Exhibit No.:	
Issue:	Resource Plan Monitoring; In-Service Criteria; Status of Missouri Tall Tower Installations
Witness:	John R. Grimwade
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Kansas City Power & Light Company
Case No.:	ER-2007-____
Date Testimony Prepared:	January 31, 2007

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2007-____

DIRECT TESTIMONY

OF

JOHN R. GRIMWADE

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

Kansas City, Missouri
January 2007

DIRECT TESTIMONY

OF

JOHN R. GRIMWADE

Case No. ER-2007-____

Q: Please state your name and business address.

A: My name is John R. Grimwade. My business address is 1201 Walnut, Kansas City, Missouri 64106-2124.

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

A: I am employed by Kansas City Power & Light Company ("KCPL") as Senior Director, Construction.

Q: What are your responsibilities?

A: My responsibilities include the development, design, procurement, construction and commissioning of several of the power supply projects included in KCPL's Comprehensive Energy Plan ("CEP"). These projects include: (1) the 100-MW wind project for 2006; (2) the LaCygne Unit 1 Selective Catalytic Reduction ("SCR") system; (3) the LaCygne Unit 1 scrubber and baghouse retrofits; and (4) the evaluation of a potential 2008 Wind Project.

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

A: I graduated in 1979 with a Bachelor of Science degree in Mechanical Engineering from Worcester Polytechnic Institute, Worcester, Massachusetts, and in 1988 I received my Master of Business Administration degree from Rockhurst College, Kansas City, Missouri. I was first employed at KCPL in 1987 as a Grade II Engineer in the Power Engineering Division. In 1990 I transferred to the Generation Planning Department as a

Generation Planning Engineer. In 1996 I moved to KCPL's non-regulated affiliate KLT Power as a Project Manager for China Development and in 1997 I became a Developer for U.S. Business Development. When KCPL sold KLT Power's interests in 1998, I returned to KCPL as Supervisor, Resource Planning and Development. In 1999 I was promoted to Manager, Energy Resource Management. In 2005 I was promoted to my present position. Prior to joining KCPL, I worked for the Babcock & Wilcox Co. from 1979 to 1987 on construction and commissioning activities as a Field Service Engineer and as a Sales Engineer.

Q: Have you previously testified in proceedings before the Missouri Public Service Commission or before any other utility regulatory agency?

A: Yes, I have testified before both the Missouri Public Service Commission ("MPSC") and the Kansas Corporation Commission ("KCC") on numerous issues regarding integrated resource planning, project development, construction and generation plant siting. Most recently, I testified in the MPSC and KCC proceedings concerning KCPL's 2006 rate cases.

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to describe the current status of the Spearville 100.5 MW Wind Facility, the LaCygne 1 SCR retrofit, the LaCygne 1 scrubber and baghouse retrofits, all of which were commitments KCPL made in the Stipulation and Agreement concerning KCPL's Regulatory Plan, which the MPSC approved in Case No. EO-2005-0329 ("Regulatory Plan Stipulation and Agreement"). I will also discuss the in-service criteria for the LaCygne 1 SCR. Finally, I will discuss the status of KCPL's plans to study wind in Missouri.

Q: Please summarize the supply-related commitments made by KCPL in the Regulatory Plan Stipulation and Agreement.

A: KCPL committed to a list of strategic projects that are described on page 1 of Appendix D to the Regulatory Plan Stipulation and Agreement. The projects were the culmination of an extensive planning effort by KCPL in which it conducted numerous workshops, public forums and strategic planning seminars involving employees, customers, regulators, energy experts, financial experts, the general public, consumer groups, manufacturers, industrial trade groups, environmental organizations, other utility companies, and government and community leaders. The intent of the workshops and forums was to solicit comment on KCPL's proposed CEP, which is designed to achieve the following objectives:

A. Provide additional generation capacity in KCPL's service territory;

B. Establish a mix of new generation that will result in reliable and cost-effective service for Missouri customers;

C. Implement proactive environmental solutions relating to new and existing generation facilities;

D. Enhance investment in highly reliable transmission and distribution facilities; and

E. Establish customer efficiency and affordability programs, and develop new technologies and applications for demand management programs.

I. 100-MW Wind Project for 2006

Q: What is the status of the 100-MW wind generation facility that was planned for 2006?

