Exhibit No.:
Issue: Risk from Off-System Sales
Witness: Michael M. Schnitzer
Type of Exhibit: Direct Testimony
Sponsoring Party: Kansas City Power & Light Company
Case No.: ER-2007-____
Date Testimony Prepared: January 31, 2007

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2007-____

DIRECT TESTIMONY

OF

MICHAEL M. SCHNITZER

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

Kansas City, Missouri
January 2007

"[redacted]**" Designates "Highly Confidential" Information Has Been Removed.**
Certain Schedules Attached To This Testimony Designated ("HC") Have Been Removed Pursuant to 4 CSR 240-2.135.

DIRECT TESTIMONY

OF

MICHAEL M. SCHNITZER

Case No. ER-2007-____

Q: Please state your name and business address.

A: My name is Michael M. Schnitzer. My business address is 30 Monument Square, Concord, Massachusetts 01742.

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

A: I am a Director of the NorthBridge Group, Inc. ("NorthBridge"). NorthBridge is a consulting firm specializing in providing economic and strategic advice to the electric and natural gas industries.

Q: Please summarize your relevant professional background.

A: In 1992, I co-founded NorthBridge. Before that, I was a Managing Director of Putnam, Hayes & Bartlett, which I joined in 1979. I have focused throughout this time on assisting energy companies with strategic issues, particularly those relating to competition and wholesale market structure issues.

I have testified before the Federal Energy Regulatory Commission ("FERC") and a number of state commissions on issues relating to competitive restructuring and wholesale market design, including Locational Marginal Pricing and Financial Transmission Rights, Regional Transmission Organizations, standard market design, resource adequacy, and transmission expansion policies. On several occasions I have been invited by FERC staff to participate as a panelist in technical conferences on these subjects.

I hold a Master of Science degree in Management from the Sloan School of Management of the Massachusetts Institute of Technology, which I received in 1979. My concentration was in finance. I also received a Bachelor of Arts degree in chemistry, with honors, from Harvard College in 1975. A copy of my resume is attached as Schedule MMS-1.

Q: Have you previously testified in a proceeding before the Public Service Commission of the State of Missouri ("Commission")?

A: Yes. I provided Direct Testimony, Rebuttal and Surrebuttal Testimony in Case No. ER-2006-0314 ("2006 Rate Case") on behalf of Kansas City Power & Light Company ("KCPL" and "Company") in support of its proposal for the treatment of off-system energy and capacity sales revenue and related costs as "above the line" for ratemaking purposes.

I. PURPOSE OF TESTIMONY AND CONCLUSIONS

Q: Please describe the purpose of your testimony.

A: As I did in the 2006 Rate Case, I am providing a probabilistic analysis of the Company's level of net revenues from off-system sales (i.e., revenues less associated expenses) ("Off-System Contribution Margin" and "Margin") in this case ("2007 Rate Case")[1]. In the 2006 Rate Case, the Commission approved KCPL's alternative proposal to establish the offset to revenue requirements for off-system sales at the 25th Percentile of my September 30, 2006 "true-up" probabilistic analysis (i.e., **[redacted]**) and to treat

[1] My testimony in the 2006 Rate Case addressed the probability distribution of Off-System Contribution Margin for the ***2007*** calendar year. Similarly, my Direct Testimony in this 2007 Rate Case addresses the probability distribution of Off-System Contribution Margin for the ***2008*** calendar year.

any difference between (** [redacted] **) and the realized 2007 Off-System Contribution Margin, as either a regulatory liability or regulatory asset, for future return to or recovery from the ratepayers. See Report and Order at 33-37 (December 21, 2006). On rehearing, the Commission reconsidered its decision regarding recoveries below the 25th Percentile stating: "Therefore, the Commission will no longer allow KCPL to use the regulatory asset mechanism described in its December 21, 2006 Report and Order, but will continue to require KCPL to book any amounts above the 25th Percentile as a regulatory liability." See Order Regarding Motions for Rehearing at 3 (January 18, 2007).

My Direct Testimony in this 2007 Rate Case supports the Company's proposed ratemaking treatment for off-system sales described in the Direct Testimony of Mr. Chris B. Giles. Consistent with the Commission's Report and Order, as modified by the Order Regarding Motions for Rehearing, KCPL proposes for the 2007 Rate Case to establish Off-System Contribution Margin at the 25th Percentile of my 2008 probabilistic analysis (i.e., ** [redacted] **) and to account for this as a reduction to KCPL's test year revenue requirements.

