PUBLIC VERSION
*"**[redacted]**" Designates Confidential Information Has Been Removed.*
Certain Schedules Attached to this Testimony Also
Contain Confidential Information and Have Been Removed

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

DIRECT TESTIMONY OF

BURTON L. CRAWFORD

ON BEHALF OF
KANSAS CITY POWER & LIGHT COMPANY

IN THE MATTER OF THE APPLICATION OF
KANSAS CITY POWER & LIGHT COMPANY
TO MODIFY ITS TARIFFS TO CONTINUE THE
IMPLEMENTATION OF ITS REGULATORY PLAN

DOCKET NO. 07-KCPE-____-RTS

Q: Please state your name and business address.

A: My name is Burton L. Crawford. My business address is 1201 Walnut, Kansas City, Missouri 64106-2124.

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

A: I am employed by Kansas City Power & Light Company ("KCPL" or the "Company") as Manager, Energy Resource Management ("ERM").

Q: What are your responsibilities?

A: I am responsible for managing the ERM department. Activities of ERM include resource planning, wholesale energy purchase and sales evaluations, energy portfolio management, and capital project evaluations.

Q: Please describe your education, experience and employment history.

A: I hold a Master of Business Administration from Rockhurst College and a Bachelor of Science in Mechanical Engineering from the University of Missouri. Within KCPL, I have served in various areas including regulatory, economic research, and power engineering starting in 1988.

Q: Have you previously testified in a proceeding at the Kansas Corporation Commission ("KCC") or before any other utility regulatory agency?

A: Yes, I have testified in proceedings before both the KCC and the Missouri Public Service Commission, most recently in KCPL's 2006 rate case in each state.

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to describe the level of fuel expense and purchased power expense and the wholesale contract customer revenues filed in the Cost of Service.

I. Energy Price Forecasts

Q: Could you describe how KCPL forecasts electricity prices?

A: KCPL utilizes the MIDAS™ model, which is similar to other fundamental price forecasting models that are commonly used in the industry. MIDAS™ is provided by Global Energy. The Transact Analyst™ component of MIDAS™ generates regional prices by modeling power flows within and between various energy Markets, Transaction Areas, North American Electric Reliability Council ("NERC") Sub-Regions, and NERC Regions. Power flows are determined based on the relative loads, resources, marginal costs, transactions costs, and intertie limits between the areas or regions. Transactions occur on an hourly basis for 8760 hours per year.

Q: What are the primary inputs to the model?

A: The model utilizes a sizeable input dataset, referred to as the National Database. It is populated with assumptions about market supply, demand, and transmission. The bulk of the input assumptions use Federal Energy Regulatory Commission ("FERC") Form 1, Energy Information Administration ("EIA") 411 reports, and Continuous Emissions Monitoring system ("CEM") data compiled by the Environmental Protection Agency ("EPA"), as their source. The demand data includes projected hourly demand for virtually every utility in the eastern interconnect. The supply data contains a representation of all generating units within those utilities: capacity, heat rate, fuel type, variable operations and maintenance costs, outage rates, emissions rates, start-up costs, etc. Fuel costs may also be tied to individual units based on reported costs. This applies primarily in the case of nuclear and coal units, whose fuel cost would not be tied to a national commodity price such as is the case with natural gas or fuel oil. The other primary inputs are: natural gas prices, natural gas basis adders, fuel oil prices, and emission allowance prices. These inputs are more "global" in nature, meaning they are not tied to specific units. The dataset also includes transmission constraints between the areas. Global Energy, the provider of the National Database, arrives at the constraints through their analyses of regional assessments from the various reliability councils.

Q: How does the model use this data to forecast power prices?

A: The model performs an hourly chronological dispatch of all generation resources to meet projected hourly demand in each region as defined in the model's geographic topology. For each hour, the last generator needed to meet demand is identified as the marginal unit. All of the costs associated with dispatching the marginal unit become the basis for the price in that hour in that region.

Q: **Is this done for only one region?**

A: No. Our market simulations model most of the eastern interconnect. As a result, the unit identified as marginal may be dispatched in order to serve load in a neighboring region. The model will perform transactions between regions, as long as adequate transmission capacity still exists. If transmission becomes constrained between regions, before all of the economical transactions have been completed, the model's bidding logic will arrive at an appropriate price spread between the two regions.

