Exhibit No.:	
Issues:	Fuel Expenses Rate Base
Witness:	David W. Elliott
Sponsoring Party:	MO PSC Staff
Type of Exhibit:	Direct Testimony
Case No.:	ER-2006-0315
Date Testimony Prepared:	June 23, 2006

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

DAVID W. ELLIOTT

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2006-0315

Jefferson City, Missouri
June 2006

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the matter of The Empire District Company of Joplin, Missouri for authority to file tariffs increasing rates for electric service provided to customers in Missouri service area of the Company.	))))	Case No. ER-2006-0315

AFFIDAVIT OF DAVID ELLIOTT

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

David Elliott, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 8 pages to be presented in the above case; that the answers in the foregoing Direct Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

D. W. Elliott
David Elliott

Subscribed and sworn to before me this 21st day of June 2006.

Dawn L. Hake
Notary Public

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

DAWN L. HAKE
My Commission Expires
March 16, 2009
Cole County
Commission #05407643

My commission expires _____

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THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2006-0315

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 have filed testimony in the fifteen cases listed in Schedule 1.

Q. What is the purpose of your testimony in this The Empire District Electric Company (Empire) rate case, Case No. ER-2006-0315?

A. The purpose of my testimony is 1) to provide and explain the Staff's variable fuel and purchased power expenses as determined from the results of the Staff's production cost model simulation that was used to establish a reasonable level of annualized fuel and purchased power expense for Empire for the updated test year as of March 31, 2006; and 2) to address certain costs incurred in the construction of Empire's Energy Center Units 3 and 4.

EXECUTIVE SUMMARY

Q. Please provide an executive summary of your testimony.

A. This testimony supports two issues. First it describes the modeling methods and inputs used to determine the variable fuel and purchased power costs necessary to meet the system loads for Empire in this case. Inputs include such items as net system loads, fuel types, fuel prices, turbine-generator operating characteristics, and purchased power prices. The Staff used the RealTime® production cost model to determine a reasonable level of variable fuel and purchased power cost for Empire which in this case is $135,558,979. Secondly, my testimony discusses the impact of the original construction contractor's failure to complete the Energy Center Units 3 and 4 project in 2003 as per the contract with Empire and identifies the additional cost of finishing the project as $4,321,356.

FUEL AND PURCHASED POWER EXPENSES

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

A. The results of the production cost model simulation runs are shown in Schedule 2. In particular, the annual cost of fuel and purchased power for Empire is $135,558,979.

Q. What test year did the Staff use?

A. In accordance with a Commission Order, Staff used the test year of January 1, 2005 to December 31, 2005, updated for known and measurable changes to revenue requirement, through March 31, 2006. Staff updated fuel and purchased power expenses through March 31, 2006 in this filing.

Q. What is a production cost model?

A. The production cost model is a computer program used to perform an hour-by-hour, chronological simulation of a utility's generation and power purchases. Staff uses this model to determine energy costs and fuel consumption necessary to economically meet a utility's net system load. The model was not used to simulate Empire's off-system sales.

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 Staff used the RealTime® production cost model developed by The Emelar Group. This is the same model used by Staff in all electric rate cases since 1995.

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 3.

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. Does Empire purchase power to meet its net system loads?

A. Yes. Empire purchases 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 purchased power prices and determine available energy came from Empire's response to Staff Data Request No. 0002.

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

A. Two types 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 amount of energy per hour (megawatts), and pays a fixed or variable price for each megawatt-hour (MWh) received. The monthly fixed cost, or demand charge, is paid regardless of 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 Staff witness Janis E. Fischer of the Commission's Accounting Department.

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

A. Two capacity contracts representing the Jeffrey Energy Center contract and the Elk River Wind Farm contract were used in the production cost model run.

Q. How did you calculate the hourly prices and determine hourly energy availability for the capacity contracts?

A. For the capacity contracts in the model run I used the monthly average of the historical energy prices of the updated test year from Empire's response to Staff Data Request No. 0003. I used the contract capacity amount for each contract as the hourly energy amount available.

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 will normally 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 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 Empire's response to Staff Data Request No. 0002 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. I developed the hourly spot market energy available in the model from the historical hourly maximum amount of energy purchased in the test year. I grouped the hourly data of the year into four groups (winter, spring, summer, and fall). I then determined the maximum hourly energy purchased during the hours in the day in each of the groups. 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 in a particular group of months 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 group of months.

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

A. The updated test year cost of fuel and purchased power, is $135,558,979. This number was supplied to Staff witness Janis Fischer. For further discussion of how Staff annualized the overall fuel expense in this case, please refer to Ms. Fischer's direct testimony.

ENERGY CENTER UNIT 3 AND 4 CONSTRUCTION COSTS

Q. Did the Staff perform a construction audit of the two new generating units (EC3 and EC4) at Empire's Energy Center Generating Station?

A. Yes. Staff completed the construction audit as part of Case No. ER-2004-0570, Empire's prior Missouri general rate proceeding.

Q. Why is it necessary to revisit this issue in this case?

A. Please see the direct testimony of Staff witness Paul Harrison, of the Auditing Department for a discussion of the current status of this issue.

Q. Did Staff have any concerns with the project in Case No. ER-2004-0570?

A. Yes. During the construction of EC3 and EC4, Empire had to remove the primary contractor, Patch Construction L.L.C. (Patch) from the project, resulting in additional costs to complete the project above the construction contract price.

Q. Why did Empire remove Patch from the project?

A. Empire removed Patch from the project on January 28, 2003, because Patch was unable to complete the project for the adjusted contract price.

