Exhibit No.:	
Issues:	Fuel Model and Purchased Power
Witness:	David W. Elliott
Sponsoring Party:	MO PSC Staff
Type of Exhibit:	Direct Testimony
Case No.:	ER-2001-672
Date Testimony Prepared:	December 6, 2001

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

DAVID W. ELLIOTT

UTILICORP UNITED, INC.
D/B/A MISSOURI PUBLIC SERVICE

CASE NO. ER-2001-672

Jefferson City, Missouri
December 2001

DIRECT TESTIMONY

OF

DAVID W. ELLIOTT

UTILICORP UNITED INC,

d/b/a MISSOURI PUBLIC SERVICE

CASE NO. ER-2001-672

Q. Please state your name and business address.

A. David W. Elliott, 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 (Commission) as a Utility Engineering Specialist III in the Energy Department of the Utility Operations Division.

Q. Please describe your educational and work background.

A. I graduated from Iowa State University with a Bachelor of Science degree in Mechanical Engineering in May 1975. I was employed by Iowa-Illinois Gas and Electric Company (IIGE) as an engineer from July 1975 to May 1993. While at IIGE, I worked at Riverside Generating Station, first as an assistant to the maintenance engineer, and then as an engineer responsible for monitoring station performance. In 1982, I transferred to the Mechanical Design Division of the Engineering Department where I was an engineer responsible for various construction and maintenance projects at IIGE's power plants. In September 1993, I began my employment with the Commission.

Q. Have you filed testimony previously before the Commission?

A. Yes, I filed testimony in Case Nos. ER-94-163 (St. Joseph Light & Power Co.), HR-94-177 (St. Joseph Light & Power Co.), ER-94-174 (The Empire District Electric Co.), ER-95-279 (The Empire District Electric Co.), EM-96-149 (Union Electric Co.), ER-99-247 (St. Joseph Light & Power Co.), EM-2000-369 (UtiliCorp United Inc. and The Empire District Electric Co), and ER-2001-299 (The Empire District Co.).

Q. What is the purpose of your testimony in this UtiliCorp United, Inc. d/b/a Missouri Public Service (MPS) rate case, Case No. ER-2001-672?

A. The purpose of my testimony is to present the results of the Staff's production cost model simulations that were used to establish a reasonable level of annualized fuel and purchased power expense for MPS for the updated test year.

Q. How many different scenarios did you run simulations on?

A. I ran three different scenarios. One for MPS on a stand-alone basis, one for St. Joseph Light & Power division of UtiliCorp United Inc. (SJLP) on a stand-alone basis, and one for the joint dispatch of a combined MPS and SJLP operation.

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

A. The results of the production cost model simulation runs are shown in Schedule 1. The annual cost of fuel and purchased power for MPS on a stand-alone basis is $75,483,577. The annual cost of fuel and purchased power for SJLP on a stand-alone basis is $20,533,341. The annual cost of fuel and purchased power for a combined MPS and SJLP is $88,840,579.

Q. Why were three different scenarios run in this case?

A. The three different scenarios were run in order to enable an allocation of the joint costs. The methodology for allocating the joint costs is addressed in the direct testimony of Staff Witness Mike S. Proctor, which is also being filed in this case.

Q. What test year did Staff use?

A. In accordance with a Commission Order, Staff used the test year of January 1, 2000 to December 31, 2000, updated for purchased power, system loads, and fuel prices through June 30, 2001.

Q. What is a production cost model?

A. The Staff's 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.

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

A. The production cost model used by the Staff operates in a chronological fashion, meeting each hour's energy demand, or load, before moving to the next hour. It schedules purchased power, or dispatches generating units to serve the load in each hour in a least-cost manner based upon the fuel cost, unit availability and operating conditions, and the cost of purchased power. This model simulates the way the company dispatches its generating units and schedules purchased 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 developed by The Emelar Group was used. This is the same model used by Staff in all electric cases since 1995.

Q. What production cost model does MPS use?

A. MPS also uses the RealTime® production cost model.

Q. What were the sources of the input data used in the model?

A. The sources of the input data used in the model are listed in Schedule 2.

Q. Why are steam loads required to simulate SJLP's electric dispatch scenarios?

A. SJLP electric dispatch scenarios require steam loads because the SJLP Lake Road Plant sells steam to industrial customers.

Q. What is purchased power?

A. Purchased power is the energy purchased from another electric supplier to supplement the utility's generation to meet net system load.

Q. Do both MPS and SJLP purchase power to meet their net system loads?

A. Yes. MPS and SJLP purchase energy when the cost of energy available for purchase is lower than the cost of the next dispatch increment of their generating units, and when needed generating units are off line due to outages.

Q. What was the source of the data used to calculate purchased power prices and the availability of energy?

A. The data used to calculate purchase power prices and available energy came from the monthly reports submitted to Staff by MPS as required by Commission Rule 4 CSR 240-20.080 (20.080 data). UtiliCorp verified this data in its response to Staff Data Request No. 2908.

Q. What kinds of purchased power were used in the production cost model?

A. Two kinds of purchased power were used in the production cost model: capacity contract purchases and spot market purchases.

