Exhibit No.: 110 NP
Issue: Fuel, Purchased Power, Wholesale Sales, La Cygne Environmental Project
Witness: Burton L. Crawford
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Kansas City Power & Light Company
Case No.: ER-2014-0370
Date Testimony Prepared: May 7, 2015

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2014-0370

REBUTTAL TESTIMONY

OF

BURTON L. CRAWFORD

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

Kansas City, Missouri
May 2015

"[redacted]**" Designates "Highly Confidential" Information Has Been Removed.**

REBUTTAL TESTIMONY

OF

BURTON L. CRAWFORD

Case No. ER-2014-0370

Q: Please state your name and business address.

A: My name is Burton L. Crawford. My business address is 1200 Main, Kansas City, Missouri 64105.

Q: Are you the same Burton L. Crawford who pre-filed Direct Testimony in this matter?

A: Yes, I am.

Q: What is the purpose of your Rebuttal Testimony?

A: The purpose of my testimony is to respond to issues raised by Sierra Club's witness Rachel S. Wilson related to Kansas City Power & Light Company's ("KCP&L" or "Company") decision to retrofit the La Cygne Station with the environmental controls necessary for its continued operation (the "La Cygne Environmental Project"). In addition, I will briefly address fuel model related issues in the Revenue Requirement Cost of Service Report filed by the Missouri Public Service Commission ("Commission") Staff ("Staff") in this proceeding.

1. Response to Sierra Club Issues

Q: Please summarize the issues raised by the Sierra Club concerning the La Cygne Station retrofits.

A: In summary, the Sierra Club argues that KCP&L's original analysis supporting the decision to undertake the La Cygne Environmental Project was imprudent and "(t)here were many elements missing from the Company's calculations that would have raised the costs to retrofit and to continue to operate La Cygne Units 1 and 2" (Wilson Direct, p. 3, ll. 17-19). In addition, the Sierra Club contends that market conditions had changed subsequent to the Company's decision to retrofit La Cygne and "there were several decision points during this time period at which KCP&L should have revisited its original analysis and arrived at different conclusions with respect to the La Cygne retrofits" (Wilson Direct, p. 4, ll. 5-8).

Q: When was the original La Cygne retrofit analysis completed?

A: In early 2011.

Q: What issues has the Sierra Club raised in regard to the original La Cygne analysis?

A: In Sierra Club's Direct Testimony in the current case, witness Rachel Wilson points to issues raised by the Sierra Club and the Great Plains Alliance for Clean Energy ("GPACE") in the 2011 Kansas predetermination proceeding, Docket No. 11-KCPE-581-PRE, where the Kansas Corporation Commission ("KCC") approved the La Cygne retrofits. Ms. Wilson notes that these parties claimed that the analysis:

a. Did not meet the standard for pre-approval in Kansas;
b. Failed to consider a reasonable level of cost-effective energy efficiency;
c. Did not include a full range of options for addressing regulations such as non-gas supply;
d. Net benefits did not meaningfully exceed other plans considered;
e. Failed to model costs for some impending rules; and

f. Relied on forecasts that were out-of-date.

Q: Please respond to the contention that KCP&L's original analysis did not meet the standard for pre-approval in Kansas.

A: KCP&L's original analysis did meet the standard as the KCC approved the Company's request for predetermination.

Q: Please respond to the contention that KCP&L's original analysis failed to consider a reasonable level of cost-effective energy efficiency.

A: KCP&L's original analysis did include demand-side management ("DSM") programs which include energy efficiency as an alternative to the La Cygne retrofits. The Company explicitly modeled DSM resources approaching 350 MW by the time each La Cygne unit would need to be shut down if not retrofitted. The DSM capacity is similar to KCP&L's share of each of the La Cygne units (La Cygne Unit 1 at 368 MW and La Cygne Unit 2 at 341 MW KCP&L share at the time of the original analysis). The model results (which can be found in my Direct Testimony in Schedule BLC-21) show that the decision to retrofit each La Cygne unit was still the lowest cost option even when this level of DSM was added. While DSM can be quite cost-effective for retail customers, when you evaluate the KCP&L system as a whole, adding this level of DSM results in cost savings in part from delaying the need to add future generating capacity, not as a replacement for existing capacity such as La Cygne. In other words, making both investments (DSM and the La Cygne Environmental Project) is part of the lowest cost plan, and the Company is making investments in both.

