MISSOURI PUBLIC SERVICE COMMISSION

DOCKET NO. ER-2010-0355

SURREBUTTAL TESTIMONY

OF

JOHN J. REED

Submitted On Behalf

Of

SOUTHERN UNION COMPANY

D/B/A MISSOURI GAS ENERGY

JANUARY 5, 2011

MGE Exhibit No. KCP&L-2203NP
Date 1/18/11 Reporter LMB
File No. ER-2010-0355

NON-PROPRIETARY

Exhibit KCP&L-2203NP

TABLE OF CONTENTS

I. INTRODUCTION OF WITNESS AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John J. Reed, and my business address is 293 Boston Post Road West, Suite 500, Marlborough, MA 01752.

Q. HAVE YOU PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes. I submitted direct testimony on behalf of Southern Union Company d/b/a Missouri Gas Energy ("MGE" or the "Company").

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of Mr. John Rogers on behalf of the Missouri Public Service Commission Staff and Mr. Gary Goble, on behalf of Kansas City Power and Light ("KCP&L"). This testimony is supported by the analyses contained in Schedules JJR-SUR1 through JJR-SUR6.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. I continue to recommend that the Missouri Public Service Commission (the "Commission") approve fuel switching as a demand side management program to be implemented by KCP&L as a cost effective way to promote energy efficiency and conservation by offering financial incentives to KCP&L customers to convert

certain end-use applications, such as water heating and space heating, from electricity to natural gas. If the Commission determines that it requires more information before implementing the proposed fuel switching program on a permanent, full-scale basis, I recommend that the Commission approve a pilot program under which KCP&L would offer the proposed customer rebates to residential and multi-family electric customers who reside within a certain portion of its service territory, such as the urban core of Kansas City.

Q. HOW IS THE REMAINDER OF YOUR SURREBUTTAL TESTIMONY ORGANIZED?

A. The remainder of my surrebuttal testimony is organized as follows: in Section II, I respond to the rebuttal testimony of Staff witness, Mr. John Rogers; in Section III, I respond to the rebuttal testimony of KCP&L witness, Mr. Gary Goble, and in Section IV, I provide my conclusions and recommendations.

II. RESPONSE TO REBUTTAL TESTIMONY OF MR. JOHN ROGERS

Q. PLEASE SUMMARIZE YOUR RESPONSE TO THE REBUTTAL TESTIMONY OF MR. ROGERS AS IT RELATES TO THE FUEL SWITCHING PROPOSAL DESCRIBED IN YOUR DIRECT TESTIMONY.

A. Mr. Rogers and I agree on several important points regarding the fuel switching proposal. First, Mr. Rogers and I agree that natural gas appliances are more efficient than electric appliances for certain end-use applications when using the full-fuel-cycle approach to measure energy consumption and efficiency. Further, Mr. Rogers and I agree that there is a growing momentum at the national level and within some states for adopting the full-fuel-cycle approach as the appropriate method for evaluating the relative advantages of various fuels for certain end-use applications that allow consumers to choose the most efficient fuel source.

Q. DOES STAFF WITNESS ROGERS EXPRESS ANY CONCERNS WITH THE FUEL SWITCHING PROPOSAL OUTLINED IN YOUR DIRECT TESTIMONY?

A. Yes. Mr. Rogers expressed several concerns or reservations with the fuel switching proposal, including: (1) whether this is the appropriate docket for the Commission to consider the issue of fuel switching; (2) whether the fuel switching proposal would be effective for KCP&L, which is a summer peaking utility; and (3) whether the Commission has adopted the TRC test as the preferred

method to evaluate the cost effectiveness of DSM programs. Mr. Rogers also expressed concerns with the fact that the fuel switching program is being proposed by MGE, which is a KCP&L competitor.

Q. HOW DO YOU RESPOND TO MR. ROGERS' OBSERVATION THAT THIS MAY NOT BE THE APPROPRIATE DOCKET FOR THE COMMISSION TO CONSIDER THE FUEL SWITCHING PROPOSAL?

A. Mr. Rogers asserts that if the Commission wishes to consider fuel switching as a potential DSM measure, it should do so in KCP&L's Integrated Resource Planning ("IRP") docket, which is governed by Chapter 22 of the Commission's rules. While I understand Mr. Rogers' concern about whether this is the appropriate venue for the Commission to consider the fuel switching program, there are several reasons why the IRP docket may not be the appropriate venue. First, my understanding is that KCP&L is not required to make another IRP filing until November 2011, and a Commission decision on the IRP plan would not be expected for several months thereafter. In the interim, Missouri ratepayers could not enjoy the many benefits that could be derived from the fuel switching proposal, including operating cost savings, reduced energy consumption, and reduced carbon emissions. Second, even if the Commission determines in the IRP docket that fuel switching is a cost effective use of DSM program dollars and that KCP&L should offer the proposed financial incentives to its customers, it is not evident from the Chapter 22 rules that KCP&L would be required to implement this DSM measure.

Q. HOW DO YOU RESPOND TO MR. ROGERS' ASSERTION THAT THE FUEL SWITCHING PROPOSAL MAY NOT BE EFFECTIVE IN MISSOURI IN TERMS OF REDUCING GENERATION AND TRANSMISSION REQUIREMENTS BECAUSE KCP&L IS A SUMMER PEAKING UTILITY?

A. Mr. Rogers asserts that the experience in other jurisdictions may not be relevant in Missouri because several of the states which have adopted fuel switching programs are served by electric utilities that are winter peaking. As a result, Mr. Rogers contends that a fuel switching program for certain end-use applications such as water heating and space heating would not be expected to contribute toward a reduction in generation, transmission or capacity requirements. While I agree with Mr. Rogers that the fuel switching proposal described in my direct testimony might be more effective where the electric utility's peak occurs during the winter, Mr. Rogers fails to consider that water heating is a baseload activity that would impact electric generation and transmission requirements. Further, the fuel switching program offered by CenterPoint in Texas, a summer-peaking utility, has been quite effective at producing demand reduction and energy savings. Specifically, under CenterPoint's Multi-Family Water and Space Heating Program, 7,200 units have been converted to natural gas since 2004. In 2009, this program produced verified energy savings of 2,957 MWh and demand reduction of 0.63 MW. The corresponding figures for 2008 were 3,174 MWh and 0.53 MW.

Q. WHAT IS YOUR RESPONSE TO MR. ROGERS' STATEMENT THAT THE COMMISSION HAS NOT ADOPTED THE TOTAL RESOURCE COST TEST TO EVALUATE DSM PROGRAMS OR MEASURES?

A. This appears to be a matter of semantics. Senate Bill 376 indicates that the Commission shall consider the Total Resource Cost ("TRC") test as a preferred cost effectiveness test to evaluate electric utility DSM measures. According to Chapter 22 of the Commission rules (which are currently being revised in a rulemaking docket), the Commission uses the TRC test to evaluate proposed DSM measures. If the measure passes the TRC test, the electric utility shall consider the DSM measure as a resource option in its IRP plan. The important point is that the Commission uses the TRC test to evaluate the benefits and costs of the proposed energy efficiency measure, and the Commission approves those measures that are determined to provide net benefits to the utility and its ratepayers.

