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Issues: Gas Costs for Generation; Volatility and Uncertainty in Gas Costs
Witness: Scott A. Glaeser
Sponsoring Party: Union Electric Company
Type of Exhibit: Rebuttal Testimony
Case No.: ER-2008-0318
Date Testimony Prepared: October 10, 2008

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2008-0318

REBUTTAL TESTIMONY

OF

SCOTT A. GLAESER

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
October 14, 2008

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REBUTTAL TESTIMONY

OF

SCOTT A. GLAESER

CASE NO. ER-2008-0318

I. INTRODUCTION

Q. Please state your name and business address.

A. Scott A. Glaeser, AmerenEnergy Fuels and Services Company ("AFS"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. Are you the same Scott A. Glaeser that previously filed testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. I have reviewed the direct testimonies of Staff and intervener witnesses, and I will be rebutting certain positions taken by these witnesses as it relates to my testimony in this proceeding. Specifically, I am responding to Missouri Public Service Commission Staff ("Staff") witnesses Erin Maloney and Lena Mantle; State of Missouri witness Martin Cohen, Missouri Industrial Energy Consumers witness Maurice Brubaker; and Noranda Aluminum, Inc. witness Donald Johnstone.

II. OVERVIEW OF REBUTTAL OF TESTIMONY

Q. What specific areas will be addressed in your rebuttal testimony?

A. My rebuttal testimony is responding to positions taken in the direct testimony of Staff and certain interveners concerning the Fuel Adjustment

Clause ("FAC") requested in this case by AmerenUE. First, I will address the Staff's assertion that natural gas prices are not volatile. Second, I will address the difficulty in price hedging natural gas prices for peaking gas generation and how it does not eliminate market volatility in response to State witness Cohen. Finally, I will address contentions raised by the Staff and certain interveners that there would be little incentive for AmerenUE to prudently manage natural gas prices with an FAC in place.

III. NATURAL GAS MARKET VOLATILITY AND UNCERTAINTY

Q. Mr. Glaeser, Staff witness Maloney states on page 31 of the Staff Cost of Service Report ("Staff Report") that "The Staff analyzed the trend in natural gas prices over a two-year period using twelve month moving averages and could determine no discernable trends in price." The Staff Report further states "These 12-month moving averages were very constant over this two-year period indicating relative natural gas price stability on an annual basis over this two-year period." Do you agree with these statements?

A. Absolutely not. The natural gas market in the U.S. represents one of the most volatile commodity markets in the world and how anyone can make the statement that natural gas prices are stable is beyond belief. Furthermore, Staff's method of analysis is flawed and the conclusion the Staff draws from its analysis is incorrect. Instead of examining actual gas *market* prices, Staff analyzes actual fuel cost data *from AmerenUE*, arbitrarily throws out high gas prices that do not fit their assertion, and

then uses a twelve-month moving average method in an effort to artificially remove volatility. This masks the true market volatility to which gas generators are exposed.

Q. What mistakes did the Staff make in their analysis of natural gas prices?

A. An examination of Ms. Maloney's workpapers confirms that in their analysis of natural gas market prices, the Staff used AmerenUE's *actual* fuel costs as representative of gas *market* prices. Actual fuel costs include a variety of price hedged gas supply packages, storage withdrawals, and market priced gas supply packages. In other words, it represents our price hedged gas supply portfolio in which we employ various hedging instruments and physical resources to dampen price volatility. It does not represent market prices, nor does it give an indication of future cost exposure for gas generation. Furthermore, Staff witness Maloney appears to have arbitrarily removed certain months with high fuel costs (March 2008 for Panhandle Eastern Pipeline Company ("PEPL") and Mississippi River Transmission ("MRT")) and tried to further "smooth out" prices by replacing these months with artificially lower values Again, in order to see market volatility, actual market prices must be used rather than actual costs with various levels of hedged pricing. Finally, Staff witness Maloney, for no clear reason, applies a 12-month rolling average to "smooth out" gas prices in an effort to further mask price volatility.