Q: Please respond to Sierra Club's claim that the Company's original La Cygne analysis did not include a full range of options for addressing regulations such as non-gas supply options.

A: One of Sierra Club's criticisms concerning the original La Cygne analysis was that it did not consider additional wind resources beyond what is required by the Missouri and Kansas Renewable Portfolio Standards ("RPS"). While the Company did not model additional wind resources beyond what will be needed in order to meet the Missouri and Kansas RPS requirements, the addition of more wind resources as a replacement for La Cygne Units 1 and 2 would not result in a resource plan that is lower cost for KCP&L's retail customers. La Cygne Generating Station is a baseload plant that, due to its low operating costs, generally runs whenever it is physically available to operate. It provides over 700 MW of firm generating capacity for KCP&L. Wind provides very little firm capacity. As such, wind resources would have to be backed by a low-cost resource that could provide firm capacity if La Cygne Units 1 and 2 were retired. The most effective resource for meeting capacity is typically gas-fired combustion turbines ("CTs"). KCP&L modeled the replacement of La Cygne with such gas-fired combustion turbines and found that replacing the capacity component of La Cygne Units 1 and 2 with CTs would be more expensive than the retrofit alternative. The results of this analysis can be found in my Direct Testimony at Schedule BLC-21. As such, adding more wind resources above the additional 750 MW required by Missouri and Kansas RPS, backed by CT capacity, would not prove to be a lower cost option.

Q: Please respond to the claim that the net benefits in the Company's original LaCygne analysis did not meaningfully exceed other plans considered?

A: In the Kansas predetermination case, Sierra Club witness Dr. Hausman pointed to the "extremely small"[1] differences between the net present value of revenue requirements ("NPVRR") results for the alternative plans. While the NPVRR differences are small relative to the total revenue requirements over 25 years, this comparison masks the cost difference between the decision to retrofit or retire. KCP&L has calculated the break-even point for the La Cygne Environmental Project at more than $400 million over the Project's estimated cost. In other words, the La Cygne retrofit costs would have to be $400 million greater than estimated at the time of the Kansas predetermination case before the alternative plan to retire the plant would break-even on a revenue requirement basis. The $400 million represents the equivalent of avoiding a $400 million capital investment by retrofitting La Cygne instead of replacing it with combined cycle generation. I would consider this significant.

Q: Please respond to the claim that KCP&L failed to model costs for some then impending rules; the coal combustion residuals rule ("CCR") and still pending effluent limitation guidelines ("ELG").

A: The majority of these projected costs are tied to remediation of existing conditions related to coal combustion residuals. As such, they are independent of the decision to retrofit or retire La Cygne. For example, costs to close existing ash ponds will be incurred whether or not La Cygne continues operation or is retired. The La Cygne Environmental Project did include the conversion of wet to dry handling of CCR from the scrubbers which

1 Ezra D. Hausman, Direct Testimony, KCC Docket No. 11-KCPE-581-PRE, p. 14, l. 6.

address both the CCR and ELG requirements. The one consideration that could have been include in the original La Cygne analysis but was not is the conversion from a wet to a dry bottom ash system for La Cygne Unit 2. The projected costs for such a conversion are $22.3 million on a total station basis. KCP&L would be responsible for half of this amount since KCP&L owns 50% of the facility. Adding this cost estimate to the original La Cygne analysis would not have meaningfully changed the results.

Q: Please address Sierra Club's concern that the forecasts used by the Company in the original La Cygne analysis were out of date.

A: For some of the critical uncertain factors used in KCP&L's planning process, such as natural gas prices, KCP&L collects several long-term forecasts that have been developed by external parties. These forecasts are then combined to generate a mid-case assumption along with a high and low range. The Company has found that over time an average of several forecasts produces better results than any single forecast. KCP&L has used this method for many years in its Integrated Resource Planning ("IRP") process and it was used in the original La Cygne analysis.