My testimony is organized in three parts. In the first part, I summarize the main points of my testimony concerning the risk and volatility of Off-System Contribution Margin set out in the 2006 Rate Case. In the second part of my testimony, I discuss changes in the underlying drivers of the probability distribution of Margin since the 2006 Rate Case was filed on February 1, 2006. In the third part of my testimony, I provide a prospective analysis of the probability distribution of Margin in 2008.

HC

Q: Could you please summarize your conclusions?

A: Yes, there are three. First, as in the 2006 Rate Case, a forecast of Off-System Contribution Margin that takes into account all available forward market information, provides the most accurate, unbiased prediction of Margin in 2008. A forecast made in January 2007 is likely to vary substantially from the level of margin actually realized and the range of potential outcomes can be represented by a probability distribution that quantifies the variability in the outcomes. Second, changes in the underlying drivers of Margin since the original filing of the 2006 Rate Case demonstrate the continued volatility of those drivers in calendar year 2006. This volatility is reflected in the changes in the probability distributions between the initial February 1, 2006 filing and the "true-up" analysis as of September 30, 2006. Third, a comprehensive prospective assessment of the 2008 Margin indicates a broad range of possible outcomes centered on a median value of **[redacted]**, with a 25 percent likelihood of less than a **[redacted]** contribution from such Margin.

II. SUMMARY OF RISK AND VOLATILITY TESTIMONY

Q: Please elaborate on your first conclusion.

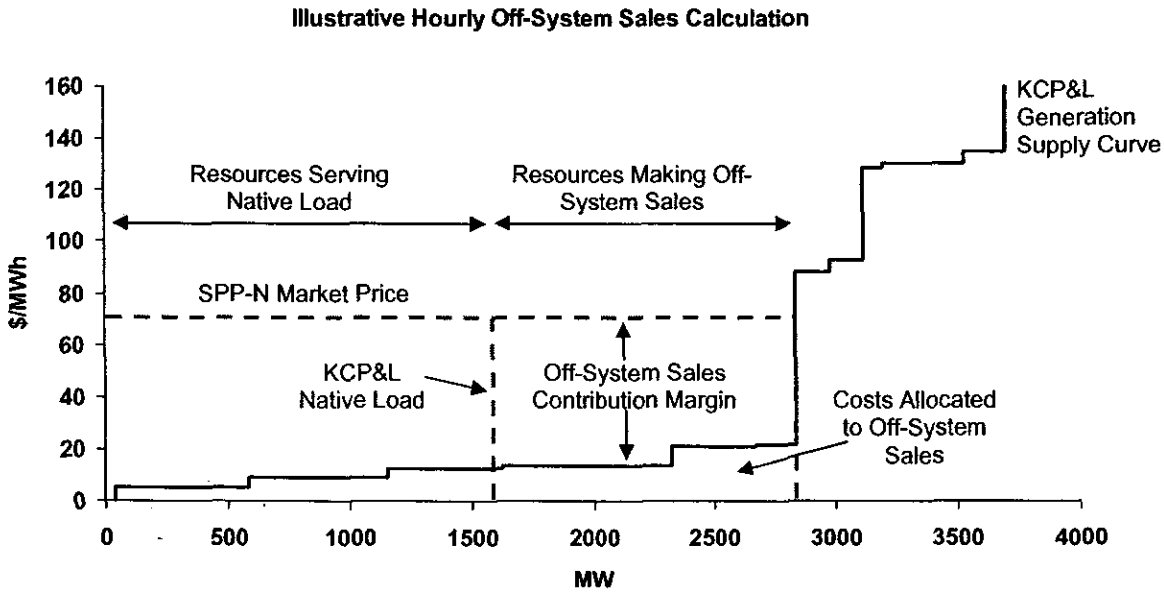
A: My Direct Testimony in the 2006 Rate Case discussed in detail the risk factors associated with making coal-based off-system sales, particularly where (as in the case of KCPL) the net revenue from the sales constituted a large portion of a company's earnings. The key points from that testimony are set out below and are equally applicable to an analysis of 2008 Off-System Contribution Margin.

HC

Q: What is Off-System Contribution Margin?

A: In any hour Off-System Contribution Margin is the difference between gross revenues and costs for those sales. The concept is illustrated in Figure 1 below.