Q. DO YOU AGREE WITH MR. ROGERS THAT THE COMMISSION SHOULD REJECT THE FUEL SWITCHING PROPOSAL, IN PART, BECAUSE IT IS BEING PROPOSED BY A COMPETITOR OF KCP&L?

A. No, I do not. From my perspective, the Commission's objective should be to design a comprehensive energy policy that serves the public interest. If the Commission determines that the fuel switching proposal is a cost effective demand side management program and serves the public interest, then it should

be approved and implemented by KCP&L, regardless of who proposed the program. Simply put, the origin of the program has no bearing whatsoever on whether it is in the public interest.

Q. DO YOU HAVE ANY OTHER COMMENTS ABOUT MR. ROGERS' REBUTTAL TESTIMONY?

A. Yes. Mr. Rogers indicates that the approved fuel switching programs which were described in my direct testimony involve combination electric/gas utilities, so that the utility is simply encouraging its customers to switch from electricity to natural gas. However, as explained in my direct testimony, some of these programs provide the same financial incentives to electric customers who are served by a different gas utility. For example, Puget Sound Energy's electric customers are eligible for a financial incentive for switching to Cascade Natural Gas, and CenterPoint's electric customers may qualify for customer rebates for switching to Texas Gas Service. More importantly, however, the respective Commissions have approved the fuel switching programs because the utility has demonstrated that the programs are cost effective and in the public interest.

III. RESPONSE TO THE REBUTTAL TESTIMONY OF MR. GARY GOBLE

Q. PLEASE SUMMARIZE MR. GOBLE'S REBUTTAL TESTIMONY.

A. Mr. Goble recommends that the Commission reject the proposed fuel switching program in this docket because, in his opinion, the proposal raises certain regulatory policy considerations, and he questions the economic analyses that support the fuel switching program. Specifically, Mr. Goble questions whether the program will result in (1) operating cost savings for customers who convert from electricity to natural gas, (2) reduced energy consumption, and (3) environmental benefits such as reduced carbon emissions. Further, Mr. Goble asserts that the Commission should reject the proposed fuel switching program because regulatory policy should not interfere in competitive energy markets and should not favor one fuel source over another, and that the Commission should wait until there is more clarity at the national level with regard to the adoption of the full-fuel-cycle approach to measuring energy consumption before the Commission considers whether the proposed fuel switching program is beneficial for Missouri ratepayers. Finally, Mr. Goble contends that the fuel switching program would harm KCP&L's shareholders because the utility would not be able to recover its fixed costs and earn its authorized return, and would result in increased rates for electric customers because the revenue requirement would be spread over fewer billing determinants.

Q. PLEASE SUMMARIZE YOUR RESPONSE TO MR. GOBLE'S REBUTTAL TESTIMONY.

A. Mr. Goble portrays the fuel switching proposal contained in my direct testimony as a dramatic and fundamental shift in energy policy in Missouri. Given the relative advantages of natural gas for certain end-use applications, and in light of the relatively modest expectations for customer participation in the proposed fuel switching program, it is not reasonable to assert that KCP&L, it shareholders, or its customers would sustain any harm as a result of the approval of any DSM measure, let alone a fuel switching DSM program where the budgets are proposed and managed by KCP&L. From my perspective, the issues before the Commission are: (1) Is the proposed fuel switching program a cost effective use of KCP&L's DSM dollars?, and (2) Is the proposed fuel switching program in the public interest?

Q. HOW IS YOUR REPONSE TO MR. GOBLE'S REBUTTAL TESTIMONY ORGANIZED?

A. The first part of my response to Mr. Goble's rebuttal testimony discusses the regulatory policy considerations associated with implementing the fuel switching program as part of KCP&L's DSM programs in Missouri, while the second part of my response provides additional economic analyses and support for the fuel switching proposal to rebut statements made by Mr. Goble in his rebuttal testimony.

A. Regulatory Policy Considerations

Q. DO YOU AGREE WITH MR. GOBLE THAT APPROVAL OF THE FUEL SWITCHING PROPOSAL WOULD REPRESENT INTERFERENCE BY THE COMMISSION IN COMPETITIVE ENERGY MARKETS?

A. No, I do not. From my perspective, the proposed fuel switching program as part of KCP&L's overall DSM and demand response program is a modest step toward improving the energy efficiency of Missouri's residential energy customers. This is simply another demand side management and energy efficiency program; it does not represent a fundamental shift in energy policy or any undue interference by the Commission in the competitive energy markets. Any DSM program which involves payments or financial support by the utility represents an intervention in markets, because the market price signals may not reflect all of the marginal costs imposed by a consumption decision. This is long-established as an appropriate use of regulatory and public policy involvement in energy markets. Mr. Goble's statements that this program "would interfere with market factors,"[1] and that "the Commission should not use its regulatory authority to skew market behavior"[2] are nothing less than a broad-based attack on the Commission's long-standing support for utility-sponsored energy efficiency programs. The proposed fuel switching program is no more market "interference" than rebates for the installation of efficient appliances or the installation of solar panels, both of which have been adopted by the Commission.

1 Rebuttal testimony of Gary Goble, at page 4.
2 *Ibid*, at page 6.

If we assume, contrary to the facts, that Mr. Goble is correct that customers using natural gas appliances do not achieve any operating cost savings relative to those using electric appliances, then it is not clear why he is concerned with the effect of the fuel switching proposal on the competitive energy markets. If customers perceive that there are no benefits to fuel switching, then they will choose not to participate in the program. Nevertheless, I strongly disagree with Mr. Goble's assertion that the proposed fuel switching program would reduce competition and limit customer choice. On the contrary, it would give KCP&L's electric customers a financial incentive to purchase and install certain appliances such as natural gas water heaters and natural gas furnaces if the customer believes that natural gas is the right fuel for that particular end-use application(s). Presumably customers would only choose to participate in the rebate program if they believe that it provides net benefits in terms of cost savings, reduced energy consumption, and environmental benefits.

Q. DO YOU AGREE WITH MR. GOBLE THAT APPROVAL OF THE PROPOSED FUEL SWITCHING PROGRAM WOULD BE A SIGN THAT THE COMMISSION IS LIMITING COMPETITION OR FAVORING NATURAL GAS OVER ELECTRICITY?

A. No, I strongly disagree with Mr. Goble that approval of the fuel switching program requires the Commission to limit competition in the energy markets or to favor natural gas over electricity. On the contrary, the fuel switching program recognizes "the right fuel for the right use," as that concept was discussed in my

direct testimony. There are certain end-use applications where it is more efficient to use natural gas than electricity. In those instances, it is appropriate for the Commission to approve a DSM program for KCP&L which provides electric customers with financial incentives to encourage them to switch to natural gas, and to provide them with unbiased information concerning operating costs, capital costs, and environmental consequences associated with that decision.

The National Regulatory Research Institute ("NRRI") report that Mr. Goble cites, "Electric to Gas Substitution: What Should Regulators Do?," provides a good overview of the circumstances under which regulators should intervene to help promote more rational and efficient customer choices. These circumstances, which have long been used to support the policy rationale for energy efficiency and renewable energy programs, include:

1. Consumers have imperfect information.
2. Consumers' chief concern is the economic effect on themselves, not on others or on the environment.
3. Consumers overvalue present dollars and undervalue future benefits.
4. Inertia is a powerful force. Decision making is often costly.
5. Even with information that a shift to natural gas will save money and help the environment, a customer might be more influenced by concerns about gas price volatility.
6. Inefficient rate designs – where utility customers pay average costs that do not reflect the actual operating costs in a particular hour –

induce customers to make fuel choices that do not reflect the full economic costs of producing and delivering energy.

