PUBLIC VERSION
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

WM. EDWARD BLUNK

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. 10-KCPE-415-RTS

Q: Please state your name and business address.

A: My name is Wm. Edward Blunk. My business address is 1200 Main Street, Kansas City, Missouri 64105.

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

A: I am employed by Kansas City Power & Light Company ("KCP&L" or the "Company") as Supply Planning Manager.

Q: What are your responsibilities?

A: My primary responsibilities are to facilitate the development and implementation of fuel and power sales and purchase strategies.

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

A: In 1978, I was awarded the degree of Bachelor of Science in Agriculture Cum Laude, Honors Scholar in Agricultural Economics by the University of Missouri at Columbia. The University of Missouri awarded the Master of Business Administration degree to me in 1980. I have also completed additional graduate courses in forecasting theory and applications.

Before graduating from the University of Missouri, I joined the John Deere Company from 1977 through 1981 and performed various marketing, marketing research, and dealer management tasks. In 1981, I joined KCP&L as Transportation/Special Projects Analyst. My responsibilities included fuel price forecasting, fuel planning and other analyses relevant to negotiation and/or litigation with railroads and coal companies. I was promoted to the position of Supervisor, Fuel Planning in 1984. In 2007, my position was upgraded to Manager, Fuel Planning. In 2009 my position was changed to Supply Planning Manager.

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

A: I have previously testified before both the KCC and the Missouri Public Service Commission ("MPSC") in multiple cases on multiple issues regarding KCP&L's fuel prices, fuel price forecasts, strategies for managing fuel price risk, fuel-related costs, fuel inventory, and the management of KCP&L's SO_2 emission allowance inventory.

Q: What is the purpose of your testimony?

A: I will be testifying on fuel inventory.

Q: Why does KCP&L hold fuel inventory?

A: KCP&L holds fuel inventory because of the uncertainty inherent in both fuel

requirements and fuel deliveries. Both fuel requirements and deliveries can be impacted by weather. Fuel requirements can also be impacted by unit availability; both the availability of the unit holding the inventory and the availability of other units in KCP&L's system. Fuel deliveries can also be impacted by breakdowns at a mine or in the transportation system. Events like the flood of 1993 and the 2005 joint line derailments interrupt the delivery of coal to KCP&L's plants. Fuel inventories are insurance against events that interrupt the delivery of fuel or unexpectedly increase the demand for fuel. All of these factors vary randomly. Fuel inventories act like a "shock absorber" when fuel deliveries do not exactly match fuel requirements. That is, they are the working stock that enables KCP&L to continue generating electricity between fuel shipments.

Q: How does KCP&L manage its fuel inventory?

A: Managing fuel inventory involves ordering fuel, receiving fuel into inventory, and burning fuel out of inventory. KCP&L controls inventory levels primarily through our fuel ordering policy. That is, we set fuel inventory targets and then order fuel to achieve those targets. We define inventory targets as the inventory level that we aim to maintain on average during "normal" times. In addition to fuel ordering policy, plant dispatch policy can be used to control inventories. For example, KCP&L might reduce the operation of a plant that is low on fuel to conserve inventory. Of course, this might require other plants in the system to operate more and to use more fuel than they normally would, or it might require either curtailing generation or purchasing power in the market. One can view this as a transfer of fuel "by wire" to the plant with low

inventory. To determine the best inventory level, KCP&L balances the cost of holding fuel against the expected cost of running out of fuel.

Q: What are the costs associated with holding fuel inventory?

A: Holding costs reflect cost of capital and operating costs. Holding inventories requires an investment in working capital. That requires providing investors and lenders those returns that constitute the cost of capital. It also includes the income taxes associated with providing the cost of capital. The operating costs of holding inventory include costs other than the cost of the capital tied up in the inventories. For example, we treat property tax as an operating cost.

Q: Please explain what you mean by the expected cost of running out of fuel?

A: The cost of running out of fuel at a power plant is the additional cost incurred when KCP&L must use replacement power instead of operating the plant. If the plant runs out of fuel and replacement power is unavailable, KCP&L could fail to meet customer demand for electricity. The cost of replacement power depends on the circumstances under which the power is obtained. We would expect replacement power (and the opportunity cost of forgone sales) to cost less at night than during the day and less on weekends than during the week. In other words, replacement power costs (and opportunity costs of forgone sales) are cyclical. A varying replacement power cost (or opportunity cost of forgone sales) translates directly into a varying shortage cost. As a result, if KCP&L was running low on fuel it could mitigate the shortage cost by selectively reducing burn when the cost of replacement power is lowest. During any significant period of disruption, we would expect many replacement power cost cycles.

Q: How does KCP&L determine the best inventory level, *i.e.*, the level that balances the cost of holding fuel against the expected cost of running out?

