Exhibit No.: 104
Issues: Fuel Expense
Witness: Leon C. Bender
Sponsoring Party: MO PSC Staff
Type of Exhibit: Direct Testimony
Case No.: ER-2006-0314
Date Testimony Prepared: August 8, 2006

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

LEON C. BENDER

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2006-0314

Jefferson City, Missouri
August 2006

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Kansas City Power & Light Company for Approval to Make Certain Changes in its Charges for Electric Service to Begin the Implementation of Its Regulatory Plan	)))))	Case No. ER-2006-0314

AFFIDAVIT OF LEON C. BENDER

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Leon C. Bender, of lawful age, on his oath states: that he has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 5 pages of Direct Testimony to be presented in the above case, that the answers in the following Direct 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.

Leon C Bender
Leon C. Bender

Subscribed and sworn to before me this 7th day of August, 2006.

ROSEMARIE RIEDL
MY COMMISSION EXPIRES
June 1, 2009
NOTARY SEAL
#05509538
COLE COUNTY
NOTARY PUBLIC, STATE OF MISSOURI

Rosemarie Riedl
Notary Public

My commission expires June 1, 2009

DIRECT TESTIMONY

OF

LEON C. BENDER

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2006-0314

Q. Please state your name and business address.

A. Leon C. Bender, P.O. Box 360, Jefferson City, Missouri, 65102.

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

A. I am employed by the Missouri Public Service Commission Staff (Staff) as a Regulatory Engineer in the Energy Department of the Utility Operations Division.

Q. Please describe your educational and work background.

A. I received a Bachelor of Science degree in Mechanical Engineering in August 1978 from Texas Tech University. I became employed by Southwestern Public Service Company (SPS) as a power generation plant design engineer in September 1978. While employed by SPS, I was lead engineer on many projects involving design and construction of new power generating stations and the upgrading of their older plants. In 1983, I became a registered Professional Engineer in the state of Texas. In 1986, I transferred to SPS's newly formed subsidiary company, Utility Engineering Corporation, and was responsible for various projects at various other clients' power generation plants. In June 1990, I accepted employment as a systems engineer with Entergy Operations, Inc. at the nuclear powered generating station, Arkansas Nuclear One. In December 1995, I joined the Missouri Public Service Commission (Commission).

Q. Have you filed testimony in previous cases before this Commission?

A. Yes I have. Please refer to Schedule 1, which is attached to my direct testimony, for a list of cases in which I have previously filed testimony.

Q. What is the purpose of your testimony in this case?

A. The purpose of my testimony is to present the results of the Staff's electric production cost model simulations that were run in this case to establish the amount of normalized fuel and purchased power cost for Kansas City Power & Light Company (KCPL) for the test year ending December 2005 and updated through June 2006.

Q. Briefly summarize the results of the production cost model simulation.

A. The results of the production cost model simulations, as shown in Schedule 2, show that the estimated base amount of annual variable cost of fuel and net purchased power is $162,978,480.

Q. What is a production cost model?

A. A production cost model is a computer program used to perform an hour-by-hour chronological simulation of a utility's generation and power purchases. The model determines energy costs and fuel consumption necessary to economically meet a utility's load within the operating constraints of the utility's resources used to meet that load.

Q. What is meant by an "hour-by-hour" chronological simulation of a utility's generation and net power purchases?

A. The production cost model operates in a chronological fashion, meeting each hour's energy demand before moving to the next hour. It will schedule generating units to dispatch in a least cost manner based upon fuel cost and the cost of purchased power taking into account generation unit operation constraints. This model closely simulates the way the

company should dispatch its generating units and purchase power to meet the net system load in a least cost manner.

Q. What production cost model did the Staff use in this case?

A. The RealTime ® production cost model was used.

Q. What were the sources for data used in the model?

A. The sources for data used in the model are listed in Schedule 3.

Q. What is purchased power?

A. Purchased power is the hourly energy which is purchased in the market place from another electric supplier and which is used to help meet the load of the electric utility. Purchased power is also commonly referred to as wholesale power. Staff groups purchased power into two general categories: firm purchases from contracts and spot market purchases.

