

STATE CORPORATION COMMISSION

MAR 01 2007

Susan K. Duffy Docket Room

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

DIRECT TESTIMONY OF

JOHN R. GRIMWADE

ON BEHALF OF
KANSAS CITY POWER & LIGHT COMPANY

IN THE MATTER OF THE APPLICATION OF
KANSAS CITY POWER & LIGHT COMPANY
TO MODIFY ITS TARIFFS TO CONTINUE THE
IMPLEMENTATION OF ITS REGULATORY PLAN

DOCKET NO. 07-KCPE-____-RTS

1 Q: Please state your name and business address.

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

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

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

7 Q: What are your responsibilities?

8 A: My responsibilities include the development, design, procurement, construction and
9 commissioning of several of the power supply projects included in KCPL's
10 Comprehensive Energy Plan ("CEP"). These projects include: (1) the 100 MW Wind

1 Project for 2006; (2) the La Cygne Unit 1 Selective Catalytic Reduction (“SCR”) system;
2 (3) the La Cygne Unit 1 scrubber and baghouse retrofits; and (4) the evaluation of a
3 potential 2008 Wind Project.

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

5 A: I graduated in 1979 with a Bachelor of Science degree in Mechanical Engineering from
6 Worcester Polytechnic Institute, Worcester, Massachusetts, and in 1988 I received my
7 Master of Business Administration degree from Rockhurst College, Kansas City,
8 Missouri. I was first employed at KCPL in 1987 as a Grade II Engineer in the Power
9 Engineering Division. In 1990 I transferred to the Generation Planning Department as a
10 Generation Planning Engineer. In 1996 I moved to KCPL’s non-regulated affiliate KLT
11 Power as a Project Manager for China Development and in 1997 I became a Developer
12 for U.S. Business Development. When KCPL sold KLT Power’s interests in 1998, I
13 returned to KCPL as Supervisor, Resource Planning and Development. In 1999 I was
14 promoted to Manager, Energy Resource Management. In 2005 I was promoted to my
15 present position. Prior to joining KCPL, I worked for the Babcock & Wilcox Co. from
16 1979 to 1987 on construction and commissioning activities as a Field Service Engineer
17 and as a Sales Engineer.

18 **Q: Have you previously testified in proceedings before the Kansas Corporation**
19 **Commission (“KCC”) or before any other utility regulatory agency?**

20 A: Yes, I have testified before both the KCC and the Missouri Public Service Commission
21 (“MPSC”) on numerous issues regarding integrated resource planning, project
22 development, construction and generation plant siting. Most recently, I testified in the
23 MPSC and KCC proceedings concerning KCPL’s 2006 rate cases.

1 **Q: What is the purpose of your testimony?**

2 A: The purpose of my testimony is to describe the current status of the Spearville 100.5 MW
3 Wind Facility, the La Cygne Unit 1 SCR retrofit, and the La Cygne Unit 1 scrubber and
4 baghouse retrofits, all of which were commitments KCPL made in the Stipulation and
5 Agreement concerning KCPL's Regulatory Plan, which the KCC approved in Docket No.
6 04-KCPE-1025-GIE ("Regulatory Plan Stipulation and Agreement"). I will also discuss
7 the in-service criteria for the La Cygne Unit 1 SCR.

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

10 A: KCPL committed to a number of strategic projects as part of the Regulatory Plan
11 Stipulation and Agreement. The supply-related projects are described on pages 1 and 2
12 of Appendix A to the Agreement. The projects were the culmination of an extensive
13 planning effort by KCPL in which it conducted numerous workshops, public forums and
14 strategic planning seminars involving employees, customers, regulators, energy experts,
15 financial experts, the general public, consumer groups, manufacturers, industrial trade
16 groups, environmental organizations, other utility companies, and government and
17 community leaders. The intent of the workshops and forums was to solicit comment on
18 KCPL's proposed CEP, which is designed to achieve the following objectives:

- 19 A. Provide additional generation capacity in KCPL's service territory;
- 20 B. Establish a mix of new generation that will result in reliable and cost-effective
21 service for Kansas customers;
- 22 C. Implement proactive environmental solutions relating to new and existing
23 generation facilities;

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

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

4 **I. 100 MW Wind Project for 2006**

5 **Q: What is the status of the 100 MW wind generation facility that was planned for**
6 **2006?**

7 A: KCPL agreed in the Regulatory Plan Stipulation and Agreement to install 100 MW of
8 wind generation in 2006. Consistent with that pledge, KCPL announced on
9 December 13, 2005 that it had selected enXco, Inc. to develop and construct the
10 Spearville Wind Energy Facility (“Spearville Facility”). The 100.5 MW project reached
11 completion of the substantial components of construction in September 2006 and it
12 became commercially operable on September 12, 2006. The project is located in Ford
13 County, Kansas near the town of Spearville, approximately 17 miles northeast of Dodge
14 City. The project consists of sixty-seven General Electric (“GE”) 1.5 MW turbines
15 located over a land area consisting of approximately 5,500 acres. Included with the
16 Spearville Facility is a transmission substation, constructed and owned by KCPL on a site
17 adjacent to the project, and substation upgrades to be made by Aquila, West Plains
18 Energy for the interconnection from the Spearville Facility to the Southwest Power Pool
19 (“SPP”) through Aquila's Spearville Substation. The Spearville Facility met the
20 established in-service criteria and the costs were included as part of the 2006 Rate Case,
21 Docket No. 06-KCPE-828-RTS.