Since these are long-term forecast (20+ years), some are only updated annually. As a result, KCP&L's composite forecast can contain data that is approximately one year old. Given these are long-term forecasts and do not typically change significantly in short periods of time and averaging a number of forecasts produces a better result than relying on a single source, in this application, using a long-term composite forecast that contains some data that is a year old is reasonable.

Q: The Sierra Club contends that market conditions changed subsequent to the Company's decision to retrofit La Cygne and "there were several decision points

during this time period at which KCP&L should have revisited its original analysis and arrived at different conclusions with respect to the La Cygne retrofits" (Wilson Direct, p.4, ll. 5-8). Do you agree?

A: In part. I agree that assumptions on long-term projected natural gas and CO_2 prices have changed over the course of construction of the La Cygne retrofits. I also agree with the premise that the decision to retrofit La Cygne should be re-evaluated. I disagree that we should arrive at a different conclusion.

Q: Did the Company re-evaluate the La Cygne retrofit decision during the course of construction?

A: Yes, it did.

Q: When were these re-evaluations completed?

A: KCP&L re-evaluated whether or not it was appropriate to retrofit La Cygne with the environmental controls necessary for continued operation or retire it on four separate occasions, once each in 2012, 2013, 2014, and 2015 as part of its IRP process. Results were included in the filings made in Case Nos. EO-2012-0323, EO-2013-0537, EO-2014-0256, and EO-2015-0254.

Q: Was the Sierra Club a party to these dockets?

A: Yes, the Sierra Club was an intervenor in each of these IRP cases.

Q: What conclusions were reached in these re-evaluations?

A: In each case, KCP&L's evaluation demonstrated that making the necessary investments to keeping La Cygne in operation resulted in lower long-term revenue requirements than resource plans that included retiring La Cygne.

Q: Did these re-evaluations include updated natural gas and CO_2 price forecasts?

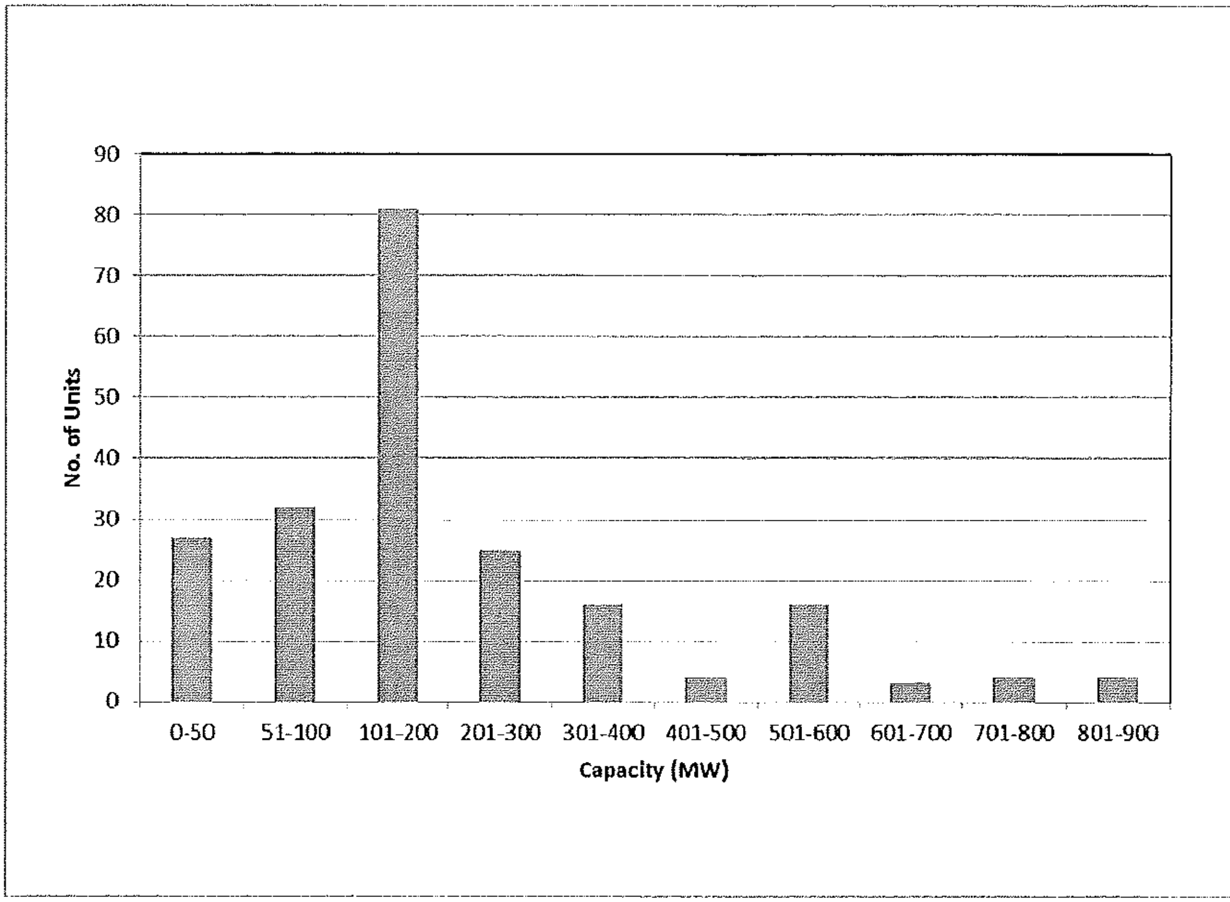
A: Yes, they did.