7. Home builders choosing appliances tend to focus on the initial installation cost, not the life-cycle cost.[3]

The proposed fuel switching program would enhance consumer choice, not limit competition in the energy markets, because consumers would have the information necessary to make an informed decision and there would be a financial incentive available to reduce the upfront cost associated with converting from electricity to natural gas.

Q. DO YOU AGREE WITH MR. GOBLE THAT THE COMMISSION SHOULD WAIT UNTIL THERE IS MORE CLARITY AT THE NATIONAL LEVEL REGARDING ADOPTION OF THE FULL-FUEL-CYCLE APPROACH?

A. No, I do not. There is no reason for the Commission to wait for further clarity on the issue before approving the fuel switching proposal. If MGE demonstrates to the Commission's satisfaction that the full-fuel-cycle approach is a reasonable method to measure relative energy consumption between electricity and natural gas, and if the Commission finds that the fuel switching program is in the public interest, then there is no reason for further delay. If the Commission is concerned

[3] "Electric to Gas Substitution: What Should Regulators Do?," National Regulatory Research Institute, Ken Costello, May 29, 2009, at pages 8-9.

that fuel switching programs are unproven, or that there are not sufficient data to support full-scale implementation of the fuel switching program at this time, then I would urge the Commission to consider approving a pilot program, and then review the results of the pilot program after three years, or during KCP&L's next rate case, whichever is later.

Q. WHAT IS THE CURRENT STATUS OF THE RULEMAKING IN WHICH THE DEPARTMENT OF ENERGY IS CONSIDERING THE NATIONAL ACADEMY OF SCIENCES' RECOMMENDATION TO ADOPT THE FULL-FUEL-CYCLE APPROACH TO MEASURE ENERGY CONSUMPTION?

A. The Department of Energy ("DOE") held a public hearing on October 7, 2010, to accept comments from interested parties regarding the National Academy of Sciences' ("NAS") recommendation to move toward the full-fuel-cycle approach to measure energy efficiency and consumption. The DOE then accepted written comments through October 19, 2010. My understanding is that the DOE hopes to publish the final proposed rule in early 2011.

Q. IS IT NECESSARY FOR THE COMMISSION TO ADOPT THE FULL-FUEL-CYCLE METHOD BEFORE IT CAN APPROVE THE PROPOSED FUEL SWITCHING PROGRAM?

A. No, it is not. Neither the Public Utilities Commission of Texas nor the Washington Utilities and Transportation Commission adopted the full-fuel-cycle

method of evaluating energy consumption before approving the fuel switching programs for CenterPoint and Puget Sound Energy, respectively. Similarly, the Connecticut Department of Public Utility Control ("DPUC") recently endorsed the concept of fuel switching for electric utilities in the 2010 Integrated Resource Planning docket, but the DPUC order did not mention anything concerning the adoption of the full-fuel-cycle method.[4]

Q. DO YOU AGREE WITH MR. GOBLE THAT APPROVAL OF THE PROPOSED FUEL SWITCHING PROGRAM WOULD REQUIRE A RE-EVALUATION OF KCP&L'S CURRENT DSM PROGRAMS?

A. No, I do not. This would appear to be an ideal time to consider implementation of new DSM measures such as fuel switching because my understanding is that KCP&L's current DSM programs, which took effect in 2006, are scheduled to expire on December 31, 2010. It is not clear whether KCP&L will continue to offer these programs in 2011 without an order from the Commission extending the deadline contained in the KCP&L tariff. Even if KCP&L's current DSM programs are extended for some period of time, it appears that the Commission will need to review these programs in the context of Senate Bill 376 and the rulemaking that has occurred as a result of that legislation. My conclusion is that this is an opportune time for the Commission to re-examine the DSM programs currently offered by KCP&L and to determine whether the individual measures

[4] State of Connecticut Department of Public Utility Control, DPUC Review of the 2010 Integrated Resource Plan, Docket No. 10-02-07, September 15, 2010.

should be modified, whether new measures should be added, whether the DSM program budget should be expanded, and whether the cost recovery mechanisms are consistent with the policy objective of promoting energy efficiency.

Q. DO YOU AGREE WITH MR. GOBLE'S ASSERTION THAT APPROVAL OF THE PROPOSED FUEL SWITCHING PROGRAM WOULD STIFLE THE DEVELOPMENT OF NEW DSM PROGRAMS?

A. Absolutely not; it would promote more efficient competition. Regulatory support for utility-funded discounts on Compact Fluorescent Light bulbs does not stifle the development of other programs, nor does a high-efficiency air conditioning rebate program or a solar panel rebate program. These programs all work together to promote cost effective energy efficiency, and adding fuel switching to the portfolio of options is a natural extension of that policy.

Approval of such an innovative DSM measure as fuel switching will encourage creative approaches to energy efficiency and conservation programs that will continue to reduce energy consumption in Missouri in the coming years. As discussed earlier, fuel switching programs have been approved as part of the electric utility's DSM programs in Washington (Puget Sound Energy), Texas (CenterPoint), and Washington/Idaho (Avista Corporation). As shown on Schedule JJR-SUR1, those utilities offer a wide array of DSM programs in addition to fuel switching.

Q. DO YOU AGREE WITH MR. GOBLE THAT YOU HAVE GIVEN THE COMMISSION THE IMPRESSION THAT FUEL SWITCHING PROGRAMS HAVE BEEN ADOPTED IN NUMEROUS OTHER JURISDICTIONS?

A. No, I do not. My direct testimony provides several examples of electric utilities that have implemented fuel switching programs after receiving regulatory approval. I acknowledge that fuel switching programs are just beginning to gain traction, and I agree with Mr. Rogers that there is growing momentum for fuel switching programs across the country. For example, the Connecticut Department of Public Utility Control ("DPUC") recently issued a decision in its review of the 2010 Integrated Resource Plan docket for the states' electric utilities in which the Commission endorsed the concept of fuel switching. The DPUC wrote:

> The traditional approach to conservation and load management has not focused on determining the most efficient use of the fuel needed to power end use equipment or the environmental impact of these decisions. Instead, as the Chiller Retirement Initiative demonstrates, energy efficiency has meant reducing the electricity needed to power electric equipment. The current energy environment and cultural shift noted above demands that we modify our approach and look to determine the most efficient use of the fuel used to power our needs. Fuel switching must be examined to achieve this benefit. Therefore, a comparison of the costs and benefits of alternate fuels (where applicable) must be integrated into the review of C&LM [Conservation and Load Management] activity.[5]

[5] *Ibid*, at page 58.