A: KCPL agreed in the Regulatory Plan Stipulation and Agreement to install 100 MW of wind generation in 2006. Consistent with that pledge, KCPL announced on December 13, 2005 that it had selected enXco, Inc. to develop and construct the Spearville Wind Energy Facility ("Spearville Facility"). The 100.5 MW project reached completion of the substantial components of construction in September 2006 and the Facility became commercially operable on September 12, 2006. The project is located in Ford County Kansas near the town of Spearville, approximately 17 miles northeast of Dodge City. The project consists of sixty-seven General Electric ("GE") 1.5 MW turbines located over a land area consisting of approximately 5,500 acres. Included with the Spearville Facility is a transmission substation, constructed and owned by KCPL on a site adjacent to the project, and substation upgrades to be made by Aquila, West Plains Energy for the interconnection from the Spearville Facility to the Southwest Power Pool ("SPP") through Aquila's Spearville Substation. The Facility met the criteria for in-service and the costs were included as part of the 2006 Rate Case, Case No. ER-2006-0314.

Q: Have all of the construction activities of the Spearville Facility been completed?

A: No, due to the tight schedule for completion of the Spearville Facility, the final permanent interconnection facility upgrades required by the SPP to interconnect the Facility into the transmission grid remain to be completed. The interconnection facility upgrades are expected to be completed by Aquila during the second quarter 2007 and will

replace the temporary interconnection tie-in facilities that have supported operation since September 2006.

Q: Were the costs for the remaining work anticipated in the Project Cost Estimate and are final costs anticipated to be within the budgeted estimates.

A: Yes, the costs for the above-described remaining work were included in the Project Cost Estimate and KCPL's projected costs to complete the project are expected to be under the estimate.

Q: With the completion of the interconnection facility upgrades, will all construction activities then be completed for the Facility?

A: The completion of this work will complete KCPL's portion for the 100.5 MW phase of the Facility. The site was developed by enXco to accommodate up to 200 MW of wind generation. enXco retains the rights to further development at the site.

II. LaCygne Unit 1 Selective Catalytic Reduction (SCR) System

Q: Please describe the status of the SCR system at LaCygne Unit 1.

A: In mid-December 2005 KCPL announced that The Babcock & Wilcox Co. ("B&W") had been selected to install the SCR system at Unit 1 of the LaCygne Generating Station. B&W is a well known supplier of steam generators and environmental equipment to the electric utility industry and has extensive experience in the design and construction of SCR units. As of January 24, 2007 B&W reported that they were 97% complete with engineering activities, 98% complete with procurement activities and 66.4% complete with construction activities for a status of 81.2% completion on the project overall. The addition of the SCR is expected to result in significant reductions of nitrogen oxide ("NOx") emissions from the Unit, with the intent to improve air quality in the Kansas

City area. The expected reduction in NOx emissions should contribute to improvements in ground-level ozone concentration, especially during the summer months when ozone levels are the highest.

Q: What is the schedule for the installation of the SCR?

A: The SCR upgrade is scheduled to be operational by May 2007, in time to affect the summer ozone season and before applicable regulations require such measures be implemented. Construction work on minor activities and project close-out activities are expected to continue through the fourth quarter of 2007.

Q: Was a competitive bid process employed to select B&W?

A: Yes, in response to KCPL's RFPs, KCPL received and reviewed a total of four bids from companies qualified to design and construct SCR equipment. Through an evaluation process that included KCPL's engineer, Burns & McDonnell, a number of criteria were assessed. Capital cost, net present value of operating costs, schedule, evaluation of SCR performance, B&W's proposed design configuration and the contractor's overall experience in designing and constructing SCRs were all factors in our decision. Of all the bidders, B&W had the best knowledge of LaCygne Unit 1, having built the Unit's boiler in the first place. Additionally, KCPL believed that B&W presented the best plan to utilize a scheduled outage on LaCygne 1 during the spring of 2006, which allowed KCPL to minimize the outage related impacts of installing the SCR and minimize any additional down-time in 2007 that would be required to complete the retrofit. At the conclusion of the evaluation process, B&W was determined to be the preferred bidder, and a contract was subsequently negotiated between the parties. It should be noted that

B&W did complete all work planned for the 2006 outage on time, preserving the overall schedule.

Q: Are the LaCygne 1 SCR project costs within the estimates developed in the Project Control Budget and is the project expected to be completed within budget?

