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Construction Audit
Witness: David W. Elliott
Sponsoring Party: MO PSC Staff
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Case No.: ER-2006-0314
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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

DAVID W. ELLIOTT

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2006-0314

Jefferson City, Missouri
August 2006

****Denotes Highly Confidential Information****

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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 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 following Direct Testimony in question and answer form, consisting of 10 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.

David W. Elliott

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

Notary Public

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

My commission expires

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DAVID W. ELLIOTT

KANSAS CITY POWER & LIGHT COMPANY

CASE NO. ER-2006-0314

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 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. Please refer to Schedule 1 for the list of cases I have filed in.

Q. What is the purpose of your testimony in the Kansas City Power & Light Company (KCPL) rate case, Case No. ER-2006-0314?

A. The purpose of my testimony is to address the Staff's construction audit of KCPL's generating unit projects completed since KCPL's last rate increase case, the Wolf Creek nuclear generating station case, Case No. EO-85-185. Although there have been rate case proceedings involving KCPL since then, those rate proceedings have not included construction audits. These construction projects are: West Gardner combustion turbine project, Osawatomie combustion turbine project, Hawthorn 6 combustion turbine project, Hawthorn 7 and 8 combustion turbine project, Hawthorn 9 combined cycle project, the Spearville wind project, and the Hawthorn 5 coal-fired rebuild project.

Executive Summary

Q. Please provide an executive summary of your testimony.

A. No adjustment should be made from an engineering aspect to the total construction cost of the various combustion turbine units and the combined cycle unit. Also at this time, since the Staff has not completed its construction audit for the Hawthorn 5 coal-fired rebuild project, and cannot do so in the context of the present case, no adjustment should be made from an engineering aspect to the Hawthorn 5 project. The Staff will continue its construction audit of Hawthorn 5 and make a determination of whether any adjustment should made in time for reflecting that determination in KCPL's next rate case. The construction audit of the Spearville wind project will take place in the true-up phase of this case.

Generating Plant Project Descriptions

Q. Please describe the West Gardner project.

A. This project consisted of the installation of four new 77 MW General Electric EA7 gas-fired combustion turbines at a location near Gardner, in Johnson County, Kansas in 2003.

Q. Please describe the Osawatomie project.

A. This project consisted of the installation of one new 77 MW General Electric EA7 gas-fired combustion turbine at a location near Payola, in Miami County, Kansas in 2003.

Q. Please describe the Hawthorn 6 and Hawthorn 9 projects.

A. The Hawthorn 6 project consisted of the installation of a new 132 MW Siemens gas-fired combustion turbine in 1997. The Hawthorn 9 project included the installation of a new heat recovery steam generator (HRSG) on the exhaust end of Hawthorn 6 in 2000, and the refurbishment of Hawthorn 4 (now designated as Hawthorn 9 and rated at 137MW) steam turbine in 2000 at the existing Hawthorn Plant in Kansas City, Missouri.

Q. Please describe the Hawthorn 7 and 8 combustion turbine project.

A. This project consisted of the installation of two new 77 MW General Electric gas-fired combustion turbines in 2000 at the existing Hawthorn Plant in Kansas City, Missouri.

Q. Please describe the Spearville wind project.

A. This project consists of 67 wind generators rated at 1.5 MW each, which are located near Spearville, Kansas.

Q. Please describe the Hawthorn 5 coal-fired rebuild project.

A. This 1999-2001 project, at the existing Hawthorn Plant in Kansas City, Missouri, consisted of a new steam generator with selective catalytic reduction, scrubber, and

baghouse, new chimney liner, new boiler feed pump turbine, new rotary dump coal car unloader, new coal conveyor system, new boiler/turbine control system, new plant water treatment system, new boiler/turbine control room, new high pressure and intermediate pressure turbine rotors, and a rewound generator rotor and stator.