Q: The Sierra Club points to Energy Information Agency ("EIA") data that shows the increase in coal plant retirement announcements during the early stages of the LaCygne retrofit project (Wilson Direct, p. 17, ll. 11-17). How does KCP&L's plans for coal plant retirements compare to other utility plans?

A: Announced coal plant retirements have continued to increase since the September 2012 data presented by the Sierra Club. Current data from SNL Energy shows 45.8 GW of announced retirements. This represents 14.6% of current operating coal plant capacity. In January 2015, KCP&L announced that it had made a formal decision to cease burning coal at its Montrose Units 1, 2 and 3. This represents 18.5% of KCP&L's current coal fleet.

The chart shown below shows the number and size of units announced for retirement. Note that the largest number of units planned for retirement is in the 101-200 MW capacity range. The three Montrose units range from 164 to 176 MW each, which falls squarely in the capacity range of units most likely to be retired. La Cygne Units 1 and 2 currently have a total capacity of 734 MW and 682 MW respectively. Note there are very few units of this size nationally that have announced retirements.

Chart 1. Announced Coal Plan Retirements (Data Source: SNL 04/21/15)



Q: The Sierra Club has presented a "reevaluation" of the La Cygne retrofit projects. Do you have any concerns with this re-evaluation?

A: Yes. One of the primary concerns with this re-evaluation is that it is an estimate based on changing projected natural gas prices to a forecast that contains a known bias.

Q: Can you please describe the bias?

A: Yes. The natural gas price forecast selected by the Sierra Club is produced by the EIA. While it is a long-term forecast, it does not take into account future regulations that can produce upward pressure on gas prices. For example, additional environmental controls could be placed on natural gas fracking which in turn could raise the cost of natural gas.

These potential impacts are not considered in the EIA forecast. KCP&L witness Mr. Blunk describes this bias in his Rebuttal Testimony in this case.

Q: Doesn't KCP&L use the EIA natural gas forecast as part of its planning analysis?

A: Yes, it does. However, this type of potential bias is why the Company creates a composite forecast from several sources to minimize the bias of any single forecast used.

Q: Do you have any other concerns with this re-evaluation?