A: Yes, as of January 31, projected costs for the LaCygne 1 SCR were within budget, slightly below the Project Control Budget estimate. There still remains some uncertainty for costs outside of B&W's scope of work related to tying in the SCR to existing flue work, B&W costs related to labor availability, and KCPL costs related to project management and plant operations training. Until we get into the outage and understand fully the condition of existing flue work, it is premature to say whether the project will be completed within budget, however there is no current expectation that project costs will exceed the Project Control Budget.

Q: What steps has KCPL taken to install project controls on the LaCygne SCR project?

A: KCPL has applied a number of controls for the LaCygne SCR Project to allow for the prudent management of schedule and cost risk, tracking of costs, tracking of contractor schedule and performance and for project governance and oversight.

First, a qualified and experienced project management team was established for the management of the project.

Second, the contracting strategy employed for this project was to perform the majority of the SCR work scope under a single fixed price contract where the contractor would provide all engineering, procurement and construction ("EPC") services for the SCR work scope. For projects such as this, where there exist a competent number of

qualified bidders and a well defined scope, an EPL structure can substantially reduce project risks to the owner due to material cost escalation, labor productivity, design errors and scope changes. The key is in having a well-defined scope where the contractor can minimize the amount of uncertainty when bidding the project. The SCR contract with B&W contains provisions for guaranteeing contractor performance around schedule, cost and design, warranties for ongoing protection against design or material defects, and liquidated damages for non performance.

Third, KCPL tracked the progress of the work using an earned value method which is a widely accepted practice for project management of projects of this type. The earned value tracking systems that were developed allow KCPL to closely monitor B&W's progress and productivity. KCPL used this information to actively engage in mitigation discussions with B&W when slippage in the schedule was detected, keeping the project on track.

Fourth, a detailed project cost and cash flow reporting system was developed to track project costs by activity and report funds spent to date, projected to be spent and the projected variance for the activity and the project.

Fifth, a detailed risk assessment was developed and reported weekly for all known project risks which set criteria for qualifying the level of risk, quantified the potential impact of the risk and provided mitigation strategies where applicable.

Sixth, the Project Team provided weekly reports on project status including cost, schedule, earned value, and risk to a KCPL Oversight Committee consisting of senior officers of the Company including the President and CEO and CFO.

Finally, KCPL engaged several consultants to provide auditing and oversight of team activities and decisions to ensure best practices were employed and that there was full compliance with corporate policy and procedures.

Q: How does the Project Control Budget compare to the estimate provided for the LaCygne 1 SCR in the Regulatory Plan Stipulation and Agreement?

A: Project costs provided are higher than initially estimated in the Regulatory Plan.

Q: Please describe the reasons for the increase in current projected costs from the time of the development of the CEP and Regulatory Plan.

A: KCPL hired Burns & McDonnell engineers for the development of an Engineering and Cost Study which was completed in October 2004 and provided the basis for the preliminary cost estimate used in the Regulatory Plan. This cost estimate utilized current market data obtained from other SCR projects that had been recently constructed and estimates obtained from manufacturers of SCR equipment. Since the time the CEP was developed, there has been a very high market demand for environmental control equipment including SCRs as companies implement compliance with the EPA's Clean Air Interstate Rule ("CAIR"), Clean Air Mercury Rule ("CAMR") and Regional Haze Rule. The cost increase has also been driven by large increases in commodity costs such as steel, stainless steel, and SCR catalyst which are extensively utilized to construct the SCR. KCPL was able to execute the LaCygne 1 SCR project early enough in the rapid movement of the market to minimize the overall impact on the budget and schedule. As described later in my testimony, however, the demand for environmental control equipment driven by these new environmental regulations, has impacted the schedule for the LaCygne 1 scrubber and baghouse.

Q: Did the Regulatory Plan Stipulation and Agreement provide in-service criteria for the SCR System at LaCygne Unit 1?

A: No. KCPL, the Staff of the MPSC and the Office of Public Counsel agreed that in-service criteria would be developed for the emissions equipment that is to be installed on KCPL coal-fired units prior to the installation of such equipment, and that the equipment would satisfy the criteria before the costs for the equipment would be included in rate base.

Q: Did the Regulatory Plan Stipulation and Agreement address in-service criteria for emissions control equipment generally?