Q. DO YOU AGREE WITH MR. GOBLE THAT THE PROPOSED FUEL SWITCHING PROGRAM WOULD NOT REDUCE CARBON EMISSIONS?

A. No. Mr. Goble's arguments on this point are completely illogical and wrong. Mr. Goble asserts that fuel switching would not reduce carbon emissions because KCP&L would continue to generate the same amount of electricity regardless of whether it sold that electricity to retail customers or in the wholesale power market and that additional consumption of natural gas would produce a net increase in carbon emissions in Missouri. Although the purpose of my testimony is not to comment on KCP&L's generation, or its plans to sell excess electricity in the wholesale power markets, Mr. Goble's statement is completely illogical. In aggregate, total electric demand will be reduced by the implementation of the fuel switching program, and aggregate emissions will be reduced. If KCP&L continues to operate its generation plants to make wholesale sales, it is doing so because its plants are less costly to operate than the power purchaser's own plants, presumably because KCP&L's units are more efficient than the purchaser's units. Shutting down the purchaser's less efficient units further enhances the effects of fuel switching, rather than diminishing those benefits. KCP&L's position also appears to be at odds with its support for other electric DSM programs that have been approved by the Commission, at least in part, because they were expected to reduce carbon emissions and produce other environmental benefits.

Regardless of whether KCP&L is able to make sales in the wholesale market, or to generate the same amount of electricity, the relevant analytical question in evaluating the merits of the proposed fuel switching program is whether it would promote market-wide benefits in the form of more efficient energy consumption and an improvement in environmental consequences of energy consumption. From that perspective, the proposed fuel switching program will unquestionably help to achieve both of these goals.

Q. DO YOU AGREE WITH MR. GOBLE'S STATEMENTS REGARDING THE RELATIVE ENVIRONMENTAL IMPACT OF NATURAL GAS AND ELECTRICITY?

A. I agree with Mr. Goble that "the CO_2 emissions of natural gas are lower than for the coal generation of electricity."[6] However, I strongly disagree with Mr. Goble regarding the environmental impact of electric generation, especially coal-fired generation. According to the EIA, "In 2008, 41 percent of total CO_2 emissions came from electricity generation. With its high carbon content and 48 percent share of generation, coal accounted for 82 percent of power sector CO_2 emissions."[7]

Q. DO YOU AGREE WITH MR. GOBLE'S CRITICISM OF YOUR ANALYSIS OF THE RELATIVE MERITS OF NATURAL GAS IN

[6] Rebuttal testimony of Gary Goble, at page 11.
[7] U.S. Energy Information Administration, Annual Energy Outlook 2010, April 2010, at page 82.

TERMS OF ITS ENVIRONMENTAL IMPACT COMPARED TO ELECTRICITY?

A. No, I do not. Mr. Goble criticizes my analysis as not being specific to the circumstances in Missouri. In response to Mr. Goble's criticism, I note that Table 6 in my direct testimony provides the generation mix for KCP&L[8], and my direct testimony indicates that the CO_2 emissions produced by KCP&L in Missouri are approximately 17 million tons per year.[9] As further support for my position, a report by the Gas Technology Institute allows for comparison of the emissions produced by natural gas and electric water heaters in Missouri. Table 1 demonstrates that the energy required for electric water heaters produces significantly more emissions than the energy required for natural gas water heaters in each of the reported categories.

Table 1: Water Heater Source Emissions in Missouri[10]

Emissions Type	Electric	Natural Gas	% Reduction vs. Electric
CO_2 (lb)	7,937	2,668	66.4%
SO_2 (lb)	27.86	0.55	98.0%
NO_X (lb)	13.32	2.17	83.7%

Mr. Goble also states that "CO_2 emissions that would have occurred at a remotely located generation station will now be imported to the appliance site, i.e., to the

8 Direct testimony of John J. Reed, at page 14.
9 Ibid, at page 15.
10 "Source Energy and Emission Factors for Building Energy Consumption," Gas Technology Institute, National Gas Codes and Standards Research Consortium, August 2009, Table 22, at page 28.

residential consumer's home,"[11] and that the remote generation station's "location was carefully chosen as the most advantageous site for any emissions to occur."[12] These statements display a remarkable misunderstanding of the environmental issues associated with CO_2. A ton of CO_2 emitted into the atmosphere in a remote corner of Missouri, or in downtown Kansas City, has the exact same effects in terms of climate change. Unlike the other adverse consequences of coal combustion, location and proximity to the human population have no consequence whatsoever to CO_2 emissions.

Q. DO YOU AGREE WITH MR. GOBLE THAT MGE'S PROPOSAL HAS NOT CONSIDERED THE EFFECT ON KCP&L'S REVENUE?

A. No, I do not. As indicated in my direct testimony, the revenue impact for KCP&L would be a reduction of approximately 0.40 percent of 2009 electric operating revenues in Missouri.[13] Contrary to Mr. Goble's assertion that MGE's proposal has not considered the effect on KCP&L revenue, I indicated in my direct testimony that MGE fully supports either a revenue decoupling mechanism or straight-fixed variable rate design which would make this proposal revenue neutral for KCP&L in terms of cost recovery.

11 Rebuttal testimony of Gary Goble, at pages 10-11.
12 Ibid, at page 29.
13 Direct testimony of John J. Reed, at page 33.

B. Economic analyses in support of proposed fuel switching program

Q. MR. GOBLE ASSERTS THAT THE ECONOMIC ANALYSES IN YOUR DIRECT TESTIMONY IS FLAWED AND UNRELIABLE, AND DOES NOT SUPPORT THE RECOMMENDATION TO ADOPT A FUEL SWITCHING PROGRAM IN KCP&L'S SERVICE TERRITORY. WHAT IS YOUR RESPONSE?

A. Mr. Goble has criticized certain aspects of my economic analysis, including: (1) my reliance on American Gas Association ("AGA") energy consumption data, which he claims do not reflect the specific circumstances in Missouri or the KCP&L customer characteristics; (2) my projected operating cost savings for water heating and space heating; (3) the basis for certain assumptions, such as the percentage of participants in the water heating rebate program compared to the space heating rebate program; and (4) whether the proposed fuel switching program is cost effective. I will briefly address each issue below.

Q. DO THE OPERATING COST SAVINGS CALCULATIONS IN YOUR DIRECT TESTIMONY CONTAIN AN ERROR?

A. Yes, the volume conversion factors were not carried through properly on Schedule JJR-1 to my direct testimony. This also affects Schedules JJR-4, JJR-5, and JJR-7. This error was detected just after my direct testimony was filed on November 10, 2010, and was corrected when my corresponding direct testimony was filed on November 17, 2010 in the companion docket, Case No. ER-2010-0356, which is the electric rate case filed by KCP&L Greater Missouri

Operations. I have provided corrected Schedules JJR-SUR2, JJR-SUR3, JJR-SUR4, and JJR-SUR5 to replace the original schedules. I would note that the payback periods contained in my direct testimony have changed slightly, as shown on Confidential Schedule JJR-SUR4.

When I apply the correct method for calculating the operating cost savings, the results are only slightly different. Specifically, the annual operating cost savings for water heating decrease by $6 (to $172), while the annual operating cost savings for space heating increase by $29 (to $536). The corrected calculations continue to support fully the proposition that the proposed fuel switching program will allow participants to reduce their annual energy bills. This correction to Schedule JJR-1 also resolves Mr. Goble's concern regarding double counting of energy losses.

Q. DO YOU AGREE WITH MR. GOBLE THAT THE ENERGY CONSUMPTION DATA FROM THE AMERICAN GAS ASSOCIATION SHOULD NOT BE RELIED UPON TO SUPPORT THE BENEFITS OF THE FUEL SWITCHING PROGRAM?