A: Yes. The Sierra Club presents a table ("Table 2") (Wilson Direct, p. 29, l. 1) that it claims represents the costs KCP&L could have avoided at various points in time if it would have halted construction of the La Cygne retrofits. There are two factors missing from this analysis, one that the Sierra Club mentions in its testimony and one that it does not. If both of these factors were properly accounted for, these "avoided" costs would disappear. While the Sierra Club mentions that these avoided costs do not include cancelation costs for contracts already in place (which if taken into consideration would reduce these claimed avoided costs), even more significantly this analysis is missing the fact that if the LaCygne Units were to be retired, the alternative resource plan ultimately employed by KCP&L would have included significant costs to install generation capacity that would be necessary in the absence of La Cygne. As an example, it would cost approximately $700-$900 million to replace KCP&L's share of the La Cygne generating capacity with natural gas fired combined cycle generation which, when added to the project cancelation costs and other unavoidable costs of **[redacted]** discussed by KCP&L witness Forrest Archibald in his Rebuttal Testimony, means that the costs to pursue such an alternative would include costs of at least **[redacted]** for factors not included in Sierra Club's analysis. While

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there are many other additional factors that would be included in evaluating the costs of an alternative resource plan, based on the original La Cygne analysis and the subsequent analysis completed in 2012, 2013, 2014, and 2015, the alternative resource plans would have cost more than the costs of continued La Cygne operations, thus negating the Sierra Club reported avoided costs.

I will also note that the figures presented by the Sierra Club in Table 2 are inflated by a factor of 100%. KCP&L owns 50% of La Cygne and as such is responsible for 50% of the La Cygne retrofit costs. The Sierra Club analysis is incorrectly attributing 100% of the project costs to KCP&L.

2. Response to Staff Revenue Requirement Cost of Service Report – Fuel Modeling

Q: Do you have any concerns with the Staff's Fuel, Purchased Power and Off-System Sales modeling and amounts included in the cost of service model?

A: Yes. There are at least three issues that should be addressed at true-up. These are related to: (1) the energy purchases related to border customers and parallel generators; (2) the treatment of energy sold under a firm contract sale; and (3) the inclusion of revenues for sales under a capacity sales contract. Items such as these have historically been addressed at true-up, and the Company has discussed these items with Staff.

Q: What is the issue regarding the energy purchased for border customers and parallel generators?

A: In its fuel modeling efforts, Staff has included the energy impacts for purchases related to border customers and for energy provided by parallel generators. However, Staff did not include the cost of this energy in the cost of service model.

Q: **What is the issue regarding the energy sale under a firm sales contract?**

A: KCP&L entered into a firm energy sales agreement with the Kansas Municipal Energy Agency ("KMEA") that runs from December 1, 2014 to September 30, 2015. Since this contract will have expired by the time the new rates go into effect in this case, the Company has excluded this sale from firm sales in the fuel modeling, and instead allows this energy to be sold in the non-firm wholesale sales market.

In determining the amount of firm energy sales revenues, Staff has included the energy revenues of this sale, but has not included the energy impact of this sales obligation in the fuel model thus; the cost to supply this energy has not been included in Staff's case.

KCP&L believes that this sale should not be included in the case because the KMEA contract expires on September 30, 2015. However, if the Commission determines that it is appropriate to include sales from this contract in the case, then the load used in the fuel modeling should be increased to recognize the costs to serve it.

Q: **What is the issue with the Capacity Sales contract?**

A: KCP&L had made a capacity sale to KCP&L Greater Missouri Operations Company ("GMO") that ran from June 1, 2014 to May 31, 2015 so that GMO could meet its capacity requirements for that period. GMO has recently entered into a capacity contract with another supplier to meet its capacity need for the period June 1, 2015 to May 31, 2016.

The Staff has included the revenues from this capacity sale in its direct case. As this contract will expire on May 31, 2015 (the true-up date for this case), the capacity sales revenue for it should be excluded from the cost of service.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Request for Authority to Implement A General Rate Increase for Electric Service	)))	Case No. ER-2014-0370

AFFIDAVIT OF BURTON L. CRAWFORD

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

Burton L. Crawford, being first duly sworn on his oath, states:

1. My name is Burton L. Crawford. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Director, Energy Resource Management.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Kansas City Power & Light Company consisting of thirteen (13) pages, having been prepared in written form for introduction into evidence in the above-captioned 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.

Burton L. Crawford

Subscribed and sworn before me this 7th day of May, 2015.

Nicole A. Wehry
Notary Public

My commission expires: Feb. 4, 2019

NICOLE A. WEHRY
Notary Public - Notary Seal
State of Missouri
Commissioned for Jackson County
My Commission Expires: February 04, 2019
Commission Number: 14391200