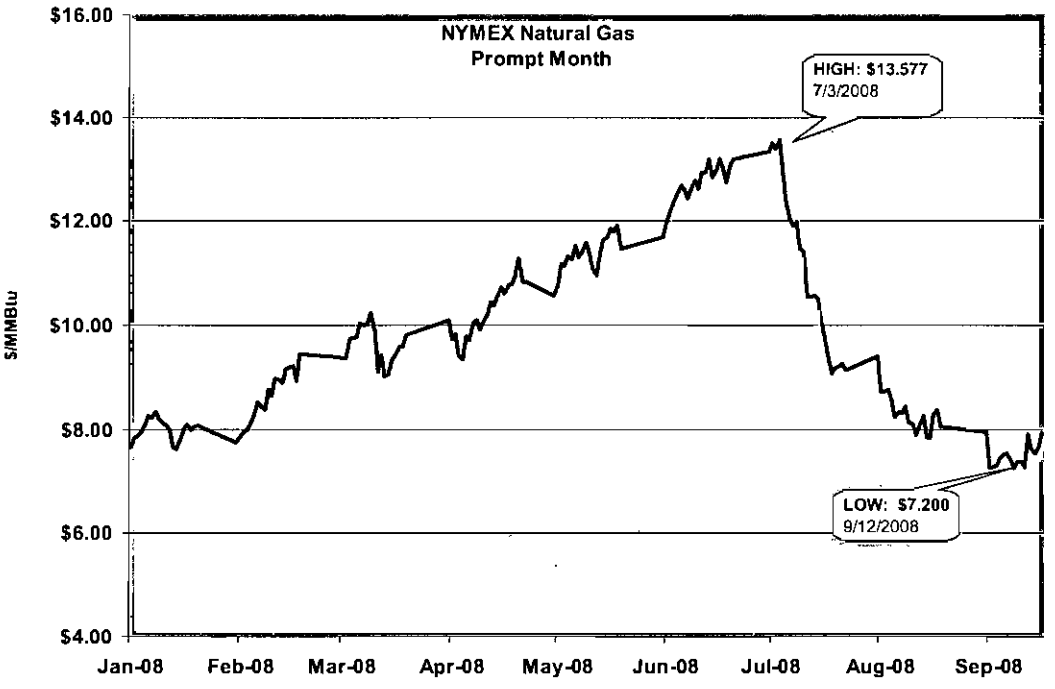
Q. Beyond those flaws in the Staff's analysis, are there problems in the conclusions reached by Staff witness Maloney?

A. Yes. Staff witness Maloney concludes that the gas prices are stable during the two-year period even though the gas price information contained in her own data on Table 2 (Staff Report, p. 31) directly contradicts her conclusion. This data shows PEPL actual gas costs ranging from a low of $5.22/MMBtu in December of 2007 to a high of $11.07/ MMBtu in February of 2008. In other words, actual costs increased by approximately 100%, or more than doubled, in just two months, yet Ms. Maloney concludes that prices are not volatile.

Q. What evidence is available to support the fact that natural gas prices are volatile?

A. There are many sources of data to prove the volatility of natural gas prices. The New York Mercantile Exchange ("NYMEX") futures market is the industry standard for natural gas price discovery for current and future periods and also for financial price hedging. Chart SAG-R1 below uses NYMEX data to show that natural gas prices have been highly volatile for the period of January through September of 2008. The graph shows that the extreme high and low natural gas prices predicted in my direct testimony, Schedule SAG-E4, have been tested and surpassed in the recent July through September 2008 period. The gas markets have experienced unprecedented volatility since 2000, but this volatility has been even more pronounced this year.

Chart SAG-R1



Q. Do others in the energy industry agree that natural gas prices are volatile?

A. Yes, many industry experts have publicly stated that natural gas markets are volatile. Petroleum Industry Research Associates ("PIRA"), a well respected petroleum industry research organization, noted that "This month's $3+ Henry Hub gas price collapse quickly brings the word volatility to mind in the context of other numerous examples that have made gas prices virtually synonymous with volatility since the 1990s."