Figure 1 – Illustrative Hourly Off-System Contribution Margin

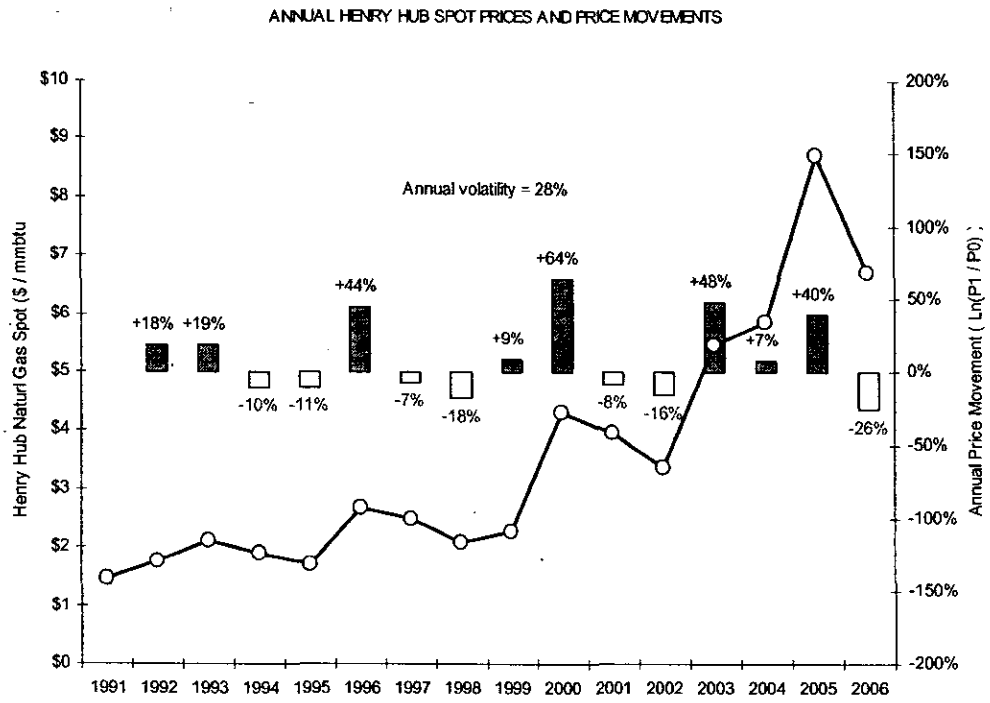


As illustrated in Figure 1, costs are allocated to non-firm sales based on the incremental cost of operating the units in KCPL's generation supply curve to make the additional sales in excess of the sum of KCPL retail sales and firm wholesale sales ("Native Load"), which costs are based largely on the price of coal. Revenues are simply the market price realized times the quantity available for sale. As illustrated in Figure 1, KCPL makes off-system sales at a regional SPP-North market price. The price for non-firm sales in any particular hour is simply the intersection of the regional supply and demand curves in that hour.

Q: What causes volatility in Off-System Contribution Margin?

A: Although there is some potential for volatility in the cost of making non-firm sales, the primary source of volatility is on the revenue side. Off-system sales revenue volatility is a function of the market price volatility and the variability in the sales quantity. Electricity market prices in SPP-North are the product of natural gas prices and the "market heat rate" in a given period. The market heat rate represents the market price of electricity in any hour denominated in $/mwh divided by the current delivered price of natural gas denominated in $/mmBtu. Significant gas price volatility has been experienced for the past fifteen years as demonstrated in Figure 2 below.

Figure 2 – Annual Gas Prices and Volatility



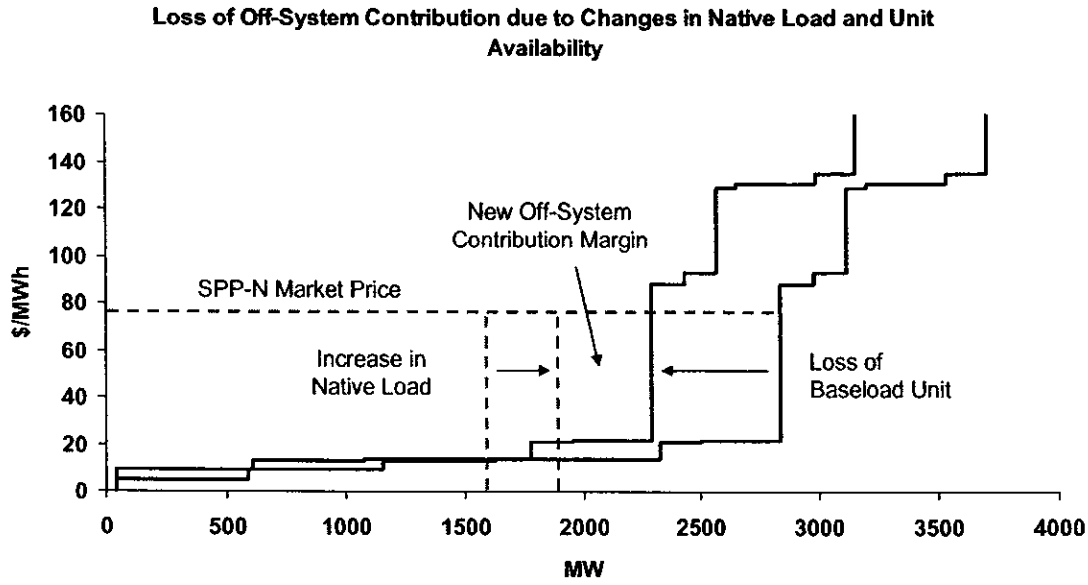
The market heat rate is simply the ratio relating gas prices to electricity prices, but is itself an uncertain variable. Even if there is no gas price volatility, changes in the supply/demand balance will result in different units being on the margin in different time