A. No, I do not agree with Mr. Goble's concerns about relying on the AGA data for energy consumption. Specifically, Mr. Goble states that the Gas Technology Institute ("GTI") paper from which the AGA consumption data were derived indicates that the data were not intended to be used to evaluate competing energy

efficiency measures.[14] He fails to mention that the referenced statement appears in the context of a discussion concerning the type of marginal generation that would be avoided due to a reduction in electricity consumption. It is quite clear from the introduction of the GTI report, that the report is intended to allow for the comparison of source energy and emission factors for different fuel sources including natural gas, liquefied petroleum gas, fuel oil, and electricity.[15] I agree that state-specific data should be examined for analyzing the avoided generation, and my testimony has done that. Missouri's state-specific information indicates that it will achieve greater-than-average benefits because it is more coal-dependent than other regions.

Q. HAVE YOU REVIEWED ANY ADDITIONAL SOURCES THAT SUBSTANTIATE THE ENERGY CONSUMPTION ESTIMATES THAT ARE CONTAINED IN YOUR CORRECTED SCHEDULE JJR-SUR2?

A. Yes. In order to test the reasonableness of my energy consumption estimates from AGA, I reviewed several additional sources of energy usage for water heating. Table 2 (below) summarizes my research. I would note that Table 2 does not reflect the "energy losses" associated with natural gas or electricity under the full-fuel cycle approach to measuring energy consumption.

14 Rebuttal testimony of Gary Goble, at page 21.

15 "Source Energy and Emission Factors for Building Energy Consumption," Gas Technology Institute, National Gas Codes and Standards Research Consortium, August 2009, at page 3.

Table 2: Energy Consumption – Water Heating

Data Source	Region	Gas (MMBtu)	Electric (kWh)
AGA Report – 2009[16]	Nationwide	25.4	4,865
ENERGY STAR – Final Criteria Analysis	Nationwide	26.1	4,857
US DOE, EERE[17]	Nationwide	N/A	4,866
Gas Technology Institute – Site Based	Missouri	20.6	4,042
Gas Technology Institute – Site Based	Kansas	21.0	4,133
Nebraska Public Power District	Nebraska	N/A	4,806
Metropolitan Utilities District	Nebraska	25.8	N/A

As Table 2 demonstrates, my estimated energy consumption figures fall within the range of reported values and are reasonable for purposes of this analysis. The GTI data for Missouri show that energy consumption for electric water heaters is approximately 16.9 percent below the national average, while energy consumption for gas water heaters is approximately 18.9 percent below the national average. If I had used those Missouri-specific energy consumption figures, the annual operating cost savings for gas water heating compared to electric would have been $149, or $23 less than my estimate. However, the savings are still substantial.

[16] The AGA report is the source for the consumption data that were used to develop Schedule JJR-SUR2.

[17] Energy consumption is estimated using the DOE, EERE test procedure based on the following formula: 365 X 12.03/EF, assuming an electric resistance water heater EF of 0.90.

Q. HOW DID YOU CORROBORATE THE REASONABLENESS OF YOUR ENERGY CONSUMPTION ESTIMATES FOR SPACE HEATING?

A. In order to corroborate the reasonableness of the AGA energy consumption estimates for space heating that were used to develop Schedule JJR-SUR2, I calculated energy consumption for natural gas furnaces and electric resistance heating. Those calculations indicate that a natural gas furnace would consume approximately 65.7 MMBtu annually, while an electric resistance furnace would consume approximately 15,563 kWh (or 53.1 MMBtu) annually.[18] As with the water heating consumption figures, the space heating estimates for the West North Central region, which includes Missouri, are approximately 11.5 percent lower than the national average for natural gas furnaces and 13.5 percent lower for electric resistance furnaces. If I had used the West North Central estimates, the annual operating cost savings for gas space heating compared to electric resistance heating would have been $447, or $89 less. As with water heating, the space heating savings remain substantial.

[18] These calculations are based on assumptions from the Department of Energy EERE's Life Cycle Cost Results for Non-Weatherized Gas Furnaces and household data from the Energy Information Administration's 2001 Residential Energy Consumption Survey. Both calculations are based on a 2,000 square foot house located in the West North Central region with 4,665 Heating Degree Days similar to Kansas City, MO. The gas furnace calculation assumes a .80 AFUE, while the electric resistance furnace calculation assumes a .99 AFUE.

Q. MR. GOBLE ASSERTS THAT BY USING MORE ACCURATE ENERGY CONSUMPTION INFORMATION HE FINDS THAT IT IS MORE EXPENSIVE TO OPERATE A NATURAL GAS WATER HEATER THAN AN ELECTRIC WATER HEATER. WHAT IS YOUR RESPONSE?

A. Throughout his Rebuttal Testimony, Mr. Goble fails to provide any quantitative support or other supporting evidence or documentation for his calculations. To determine the source of our differences, I reviewed Mr. Goble's response to MGE Data Request 7-9, which is attached to my surrebuttal testimony as Schedule JJR-SUR6. In that response, it is clear that Mr. Goble's analysis is seriously flawed and reaches the wrong conclusion. Mr. Goble compares the cost of operating a gas-fired water heater, including the full gas distribution monthly customer charge, to the cost of an electric water heater, without any consideration of the electric customer charge. This biased approach obviously and unduly favors the electric appliance. As can easily be seen from Mr. Goble's attached workpapers to this response, it is cheaper to operate a gas-fired water heater and/or a gas-fired furnace than their electric counterparts when one makes the comparison on an energy rate equivalent basis. In addition, it is my understanding that the gas CGA charge that Mr. Goble uses (i.e., $8.09 per Mcf) contains a substantial amount (i.e., $1.10 per Mcf) related to prior period under-recoveries. When this charge expires later this year, natural gas appliances will have an even greater economic advantage over their electric counterparts. Finally, Mr. Goble's analysis uses KCP&L's current residential electric rates rather than the requested electric rates, which are approximately 13.8 percent higher. To the extent the Commission

approves an electric rate increase for KCP&L, Mr. Goble's analysis understates the operating cost for electric appliances.

Q. DOES MR. GOBLE'S RESPONSE TO MGE DATA REQUEST 7-9 INDICATE THAT THE COMBINED SPACE AND WATER HEATING REBATE PROGRAM PRODUCES NET BENEFITS TO KCP&L ELECTRIC CUSTOMERS THAT SWITCH TO NATURAL GAS?

A. Yes. Mr. Goble's attachment to MGE Data Request 7-9 indicates that annual operating costs for the customer switching to natural gas space and water heating are $1,129.29 (including the monthly delivery charge of $26.88), while the annual operating costs for customer using electric space and water heating would be $1,152.16 (not including the monthly customer charge).

Q. MR. GOBLE ASSERTS THAT YOU HAVE NOT SUPPORTED CERTAIN ASSUMPTIONS, SUCH AS THE PERCENTAGE OF CUSTOMERS CHOOSING TO PARTICIPATE IN THE WATER HEATING REBATE PROGRAM AS COMPARED TO THE SPACE HEATING REBATE PROGRAM. WHAT IS YOUR RESPONSE?