In the Commission's Report and Order in The Empire District Electric Company rate case, Case No. ER-2008-0093, issued July 30, 2008, the Commission stated "In an era where fuel costs are highly volatile, a fuel adjustment clause may be appropriate if the company is to

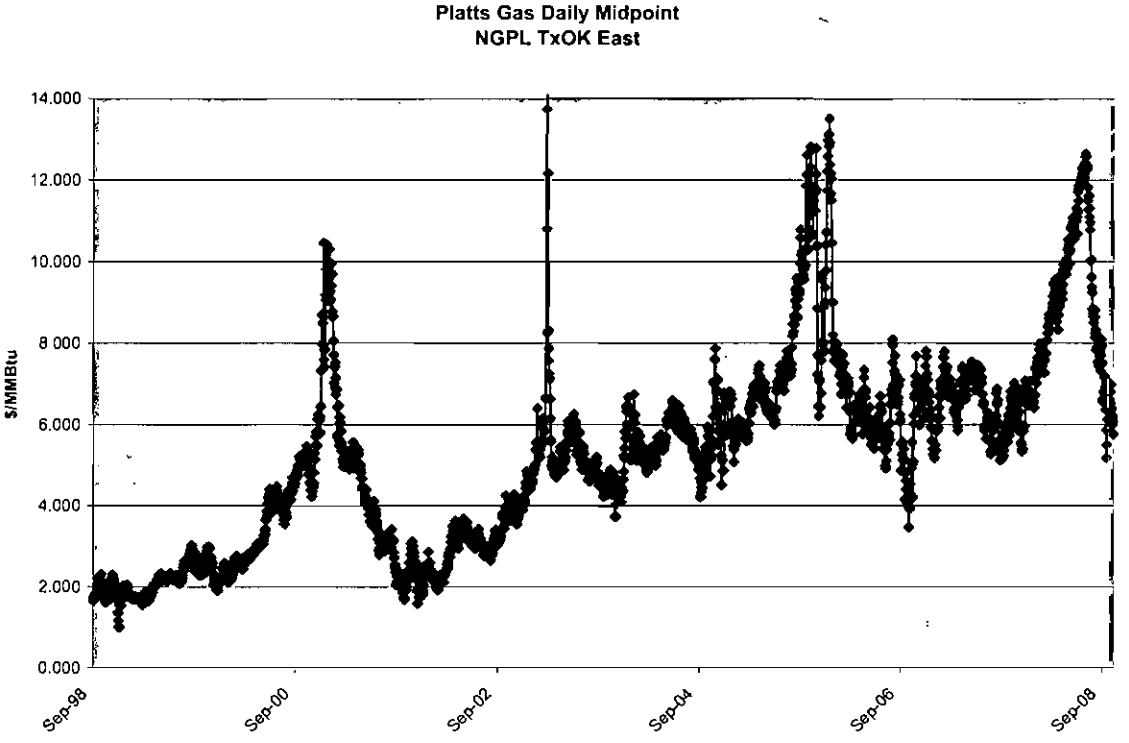
earn its authorized rate of return." While natural gas is still a relatively small portion of AmerenUE's fuel mix, that share has been growing very quickly in terms of fuel volume and even more quickly in terms of dollar amount. Consequently, without an FAC, volatile natural gas prices expose AmerenUE to an ever-increasing problem of under-recovered fuel costs with significant up and down swings in its net fuel costs. Moreover, as explained in Mr. Arora's testimony, this increasing exposure to uncertain natural gas markets is occurring in combination with AmerenUE's exposure to coal cost uncertainty and off-system sales uncertainties, all of which results in substantial uncertainty in AmerenUE's net fuel costs to which the FAC will apply.

Q. Is there evidence supporting long-term trends and volatility of natural gas prices?

A. The long-term volatility of natural gas prices is shown on Chart SAG-R2 below, which illustrates the daily natural gas prices as published in Platt's Gas Daily NGPL TxOk East (which reflects prices on Natural Gas Pipeline Company of America in the Texas/Oklahoma region) for the past decade. The NGPL TxOk East market represents an important supply source and market pricing point for AmerenUE's gas generation. The chart clearly shows that daily natural gas prices are extremely volatile, having ranged from a low of under $2.00 per MMBtu in 1998 to well over $12.00 per MMBtu in multiple periods. It also important to realize the market fundamentals for natural gas have dramatically changed. The

trend over the past ten years reveals that natural gas prices have increased from $2.00 per MMBtu in 1998 to over $8.00 per MMBtu in 2008. This graph illustrates that natural gas markets have exhibited exceptional price volatility and steadily increasing prices.