periods and consequently electricity prices will fluctuate as the market heat rate changes. This uncertainty is driven by several underlying factors: coal and emission allowance prices, weather (relatively extreme temperatures elevate demand), fluctuations in economic activity and demographics, unit availability (particularly extended outages), and construction/retirement of generating units throughout SPP.

Q: What is the impact of variability in sales quantity on Off-System Contribution Margin?

A: As total off-system revenues are the product of the price realized times the quantity available for sale, variability in available sales quantity can also significantly affect Off-System Contribution Margin. The two biggest factors in the quantity available for sale are unit availability and KCPL's Native Load. A unit outage and/or an increase in Native Load can reduce the size of the Margin. Assuming a large baseload unit is unavailable because of planned maintenance or a forced outage, the supply curve shifts to the left, decreasing the area under the horizontal SPP-North market price line and to the right of the vertical KCPL Native Load line. Other higher-priced KCPL units are available, but are not economic to dispatch at that particular market price. Similarly, if the Native Load and firm wholesale sales volumes increase, then all other things equal, there will be a smaller amount of economic output available for off-system sale at market prices. These impacts are illustrated in Figure 3 below.

Figure 3 – Impact of Loss of Baseload Unit and Increase in Native Load



Q: Do past realized Off-System Contribution Margins provide a good prediction for the future?

A: In general, no. The Company's future Off-System Contribution Margins will depend on future electricity and gas prices, loads, fuel prices, and unit availability. The best current predictor of future commodity prices and the associated future Margins are visible forward market prices. That is not to say that actual results will not turn out to be different than the forecast – they likely will – but a forecast based on forward price data is the best that can be done.

Q: Please summarize your first conclusion.

A: As in the 2006 Rate Case, the underlying drivers of 2008 Off-System Contribution Margin are historically volatile. This historic volatility has continued in 2006 as shown in the next section of my testimony. As a result, the realized 2008 Margin will vary from

a point forecast made in January of 2007 and this variability can be quantified in a probability distribution as shown in the third section of my testimony.

