

2013 ACA, with a similar Staff process to reallocate Cheyenne Plains pipeline charges. Based on Staff's analysis, there is no change to the overall cost, but Staff recommends that Empire make a reallocation to each service area as shown below:

Staff Recommended Cheyenne Plains Reallocation for 2012-2013 ACA				
Cheyenne Plains Reservation & Volumetric Charges	South - SSC	North - PEPL	Northwest - ANR	Total
Empire Allocation	$560,606	$405,213	$279,146	$1,244,965
Staff Allocation	$793,236	$273,236	$178,493	$1,244,965
Difference	$232,630	($131,977)	($100,653)	$0
Staff as % of EDG Allocations	141.5%	67.4%	63.9%	100.0%

Staff's allocation of the reservation charge and miscellaneous service credit is based on Empire's estimates for total monthly retail sales for each system. Empire had no capacity releases on Cheyenne Plains during the 2012-2013 ACA period. The volumetric charges are allocated to the specific system where the natural gas flows and the pipeline invoices provide the detail to allocate costs to the system where the volumes flowed.

2. Supplier Bid Process

Based on Staff's review of Empire's trade tickets for the 2012-2013 ACA, it appears that there was only one bidder for approximately 70 percent of the total volume of gas Empire purchased during the 2012-2013 ACA period. It further appears that for approximately 56 percent of the total volume purchased, only one bid was solicited. Staff recommends that Empire continues its efforts to increase vendor participation.

IV. HEDGING

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

Empire's planned hedging target was at 70 - 90 percent of normal winter requirements while actual coverage was 68 percent based on the 2012-2013 normal winter volumes.

For the South System, Empire hedged about 54 percent of the normal winter requirements through a combination of storage (36 percent), and financial instruments (18 percent). Empire purchased the financial hedges between fall 2010 and fall 2012.

For the North and Northwest systems, Empire depended on storage for its hedging strategies. For the North system, Empire hedged about 96 percent of the normal winter requirements by using storage, while about 88 percent of the Northwest system's normal winter requirements came from storage[1].

Staff reviews the prudence of a Company's decision-making based on what a company knew or reasonably could have known at the time it made its hedging decisions. A company's hedging planning should be flexible enough to incorporate changing market circumstances. A company should continue to 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, a company should evaluate whether extensive reliance on swaps and the volumes associated with them are appropriate. Financial swaps are a type of financial instrument that allow the conversion of a floating or variable gas price arrangement into a fixed price arrangement. Since many of Empire's supply contracts are tied to a floating or variable index price, a swap allows Empire to set a known price for a particular quantity of gas. Additionally, the Company should continue to evaluate its strategy of financially hedging summer storage injections, including consideration of the optimal percentage of injected gas that should be covered by hedges, and whether there may be more cost-effective financial instruments under the current market, where prices are relatively less volatile.

Recent Empire hedging updates noted incorporation of call options in its hedging program to supplement the use of swap instruments. Call options put a ceiling on prices, while allowing 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 significant protection near current market prices, but at a reduced premium cost.

Finally, Staff recommends the Company continue to assess and document the effectiveness of its hedges for the 2013-2014 ACA period and beyond. 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, the Company should provide a summary of how the Company's hedges have performed against market pricing. This would be useful for understanding the impact of purchases without the hedges. This hedge performance or mark-to-market summary conducted over an extensive historical period is 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 that Empire develop this summary in future ACA periods.

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[1] These hedged percentages from storage are derived from planned storage withdrawal data provided in the Company's "Annual Gas Supply Planning Report 2012" file "Ex A Hedg Pln 2012-2013_Detail_2012_11_15upd" in DR 34. The Company has provided different values of planned storage withdrawals in the "System Analysis" folder of DR 34 and plan changes discussed in the Company's response to GR-2014-0108, DR 53.1. The data presented here for the South System agrees within 1% with the planned withdrawal from the System Analysis data. The data presented here for the Northwest system agrees within 2 percent of planned withdrawal presented in the System Analysis data, The data presented here for the North system is consistent with plan revisions discussed in DR 53.1.

V. RECOMMENDATIONS

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

1. Adjust the balances in its 2012-2013 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	8-31-13 Ending Balances Per Filing	Commission Approved Adjustments prior to 2012-2013 ACA (A)	Staff Adjustments For 2012-2013 ACA	8-31-13 Staff Recommended Ending Balances
South System: Firm ACA	($103,861)	$0	($9,405) (B) ($58,933) (C) $232,630 (D)	$60,431
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	$1,109,030	$0	$1,340 (B) ($27,679) (C) ($131,977) (D)	$950,714
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	$362,558	$0	($3,163) (B) ($14,492) (C) ($100,653) (D)	$244,250
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 have been adopted by the Company in Case GR-2014-0108.
B) Cashout – Large Volume
C) Cashout - Pool Aggregation
D) Cheyenne Plains Pipeline Charge Allocation

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

3. Respond to Staff's recommendations in the Reliability Analysis and Gas Supply Planning section.

4. Respond to recommendations included herein within 45 days.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of The Empire District Gas Company's Purchased Gas Adjustment Tariff Filing.	)))	Case No. GR-2014-0108

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, in the Regulatory Review Division, he has participated in the preparation of the foregoing memorandum consisting of 7 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, 2014.

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 The Empire District Gas Company's Purchased Gas Adjustment Tariff Filing.	)))	Case No. GR-2014-0108

AFFIDAVIT OF KATHLEEN A. MCNELIS

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

Kathleen A. McNelis, being of lawful age, on her oath states: that as a Utility Engineering Specialist III in the Procurement Analysis Unit of the Utility Services Department in the Regulatory Review Division, she has participated in the preparation of the foregoing memorandum consisting of 7 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.

Kathleen A. McNelis

Subscribed and sworn to before me this 18th day of December, 2014.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
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D Suzie Mankin
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AFFIDAVIT OF KWANG Y. CHOE, PHD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Kwang Y. Choe, PhD. being of lawful age, on his oath states: that as a Regulatory Economist II in the Procurement Analysis Unit of the Utility Services Department in the Regulatory Review Division, he has participated in the preparation of the foregoing memorandum consisting of 7 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, PhD

Subscribed and sworn to before me this 18th day of December, 2014.

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