A: KCP&L uses the Electric Power Research Institute's ("EPRI") Utility Fuel Inventory Model ("UFIM") to identify those inventory levels with the lowest expected cost. UFIM identifies an inventory target as a concise way to express the following fuel ordering rule:

Current Month Order = (Inventory Target – Current Inventory)
+ Expected Burn this Month
+ Expected Supply Shortfall.

That is, UFIM's target assumes all fuel on hand is available to meet expected burn. "Basemat" is added to the available target developed with UFIM to determine KCP&L's inventory target. Generally, and in the rest of my testimony, references to inventory targets mean the sum of fuel readily available to meet burn plus basemat.

Q: What is basemat?

A: Basemat is the quantity of coal occupying the bottom eighteen inches of our coal stockpiles footprint. It may or may not be useable due to contamination from water, soil, clay, or fill material on which the coal is placed. Because of this uncertainty about the quality of the coal, it is not considered readily available, but because it is dynamic and it can be burned, although with difficulty, it is not written off or considered sunk. Eighteen inches was identified in previous KCP&L cases as being the error range for placement of a dozer blade or scraper on a coal pile and the appropriate depth for basemat. For determining basemat under our compacted stockpiles, we only consider the area of a pile that is thicker than nine inches. The area of the coal piles that covers either a hopper or concrete slab is not included in the calculation of basemat. The basemat values presented

here for all inventory locations except Iatan Unit 2 are based on work performed by MIKON Corporation, a consulting engineering firm that specializes in coal stockpile inventories and related services for utilities nationwide.

Q: How were the basemat values determined for Iatan Unit 2?

A: Much like the Iatan Unit 2 plant is still under construction, the coal inventory designated for the unit is being accumulated to bring it up to the target level. The Iatan Unit 2 basemat values were calculated from the available target identified by UFIM by applying the ratio of basemat to available target for Iatan Unit 1.

Q: How does the UFIM model work?

A: The fundamental purpose of UFIM is to develop least-cost ordering policies, *i.e.*, targets, for fuel inventory. UFIM does this by dividing time into "normal" periods and "disruption" periods where a disruption is an event of limited duration with an uncertain occurrence. It develops inventory targets for normal times and disruption management policies. The inventory target that UFIM develops is that level of inventory that balances the cost of holding inventory with the cost of running out of fuel.

Q: What are the primary inputs to UFIM?

A: The key inputs are: holding costs, fuel supply cost curves, costs of running out of fuel, fuel requirement distributions, "normal" supply uncertainty distributions, and disruption characteristics.

Q: What are the holding costs you used to develop coal inventory levels for this case?

A: KCP&L based the holding costs it used to develop fuel inventory levels for this case on the cost of capital structure proposed and described in the direct testimony of KCP&L witness Dr. Samuel C. Hadaway.

Q: What do you mean by "fuel supply cost curves"?

A: The fuel supply cost curve recognizes that the delivered cost of fuel may vary depending on the quantity of fuel purchased in a given month. For example, our fuel supply cost curves for Powder River Basin ("PRB") coal recognize that when monthly purchases exceed normal levels we may need to lease additional trainsets. Those lease costs cause the marginal cost of fuel above normal levels to be slightly higher than the normal cost of fuel.

Q: What was the normal cost of fuel?

A: The normal fuel prices underlying all of the fuel supply cost curves were the September 2009 per unit values per the Company's accounting records.

Q: What did you use for the costs of running out of fuel?

A: There are several components to the cost of running out of fuel. The first cost is the opportunity cost of forgone non-firm off-system power sales. I developed that cost by constructing a price duration curve derived from the distribution of monthly non-firm off-system megawatt-hour ("MWh") sales for October 2007 through September 2009. I supplemented those points with estimates for purchasing additional energy and using oil-fired generation. The last point on the price duration curve is the socio-economic cost of failing to meet load for which I used KCP&L's assumed cost for unserved load. These price duration curves are referred to in UFIM as burn reduction cost curves. These burn reduction cost curves can vary by inventory, location and disruption.

Q: What fuel requirement distributions did you use?

A: For all units except Iatan Unit 2, I used distributions based on historical fuel requirements from January 2006 through October 2009 and projections for November 2009 through

December 2009. The Iatan Unit 2 requirements were based on projected requirements for 2011, its first full calendar year of operation.

Q: What do you mean by "normal" supply uncertainty?

A: We normally experience random variations between fuel burned and fuel received in any given month. These supply shortfalls or overages are assumed to be independent from period to period and are not expected to significantly affect inventory policy. To determine these normal variations, I developed probability distributions of receipt uncertainty based on the difference between historical burn and receipts.

Q: What are disruptions?