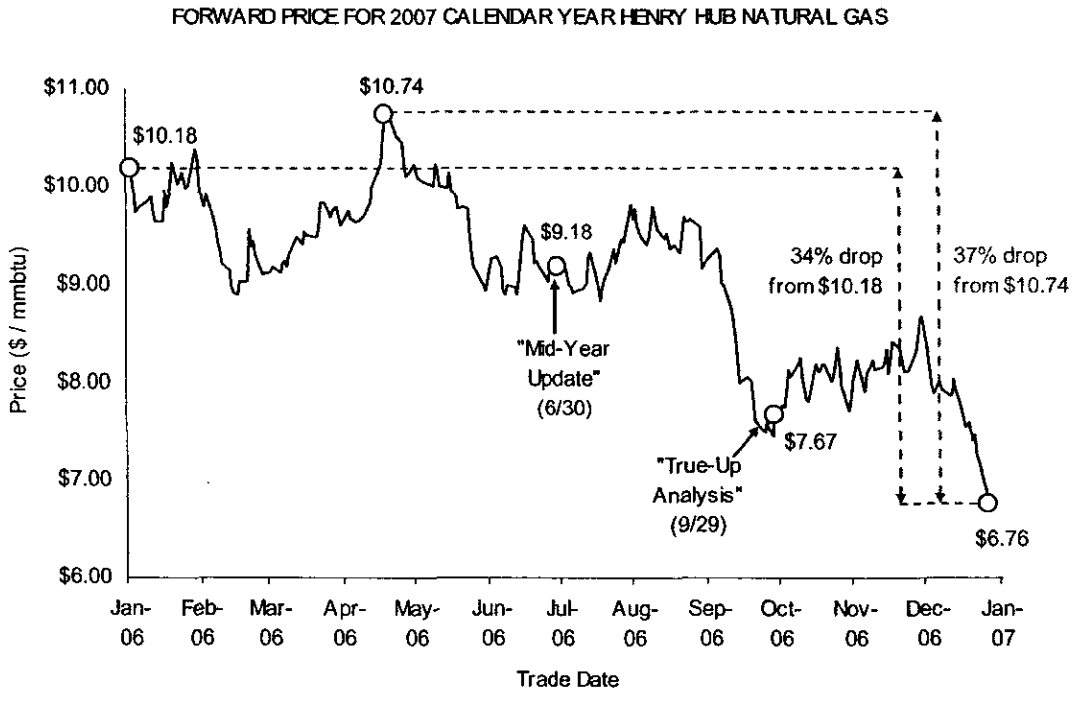
III. COMPARISON OF 2007 PROBABILITY DISTRIBUTIONS

Q: Please elaborate on your second conclusion.

A: The historical volatility in the underlying drivers of Off-System Contribution Margin continued throughout calendar year 2006. Each of the three probabilistic analyses of Margin that NorthBridge conducted in the 2006 Rate Case (Direct, Rebuttal and "true-up") was based on the state of the 2007 forward markets at a particular point in time. As the underlying markets changed, so did the distributions of Margin. In particular, the 2007 forward strip for natural gas on which these analyses were based has fallen significantly in the last six months of 2006. As shown in Figure 4 below, the 2007 strip first traded in 2006 at a price of $10.18/mmBtu[2]. The 2007 strip traded at $9.18/mmBtu as of the mid-year update at June 30, 2006, after reaching its highest point on April 19, 2006, when it traded at a price of $10.74/mmBtu. In the third quarter of 2006, the strip declined to $7.67/mmBtu at the time of the "true-up" analysis as of September 30, 2006. In the fourth quarter, the strip declined further to close at $6.76/mmBtu on the last trading day of 2006, down 34% from the beginning of the year and down 37% from the peak in April.

[2] The probabilistic analysis contained in my Direct Testimony in the 2006 Rate Case was based on data from KCPL, including forward gas and electricity prices as of November 22, 2005. The corresponding price for the 2007 Henry Hub forward strip on that date was $9.67/mmBtu.

Figure 4 – Henry Hub 2007 Strip January 2, 2006 to December 29, 2006.

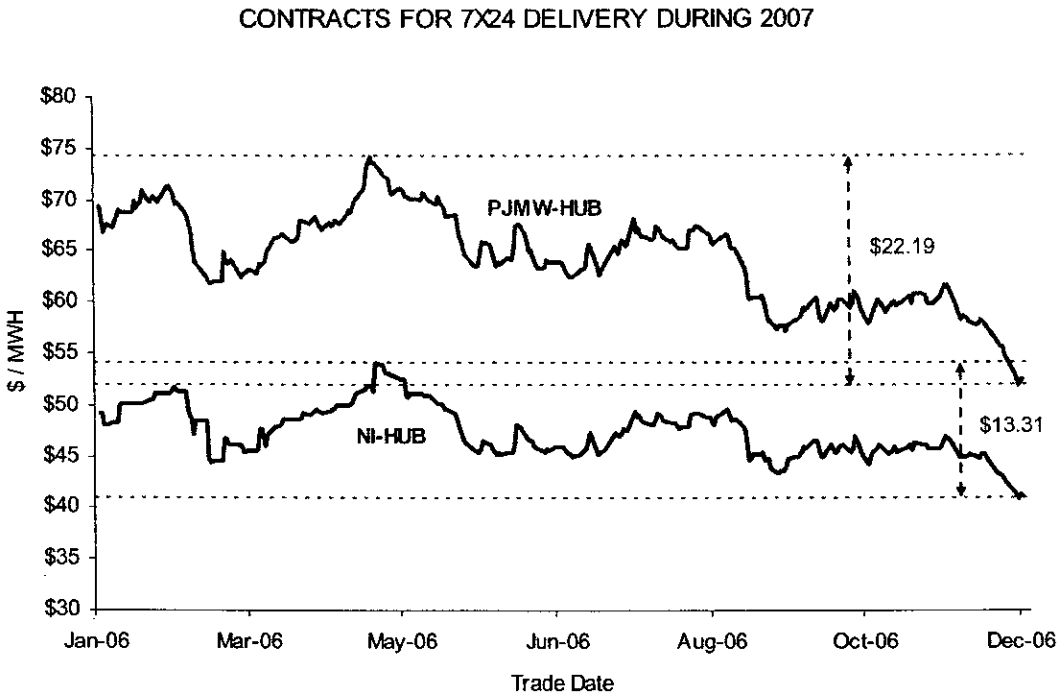


Q: What has been the observed volatility in the forward markets for electricity over the same period of time?