Chart SAG-R2



Q. What natural gas market fundamentals have changed causing this increased volatility and higher gas prices?

A. As I explained in my direct testimony, the balance between supply and demand in the U.S. is precarious since many of the conventional production basins, such as the massive Hugoton field in Kansas and Oklahoma, have been in decline for many years. Natural gas from these mature production basins was previously brought to the market at costs

well below $4.00 per MMBtu. These supplies are now being replaced by nonconventional and deepwater Gulf of Mexico ("GOM") gas reserves, which are significantly more expensive to drill and produce, and Liquefied Natural Gas ("LNG") which is subject to global market prices. For example, the estimated cost to drill, complete, and produce natural gas from the Fayetteville shale formations in Arkansas is approximately $4.50 per MMBtu, which effectively creates a new long-term price floor for gas markets. Other shale plays in the U.S. are producing at even higher cost levels due to expensive horizontal drilling and complex fracturing techniques required to produce natural gas from shale formations. Also, the U.S. is a net importer of natural gas from both Canada and from supplies of LNG from overseas countries such as Trinidad, Qatar, and Egypt. LNG prices have recently exceeded $18 per MMBtu for LNG delivered to Japan. LNG is now providing more gas supplies to the U.S., but it does so by placing the U.S. in the global LNG market, similar to global crude oil markets. This introduces a new level of uncertainty and volatility to U.S. gas prices that is likely to be seen for many years into the future or, similar to the crude oil markets, may be a permanent factor. In addition, crude oil prices have a direct influence on natural gas prices on both the physical markets and financial futures trading with the recent record price for crude oil of $147 per barrel also supporting the simultaneous price spike in natural gas prices to $14 per MMBtu. Finally, the financial markets have exerted a significant influence on natural gas

prices due to the massive influx or outflows of capital seeking higher returns or protection from inflation.

Q. Please explain how the financial markets influence natural gas prices.

A. As I described in my direct testimony, the financial markets invest capital in commodity markets such as natural gas or crude oil with the goal of creating profits from price volatility. The financial players have no physical need for natural gas, yet they move billions of dollars in and out of natural gas financial positions with the goal of generating profit. The massive amount of money managed by the financial funds chasing a constrained commodity such as natural gas or crude oil definitely contributes to price volatility.

Q. What do all these factors that affect U.S. natural gas prices mean with respect to AmerenUE's ability to control fuel costs?

A. It means that natural gas prices are well beyond the control of AmerenUE or any other company

Q. Mr. Glaeser, considering the volatile and unpredictable swings in natural gas prices, how can companies such as AmerenUE with gas generation control these fuel costs?

A. Simply put, we cannot control the market prices for natural gas nor can we directly control fuel costs. As I discussed in my direct testimony, the market prices for natural gas in the U.S are driven not only by external conditions in North America such as hurricanes in the Gulf of Mexico or gas imports from Canada, but by global influences such as crude oil prices

driven by crisis in the Middle East or nuclear outages in Japan. None of these major influences can be controlled nor can such events be easily forecasted. Operators of gas generation can attempt to manage the exposure to price volatility through price hedging strategies. However, there are significant constraints on our ability to hedge gas used for generation, and the hedges themselves are derived from the very same volatile natural gas market.

IV. PRICE HEDGING FOR NATURAL GAS GENERATION

Q. In State witness Martin Cohen's direct testimony, page 7, he states that "A utility can protect its fuel portfolio through such activities as negotiating long-term contracts, purchasing fuel in forward markets, and employing financial hedging strategies." Do you agree with this statement?