Q. Did this impact the schedule of the project?

A. No. Empire was able to meet its original completion date of spring 2003.

Q. Did this impact the cost of the project?

A. Yes. The cost of the project was impacted primarily because of the inability of Patch to properly manage the cost of the project. Staff's review of Empire's Expense report for Energy Center FT8 TwinPac project dated July 29, 2004, indicates that the final project cost included an additional $4,052,535 paid to the subcontractors above the approved adjusted contract amount.

Q. Is this the total cost incurred due to the problems with Patch?

A. No. This was only the cost to pay the subcontractors to complete the project after Patch, the project construction contractor, was removed and the project was still not completed. To complete the project, Empire also paid $253,687 to Black & Veatch for safety and accounting personnel to finish the project, and paid $15,135 in legal fees to pursue a judgment for damages against Patch. The total cost incurred by Empire due to the problems with Patch was $4,321,356 (see schedule 4).

Q. What would the consequences have been if Empire had not paid the subcontractors to complete the work?

A. Without paying the subcontractors to finish the work, the project would have stopped, delaying the operational date of the turbines. Empire needed capacity for the summer of 2003, and any delay would have meant that Empire would have had to try to purchase either short term capacity or short term firm energy until the units were operational.

Q. Was there anything in the contract Empire had with Patch that should have prevented this cost overrun?

A. Yes. Article 5.5 and Exhibit G of the original contract between Empire and Patch required Patch to provide Empire with a performance bond within 21 business days after the contract was signed on February 15, 2002.

Q. What is a performance bond?

A. Black's Law Dictionary, Seventh Edition, page 1158, defines a performance bond as: " 1. A bond given by a surety to ensure the timely performance of a contract. . . . 2. A third party's agreement to guarantee the completion of a construction contract upon the default of the general contractor."

Q. Did Patch provide a performance bond to Empire as required by the contract?

A. No.

Q. Does Staff believe this $4,321,356 should be included in rate base?

A. Staff witness Paul Harrison will address the ratemaking treatment of this amount in his direct testimony.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Previous Testimony of
David W. Elliott

1) ER-94-163, St. Joseph Light & Power Co.
2) HR-94-177, St. Joseph Light & Power Co.
3) ER-94-174, The Empire District Electric Co.
4) ER-95-279, The Empire District Electric Co.
5) EM-96-149, Union Electric Co.
6) ER-99-247, St. Joseph Light & Power Co.
7) EM-2000-369, UtiliCorp United, Inc. and The Empire District Electric Co.
8) ER-2001-299, The Empire District Electric Co.
9) ER-2001-672, Utilicorp United, Inc.
10) ER-2002-424, The Empire District Electric Co.
11) ER-2004-0034, Aquila, Inc.
12) ER-2004-0570, The Empire District Electric Co.
13) HM-2004-0618, Trigen-Kansas City Energy Corp. and Thermal North America, Inc.
14) ER-2005-0436, Aquila, Inc.
15) HR-2005-0450, Aquila, Inc.

Schedule 1

Summary of Model Run

	Generation	Purchase	Total
COST $	$95,572,046	$39,986,933	$135,558,979
MWH	3,620,296	1,750,307	5,370,603

INPUT DATA SOURCES FOR
REALTIME PRODUCTION COST MODEL

INPUT	SOURCE
Heat Rate Curves	Empire's response to Staff Data Request No. 0001
Forced Outage Hours	Empire's response to Staff Data Request No. 0006 Data from 3.190 rule
Maintenance Hours	Empire's response to Staff Data Request No.0007 Empire Schedule TWT-11 Data from 3.190 rule
Purchased Power Prices & Energy	Empire's response to Staff Data Request No. 0002 and 0003 Data from 3.190 rule Spot prices developed using Staff procedures
Hourly Net System Loads	Staff Witness Shawn Lange
Fuel prices	Staff Witness Janis Fischer
Unit Specific data	Empire Schedules TWT-6 and TWT-10
Ozark Beach Hydro	Empire's response to Staff Data Request No. 0009 Empire Schedule TWT-12 Data from 3.190 rule
Elk Wind Farm	Empire's response to Staff Data Request No. 0008

Schedule 3

CASE NO. ER-2004-0570

Breakdown of Costs Associated with Black & Veatch Personnel
Empire Response to Staff Data Request 0296

A	Quality control	$198,297.15
B	Accounting	$177,959.28
C	Quality control	$154,680.04
D	Safety	$52,770.46
E1	project manager	$26,873.28
E2	support staff	$8,250.12
E3	other	$22,953.35
	Total	$641,783.68

Staff Analysis:
Assignment of overhead (E1, E2, E3) to Personnel

X	Total personnel on site cost	$583,706.93
Y	Total overhead	$58,076.75
	Overhead assigned to A:	$19,729.86 (A/X) * Y
	Overhead assigned to B:	$17,706.31 (B/X) * Y
	Overhead assigned to C:	$15,390.11 (C/X) * Y
	Overhead assigned to D:	$5,250.47 (D/X) * Y
	Total overhead	$58,076.75

Cost of Onsite Personnel with Overhead

A	Quality control	$218,027.01
B	Accounting	$195,665.59
C	Quality control	$170,070.15
D	Safety	$58,020.93
	Total cost	$641,783.68

Legal Fees associated with Patch
Empire Response to Staff Data Request 0296

G	Total:	$15,134.74

Costs associated with the problem with Patch Construction L.L.C.

B	Accounting	$195,665.59
D	Safety	$58,020.93
	Total Black & Veatch	$253,686.52
G	Legal Fees	$15,134.74
	Total	$268,821.26
	Subcontractor cost (Empire expense report 7/29/04)	$4,052,535.00
	B&V and legal fees	$268,821.26
	Total	$4,321,356.26