Exhibit No.:	
Issues:	Fuel and Purchased Power Expense
Witness:	Michael S. Proctor
Sponsoring Party:	MoPSC Staff
Type of Exhibit:	Surrebuttal Testimony
Case No.:	ER-2009-0090
Date Testimony Prepared:	April 9, 2009

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

SURREBUTTAL TESTIMONY

OF

MICHAEL S. PROCTOR

KCP&L GREATER MISSOURI OPERATIONS COMPANY

CASE NO. ER-2009-0090

Jefferson City, Missouri
April 2009

****Denotes Highly Confidential Information****

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BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of KCP&L Greater Missouri Operations Company for Approval to Make Certain Changes in its Charges for Electric Service.	)))))	Case No. ER-2009-0090

AFFIDAVIT OF MICHAEL S. PROCTOR

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Michael S. Proctor, of lawful age, on his oath states: that he has participated in the preparation of the following Surrebuttal Testimony in question and answer form, consisting of 13 pages of Surrebuttal Testimony to be presented in the above case, that the answers in the following Surrebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

Michael S. Proctor

Subscribed and sworn to before me this 8th day of April, 2009.

JEREMY HAGEMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: March 05, 2013
Commission Number: 09686582

Notary Public

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CASE NO. ER-2009-0090

Q. What is your name and business address?

A. My name is Michael S. Proctor. My business address is 9900 Page Avenue, Suite 103, Overland, MO 63132.

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

A. I am employed by the Missouri Public Service Commission (Commission) as Chief Regulatory Economist in the Energy Department.

Q. What is your education background and work experience?

A. I have Bachelor and Master of Arts Degrees in Economics from the University of Missouri at Columbia, and a Ph.D. degree in Economics from Texas A&M University. Prior to coming to work for the Commission, I was an Assistant Professor of Economics at Purdue University and at the University of Missouri at Columbia. Since June 1, 1977, I have been on the Staff of the Commission and have presented testimony on various issues related to weather normalized energy usage and rate design for both electric and natural gas utilities. With respect to electric issues, I have worked in the areas of load forecasting, resource planning and transmission pricing. Currently, I am serving as chairman of the Southwest Power Pool (SPP) Regional State Committee's Cost Allocation Working Group, chairman of the Organization of Midwest ISO States' (OMS') Financial Transmission Rights Working Group and co-chairman of the OMS' Transmission Cost Allocations Working Group.

Q. What are your current duties in the Energy Department as Chief Regulatory Economist?

A. I have the responsibility of being actively involved with the activities of Regional Transmission Organizations (RTOs) which have the purpose of increasing efficiency and reliability in the competitive supply of electricity at wholesale. In addition, I am also responsible to testify before the Commission on various issues where I have relevant expertise and experience.

Q. On what issues have you filed surrebuttal testimony in this proceeding?

A. My surrebuttal testimony will address the rebuttal testimony of KCP&L Greater Missouri Operations Company (GMO) Witness Mr. Wm. Edward Blunk. Mr. Blunk provided rebuttal testimony on fuel and purchased power expense.

Q. What experience do you have regarding the issue of fuel and purchased power expense?

A. In the previous two Union Electric Company's d/b/a AmerenUE (AmerenUE) rate cases, Case Nos. ER-2007-0002 and ER-2008-0318, I presented testimony on the issue of spot-market electricity prices. In Case No. ER-2007-0002, I presented direct, rebuttal and surrebuttal testimony on the normalized level for test-year electricity and natural gas prices, as the test year included prices from 2005 when electricity markets experienced significant price increases from the effects of hurricanes Rita and Katrina, as well as rail problems for coal deliveries from Powder River Basin coal mines. In Case No. ER-2008-0318, I presented rebuttal and surrebuttal testimony on the distribution of net fuel expense related to price volatility in electricity markets, and I worked with Staff in developing normalized test-year electricity prices. Both normalization of test-year prices and net fuel expense are critical

issues in the instant case. Finally, I filed rebuttal testimony on off-system sales in Kansas City Power & Light Company's (KCPL's) currently pending rate case, Case No. ER-2009-0089.