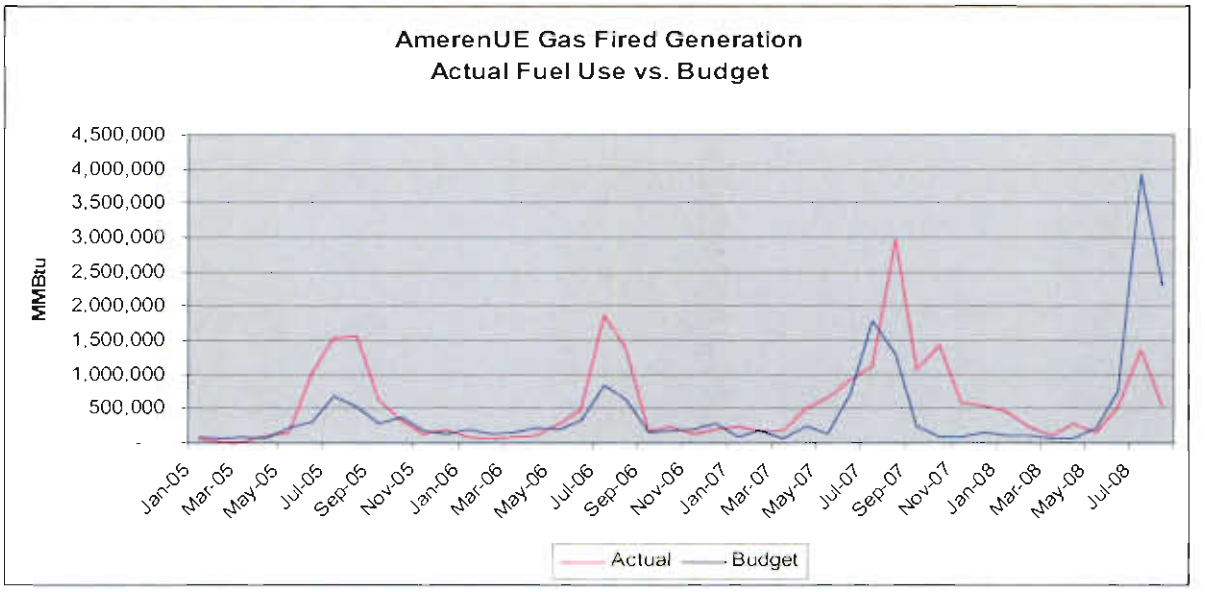
A. Only in part. AmerenUE does employ hedging strategies including long-term contracts, forward purchases, financial hedges, and physical resources to dampen price volatility for natural gas; however, price hedging only dampens market volatility, it does not eliminate volatility and these hedges must be secured from the very same volatile market. In other words, there is no parallel market with stable gas prices to secure future price hedges. In addition, the highly uncertain demand of AmerenUE's peak-load gas generation creates significant problems in efficiently price hedging fuel costs.

Q. Why is the demand for AmerenUE's gas generation so uncertain?

A. The demand for AmerenUE's gas generation, especially for simple-cycle peaking turbines in AmerenUE's generating fleet, is highly uncertain. Gas generation is utilized to serve demand during peak periods and when power market "spark spreads" support gas generation for off-system sales. AmerenUE's gas generation is also used for reliability dispatch when base load units trip off or for transmission congestion relief, again causing significant uncertainty in future demand independent of gas market prices. All of these scenarios are difficult to forecast, even for next day operations, with any accuracy. To demonstrate the unpredictability of AmerenUE's gas generation, Chart SAG-R3 below illustrates actual natural gas generation demand versus budget forecast for 2005 through August of 2008. The graph reveals that the actual demand for natural gas can deviate significantly from the forecast on a month-by-month and annual basis. What the graph does not reveal is that daily demand can deviate significantly even during a peak operating month such as July. The turbines may be idle for days and then operate at peak output the next day.

[Table on Next Page]

CHART SAG-R3



Q. Why does the uncertainty of gas generation demand make it difficult to fully hedge future fuel costs?

A. To efficiently hedge future natural gas costs, you need to know exactly how much volume and what future months to hedge in order to secure financial instruments such as NYMEX futures contracts, call options, or over-the-counter financial swaps. The great uncertainty in the level of future demand forces AmerenUE to limit future hedge positions for forecasted native load sales. Any demand above the forecast cannot be hedged, simply because the demand is unknown. Conversely, when actual demand is less than forecasted, there is a potential for AmerenUE to be stuck with stranded hedges in excess of demand. As noted in my direct testimony, the actual demand for gas-fired generation for AmerenUE has varied from 50% to 207% of the forecasted demand from 2004 to 2007.