A: The forward market in SPP-North is currently a bilateral market in which equivalent forward strip prices for 2007 are not directly observable. However, similar price volatility in 2006 can be directly observed at other regional trading hubs, such as the Northern Illinois Hub ("NI-Hub") and the PJM Western Hub ("PJMW-Hub")[3]. NI-Hub is less gas-influenced than PJMW-Hub, as evidenced by the proportion of hours where the market heat rate is equal to or greater than that of an efficient gas generator. During 2006, market heat rates were in excess of 7,000 btu/kwh in over 46% of the hours at PJMW-Hub. In contrast, market heat rates were below this level in 66% of the hours at

NI-Hub. Both of these observable markets have seen significant declines in the around-the-clock ("ATC") forward prices for 2007 delivery, as can be seen in Figure 5 below.

Figure 5 – PJMW-Hub and NI-Hub 2007 7x24 Contracts



Both markets peaked in April 2006 within days of the peak in the 2007 Henry Hub gas strip, with PJMW-Hub declining $22.19/mwh from its high and NI-Hub declining $13.31/mwh from its high.

Q: What do you conclude from this data?

A: Although not directly observable, the forward market in SPP-North in 2006 was likely characterized by the same kind of volatility evident in observable market data during

[3] The NI-Hub and the PJMW-Hub each offer buyers and sellers a trading point for a location-price-based energy market and a common price index that provides certainty about the price reference point. The hubs consist of pricing points from a large number of generation and load buses in particular geographic areas of PJM.

2006 in both gas markets and other regional power markets, including the downward movement in 2007 forward prices in the third quarter of 2006. The leftward shift in the 2007 Off-System Contribution Margin probability distribution from the mid-year update at June 30, 2006 to the "true-up" date of September 30, 2006, resulted in a decline of the 25th Percentile to **[redacted]** as of the "true-up" date. That result is consistent with observed market trends in the third quarter of 2006.

IV. PROBABILITY DISTRIBUTION OF 2008 OFF-SYSTEM CONTRIBUTION MARGIN

Q: Please elaborate on your third conclusion.

A: I prepared an estimate of the probability distribution of 2008 Off-System Contribution Margin using a simplified forecast and dispatch model. The results, as detailed in Schedule MMS-2 (HC), show a very broad probability distribution with a median value of **[redacted]** and ranging from **[redacted]** to **[redacted]** at the 5% and 95% confidence levels, respectively. This means there is a 90% likelihood that the Margin will be between **[redacted]** and **[redacted]**, a 5% likelihood that the Margin will be less than **[redacted]** and a 5% likelihood that the Margin will be greater than **[redacted]**. The 25th Percentile of this distribution as shown in Schedule MMS-3 (HC) is **[redacted]**. Again, this means there is a 25% likelihood that the Margin will be less than **[redacted]** and a corresponding 75% likelihood that the Margin will be greater than **[redacted]**.

HC

Q: Please describe the methodology used to develop the distribution of 2008 Off-System Contribution Margin.

A: My methodology for 2008 was the same as that used in preparing the 2007 Off-System Contribution Margin distributions for the 2006 Rate case. The methodology had five primary steps. First, I used the energy price, fuel price, and load forecasts and volatilities to develop 1000 equally-likely scenarios for each variable. I also constructed 1000 equally-likely forced outage scenarios for each generating unit in KCPL's supply portfolio. The scenarios incorporate the correlation between variables, such that if natural gas prices and oil prices are highly correlated, a high gas price scenario will correspond to a high oil price scenario. Second, for each of the 1000 scenarios I calculated a daily dispatch cost for each of KCPL's units. Sorting these dispatch costs from least to greatest, I developed the optimal dispatch order of units for each scenario. Third, I calculated the total available capacity for each unit, taking into account both planned outages and scenario-specific forced outages, as well as any long-term sales agreements and load obligations that could reduce the capacity available to serve KCPL's native load. Fourth, starting with the most economic unit, I compared each unit's dispatch costs and available capacity with the hourly market prices and native load, respectively. For all units with a dispatch cost less than the market price, the available capacity was assigned to serve first up to 100% of native load with any excess capacity assigned to off-system sales. Fifth, I calculated the hourly contribution margin by subtracting the dispatch cost from the hourly market price and multiplying by the available capacity. The 1000 scenarios of hourly contribution margin data were aggregated to daily, monthly and annual estimates. Finally, I estimated a distribution of

2008 Margin based on the characteristics of the 1000 equally-likely scenarios. A description of the key inputs to the analysis is set out in Schedule MMS-4.