A: Yes. The in-service criteria for coal plant agreed upon in Appendix H of the Regulatory Plan Stipulation and Agreement provides that "Equipment installed to comply with emission requirements shall be operational and demonstrate the ability to remove 93% or more of the NOx, SO_2, particulate, and mercury emissions they were installed to remove over a continuous four (4) hour period while operating at or above 95% of its design load. This equipment shall also be required to demonstrate that it is able to remove 88% or more of these same emissions it was installed to remove over a continuous 120-hour period while operating at or above 80% of its design load."

Q: Subsequent to the signing of the Stipulation and Agreement, has in-service criteria for the SCR System at LaCygne Unit 1 been developed and agreed to by KCPL, the Staff of the MPSC and the Office of Public Counsel?

A: Yes, consistent with the applicable in-service criteria for coal plant quoted above, the in-service criteria agreed to by the above parties is attached as Schedule JRG-1 for the SCR at LaCygne Unit 1.

Q: Will these in-service criteria be satisfied before KCPL seeks to include the SCR system at LaCygne Unit 1 in its rate base?

A: Yes. It is expected that in-service criteria for the SCR will be met shortly after the SCR is brought on-line in late May 2007.

III. LaCygne Unit 1 Environmental Systems – Scrubber and Bag House Additions

Q: Please describe the status of the environmental systems, scrubber and baghouse, to be added at LaCygne 1.

A: As part of the Stipulation and Agreement, KCPL's obligations in the Regulatory Plan included the addition of a scrubber and baghouse on LaCygne 1 by the end of 2009. The Regulatory Plan also required KCPL to "continue to assess the environmental laws to ensure that its expenditures will comply with existing or expected environmental regulations." At the time KCPL developed its CEP, it was expected that the CAIR would be promulgated by the EPA and impact the compliance requirements of all of KCPL's coal fleet. When CAIR was finally approved by the EPA in 2005, the rule required units in Missouri to comply, but the state of Kansas was not included for compliance under the rule. At about the same time EPA issued CAIR, it also promulgated the CAMR for controlling emissions of mercury. All 50 states were included under the CAMR. Since that time the EPA has recently clarified its requirements under the Regional Haze Rule which is intended to improve visibility over national parks and wilderness areas throughout the United States. The Regional Haze Rule requires the use of best available retrofit technology ("BART") for effected areas. KDHE determined that LaCygne 1 falls into the category of units that must comply. KCPL has assessed its compliance requirements under BART and has determined that the addition of a scrubber and

baghouse on LaCygne 1 are required by the summer of 2013. As part of this determination KCPL and its engineer Burns & McDonnell have completed a study of the existing scrubber facility to assess whether retrofitting the existing facility is feasible over installing an entirely new scrubber. The analysis concluded, because of the age of the technology, it would be difficult to reach the prescribed compliance limits under BART using the existing scrubber facility and that a new, single module scrubber would be the preferred option. Currently KCPL is moving forward with the design, procurement and construction of the scrubber and baghouse for LaCygne 1. However, because demand for this equipment exceeds supply, it does not appear that these projects can be completed until the 2011 to 2012 timeframe. KCPL is in the process of engaging an engineering firm to provide the preliminary design, scope of work, cost estimate and schedule for the project. An update of the status of the LaCygne 1 environmental upgrades was provided to the Staff of the MPSC, the Office of Public Counsel and other parties who are signatories to the Regulatory Plan Stipulation and Agreement on January 22, 2007.

IV. Missouri Wind Power Study

Q: What did KCPL commit in the Regulatory Plan Stipulation and Agreement to do regarding the study of wind power in Missouri?

A: In order to assess the feasibility of wind power in Missouri, KCPL agreed to gather and assess information from two tall-tower wind sites in Missouri. The Regulatory Plan Stipulation and Agreement provided that KCPL would contract to install wind measuring equipment and evaluate data collected at levels between 50 meters up to and including 100 meters above ground level for the purpose of producing site specific measurements

that could be used to quantify wind resources in Missouri. The towers were to be installed and operating by December 31, 2005.

Q: What is the status of wind data collection in Missouri?