Due to this uncertainty, it is impossible to fully hedge future gas generation.

Q. Are there any other factors that prevent effective hedging of AmerenUE's gas generation?

A. Yes. The mismatch between the gas industry and the electric industry prevents effective forward hedging of AmerenUE's peak-load gas generation. The standard financial instruments utilized by the gas industry are designed for uniform flows throughout each month. While hedging would be more feasible for utilities that use natural gas (e.g., combined cycle plants) to serve their baseloads, AmerenUE's peak-load gas generation operates in a non-uniform manner. Frequently, the monthly forecasted demand for generation is comprised of a few peak days, with the remainder of the month idle. With this demand profile and available gas hedging options, there is a mismatch between future demand and demand that can be effectively hedged. As I noted, this hedging problem stands in contrast to utilities that utilize combined-cycle gas generation plants for a larger portion of their baseload power requirements. The more certain future gas demand created by operating in a baseload or intermediate mode (such as generating during all five workdays each week for 10 to 12 hours per day) enables more effective future price hedging and therefore less volatility. As Mr. Arora explains in his direct and rebuttal testimonies, utilities with simple-cycle peaking generation require

an FAC just as much as utilities with combined-cycle plants operating in baseload or intermediate mode such as Empire or Aquila

Q. Staff witness Mantle (Staff Report, p 60) states "The Commission found in the Aquila and Empire rate cases that two components of fuel and purchased-power expense, the cost of natural gas, and spot purchased-power costs, have fluctuated significantly in the past and are expected to continue to be volatile in the future. However, Ameren uses a much smaller percentage of natural gas–based power and spot purchased-power to serve its load than either Aquila or Empire." Do you agree with Ms. Mantle that Aquila and Empire each deserve to have an FAC to the extent that they are more reliant upon "natural gas-based power and spot purchased-power"?

A. No. As I stated above, utilities that employ natural gas generation for intermediate and base power demands have greater certainty of their underlying demand for natural gas and purchased-power. This certainty of demand allows them to effectively hedge more of their natural gas costs with hedging tools, such as NYMEX futures contracts, which are available for periods beyond five years in the future. To the extent that AmerenUE could have known gas generation demand, it could effectively hedge natural gas costs, in addition to hedging its coal costs. In fact, the natural gas NYMEX futures market provides superior liquidity for hedging prices than is available for coal. The argument that an FAC is appropriate for Aquila and Empire, since they are more reliant upon natural gas and

purchased-power than AmerenUE, is flawed, both because gas is an ever-increasing portion of AmerenUE's supply and also given the very significant exposure of AmerenUE's net fuel costs to volatile and uncertain power markets.

V. MATERIAL IMPACT OF NATURAL GAS PRICE VOLATILITY

Q. Mr. Glaeser, Staff witness Mantle states "For AmerenUE fluctuations in natural gas prices and spot purchased-power prices have not been substantial enough to have a material impact on AmerenUE's revenue requirement." (Staff Report, p. 61). Do you agree that fluctuations in natural gas prices are not substantial enough to have a material impact on AmerenUE?

A. No. Although the total percentage of gas generation cost for AmerenUE is less than that of Aquila or Empire, the magnitude of AmerenUE's gas costs are significant and can have a material impact on AmerenUE. In my direct testimony I noted that future natural gas procurement costs can vary by $38,110,000 to $156,153,170 (a difference of $118 million) in 2009 and from $51,500,800 to $222,555,600 (a difference of $171 million) in 2012.

VI. PRUDENT MANAGEMENT OF NATURAL GAS COSTS

Q. Witnesses Johnstone, Brubaker and Cohen each assert that AmerenUE will not prudently control fuel costs if it is permitted to use an FAC. What policies and strategies are in place to assure that AmerenUE will prudently manage fuel costs?