Q: How is NorthBridge's current probabilistic analysis of 2008 Off-System Contribution Margin different from NorthBridge's updated September 30, 2006 analysis of 2007 Off-System Contribution Margin?

A: Our September 30, 2006 update produced a 25th Percentile value of **[redacted]**. The Commission relied on this value is establishing the revenue requirement of KCPL in the 2006 Rate Case. The current 2008 analysis described above was based on data supplied by KCPL as of December 5, 2006, and so reflects updated market data on gas and electricity forward prices. The current 2008 analysis also looks at a different calendar year (2008 instead of 2007), and so load forecasts, outage schedules and forecasts of other variables reflect changes between the two years.

Q: What are the key changes between the September 30, 2006 "true-up" analysis for calendar year 2007 and the current analysis for calendar year 2008?

A: In summary, a modest increase in around-the-clock energy prices has been more than offset by a sizable decrease in the energy available for off-system sale. The ATC energy price rose from $48.87/mwh for 2007 to $52.66/mwh for 2008[4]. The decrease in available off-system energy resulted from the increase in Baseload Planned Outages from 55,460 MW-Days to 71,905 MW-Days, and the increase in the Native Load from 18,044 GWH to 18,498 GWH. A more detailed description of these changes is contained in Schedule MMS-5.

[4] The ATC energy prices are calculated as of December 5, 2006 and do not reflect the decline in 2008 natural gas forward prices later in the month of December as shown in Figure 4 above.

HC

Q: How is NorthBridge's current probabilistic analysis of 2008 Off-System Contribution Margin used in the Company's 2007 Rate Case?

A: As described in the Direct Testimony of Mr. Giles, the Company proposes to establish Off-System Contribution Margin at the 25th Percentile of my probabilistic analysis (**[redacted]**) and to account for this as a reduction to KCPL's test year revenue requirements. NorthBridge will update its probabilistic analysis of Margin for the 2007 Rate Case as of June 30, 2007 and as of September 30, 2007.

Q: Does this conclude your testimony?

A: Yes.

HC

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Kansas City Power & Light Company to Modify Its Tariff to Continue the Implementation of Its Regulatory Plan	)))	Case No. ER-2007-____

AFFIDAVIT OF MICHAEL M. SCHNITZER

COMMONWEALTH OF MASSACHUSETTS)
) **ss**
COUNTY OF MIDDLESEX)

Michael M. Schnitzer, being first duly sworn on his oath, states:

1. My name is Michael M. Schnitzer. I work in Concord, Massachusetts, and I am employed by The NorthBridge Group, Inc. as a Director.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of fifteen (15) pages and Schedules MMS-1 through MMS-5, all of which having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Michael M. Schnitzer

Subscribed and sworn before me this 31st day of January 2007.

Notary Public

My commission expires: June 21, 2013

MICHAEL M. SCHNITZER **Director**

Michael Schnitzer is a co-founder and Director of The NorthBridge Group. He focuses on management consulting and works with clients in regulated industries to address strategy issues central to maximizing performance. Helping clients develop effective responses to increasingly deregulated markets is central to Mr. Schnitzer's work for electric and gas utilities. He has developed initiatives in marketing, pricing, regulatory relations and supply planning. He also has broad experience in utility reorganizations, having served as a financial advisor to secured parties in three utility bankruptcies and has developed and evaluated a wide array of restructuring proposals. Mr. Schnitzer's project assignments have included:

- Helped develop and analyze alternative restructuring plans, including resolution of such issues as residual vertical and horizontal market power, stranded costs, and ultimate organization of the competitive market for generation.

- Analyzed the financial opportunities afforded by restructuring – including leverage, sale/leaseback and splitting off generating assets – to develop strategies for improving competitiveness and increasing shareholder value.

- Analyzed and developed various rate plans designed to return stranded costs to utilities, including appropriate length of transition periods, true-ups, access charges, and the like.

- Assessed transmission capacity and helped develop economically efficient transmission tariffs, including policies for encouraging economic transmission expansions.

- Estimated the likely price of competitive new generation for cogenerators and IPPs as a basis for assisting utilities in planning their pricing, capacity additions, and marketing plans.