A: Since the approval of the Regulatory Plan Stipulation and Agreement, KCPL evaluated several alternatives for satisfying these requirements regarding the installation of wind data collection towers. These alternatives included KCPL installing the towers, hiring a wind developer to install the towers, or collaborating with MDNR, a signatory to the Regulatory Plan Stipulation and Agreement, and the University of Missouri on its existing tall-tower research program. After assessing these alternatives, KCPL committed to participate in the existing tall tower research program. KCPL has been working with Mr. Rick Andersen at MDNR and Dr. Neil Fox at the University of Missouri on their current effort, known as the "Tall Tower Investigations of Western Missouri Wind Patterns Research Project" ("MU Tall Tower Project"). The MU Tall Tower Project is utilizing existing communications towers to gather data. The objectives of the project are to:

1) Expand the participants' understanding of the frequency, intensity, height, and duration of low-level jets (fast moving layers of air close to ground level) in southwestern Missouri;
2) Establish a framework of wind speed data at 50 meters, 100 meters and up to 150 meters above ground level to: (a) define regional near-ground atmospheric patterns, and (b) create a detailed record of actual readings to help determine if computerized wind speed models that employ regional-scale weather pattern information provide reliable forecasts of wind speeds at

heights over 50 meters above ground level, and if such models need to be refined to include Midwest-specific atmospheric conditions such as low-level jets; and

3) Provide data needed for initial wind energy resource assessments in areas where the wind maps prepared for western Missouri (including the Kansas City area) predict there are wind energy resources with an average annual wind speed of over 7 meters per second at 100 meters.

Q: Does KCPL's participation in the MU Tall Tower Project for collecting wind data meet the terms of the Regulatory Plan Stipulation and Agreement?

A: Yes, It does. KCPL's participation in the MU Tall Tower Project includes the installation of wind measuring equipment, as required by the Regulatory Plan Stipulation and Agreement. As KCPL notified the MPSC in Case No. EO-2006-0281, KCPL completed the installation of that equipment by the July 31, 2006 extended due date established by the MPSC in that proceeding. KCPL and MDNR believe that the data received from the MU Tall Tower Project will provide more accurate and comprehensive information for the feasibility study than if KCPL had simply installed and monitored wind measuring equipment at two sites, as originally contemplated in the Regulatory Plan Stipulation and Agreement. Moreover, data from the MU Tall Tower Project will be available for utilization in both the Initial Report and Final Report called for in the Regulatory Plan Stipulation and Agreement. In addition, in accordance with the requirements of the Regulatory Plan , KCPL will utilize the data from the Tall Tower Study as well as other Missouri specific pertinent data to evaluate the feasibility for a wind facility in Missouri. This evaluation is expected to be completed by the end of the second quarter, 2007.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Kansas City Power & Light Company to Modify Its Tariff to Continue the Implementation of Its Regulatory Plan	)))	Case No. ER-2007-____

AFFIDAVIT OF JOHN R. GRIMWADE

STATE OF MISSOURI)
) **ss**
COUNTY OF JACKSON)

John R. Grimwade, being first duly sworn upon his oath, states:

1. My name is John R. Grimwade. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Senior Director, Construction.

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 fifteen (15) pages and Schedules JRG-1, all of which having been prepared in written form for introduction into evidence in this docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm 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.

John R. Grimwade

Subscribed and sworn before me this 31st day of January 2007.

Nicol A. Wehry
Notary Public

My commission expires: Feb. 4, 2007

NICOLE A. WEHRY
Notary Public - Notary Seal
STATE OF MISSOURI
Jackson County
My Commission Expires: Feb. 4, 2007

In-Service Criteria for NO_X Control Equipment
LaCygne Unit 1

1. All major construction work is complete.

2. All preoperational tests have been successfully completed.

3. Equipment successfully meets operational contract guarantees. The operational contract guarantees that have been satisfied by the time of Staff's direct, rebuttal, or surrebuttal testimony filing in the current rate case will be evaluated by the Staff and OPC. Note: This applies to operational contract guarantees that are not addressed in criteria 4, 5, and 6 (as listed below).

4. The equipment shall be operational and demonstrate its ability to operate at a NO_X reduction efficiency equal to or greater than 85.6% (based on design inlet NO_X concentration of 1.0 lb/MMBtu) over a continuous four (4) hour period while the generating unit is operating at or above 95% of its design load.

5. The equipment shall also demonstrate its ability to operate at a NO_X reduction efficiency equal to or greater than 81% (based on design inlet NO_X concentration of 1.0 lb/MMBtu) over a continuous 120-hour period while the generating unit is operating at or above 80% of its design load.

6. Continuous emission monitoring systems (CEMS) are operational and demonstrate the capability of monitoring the NO_X emissions to satisfy the parameters in items (4) and (5) above.