A. As indicated in my direct testimony, this assumption was based on the experience of Puget Sound Energy, which implemented a similar fuel switching program in January 2009. PSE found that 85 percent of customers participated in the water heating rebate program, while 15 percent participated in the space heating rebate program during 2009. In a subsequent filing with the Washington Utilities and

Transportation Commission, PSE projected that the percentages in 2010/2011 would be 80 percent for water heating and 20 percent for space heating. Since 2009 represented the first year of PSE's fuel switching program, I thought that percentage best reflected what might be expected in Missouri during the first year of a similar program offering from KCP&L.

More importantly, whether Missouri's participation rates will be higher or lower can best be determined by implementing the program here and monitoring the results. All that I am recommending is that we give the market the chance to inform all of us about the level of customer participation that will develop.

Q. DO YOU HAVE ANY COMMENTS REGARDING MR. GOBLE'S BENEFIT/COST ANALYSES?

A. Mr. Goble indicates in his rebuttal testimony that he "attempted to estimate the required data in order to provide a very crude TRC test."[19] Mr. Goble also indicates that he conducted a Ratepayer Impact Measure test and a Total Participants test. Based on his TRC test calculation, Mr. Goble determines that the benefit/cost ratio for the water heating rebate program is only 0.5. Again, however, Mr. Goble fails to provide any supporting exhibits, schedules or other calculations that would allow the Commission or other parties to understand and verify his calculations. Mr. Goble's conclusions are both fully unsupported by

[19] Rebuttal testimony of Gary Goble, at page 26.

and contrary to the fully-supported calculations that other electric utilities have submitted in support of fuel switching programs.

Q. IF THE COMMISSION WISHES TO CONSIDER THE RESULTS OF A TRC TEST BEFORE IMPLEMENTING THE FUEL SWITCHING PROGRAM, WHAT SHOULD IT DO?

A. If the Commission determines that it requires more information before implementing the proposed fuel switching program on a permanent basis, it should move forward with a pilot program. Mr. Goble has acknowledged that KCP&L does not have company-specific energy consumption data for electric water heating and space heating equipment. A pilot program would allow the Commission to test the fuel switching program over a shorter time period (e.g., three years or during KCP&L's next rate case, whichever is later), and with a more limited number of customers (e.g., residential and multi-family customers who reside within the urban core of Kansas City), while gathering more information and assessing the energy savings and customer response to the program.

Q. MR. GOBLE ASSERTS THAT THE COMMISSION SHOULD BE CONCERNED ABOUT THE POTENTIAL FOR SIGNIFICANT AND SUDDEN CHANGES IN NATURAL GAS PRICES.[20] DO YOU HAVE SIMILAR CONCERNS ABOUT KCP&L'S ELECTRIC RATES?

[20] Ibid, at page 35.

A. Yes, I do. In light of the U.S. Environmental Protection Agency's stated intention to regulate carbon emissions, I would expect a significant impact on KCP&L's electric rates because the company's generation mix is approximately 80 percent coal. The average fuel cost per kilowatt hour for coal-fired generation is estimated at $0.0182 in 2010, while the average fuel cost for natural gas and oil generation is estimated at $0.0993.[21] These facts indicate that KCP&L faces a very uncertain future if it needs to rely less on its coal resources. By contrast, as indicated in my direct testimony, the available supply of natural gas resources has increased dramatically in the past few years, and new pipeline construction has enhanced pipeline transportation options.

[21] Great Plains Energy Inc., SEC 2009 Form 10-K, filed February 25, 2010, at page 8.

IV. CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. I recommend that the Commission approve a fuel switching program to be implemented by KCP&L as a cost effective way to promote energy efficiency and conservation by offering financial incentives to KCP&L customers to convert certain end-use applications such as water heating and space heating from electricity to natural gas. If the Commission determines that it requires more information before implementing the proposed fuel switching program on a permanent, full-scale basis, I recommend that the Commission approve a pilot program under which KCP&L would offer the proposed customer rebates to residential and multi-family electric customers residing within the urban core of Kansas City. The Commission could then review the results of the pilot program after three years or during KCP&L's next rate case, whichever is later. Finally, in the event the Commission determines that this issue would be more appropriately addressed in a different docket (e.g., KCP&L's Integrated Resource Planning docket, a Demand Side Management related docket, a rulemaking docket, etc.), I ask that the Commission issue an Order identifying the docket which it deems most appropriate to consider the proposed fuel switching program.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL 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 for Approval to Make Certain Changes in its Charges for Electric Service to Continue the Implementation of its Regulatory Plan	))))))	ER-2010-0355

AFFIDAVIT OF JOHN J. REED

COMMONWEALTH OF MASSACHUSETTS COUNTY OF MIDDLESEX	)))	ss.

John J. Reed, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Surrebuttal Testimony in question and answer form, to be presented in the above case; that the answers in the foregoing Surrebuttal 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.

JOHN J. REED

Subscribed and sworn to before me this 4th day of January 2011.

Joanne P. Bickford
Notary Public

My Commission Expires: Oct. 15, 2015

JOANNE P. BICKFORD
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS
MY COMMISSION EXPIRES
OCTOBER 15, 2015

DSM Programs Offered by Other Utilities with Fuel Switching

Puget Sound Energy

Customer Category	Target	Program
Residential	Information Services	On-line tools and customer management system
		Energy Advisors
		Energy Efficiency Brochures
		Electronic Newsletters
		Community events/trade shows
Residential	Low Income Weatherization	Customer incentives - single family
		Retrofit - multi-family
Residential	Energy Education	
Residential	Single Family Existing	Retail incentive for lighting and appliances
		Appliance decommissioning
		Installation of CFL bulbs and efficient showerheads
		Home performance evaluations
		Rebates for efficient heating and water heating equipment
		Discounted and rebated weatherization
Residential	Single Family New Construction	Incentives to customers, service contractors, retail partners, equipment suppliers, distributors and manufacturers
Residential	Fuel Conversion	Incentives for conversions from electric to gas water heaters and space heating equipment
Residential	Multi-Family Existing	Financial incentives for energy efficient equipment installed in multi-family buildings (condos and apartments)
Residential	Multi-Family New Construction	Incentives to owners and developers for installation of energy efficient measures into new multi-family buildings
Pilot Programs	Various	Promote efficient TV sales at retailers
		Heat Pump Air Handler/Furnace Fan Motor Upgrade
		Heat Pump Sizing and Lock Out Controls
		High Efficiency Natual Gas Fireplace
		Home Intelligence/Automation
		IC- and WAC- rated CFL fixtures
		Community education about CFL bulbs
		Micro-Combined Heat and Power System
		Home Energy Reports

DSM Programs Offered by Other Utilities with Fuel Switching

Customer Category	Target	Program
Pilot Programs	Various	Prepay Billing System
		Residential Grants for energy retrofit projects
Commercial/Industrial	Retrofit	Review energy consumption at customer facility
		Assess cost effective energy savings opportunities
		Assess fuel switching opportunities
		Grants toward energy savings projects
	Incentives	Commissioning of existing buildings
		Commercial and industrial process improvement
		Energy use monitoring
Commercial/Industrial	New Construction	Propose cost effective energy efficient designs
		Propose cost effective equipment and systems
		Incentives for exceeding building code by at least 10%
Commercial/Industrial	Resource Conservation Manager	Large customer with multiple facilities
		Program start-up, Resource Accounting Software
		Technical Assistance, Education and Training,
		Energy Data Services, Incentive Programs
Commercial/industrial	Small Business Lighting	Prescriptive rebates for lighting retrofits
Commercial/Industrial	LED Traffic Signals	Public sector customer education on benefits of installation
Commercial/Industrial	Large Power User Self-Directed	Electric energy efficiency measures through RFP process
		Customer proposed custom EE measures
Commercial/Industrial	Incentives	Fixed rebates for installing specific electric and gas efficiency measures in commercial buildings such as high efficiency HVAC
Other Electric		Net Metering for customer generators
		Production Metering for customer generators
		Small Scale Renewable Electricity Generation
		Demand Response Pilots