Q. Please explain what capacity contract purchases are.

A. Capacity purchases are made through contracts for the purchase of energy and capacity. Under such contracts the purchaser pays a monthly fixed cost for the ability to receive a maximum number of megawatts (MW) per hour, and pays a fixed or variable cost for each megawatt-hour (MWh) received. The monthly fixed cost, or demand charge, is paid whether any energy is purchased or not. This demand charge is not included in the model results, but is calculated and included in the case by the Staff accountants.

Q. How many capacity contracts were used in the model runs?

A. One capacity contract was used in the SJLP production cost model run, and two were used in the MPS production cost model run.

Q. How did you calculate the hourly prices and hourly energy availability for the SJLP capacity contract?

A. For the capacity contract in the SJLP model run I used average historical energy prices for the updated test year from the 20.080 data. I used the contract capacity amount as the hourly energy amount available.

Q. Did you calculate the hourly prices and hourly energy availability for the MPS capacity contracts the same way?

A. No. The two capacity contracts represent capacity and energy from two specific generating plants, the wind farm in Kansas, and the combined cycle unit in

Pleasant Hills, Missouri. The two capacity contracts were modeled to allow availability and prices to be based on the seasonal capacity changes for the wind farm, and the gas price changes for the combined cycle unit.

Q. What are spot market purchases?

A. For the purposes of this case, spot market purchases are non-contract transactions for energy on an hourly basis. A utility may purchase energy from one or more suppliers when the cost of the purchase is less than its incremental cost of generation. Spot market purchases depend on the availability of energy on an hourly basis. Spot market purchases are generally made by a utility to meet unanticipated energy needs or to take advantage of lower energy prices.

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 as described in the document entitled A Methodology to Calculate Representative Prices for Purchased Energy in the Spot Market. This method uses a statistical calculation based on a truncated normal distribution curve to represent the hourly purchased power prices in the spot market. Actual hourly non-contract transaction prices obtained from MPS and SJLP 20.080 data were used as inputs in the calculation.

Q. How did you determine the amount of spot market energy available in each hour of the year?

A. For each month of the year, I used the maximum hourly energy purchased during the same hour in each day of that month. For example, if the maximum amount of energy that was purchased during the hour between 1:00 p.m. and 2:00 p.m. on any day

of a particular month was 100 MW, then 100 MW was used in the model run as the maximum MW available for each hour beginning at 1:00 p.m. for that month.

Q. What are the updated test year costs of fuel and purchased power, as determined by the Staff's production cost model for MPS, SJLP, and the jointly dispatched combined MPS and SJLP operation?

A. The updated test year cost, including purchased power, for MPS is $75,483,577. The updated test year cost, including purchased power, for SJLP is $20,533,341. The updated test year cost, including purchased power, for the jointly dispatched operation is $88,840,579. These amounts were supplied to Staff Witness Michael S. Proctor and Staff Witness William V. Harris. For further discussion of how Staff annualized the overall fuel expense in this case, please refer to Staff Witness William V. Harris' direct testimony.

Q. Will Staff true up the production costs in this case?

A. Yes. The Commission has ordered a true-up of the test year through January 31, 2002. The Staff true-up filing will true-up the purchased power prices, the fuel prices, and the hourly system loads. The production cost model will be rerun with these trued up inputs.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In The Matter Of The Tariff Filing Of Missouri Public Service (MPS) A Division Of UtiliCorp United Inc., To Implement A General Rate Increase For Retail Electric Service Provided To Customers In The Missouri Service Area Of MPS	))))))	Case No. ER-2001-672

AFFIDAVIT OF DAVID W. ELLIOTT

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

David W. Elliott, of lawful age, on his oath states: that he has participated in the preparation of the foregoing written Direct testimony in question and answer form, consisting of __7___ pages of Direct testimony to be presented in the above case, that the answers in the attached written 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.

Dd W. Elliott
David W. Elliott

Subscribed and sworn to before me this 5th day of December, 2001.

DAWN L. HAKE
Notary Public – State of Missouri
County of Cole
My Commission Expires Jan 9, 2005

Dawn L. Hake
Notary Public

My commission expires_____

SUMMARY
of Staff Model Runs

	MPS Stand alone	SJLP Stand alone	JOINT
Total	$75,483,577	$20,533,341	$88,840,579
Generation	$44,829,192	$13,850,542	$58,843,793
Purchases	$30,654,385	$6,682,799	$29,996,786

Elliott Corrected Schedules

Schedule 1

INPUT DATA SOURCE FOR
REALTIME PRODUCTION COST MODEL

INPUT	SOURCE
Fuel prices	Staff Witness William Harris
Weather normalized hourly loads	Staff Witness Lena Mantle
Purchase power prices & energy	4CSR 240-20.080 data, DR 55,
	DR 2908, DR 2904
Heat rates	DR 2906,DR 2927
Forced outage hours	DR 2907, DR64
Maintenance hours	DR 2909, DR 64
Unit specific data	DR 2901, DR 2929
SJLP Steam loads	DR 2928, Staff Witness Lena Mantle

Schedule 2