A: A disruption is any change in circumstances that persists for a finite duration and significantly affects inventory policy. A supply disruption might entail a complete cut-off of fuel deliveries, a reduction in deliveries, or an increase in the variability of receipts. A demand disruption might consist of an increase in expected burn or an increase in the variability of burn. Other disruptions might involve temporary increases in the cost of fuel or the cost of replacement power. Different disruptions have different probabilities of occurring and different expected durations.

Q: What disruptions did KCP&L use in developing its inventory targets?

A: KCP&L recognized three types of disruptions in development of its inventory targets:

- PRB capacity constraints;
- Fuel yard failures; and
- Major floods.

Q: Please explain what you mean by disruptions related to PRB capacity constraints.

A: Supply capacity is the ultimate quantity of coal that can be produced, loaded, and shipped out of the PRB in a given time period. Constraints to supply capacity can come from either the railroads or from the mines, but regardless of which of these is the constraint source, the quantity of coal that can be delivered is restricted. A constrained supply caused by railroad capacity constraints can come from an inability of the railroad to ship a greater volume of coal from the PRB. A scenario such as this can arise from not having enough slack capacity to place more trains in service. It can also come from an infrastructure failure such as the May 2005 derailments on the joint line in Southern Powder River Basin ("SPRB"). A constrained supply caused by the mines can come from situations such as there not being enough available load-outs, not enough space to stage empty trains, reaching the productive limits of equipment such as shovels, draglines, conveyors, and trucks, or the mine reaching the production limits specified in its environmental quality permits.

Q: Please explain what you mean by disruptions related to fuel yard failures.

A: KCP&L and other utilities have experienced major failures in the equipment used to receive fuel. Perhaps KCP&L's most significant fuel yard failure occurred in 1986 when a conveyor belt caught fire at Hawthorn. The ensuing fire destroyed Hawthorn's normal facilities for unloading coal received by train. As used here, "disruption" is designed to cover a variety of circumstances that could result in a significant constraint on a plant's ability to receive fuel.

Q: Please explain what you mean by "major flood" disruptions.

A: The third disruption we recognized in developing targets for this case was modeled after the 1993 flood. A large flood such as the flood of 1993 can lengthen railroad cycle times and curtail the deliveries of coal to generating stations. For example, at Iatan Station the average standard deviation in cycle time for the flood year is nearly double the standard deviation for the year before or after the flood, and during the months most affected by flooding, the differences are even more substantial.

Q: How does KCP&L manage disruptions?

A: The target inventory levels presented here assume KCP&L will actively manage its fuel inventory. That is, the Company would take whatever actions were deemed appropriate to ensure an adequate supply of fuel was kept on hand for generating energy necessary to serve native load. If KCP&L runs low on fuel, it might choose to curtail generation and reduce burn. KCP&L would manage the cost of any such disruption to take advantage of replacement power cost cycles. This assumption allows us to operate with lower inventory targets.

Q: What are the coal inventory targets used in this case?

A: The coal inventory targets resulting from application of UFIM and their associated value for incorporation into rate base are shown in the attached Schedule WEB2010-1 **(Confidential)** and are the values used to determine adjustment RB-74, "Adjust Fossil Fuel Inventories to required levels" included in the Summary of Adjustments in Schedule JPW2010-2 of the direct testimony of KCP&L witness John P. Weisensee. Since these coal inventory targets are a function of fuel prices, cost of capital and other factors that

may be adjusted or in the course of this proceeding, we would expect to adjust the coal inventory targets as necessary.

Q: How were the inventory values for activated carbon, ammonia, lime, limestone, and oil determined?

A: With the exception of activated carbon, ammonia, and lime for Iatan Units 1 and 2, inventory values for ammonia, oil, lime and limestone were calculated as the average month-end quantity on hand for the 13-month period September 2008 through September 2009 multiplied by the September 2009 per unit value, *i.e.*, price for inventory per the Company's accounting records. The activated carbon, ammonia, and lime inventories for Iatan Units 1 and 2 were calculated as the average month-end quantity on hand for the last few months for which we have had an inventory. The inventory values for activated carbon, ammonia, lime, limestone, and oil are shown in Schedule WEB2010-1 **(Confidential)** and were included in the derivation of adjustment RB-74.

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. 10-KCPE-___-RTS

AFFIDAVIT OF WILLIAM EDWARD BLUNK

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

William Edward Blunk, appearing before me, affirms and states:

1. My name is William Edward Blunk. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Supply Chain Manager.

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 eleven (11) pages, 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 affirm and state 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.

William Edward Blunk

Subscribed and affirmed before me this 17th day of December, 2009.

Nicole A. Wehry
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

SCHEDULE WEB2010-1
THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION NOT AVAILABLE TO THE PUBLIC
ORIGINAL FILED UNDER SEAL