DSM Programs Offered by Other Utilities with Fuel Switching

CenterPoint - Texas

Customer Category	Target	Program
Residential	New Construction	Incentives to builders for constructing ENERGY STAR homes Training, education, and avertising also included
Commercial	Standard Offer Program	Incentives to large commercial customers with minimum demand of 100 KW for installation of measures in new or retrofit applications
Residential	Standard Offer Program	Incentives to residential customers with maximum demand of less than 100 KW for installation of certain measures in new or retrofit applications including air conditioning duct sealing weatherization, ceiling insulation, water saving measures, and ENERGY STAR windows.
Residential	Hard to Reach Standard Offer	Incentives to project sponsors for installing certain measures which provide verifiable demand and energy savings to customers whose household income is less than 200% of federal poverty guidelines. Qualifying measures include those in Residential SOP plus CFL bulbs.
Commercial	Retro-Commissioning	No-cost or low-cost measures to reduce demand and energy usage in commercial facilities.
Residential	Multi-Family	Promote installation of energy efficient non-electric water and space heating equipment in multi-family buildings.
Residential	City of Houston	Energy efficiency retrofits that target whole neighborhoods of both hard to reach and non-hard to reach customers.
Residential	Low Income	Community agencies install energy efficiency measures in low-income households, including attic insulation, solar screens, CFL bulbs, ENERGY STAR room air conditioners, ENERGY STAR ceiling fans, ENERGY STAR refrigerators, duct efficiency improvement, and air infiltration control.
Residential	Low Income	Non-profit agency installs ceiling insulation and CFLs in low-income households.
Commercial/Industrial	Incentives	Promotes installation of energy efficiency measures to school administrators and city planners.

DSM Programs Offered by Other Utilities with Fuel Switching

Customer Category	Target	Program
Residential/Small Comm	Incentives	Paid to air conditioning distributors and dealers to facilitate installation of high-efficiency air conditioners and heat pumps in single family homes, multi-family homes, and small commercial businesses.
Commercial	Load Management	Call for curtailment when ERCOT reaches Step 3 emergency conditions. Incentives will be paid to non-residential, governmental, educational, and non-profit customers for each KW they curtail during emergency conditions.
R&D Projects		Commercial LED lighting program Residential/small commercial back-up load management project Residentail feedback demonstration project City of Houston dasboard project - monitor energy usage Solar energy pilot project Renewable energy intregration with Smart Grid project Residential direct load control Plug-in electric vehicle charging demonstration project

DSM Programs Offered by Other Utilities with Fuel Switching

Avista Corporation

Customer Category	Target	Program
Residential	Single family - electric	Rebates for purchase/installation of Energy Star appliances
		Rebates for home weatherization - insulation and windows
	Residential - new construction	Energy Star homes
		Shade Tree program
		Space and Water Heat Direct Use Efficiency - fuel conversion
		Rebates for water heater efficiency
		Refrigerator/freezer recycling
		CFL bulbs - geographic saturation
		CFL bulbs - PECI buy down
		Heating and cooling efficiency
	Multi-family	UCONS
Residential	Single family - natural gas	Energy efficient appliance rebates
		Home weatherization rebates
	Residential new construction	Energy Star homes
		Water heater efficiency rebates
		Heating and cooling efficiency
	Multi-family	UCONS
		Site specific
Low Income	Electric	Energy efficient appliance rebates
		CFLs for seniors
		Home weatherization rebates
		Space and Water Heat Direct Use Efficiency - fuel conversion
		Water heater efficiency rebates
		Heating and cooling efficiency
	Natural Gas	Purchase/installation of Energy Star products
		Home weatherization rebates
		Water heater efficiency rebates
		Heating and cooling efficiency
Non-residential	Electric	Purchase/nstallation of Energy Star products
		EnergySmart - rebates for refrigeration systems
		Green Motors Initiative - Motor rewind
		Prescriptive Clothes Washers

DSM Programs Offered by Other Utilities with Fuel Switching

Customer Category	Target	Program
		Prescriptive Demand Controlled Ventilation
		Prescriptive Food Service
		Prescriptive LED traffic signals
		Prescriptive Lighting
		Presrciptive Motors
		Prescriptive PC Network Controls
		Prescriptive Refrigerated Warehouse
		Prescriptive Side-stream Filtration
		Renewable
		Rooftop Maintenance
		NEEA 80+
		Site-specific Appliances
		Site-specific Compressed Air
		Site-specific HVAC
		Site-specific Industrial Process
		Site-specific LEED certification
		Site-specific Lighting
		Site-specific Motors
		Site-specific Shell
Non-residential	Natural Gas	Purchase/installation of Energy Star products
		EnergySmart - rebates for refrigeration systems
		Presrciptive Clothes Washers
		Prescriptive Demand Controlled Ventilation
		Prescriptive Food Service
		Prescriptive Refrigerated Warehouse
		Prescriptive Steam Trap Replacement
		Site-specific Appliances
		Site-specific HVAC
		Site -specific Industrial Process
		Site-specific Shell

Schedule JJR-SUR2
Corrects Schedule JJR-1

Annual Operating Cost Savings: Water Heating and Space Heating

Water Heating

	Consumption MMBtu	Price	Operating Cost	Source - Consumption Data
Gas	25.40	$ 11.35	$ 288.29	AGA study
Electric	16.60	$ 27.74	$ 460.48	AGA study
Savings			$ 172.19	

Space Heating

	Consumption MMBtu	Price	Operating Cost	Source - Consumption Data
Gas	74.30	$ 11.35	$ 843.31	AGA study
Electric	61.40	$ 22.46	$ 1,379.04	AGA study
Savings			$ 535.74	

Gas Price Calculation

MGE	Revenue	Mcf	Cost / Mcf	Source
2009	$ 473,442,858	39,495,114	$ 11.9874	MGE data request
2008	$ 404,043,071	36,182,498	$ 11.1668	MGE data request
2010 (thru Sept)	$ 303,339,279	28,338,007	$ 10.7043	MGE data request
	$ 1,180,825,208	104,015,619	$ 11.3524	

Electric Space Heating Price Calculation

KCP&L	Revenue	Mwh	Cost / Kwh	Source
Electric Heat	$ 37,186,093	482,136	$ 0.0771	2009 FERC Form 1, p 304
Electric Heat sep Meter	$ 10,573,009	141,007	$ 0.0750	2009 FERC Form 1, p 304
Average	$ 47,759,102	623,143	$ 0.0766	
Convert Kwh to MMBtu			0.003412	
Rate per MMBtu			$ 22.46	