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

1 A: No, they have not. Due to the tight schedule for completion of the Spearville Facility, the
2 final permanent interconnection facility upgrades required by the SPP to interconnect the
3 Facility into the transmission grid remain to be completed. The interconnection facility
4 upgrades are expected to be completed by Aquila during the second quarter 2007 and will
5 replace the temporary interconnection tie-in facilities that have supported operation since
6 September 2006.

7 **Q: Were the costs for the remaining work anticipated in the Project cost estimate and**
8 **are final costs anticipated to be within the budgeted estimates.**

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

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

14 A: The completion of this work will complete KCPL's portion for the 100.5 MW phase of
15 the Facility. According to enXco's proposal to KCPL for the 100 MW Spearville Project,
16 the Spearville site was developed by enXco to accommodate more than 300 MW of wind
17 generation. enXco retains the rights to further development at the site.

18 **II. La Cygne Unit 1 SCR System**

19 **Q: Please describe the status of the SCR system at La Cygne Unit 1.**

20 A: In mid-December 2005 KCPL announced that The Babcock & Wilcox Co. ("B&W") had
21 been selected to install the SCR system at Unit 1 of the La Cygne Generating Station.
22 B&W is a well-known supplier of steam generators and environmental equipment to the
23 electric utility industry and has extensive experience in the design and construction of

1 SCR units. As of February 14, 2007, B&W reported that they were 97% complete with
2 engineering activities, 99% complete with procurement activities and 75.5% complete
3 with construction activities for a status of 86.3% completion on the project overall. The
4 addition of the SCR is expected to result in significant reductions of nitrogen oxide
5 (“NOx”) emissions from the Unit, with the intent to improve air quality in the Kansas
6 City area. The expected reduction in NOx emissions should contribute to improvements
7 in ground-level ozone concentration, especially during the summer months when ozone
8 levels are the highest.

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

10 A: The SCR upgrade is scheduled to be operational by May 2007, in time to affect the
11 summer ozone season and before applicable regulations require such measures be
12 implemented.

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

14 A: Yes. In response to KCPL’s Request-For-Proposals, KCPL received and reviewed a total
15 of four bids from companies qualified to design and construct SCR equipment. Through
16 an evaluation process that included KCPL’s engineer, Burns & McDonnell, a number of
17 criteria were assessed. Capital cost, net present value of operating costs, schedule,
18 evaluation of SCR performance, B&W’s proposed design configuration and the
19 contractor’s overall experience in designing and constructing SCRs were all factors in our
20 decision. Of all the bidders, B&W had the best knowledge of La Cygne Unit 1, having
21 built the Unit’s boiler in the first place. Additionally, KCPL believed that B&W
22 presented the best plan to utilize a scheduled outage on La Cygne Unit 1 during the
23 spring of 2006, which allowed KCPL to minimize the outage related impacts of installing

1 the SCR and minimize any additional down-time in 2007 that would be required to
2 complete the retrofit. At the conclusion of the evaluation process, KCPL determined that
3 B&W was the preferred bidder, and a contract was subsequently negotiated between the
4 parties. It should be noted that B&W completed all work planned for the 2006 outage on
5 time, thereby preserving the overall schedule.

6 **Q: Are the La Cygne Unit 1 SCR project costs within the estimates developed in the**
7 **Project Control Budget and is the project expected to be completed within budget?**

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

16 **Q: What steps has KCPL taken to develop project controls on the La Cygne SCR**
17 **Project?**

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

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

1 Second, the contracting strategy employed for this project was to perform the
2 majority of the SCR work scope under a single, fixed-price contract where the contractor
3 would provide all engineering, procurement and construction (“EPC”) services for the
4 SCR work scope. For projects such as this, where there are a competent number of
5 qualified bidders and a well-defined scope, an EPC structure can reduce project risks to
6 the owner due to material cost escalation, labor productivity, design errors and scope
7 changes. The key is in having a well-defined scope where the contractor can minimize
8 the amount of uncertainty when bidding the project. The SCR contract with B&W
9 contains provisions for guaranteeing contractor performance around schedule, cost and
10 design, warranties for ongoing protection against defects in design, material and
11 workmanship, and liquidated damages for non-performance.