Q. What other experience do you have with electricity prices that relate to the fuel and purchased power issue in the instant case?

A. On behalf of the Commission, I participated in both the Midwest ISO and the SPP in the development of their electricity market structures and the rules that govern the operations of their electricity markets. I understand the differences in the two market structures, with the Midwest ISO electricity markets having both a day-ahead and real-time markets, while SPP depends on bilateral trades of electricity for day-ahead decisions for unit commitment, and has an energy imbalance market for improving the efficiency (substituting lower cost power for higher cost power from committed generation units) related to the trading of electricity.

EXECUTIVE SUMMARY

Q. How does your experience relate to the rebuttal testimony of GMO witness Mr. Blunk?

A. Mr. Blunk's rebuttal testimony discusses the Staff's use of a flat-line natural gas price as it relates to fuel and purchased power expense. Mr. V. William Harris from the Staff is also addressing this issue from the perspective of the Staff's direct filing where actual test year electricity prices were used for purchased power. I will address this issue from the perspective of using normalized test-year prices that are trued up through the end of the true-up period along with a normalized profile for electricity prices.

Q. What are the specific concerns you have with Mr. Blunk's rebuttal testimony?

A. From the perspective of using strictly test-year prices, I do not disagree with Mr. Blunk's argument that using flat-lined natural gas prices with the actual electricity prices will result in underestimating fuel and purchased power expense. He is correct that in the test year as updated through September 2008, very high electricity prices were associated with very high natural gas prices. However, 2008 was an abnormal year with higher than normal prices through July 2008. The real concern addressed in my surrebuttal testimony is with overestimating fuel and purchased power expense by using natural gas and electricity prices that are too high. In addition, my surrebuttal testimony addresses the relationship between natural gas and electricity prices by averaging price profiles for both natural gas and electricity prices over the four relatively normal years of 2003, 2004, 2006 and 2007, and recommends that these profiles be used in conjunction with normalized annual levels for both electricity and natural gas prices.

1. MONTHLY NATURAL GAS PRICES ARE A MAJOR, BUT NOT THE ONLY DETERMINANT OF ELECTRICITY PRICES IN THE SOUTHWEST POWER POOL.

Q. Does Mr. Blunk testify that natural gas prices are a major determinant of electricity prices for GMO?

A. Yes, he does. At page 3 of his rebuttal testimony Mr. Blunk states, "Because of the positive correlation between power and natural gas prices we can assume that the months when the flat-line price of natural gas are above varying market prices are the same months when varying electricity prices are lower." However, Mr. Blunk provides no evidence to support his contention that there is positive correlation between electricity prices and natural gas prices.

Q. Do higher natural gas prices result in higher spot-market electricity prices in the SPP electricity markets?

A. I believe so for the reasons that follow. First, the SPP found in the first year of operations of its energy imbalance market that for over 82% of the hours, generation at the margin that sets the energy imbalance price is determined by generation fired by natural gas (see Table iii.10; ***2007 State for the Market Report: Southwest Power Pool Inc.***; Boston Pacific Company, Inc., External Market Advisor, April 24, 2008, p. 60, available on the SPP website). Second, the chart on Schedule MP-1.1 attached to the highly confidential version of my surrebuttal testimony shows the strong relationship of Henry Hub[1] natural gas prices to SPP North electricity prices. Specifically, regressing SPP North monthly average electricity prices against average monthly natural gas prices at the Henry Hub for the sixty months included in the years from 2003 through 2008 yields a regression coefficient of 71.8%. This means that of the total variation in electricity prices that occurred in each month throughout a five year period, 71.8% of that monthly variation is explained by the monthly variation in natural gas prices. Third, the charts and analysis on Schedule MP-1.2 attached to the highly confidential version of my surrebuttal testimony shows the strong relationship of SPP North annual average electricity prices to the annual average natural gas prices at the Henry Hub. Specifically, regressing SPP North around the clock (ATC) annual prices against average annual natural gas price at the Henry Hub for the years 2003 through 2008 yields a regression coefficient of 87.23%. This means that of the total variation in electricity prices occurring over these five years, 87.23% of that variation is explained by the variation in natural gas prices. In SPP there is little doubt that natural gas prices drive electricity prices for most