Electric Water Heating Price Calculation

KCP&L	Revenue	Mwh	Cost / Kwh	Source
Electric residential standard	$ 174,570,150	1,844,083	$ 0.0947	2009 FERC Form 1, p 304
Convert Kwh to MMBtu			0.003412	
Rate per MMBtu			$ 27.74	

Estimated Customer Savings: Conversion/Installation, Appliance Upgrade, and Annual Operating Savings

Customer Savings - Gas Water Heater		Estimate	Source
Service Line to Customer Premise	$	-	No cost if < 60 feet
Rebate - Conversion/Installation	$	700	KCP&L
Rebate - Energy Star Gas Furnace	$	40	MGE
Annual Operating Savings	$	172	Schedule JJR-R2

Customer Savings - Gas Furnace vs. Electric Resistance Heat		Estimate	Source
Service Line to Customer Premise	$	-	No cost if < 60 feet
Rebate - Conversion/Installation	$	1,000	KCP&L
Rebate - Energy Star Gas Furnace	$	200	MGE
Annual Operating Savings	$	536	Schedule JJR-R2

Customer Savings - Gas Water Heater and Gas Furnace		Estimate	Source
Service Line to Customer Premise	$	-	No cost if < 60 feet
Rebate - Conversion/Installation	$	1,200	KCP&L
Rebate - Energy Star Water Heater and Gas Furnace	$	240	MGE
Annual Operating Savings	$	708	Schedule JJR-R2

NP Schedule JJR-SUR4
Corrects Schedule JJR-5

Customer Payback Period - Water Heating and Space Heating

Customer Payback Period - Gas Water Heater	Estimate	Source
Out of Pocket Costs:		
Service Line Cost	$ -	MGE
Conversion/Installation Cost	$ ***	Cost minus KCP&L rebate
Equipment Cost	$ 560	Cost minus MGE rebate
Annual Operating Savings	$ 172	Schedule JJR-R2
Payback Period (years)	***	Calculation

Customer Payback Period - Gas Furnace vs. Electric Resistance Heat	Estimate	Source
Out of Pocket Costs:		
Service Line Cost	$ -	MGE
Conversion/Installation Cost	$ ***	Cost minus KCP&L rebate
Equipment Cost	$ 1,700	Cost minus MGE rebate
Annual Operating Savings - vs. electric resistance heat	$ 536	Schedule JJR-R2
Payback Period (years) - vs electric resistance heat	***	Calculation

Customer Payback Period - Water Heater & Gas Furnace	Estimate	Source
Out of Pocket Costs:		
Service Line Cost	$ -	MGE
Conversion/Installation Cost	$ ***	Cost minus KCP&L rebate
Equipment Cost - Water Heater	$ 560	Cost minus MGE rebate
Equipment Cost - Furnace	$ 1,700	MGE rebate
Annual Operating Savings - Water heater	$ 172	Schedule JJR-R2
Annual Operating Savings - Furance	$ 533	Schedule JJR-R2
Payback Period (years)	***	Calculation

Company Name: KCPL MO
Case Description: 2010 KCPL Rate Case
Case: ER-2010-0355

Response to Data Request – Set MGE_20101214
Date of Response: 12/27/2010

Question No. :7-9
Please provide a copy of the computation Gary L. Goble refers to at page24, lines 15-16, of his Rebuttal Testimony.

RESPONSE:

Attached is the requested information. As a point of clarification, please note that the purpose and intent of this schedule is to demonstrate that the results of MGE witness Mr. Reed's analysis are neither accurate nor reliable. Mr. Goble's schedules are not offered as proof of the costs and benefits of the various tests, but to demonstrate that using Mr. Reed's analyses with corrections to known errors fails to support MGE's proposed fuel switching proposal. Mr. Goble has modified Mr. Reed's analyses to rebut the conclusions reached by Mr. Reed that the benefits exceed the costs of electric to gas substitution proposal. However, neither Mr. Goble nor KCP&L believe that the usage amounts employed in the attachment are accurate representations of KCP&L data. Mr. Goble has employed these amounts merely to illustrate the problems with Mr. Reed's analyses. As stated by Mr. Goble on page 17, lines 7-16:

> *The data are neither accurate nor reliable as described in Section IV below, most of the information employed by MGE witness Mr. Reed in support of his recommendations relies upon data that does not represent KCP&L's service territory, KCP&L's operating characteristics, or KCP&L customer characteristics. Numerous parties have identified serious flaws in the use of this information. In my opinion, the quality and accuracy of the data and analyses employed by Mr. Reed are unreliable that the results of these analyses are not credible. The potential consequences of adopting MGE's proposed subsidy are sufficiently great that it would be imprudent to rely upon unreliable and erroneous data to support such an action by the Commission.*

Attachment:
Q7-9 Cost Savings.pdf
Q7-9 MO Verification.pdf

Kansas City Power and Light
Electric to Gas Substitution
Simplified Example of First Year Rate Payer Cost Savings
Water Heating and Space Heating
NOTE: THE DATA BELOW ARE INTENDED ONLY TO ADDRESS MGE'S ANALYSES.
THESE DATA DO NOT REFLECT THE ACTUAL USAGE OF KCP&L CONSUMERS.

Water Heating

	Consumption {2}{3}		Price {1}		Operating Cost
Gas - CGA Charge/ MMBtu	25.40	$	8.09	$	205.53
Delivery Charge, Monthly		$	26.88	$	322.56
Total Gas				$	528.09
Electric/kWh	4,865	$	0.0658	$	320.29
Savings				$	(207.79)

Space Heating (w/o Water Heating)

	Consumption {2}{3}		Price {1}		Operating Cost
Gas /MMBtu	74.30	$	8.09	$	601.20
Delivery Charge, Monthly			$26.88	$	322.56
Total Gas				$	923.76
Electric /KWh	17,986	$	0.0463	$	831.87
Savings				$	(91.89)

Space Heating (Incremental to Water Heating)

	Consumption {2}{3}		Price {1}		Operating Cost
Gas /MMBtu	74.30	$	8.09	$	601.20
Electric /KWh	17,986	$	0.0463	$	831.87
Savings				$	230.67

NOTES:
1. Source: Gas prices based on current MGE Tariff and 10/13/10 proposed CGA
Electric prices based on weighted average of seasonal rates for space and water heating rates in current KCPL tariff.
2. Gas MMBtu consumption numbers obtained from Reed's Table 1, page 10.
3. Electric consumptions are calculated by converting the gas MMBtu into kWh using a ratio of 0.003412 kWh/MMBtu. These values do not reflect the actual consumption observed by KCP&L customers.

Schedule-JJR-SUR5
Corrects Schedule JJR-7

Effect of Fuel Switching Program on KCP&L Revenues

Effect on KCP&L		Estimate	Source
Lower distribution revenue from 400 customers	$	239,306	See Below
Lower distribution revenues			
Annual cost to operate electric water heater	$	460.48	Schedule JJR-R2
Customers converting from electric to natural gas water heater		340	
Lower revenue from water heating	$	156,563	
Annaul cost to operate electric resistance heat	$	1,379.04	Schedule JJR-R2
Electric resistance heat		60	
Lower revenue from space heating	$	82,742	
Total lower revenue from water heating and space heating	$	239,306	
2009 Electric Revenue - Missouri	$	632,686,000	2009 FERC Form-1
% Lower Revenue		0.038%	