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

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

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

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

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

7 **Q: How does the Project Control Budget compare to the estimate provided for the**
8 **La Cygne Unit 1 SCR in the Regulatory Plan Stipulation and Agreement?**

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

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

12 A: KCPL hired Burns & McDonnell engineers for the development of an Engineering and
13 Cost Study, which was completed in October 2004 and provided the basis for the
14 preliminary cost estimate used in the Regulatory Plan. This cost estimate utilized current
15 market data obtained from other SCR projects that had been recently constructed and
16 estimates obtained from manufacturers of SCR equipment. Since the time the CEP was
17 developed, there has been a very high market demand for environmental control
18 equipment including SCRs as companies implement compliance with the Environmental
19 Protection Agency's ("EPA's") Clean Air Interstate Rule ("CAIR"), Clean Air Mercury
20 Rule ("CAMR") and Regional Haze Rule. The cost increase has also been driven by
21 large increases in commodity costs such as steel, stainless steel, and SCR catalyst, which
22 are extensively utilized to construct the SCR. KCPL was able to execute the La Cygne
23 Unit 1 SCR project early enough in the rapid movement of the market to minimize the

1 overall impact on the budget and schedule. However, as described later in my testimony,
2 the demand for environmental control equipment driven by these new environmental
3 regulations has impacted the schedule for the La Cygne Unit 1 scrubber and baghouse.

4 **Q: Did the Regulatory Plan Stipulation and Agreement provide in-service pro for the**
5 **SCR System at La Cygne Unit 1?**

6 A: No. KCPL and the parties to the Regulatory Plan Stipulation and Agreement agreed that
7 in-service criteria would be jointly developed for the emissions equipment that is to be
8 installed on KCPL coal-fired units, and that the equipment would satisfy the criteria
9 before the costs for the equipment would be included in rate base.

10 **Q: Subsequent to the signing of the Regulatory Plan Stipulation and Agreement, has in-**
11 **service criteria for the SCR System at La Cygne Unit 1 been developed?**

12 A: Yes, the proposed in-service criteria are attached as Schedule JRG-1 for the SCR at
13 La Cygne Unit 1. These are currently under review by the parties.

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

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

18 **III. La Cygne Unit 1 Environmental Systems – Scrubber and Bag House Additions**

19 **Q: Please describe the status of the environmental systems, scrubber and baghouse, to**
20 **be added at La Cygne Unit 1.**

21 A: As part of the Regulatory Plan Stipulation and Agreement, KCPL's obligations included
22 the addition of a scrubber and baghouse on La Cygne Unit 1 by the end of 2009. The
23 Regulatory Plan also required KCPL to continue to assess the "reasonableness and

1 adequacy of the Resource Plan until the capital investments described therein are
2 completed.” At the time KCPL developed its CEP, it was expected that the CAIR would
3 be promulgated by the EPA and impact the compliance requirements of all of KCPL’s
4 coal fleet. When CAIR was finally approved by the EPA in 2005, the rule required units
5 in Missouri to comply, but the state of Kansas was exempted for compliance under the
6 rule. At about the same time EPA issued CAIR, it also promulgated the CAMR for
7 controlling emissions of mercury. All 50 states were included under the CAMR. EPA
8 has recently clarified its requirements under the Regional Haze Rule, which is intended to
9 improve visibility over national parks and wilderness areas throughout the United States.
10 The Regional Haze Rule requires the use of best available retrofit technology (“BART”)
11 for effected areas. Kansas Department of Health and Environment (“KDHE”)
12 determined that La Cygne Unit 1 falls into the category of units that must comply. KCPL
13 has assessed its compliance requirements under BART and has determined that the
14 addition of a scrubber and baghouse on La Cygne Unit 1 are required by the summer of
15 2013. As part of this determination KCPL and its engineer Burns & McDonnell have
16 completed a study of the existing scrubber facility to assess the feasibility of retrofitting
17 the existing facility versus installing an entirely new scrubber. The analysis concluded
18 that, because of the age of the existing scrubber technology, it would be difficult to reach
19 the prescribed compliance limits under BART with a retrofit, and that a new,
20 single-module scrubber would be the preferred option. Currently, KCPL is moving
21 forward with the design, procurement and construction of the scrubber and baghouse for
22 La Cygne Unit 1. However, because demand for this equipment exceeds supply, it does
23 not appear that these projects can be completed until the 2011 to 2012 timeframe. KCPL

1 is in the process of engaging an engineering firm to provide the preliminary design, scope of work, cost estimate and schedule for the project. On February 15, 2007, an update of the status of the La Cygne Unit 1 environmental upgrades was provided to the Staff of the KCC, CURB and other parties who are signatories to the Regulatory Plan Stipulation and Agreement.

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6 **Q: Does that conclude your testimony?**

7 A: Yes, it does.

In-Service Criteria for NO_x Control Equipment

La Cygne Unit 1

1. All major construction work is complete.
2. All pre-operational 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 or rebuttal testimony filing in the current rate case will be evaluated by the Staff.
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.