[1] The Henry Hub is the largest centralized point for natural gas spot and futures trading in the United States. The Henry Hub is the pricing point for natural gas futures contracts traded on the New York Mercantile Exchange (NYMEX). It is a point on the natural gas pipeline system in Erath, Louisiana. It interconnects with nine interstate and four intrastate pipelines.

hours of the year. Finally, in KCPL's modeling of forecasted electricity prices, it uses natural gas prices as one of the primary inputs that drive the levels for electricity prices.

Q. For Schedules MP-1.1 and MP-1.2, the data is for SPP North (electricity prices) and the Henry Hub (natural gas prices). Why are these charts and data relevant to GMO?

A. In the Staff's Cost of Service Report in this case Staff states that the method it used for estimating purchased power prices "combined data from both KCPL and GMO to reflect the market that exists in this region." Neither Kansas City Power & Light Company (KCPL) nor GMO have rebutted the Staff's position. Apparently both KCPL and GMO are in agreement with the Staff position that electricity prices for the two are representative of both. This common electricity market is represented by the SPP North trading market. With respect to natural gas prices, while there may be some basis difference between GMO's delivered gas prices and the prices at the Henry Hub, the Henry Hub is the primary natural gas market driving the delivered natural gas price for both KCPL and GMO.

Q. When putting together inputs for estimating fuel and purchased power expenses, should natural gas prices be correlated on a monthly basis with spot-market electricity prices?

A. Yes, however, these prices do not have to be perfectly correlated because of the impact that monthly load variations can have on electricity prices. As I will show later in my surrebuttal testimony, this is particularly evident in the summer when average natural gas prices for July and August generally decrease from their average levels in March through June, while average electricity prices for July and August increase from their average levels in

March through June. But in all of the other months of the year, average natural gas and electricity prices are positively correlated.

Q. In his rebuttal testimony, was Mr. Blunk concerned that the Staff's not correlating natural gas and electricity prices would result in underestimating GMO's fuel and purchased power expenses?

A. Yes. For months where flat-lined natural gas prices are below actual levels, which occurs when actual natural gas and electricity prices are high, Mr. Blunk states, "Purchased power expense will be understated because the model is less likely to have seen it as the economic choice. Fuel expense will be understated because the "flat-lined" price of natural gas will be lower than the monthly price." [Blunk Rebuttal, page 3, lines 13-15] Also, when discussing months where flat-lined natural gas prices are above actual levels, which occurs when natural gas and electricity prices are low, Mr. Blunk states, "Consequently the quantity of purchased power may be overstated for those months when power prices are at lows. Fuel expense for those months will be understated because the too high flat-lined natural gas [price] will be less likely to be viewed as the least cost option. The net effect is an understatement of the cost of service." [Blunk Rebuttal, page 3, line 20 through page 4, line 2]

Q. Do you agree with Mr. Blunk's analysis?

A. I agree that his conclusions are correct given his assumptions. However, I strongly disagree with his assumptions. Moreover, the Staff's estimated fuel and purchased power expense is not overstated for a fundamental reason: the actual electricity prices from the test year are abnormally high, and the natural gas prices from the test year, whether or not flat-lined or matched by month with electricity prices are abnormally high. Thus, the

production cost model run for the actual test year will not purchase power when it should, because the model sees high purchase power prices. If the model runs natural gas-fired generation instead of purchasing power, with abnormally high natural gas prices, the fuel expense for running that generation will be too high. Thus, it is very likely that the Staff's estimated fuel and purchased power expense for its direct filing is too high, not understated as suggested by Mr. Blunt. Moreover, Mr. Blunt should have been just as concerned about the level of electricity and natural gas prices being used by the Staff than with the relationship of these prices to a flat-line natural gas price.