Q. Does KCPL use purchased power to serve native load?

A. Yes. KCPL purchases power from other sources during times of plant forced or planned outages and during times when it is more economical to purchase power rather than generate power.

Q. What were the sources of data used to calculate purchased power prices and to determine the amount of energy available for purchase?

A. The data used to calculate purchased power prices and to determine the amount of energy available was determined from KCPL purchase and sales data from the test year and update period submitted to Staff by KCPL, as required by Commission Rule 4 CSR 240-3.190 (3.190 data) and in response to Staff Data Request number 114.

Q. What are spot market purchases?

A. Spot market purchases are purchases of energy made on an hourly basis rather than through a longer-term contract. The purchasing company decides to buy spot energy from one or more suppliers based on the economics and availability of its generating units and capacity purchases. Purchases of spot energy are made in order to lower costs when the spot market price is below both the marginal cost of providing that energy from the company's generating units and the cost of capacity purchases. Since the spot market depends on energy supply and demand in each hour, the prices tend to be much more volatile than capacity purchases.

Q. What methodology did you use to determine the spot market purchased energy prices?

A. I used a procedure developed by the Commission's Energy Department-Engineering Section described in the document entitled A Methodology to Calculate Representative Prices for Purchased Energy in the Spot Market (March 18, 1996). The method uses a statistical calculation based on the truncated normal distribution curve to represent the hourly purchased power prices in the spot market. KCPL's actual hourly non-contract transaction prices in the period of twelve months ending June 30, 2006, obtained from KCPL's 3.190 data, are used as price inputs in the calculation. The calculation yields a spot energy price for each hour of the year.

Q. How did you determine spot purchased energy available?

A. I used the same spot purchased energy available as did KCPL in their model for spot purchased energy available. I analyzed the purchases and sales data submitted to Staff by KCPL, as required by Commission Rule 4 CSR 240-3.190 and in response to Staff Data Request number 114. This analysis revealed that the available amount of energy used

by KCPL in their model was appropriate in the instant case. The amount was input into Staff's production cost model to calculate the amount of spot energy purchased to meet load in a least cost manner.

Q. What fuel prices were used in the production cost model?

A. I used the fuel prices provided by Staff witness Charles Hyneman.

Q. What is the test year cost of fuel and net purchased power, as determined by the Staff's production model for KCPL?

A. As noted earlier, the results of the production cost model simulation, as shown in Schedule 2, show that the amount of annual variable cost of fuel and net purchased power is $162,978,480. These amounts were supplied to Staff witness Charles Hyneman, who used this input in the annualization of fuel expense. For further discussion of how Staff annualized the overall fuel expense in this case, please see Staff witness Charles Hyneman's direct testimony.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Schedule 1

List of Previously Filed Testimony

1.	EA-2006-0309	Aquila, Inc.
2.	ER-2005-0436	Aquila, Inc.
3.	ER-2004-0570	The Empire District Electric Company
4.	ER-2004-0034	Aquila, Inc.
5.	EC-2002-0001	Union Electric Company d/b/a AmerenUE
6.	ER-2001-0299	The Empire District Electric Company
7.	EM-97-0515	Kansas City Power & Light Company
8.	ER-97-0394	Utilicorp United, Inc.
9.	EC-97-0362	Utilicorp United, Inc.

Schedule 2

Summary of Results of Staffs Production Cost Model

Totals		Fuel expenses (cost ($))	$140,830,980
Generation (energy (MWH))	15,614,530	Purchases (cost ($))	$22,147,500
Purchases (energy (MWH))	300,104	Total expense (cost ($))	$162,978,480
Total Normalized Load (MWH)	15,914,633	Average Cost ($/MWH)	$10.24

Schedule 3

Input Data Sources

INPUT	SOURCE
Fuel Prices	Supplied by Staff witness Charles Hyneman
Unit Maintenance History	4 CSR 240-3.190 data DR's 29.1, 55, 57
Generation Unit Specific Data	DR's 29.1, 69, 116, 118, 125, 129, 130
Weather Normalized Hourly Load	Supplied by Staff Witness Shawn E. Lange
Purchase Power Contracts; Capacities and Prices	4 CSR 240-3.190 data DR 29.1, 114, 124