Q. Why was Hawthorn 5 unit rebuilt?

A. On February 17, 1999, the steam generator was destroyed by a natural gas explosion. The explosion also caused damage to other plant equipment and buildings. Staff investigated this incident and filed a report in Case No. EO-99-585.

Q. Why was the turbine generator rebuilt?

A. KCPL received a proposal from a vendor for a steam generator design that the vender had already designed for another customer's power plant. This particular steam generator design had more steam generating capacity than the old Hawthorn 5 steam generator. KCPL made a determination to take advantage of this additional steam capacity to upgrade the turbine generator to increase its capacity from 476 MW to 563 MW. This turbine generator upgrade consisted of the installation of new high pressure and intermediate pressure turbine rotors, and rewinding the generator rotor and stator.

Construction Audit

Q. Have you participated in the construction audit of generating units prior to this case?

A. Yes. Please refer to Schedule 2 for the list of units in which I have participated in Staff's construction audit.

Q. What is a construction audit?

A. A construction audit is the Staff's review of a construction project to determine the final construction cost of the project and whether any adjustment to final cost should be made because additional costs incurred for the project were not prudent.

Q. Has the Staff previously performed a construction audit of a KCPL project?

A. Yes, the Staff last audited the construction of KCPL's Wolf Creek nuclear generating unit in 1985. Previous to that, the Staff reviewed the construction costs of KCPL's Iatan generating unit in 1980.

Q. Has the Staff performed construction audits of other electrical corporations within the jurisdiction of the Commission?

A. Yes. Most recently, I participated in the construction audit of The Empire District Electric Company's Energy Center units 3 and 4 in 2004.

Q. Which Staff personnel performed the construction audits of KCPL units for this case?

A. Staff witnesses Cary Featherstone, Phil Williams, and I conducted the construction audits.

Q. What was your responsibility on the construction audits?

A. I reviewed the changes to the construction costs associated with each of the projects to determine if the changes were prudent actions in regards to the engineering aspects of the project.

Q. Has the Staff identified any concerns with any of the projects?

A. No. However, the Staff has not completed its construction audits of Hawthorn 5 rebuild and the Spearville wind project.

Combustion Turbine and Combined Cycle Projects

Q. What does Staff believe should be the amount included in rate base for each of these projects?

A. Staff witness Cary Featherstone of the Accounting Department will address this matter in his testimony.

Q. Did you review the construction costs for these projects?

A. Yes. I reviewed a KCPL breakdown of the additional construction costs for each project, and discussed the reasons for these changes with the KCPL project engineer of each project. In addition, KCPL provided further information to the Staff to adequately explain and justify any additional cost incurred for these projects.

Q. For the West Gardner and Osawatomie projects, what was the amount of changes in construction costs incurred by the Company that the Staff reviewed for its construction audit?

A. The changes in the construction costs for these projects resulted in a reduction in costs of ** _____ **.

Q. For the Hawthorn 6 project, what was the amount of changes in construction costs incurred by the Company that the Staff reviewed for its construction audit?

A. The changes in the construction costs for this project resulted in a reduction in costs of ** _____ **.

Q. For the Hawthorn 7 and 8 project, what is the amount of changes in the construction costs incurred by the Company that the Staff reviewed for its construction audit?

A. The changes in the construction costs resulted in an increase in the costs of ** _____ **.

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Q. For the Hawthorn 9 project, what is the amount of changes in the construction costs incurred by the Company that the Staff reviewed for its construction audit?

A. The changes in the construction costs resulted in an increase in the costs of ** _____ **.

Q. Can you summarize what type of major costs increases or decreases there were in the combustion turbine and combined cycle projects?

A. Yes. Schedule 3 summarizes change order costs for each project.

Q. Is it unusual to have changes in costs on projects of this size?

A. No. Most construction projects have changes in costs. Generally the larger the project, the more complex the project is. The more complex a project is, the more likely it is that unforeseen situations will occur as construction progresses.