2. NORMALIZED PROFILES FOR NATURAL GAS PRICES SHOULD BE USED IN CONJUNCTION WITH NORMALIZED PROFILES FOR ELECTRICITY PRICES.

Q. Did GMO witness Mr. Blunk have a recommendation for the monthly profile to be used for natural gas prices?

A. Yes, he did. Since Staff used actual test-year prices in its production cost model and since these are correlated with actual test-year natural gas prices, Mr. Blunk recommended the use of the monthly natural gas prices as they actually occurred so that they would match with the Staff's assumption for electricity prices.

Q. Do you agree with using the monthly electricity and natural gas prices as they actually occurred?

A. No. The actual electricity and natural gas prices are too high to represent normal prices as they exist today. Therefore, in this particular case, I cannot agree that using the actual monthly electricity or natural gas prices is correct. When electricity prices and natural gas prices used to estimate fuel and purchased power expense are too high, then the estimated cost of service will also be too high.

Q. What is your alternative recommendation to Mr. Blunk's rebuttal position on electricity and natural gas prices?

A. In my rebuttal testimony for KCPL Case No. ER-2009-0089 I recommended that normalized test-year prices along with a normalized pattern of prices be used for calculating fuel expense and purchased power, as well as for the calculation of profit margins associated with off-system sales. These monthly prices are shown on Schedule MP-2 attached to the highly confidential version of my surrebuttal testimony in this case. Since the Staff, and apparently the Company, believes that KCPL and GMO essentially face the same electricity markets (SPP North), the recommendation would carry over to this case as well.

Q. How were the prices shown on Schedule MP-2 constructed?

A. These are actual SPP North Prices for August 2008 through March 2009. April 2009 is an estimate that may be subject to true up if April is included in the true-up period. The period May 2008 through July 2008, when prices were increasing, were normalized by substituting prices from May 2007 through July 2007.

Q. What is GMO witness Mr. Blunk's rebuttal testimony regarding the use of flat-lined natural gas prices?

A. A major point is found in response to a question at the bottom of page 2 of Mr. Blunk's rebuttal testimony regarding how using a flat-lined natural gas price will distort fuel and purchased power expense. Mr. Blunk states, "For example, market prices for electricity and natural gas peaked in July last year. The flat-lined approach of using the same natural gas price for all months of the year would have artificially lowered the price of natural gas for July. The production cost model would then be more likely to dispatch a natural gas unit

when true market conditions may have dictated purchasing power." [Blunk Rebuttal at page 2, line 22 through pages 3, line 3].

Q. Do you agree with Mr. Blunk's analysis regarding July 2008?

A. Yes, I do. However, as stated previously, what occurred in July 2008 was abnormal. Both electricity prices and natural gas prices were abnormally high.

Q. If the Missouri Commission adopts your recommendation to use normalized test-year prices trued up through either March or April of 2009, what levels should be used for monthly natural gas prices for purposes of calculating fuel and purchased power expense?

A. I am recommending that a normalized monthly profile be used for electricity prices. If that recommendation is followed, then I also recommend that a similar normalized monthly profile be used for natural gas prices. Schedules MP-3.1 and MP-3.2 attached to my surrebuttal testimony show the normalized profiles for both electricity and natural gas prices. These normalized profiles were calculated by averaging the percent that each monthly price is of the annual average price for the years 2003, 2004, 2006 and 2007. While data is available for 2005 and 2008, in these two years electricity and natural gas prices both experienced abnormal increases (2005) and decreases (2008) in the last six months of the year. In addition, in 2008 the electricity markets experienced abnormal price increases during the first six months of the year.