- Assessed pricing and shareholder value under alternative regulatory treatments, and formulated several proposals for rate case settlement.

- Analyzed rate levels and asset values under alternative financial structures and ratemaking treatments.

- Assessed short- and long-term opportunities in the wholesale electricity market and developed marketing plans and proposals for specific candidate buyers.

- Analyzed the economics of completing current utility construction programs and evaluated alternative ratemaking treatments of new generating capacity.

- Assessed regulatory policy issues associated with privatization of the electric supply industry in the United Kingdom, including policies to accomplish access to the transmission system.

- Analyzed the economics of municipal takeover of a portion of the franchise area versus continued service by a utility.

- Assisted in the development of acid rain compliance plans, including the merits of policies to require utilities to incorporate monetized environmental externalities in the resource planning process.

- Helped develop comprehensive cost recovery programs, including incentives, for utility-sponsored conservation and load management programs.

Mr. Schnitzer has testified before the public utility commissions of Arkansas, Delaware, Indiana, Maine, Maryland, Massachusetts, New Hampshire, New Mexico, New York, Ohio, Pennsylvania, Rhode Island, Texas, Vermont, and Wisconsin. He is a former adjunct research fellow at the Energy and Environmental Policy Center, John F. Kennedy School of Government, Harvard University.

Before joining NorthBridge, Mr. Schnitzer was a Managing Director at Putnam, Hayes & Bartlett, Inc., where he co-directed the firm's regulated industry practice. Prior to that he was a member of the executive staff of the Appalachian Mountain Club. His experience as assistant to the executive director included the development of financial models and organizational strategic plans, as well as the negotiation of multi-party real estate transactions and the settlement of environmental litigation.

Mr. Schnitzer received an A.B. in chemistry, with honors, from Harvard University, and an M.S. in management from the Sloan School, Massachusetts Institute of Technology.

SCHEDULES MMS-2 and MMS-3

THESE DOCUMENTS CONTAIN HIGHLY CONFIDENTIAL INFORMATION NOT AVAILABLE TO THE PUBLIC

Description of Inputs for Prospective Analysis

The primary components necessary to estimate the 2008 Off-System Contribution Margin are market electricity prices, fuel prices used to calculate the dispatch costs of KCPL's owned-generation, and native load levels. I calculated volatility and correlation parameters for each variable from historically observed prices and load levels. I then developed forecasts for each of the variables from the present through December 2008. The table describes the data used to develop the 2008 Off-System Contribution Margin distribution.

Variable	Source for Forecast	Source for Volatility and Correlation Estimates
Energy Price	Company SPP-N Regional Energy Price Forecast	Historical Megawatt Daily On-Peak and Off-Peak Day-Ahead Energy Prices
Natural Gas Price	Company SPP-N Delivered Gas Price Forecast	Historical NYMEX Henry Hub Natural Gas Forwards and Henry Hub – MidCon Basis Forwards
Coal Price	Company Delivered Coal Price Forecast	Historical Power River Basin Coal Forward Prices
Oil Price	Company Delivered Fuel Oil Price Forecast	Historical NYMEX NY Harbor No 2 Fuel Oil Forwards
SO_2 Price	Company SO_2 Allowance Price Forecast	Historical SO_2 Allowance Spot and Forward Prices
KCPL Native Load	Company Load Forecast	Historical Hourly Company Load
Forced Outage Rate	Company Budget Assumptions	N/A
Planned Outage Rate	Company Budget Assumptions	N/A

Key Changes Between the "True-Up" 2007 Analysis and the Current 2008 Analysis

	Units	Cal Year 2007 (Oct 06 Update)	Cal Year 2008 (Jan 07 Update)	Change (+/-)
Baseload Planned Outages	MW*Days	55,460	71,905	+16,445
Baseload Capacity (Jan – Oct)	MW	2,894	2,894	-0-
Baseload Capacity (Nov – Dec)	MW	2,894	2,924	+30
ATC Energy (7x24)	$ / MWH	$48.87	$52.66	+$3.79
Peak Energy (5x16)	$ / MWH	$62.50	$66.97	+$4.46
Wrap Energy (7x8, 2x16)	$ / MWH	$36.45	$39.60	+$3.15
Native Load	GWH	18,044	18,498	+454
Baseload Forced Outage Rate	%	7.45%	7.35%	-0.1%
Coal Cost (MW Weighted)	$ / MMBTU	$1.03	$1.14	+$0.11
Henry Hub Natural Gas (MW Weighted)	$ / MMBTU	$7.69	$8.25	+$0.55