A. AmerenUE's management of its fuel risk is governed by Ameren's Risk Management Policy and internal strategies and policies. Ameren has a Risk Management Steering Committee comprised of senior level management which oversees the Risk Management Policy for gas-fired generation, as well as for AmerenUE's gas local distribution company (LDC). The AmerenUE gas generation Risk Management Policy mandates a three-year planning horizon with upper and lower limits for price hedging forecasted native load. In addition to the Risk Management Policy, we have internal strategies governing the portfolio of natural gas supply resources designed to ensure firm deliverability, allow "no-notice" turbine starts, and to dampen price volatility. To meet these goals, we use a portfolio of resources including firm transportation from production areas, leased storage capacity, intraday supply packages, and financial hedging instruments.

Q. Will AmerenUE continue to implement the existing policies and strategies discussed above if granted an FAC by the Commission?

A. Yes. AmerenUE's track record in applying best cost control and risk management practices in the presence of a cost adjustment clause has already been demonstrated in the context of the Purchase Gas Adjustment ("PGA") mechanism.

Q. If AmerenUE is granted an FAC, what incentives exist to ensure prudent management of fuel supply?

A. Actual fuel costs, including hedging costs, will be filed with the Commission in the annual FAC reconciliation. Imprudent fuel costs will be subject to disallowance, providing a direct incentive for proper management. This process is similar to the PGA reconciliation procedure for AmerenUE's gas LDC. In addition, the AmerenUE proposal includes a 95%/5% sharing mechanism where any increase/decrease in fuel cost will be shared between the customers and AmerenUE, providing an additional financial incentive. Mr. Lyons addresses other incentives in his rebuttal testimony.

Q. What experience do you have managing natural gas costs and complying with fuel cost reconciliations?

A. AmerenUE has a long track record of prudently and successfully managing natural gas costs for the LDC through the PGA, which is a mechanism very similar to the proposed FAC. AmerenUE is experienced in providing full disclosure and support of LDC costs during Staff's reconciliation reviews each year. Although the PGA provides a mechanism for passing costs directly to the customers, AmerenUE aggressively pursues natural gas price and volume hedging. AmerenUE has been an industry leader in hedging natural gas; it was one of the first Missouri utilities to use futures to hedge natural gas financially, utilize third party off-system storage after FERC Order No. 636 deregulation, and extensively hedge gas supply prior to the peak winter season.

Q. Witnesses Johnstone, Brubaker and Cohen suggest that the PGA reconciliation process does not provide an intense level of review. Do you agree?

A. No. The Staff PGA reconciliation reviews are very intensive and thorough with every aspect of gas supply procurement, hedging, and system operations audited and analyzed by Staff.

Q. On page 4 of his direct testimony, Mr. Brubaker states that "One of the dangers with an automatic adjustment clause is that the utility becomes less attentive to managing its costs because of the directly reimbursable nature of these costs under the FAC." Do you agree that AmerenUE will be less attentive to managing costs if it is permitted to use an FAC?

A. No. AmerenUE employs professional fuel managers that are passionate about their work and take pride in managing fuel costs. We have a long track record of being good stewards in obtaining gas supplies for both AmerenUE's gas-fired generators and the LDC. We have proven that we are serious about our "obligation to serve" and maintaining stable and reasonable rates for our customers.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided To Customers in the Company's Missouri Service Area.	))))))	Case No. ER-2008-0318

AFFIDAVIT OF SCOTT A. GLAESER

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Scott A. Glaeser, being first duly sworn on his oath, states:

1. My name is Scott A. Glaeser. I am employed by Ameren Energy Fuels and Services as Vice President – Gas Supply and System Control.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Union Electric Company, d/b/a AmerenUE, consisting of 18 pages (and Schedules __ through ___ if any), all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Scott A. Glaeser

Subscribed and sworn to before me this 10th day of October, 2008.

Amanda Tesdall
Notary Public

My commission expires: _____

Amanda Tesdall - Notary Public
Notary Seal, State of
Missouri - St. Louis County
Commission #07156867
My Commission Expires 7/28/2011