Q. What does Schedule MP-3.1 demonstrate about the relationship between monthly natural gas and electricity prices?

A. The upper graph in Schedule MP-3.1 plots the average price profiles as a percent of average annual price from the lowest to the highest electricity price (September

through August). What this graph shows is a strong correlation of monthly electricity prices and natural gas prices from September through June. However, in July and August, when loads are the highest and electricity prices are the highest, natural gas prices fall from their higher levels in June. The lower graph smoothes out the averages on the upper graph, and shows monthly prices for both electricity and natural gas increasing from September through February, where both reach a peak. Then monthly prices fall in March and remain constant through June. In July and August, electricity prices increase, but natural gas prices fall.

Q. How did you smooth the electricity and natural gas price profile shown in the lower graph of Schedule MP-3.1?

A. After doing the averages for both electricity and natural gas prices and looking at these simultaneously, as well as plotting them from lowest to highest electricity prices, it became clear that both were peaking in February. The smoothed profile uses a fixed slope from September through February. While average prices for March were slightly lower than for April through June, the average prices for all four of these months are very close, so I used the average over all four months to represent each of the four months in the smoothed profile. While the average August electricity and natural gas prices were somewhat higher than the average July electricity and natural gas prices, I averaged the July and August electricity prices to represent the summer peak months in the smoothed profile. The smoothed price profiles are primarily to help to see patterns and smooth out any random variations that are not picked up by averaging over a small sample of four years.

Q. What does Schedule MP-3.2 demonstrate about the relationship between monthly natural gas and electricity prices?

A. The graphs on Schedule MP-3.2 are the same profiles as on Schedule MP-3.1, but are plotted for May 2008 through April 2009, to reflect twelve months through the end of the true up period. This would be the sequence in which the production cost model would be run for the trued-up period.

What stands out in this Schedule MP-3.2 is the significant drop in prices that occurs between August and September. While loads do decrease in September relative to August, the lower loads cannot be the sole determinant of the size of the electricity price decrease. In essence, a major contributor to the significant drop in the September electricity price is the corresponding significant drop in the September natural gas price. Then from September through February there is a steady monthly increase in both electricity and natural gas prices.

Q. In conclusion, why is it important to use normalized price profiles in modeling fuel and purchased power expenses?

A. The logic is straightforward. First, using test-year electricity and natural gas prices that are higher than normal will result in fuel and purchased power expenses that are overstated. Second, it is necessary to normalize these prices to reflect current conditions in both markets. Third, it is necessary to match the monthly profiles (patterns) of natural gas and electricity prices. Last, while monthly prices can be normalized for both electricity and natural gas prices, the normalization methods used are not necessarily identical. Therefore, what is of key importance is that the annual average prices for electricity and natural gas be consistent, and these can then be used with normalized average profiles to produce an all around consistent set of monthly prices.

Q. Can you illustrate how annual average prices for electricity and natural gas can be used together to produce an all around consistent set of monthly prices?

A. Yes, I can. Schedule MP-4 attached to the highly confidential version of my surrebuttal testimony uses the average annual price for SPP North reflected in Schedule MP-2 but applies the percentages shown on Schedule MP-3.2 to determine the electricity price levels for each month. Similarly, I estimated a trued-up test-year average annual natural gas price for GMO from data provided to me by Staff witness Mr. Harris. This estimated average value for natural gas price is consistent with the relationship found between annual natural gas and annual electricity prices as shown on Schedule MP-1.2. I applied the percentages shown on Schedule MP-3.2 to determine the natural gas price levels for each month. For both the monthly electricity prices and the monthly natural gas prices, the annual average of the monthly prices is equal to the average annual prices for the normalized test-year trued up through April 2009. When the actual prices through April 2009 are known, the Staff can apply this same procedure.

Q. Does this complete your surrebuttal testimony?

A. Yes, it does.

Schedule MP-1.1

Has Been Deemed

Highly Confidential

In its Entirety

Schedule MP-1.2

Has Been Deemed

Highly Confidential

In its Entirety

Schedule MP- 2

Has Been Deemed

Highly Confidential

In its Entirety

Schedule MP-3.1

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In its Entirety

Schedule MP- 3.2

Has Been Deemed

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Schedule MP- 4

Has Been Deemed

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