Q: **How much confidence do you have in the resulting forecasts?**

A: The resulting forecast is only as good as the input assumptions. The fundamental supply and demand data are relatively good. That is, the demand forecast from utilities and the existing public data on installed generation capacity are fairly reliable, so identifying a reasonable unit to base an hourly price on is something that can be done with a fair amount of confidence. The input assumption that creates a larger challenge is fuel price. In KCPL's market area, the market price is almost always set by one of two fuels: coal or natural gas. Primarily, it is natural gas. Fuel oil might set the price of power in a very small number of hours in some years in the North Southwest Power Pool ("SPP").

Q: **How difficult is it to predict the price of coal and natural gas?**

A: Coal prices are relatively less volatile and the model inputs are based on actual reported fuel costs, so it is not difficult to predict its impact on power prices when it is the marginal fuel. Natural gas prices are much more volatile and difficult to predict.

Q: **How accurate are your power price forecasts?**

A: The power price forecasts are fairly accurate when the fuel price forecasts are accurate, more specifically, when the natural gas price forecast is accurate. Natural gas is the marginal fuel in North SPP more than 50% of the hours in a year, so there is a strong correlation between natural gas and power in those hours. Schedule BLC-1 (Confidential) presents how closely KCPL's power price forecast tracked prices that we observed in the North SPP market. It is a backcast of 2006 using the average spot gas price for each month. It is worth noting that KCPL uses one gas price for each month of the forecast period. Though in reality, the gas price can change every day. To the extent that gas prices were more volatile, intra-month, that would affect our ability to track actual market prices with our backcast. Schedule BLC-2 illustrates the monthly volatility of natural gas in 2006. In addition to intra-month gas prices, there is another factor that would influence our backcast versus the actual market. The actual hourly demand data for 2006 is not yet available. Our backcast uses the forecasted hourly demand that is part of the National Database I discussed earlier.

II. Purchased Power and Fuel Normalization

Q: What method for normalizing the test year fuel and purchased power expense did you use in this case?

A: The proper method for normalizing the test year fuel and purchased power expense is to normalize and annualize the system peak and energy, the market price of purchased power, the prices paid for fuel, generating system maintenance and forced outages, and available generating resources. After determining the appropriate normalized and annualized values, an accurate production cost computer modeling tool is used to develop the appropriate generation and purchased power levels and resulting fuel and purchased power expenses. KCPL used the MIDAS™ model for its production cost model.

Q: Please describe the MIDAS™ model used in this normalization.

A: This is the same modeling software used to generate the market price forecasts described previously. For purposes of running the production cost modeling used in this normalization, the model was run in "Price Mode", which means that the user inputs the market prices into the model, rather than using the model to generate the prices. The prices input into the model were the prices generated by the previously described price forecasting process. The model performs an economic dispatch of the Company's generating units and available market purchases in order to serve load in a least cost manner. The Company uses this model for various purposes, such as generating market price forecasts, long-term resource planning decisions, fuel and interchange budgeting, purchase and sales analysis, and other purposes.

Q: Please describe the normalization of the system requirements for this rate case.

A: KCPL's native load was weather normalized by the Company's load forecasting personnel. This process is described in more detail in the direct testimony of KCPL witness George M. McCollister. This resulted in revised monthly peak demands and energy requirements, which were input into the MIDAS™ model. The model distributed the monthly energy requirements on an hourly basis. The software uses the normalized monthly energy and peaks and actual historical hourly system loads to shape the normalized loads on an hourly basis. The resulting load shape was then used in the normalized production cost modeling case.

The Company's wholesale contract customers have been added to the native load to arrive at the total system requirements.

Q: Please describe these wholesale contract customers.

A: These are capacity and energy sales to the City Utilities of Springfield, Independence Power and Light, Missouri Joint Municipal Electric Utility Commission ("MJMEUC"), and load regulation customers. The revenue for these transactions and the associated fuel expense is included in Schedule BLC-4 (Confidential). These sales and revenues are not included in the off-system sales described in the direct testimony of KCPL witness Michael M. Schnitzer.