Q. Did you group the changes in costs into categories?

A. Yes. I have identified four categories in which the major change orders can be grouped. These four categories are:

1. Costs associated with final design changes or final engineering changes. Contracts may have been let before final design was completed. Therefore there were cost changes due to work that started before the final design, or final engineering was completed.
2. Costs associated with changes made by the Company. Changes made by Company for more efficient or safer operation and/or maintenance after construction started.
3. Costs associated with field changes. Changes made due to final design decisions left to be worked out during actual construction.

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4. Costs associated with miscellaneous changes. Changes made due to unforeseen problems or obstacles encountered during actual construction.

Hawthorn 5 Project

Q. For the Hawthorn 5 project, what is the amount of changes in the cost incurred by the Company that the Staff reviewed for its construction audit?

A. The Staff has not completed its review of the actual cost for the construction of Hawthorn 5.

Q. Why has the Staff not completed its review of the Hawthorn 5 project?

A. All of these KCPL units were built over a period of seven years. The most recent project to come on line (Osawatomie) was completed in 2003. It has been difficult for KCPL to locate some of the documents for the Staff to review for each project. In all cases, the Staff relied on interviews with the KCPL project engineers and their documentation regarding the changes that were put together well after the fact. The Staff spent more time than anticipated reviewing the documents for the combustion turbine units and the combined cycle unit, which left less time to review the Hawthorn 5 project documents. The Hawthorn 5 project has more equipment, material, and installation documents than all the combustion turbine and combined cycle projects had in total. In addition, the Hawthorn 5 project was a much more complicated project since it is a large, based load coal-fired unit with multiple pieces of equipment and operating systems, and it was a rebuild of an existing unit after a catastrophic explosion. The mere number of total generating units involved and the detailed nature of the analysis required has meant that Staff was unable to complete its review of the Hawthorn 5 project in time for this filing.

Q. Was KCPL helpful in providing information?

A. Yes, KCPL attempted to provide the necessary information on all of the projects. However, the Staff believes that KCPL had difficulty in piecing together the necessary documentation needed by Staff due to the time that had passed since the units were built, the number of units being reviewed, and the compression of time in the context of the rate proceeding.

Q. Does the Staff have a concern with KCPL having the same type of difficulties in producing similar documents for future construction projects, such as Iatan 2?

A. No, not at this time. The Staff has attended several meetings where KCPL has discussed Iatan 2 construction project cost documentation procedures. The Staff believes KCPL has made or is making changes that will result in better project cost tracking.

Q. Was the overall cost of the Hawthorn 5 rebuild project affected by any items in addition to changes in construction costs due to factors that you previously identified?

A. Yes. KCPL received payment from its insurance company respecting the destruction of the steam generator due to the catastrophic explosion. In addition, KCPL has sought and is seeking damages from several companies KCPL believes contributed to the cause of the explosion.

Q. What are these amounts?

A. Please see Staff witness Phil William's direct testimony for these amounts.

Spearville Wind Project

Q. When will the Staff construction audit be completed for the KCPL Spearville Wind Project?

A. This project is still under construction, and the Staff intends to complete the audit in time for the true-up testimony filing in this case.

Total Project Costs

Q. What is the Staff's recommendation for the total cost for all the KCPL units Staff has reviewed in this case?

A. Please see Staff witness Cary Featherstone's direct testimony for total project costs.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Previous Testimony Filed 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.
16) ER-2006-0315, The Empire District Electric Co.

Schedule 1

Construction Audit Activities of David W. Elliott

1) Construction audit and testimony in Case No. ER-2004-0570 respecting Empire Energy Center Units 3 & 4.
2) Construction audit and testimony in Case No. ER-2001-0299 respecting Empire State Line Combined Cycle Unit.
3) Preliminary construction audit review respecting AmerenUE Meremac combustion turbine, in May, 2000.

Schedule 2

Schedule 3

Is Deemed

Highly Confidential

In its Entirety