Q: Please describe the fuel price normalization.

A: The normalized fuel prices used in the modeling were developed by KCPL witness Wm. Edward Blunk and are described in detail in his direct testimony. These fuel prices were input into the model on a plant-specific basis and then were used in the normalized production cost modeling. The natural gas prices provided by Mr. Blunk were also used in the process of generating market prices.

Q: Please describe the maintenance outages normalization.

A: The Company performs scheduled maintenance on the base load generating units on a cyclical basis over a number of years. That is to say a specific unit in any given year may have an extended turbine generator outage, a shorter boiler outage, a short inspection outage or no outage at all. In addition, Wolf Creek refueling and maintenance outages occur every eighteen months, occurring in either the spring or fall. Thus, in every third year, Wolf Creek is available for generation for the entire year. Thus, in any specific year, there may be higher or lower scheduled maintenance outages than the long-term average maintenance outages. In order to normalize the availability of the generating resources for the test year, we computed the total number of weeks that a unit would be scheduled out for maintenance over the maintenance cycle and averaged this amount by the number of years in the maintenance cycle. These normalized maintenance outages were then spread over the test year to develop a test year maintenance schedule. These outages were scheduled so that no two units would be out at the same time and that all of the base load generating resources would be available during the peak load periods of June through September. This approach resulted in a total amount of generation capability "lost" due to maintenance activities that is approximately equal to the long-term average. Schedule BLC-3 (Confidential) contains the maintenance schedule that was used for the normalization.

Q: Please describe the generating resources available capacity normalization.

A: The generating resources available in the rate case modeling are the same as the Company's existing resources with adjustments made to normalize the capacity to the levels that are expected to be in place and operational as of September 30, 2007. First, long-term purchased power contract levels were adjusted to reflect the capacity levels that are committed effective September 30, 2007. Second, a **[redacted]** capacity purchase for the 2007 summer season is assumed at **[redacted]**. Finally, the wind generation that began commercial operation in 2006 has been assumed to be in operation for the full test period.

Q: How was the proposed wind generation modeled in this rate case?

A: The wind generation was modeled based upon the projected output for the Spearville Wind Energy Facility that was placed in service in 2006. The actual wind profile data was used to develop projected typical weekly energy output data. This generation was included in the Company's total generation resource mix.

Q: How accurate are the results of this modeling?

A: The modeling assumptions for operating heat rates, equivalent forced outage rates, capacity, and other key inputs are based upon historical averages. Thus, after making the normalization adjustments described previously, the model should likewise provide reasonably accurate results.

Q: For the test period, what expense items, if any, were adjusted as a result of normalizing fuel and purchased power expense?

A: Adjustments were made to the fuel costs to reflect both the normalized fuel market and normalized generation levels. Also, purchased power expense was adjusted to reflect the changes in the quantity of energy purchased and the price of such purchases. Schedule BLC-4 (Confidential) shows the generation levels by resource type and the purchased power levels, the costs of each, and the revenues from the wholesale contract customers. The adjustments are reflected as Adj-38, Adj-39 and Adj-40 in Schedule JPW-2, attached to the direct testimony of KCPL witness John P. Weisensee.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE STATE CORPORATION COMMISSION

OF THE STATE OF KANSAS

In the Matter of the Application of Kansas City Power & Light Company to Modify Its Tariffs to Continue the Implementation of Its Regulatory Plan	)))	Docket No. 07-KCPE-____-RTS

AFFIDAVIT OF BURTON L. CRAWFORD

STATE OF MISSOURI)
) **ss**
COUNTY OF JACKSON)

Burton L. Crawford, being first duly sworn on his oath, states:

1. My name is Burton L. Crawford. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Manager, Energy Resource Management.

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 nine (9) pages and Schedules BLC-1 through BLC-4, 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.

[signature]
Burton L. Crawford

Subscribed and sworn before me this 28th day of February 2007.

[signature]
Notary Public

My commission expires: Feb. 4 2011

" NOTARY SEAL "
Nicole A. Wehry, Notary Public
Jackson County, State of Missouri
My Commission Expires 2/4/2011
Commission Number 07391200