

**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**

## **TABLE OF CONTENTS**

I.	INTRODUCTION OF WITNESS AND PURPOSE OF TESTIMONY .....	1
II.	RESPONSE TO REBUTTAL TESTIMONY OF MR. JOHN ROGERS.....	3
III.	RESPONSE TO THE REBUTTAL TESTIMONY OF MR. GARY GOBLE.....	8
IV.	CONCLUSIONS AND RECOMMENDATIONS.....	32

1           **I.       INTRODUCTION OF WITNESS AND PURPOSE OF TESTIMONY**

2

3           **Q.       PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

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

6

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

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

11

12          **Q.       WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

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

18

19          **Q.       PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

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

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

8  
9 **Q. HOW IS THE REMAINDER OF YOUR SURREBUTTAL TESTIMONY**  
10 **ORGANIZED?**

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

15

1       **II.       RESPONSE TO REBUTTAL TESTIMONY OF MR. JOHN ROGERS**

2

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

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

15

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

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

1 method to evaluate the cost effectiveness of DSM programs. Mr. Rogers also  
2 expressed concerns with the fact that the fuel switching program is being  
3 proposed by MGE, which is a KCP&L competitor.  
4

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

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

1

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

7 A. Mr. Rogers asserts that the experience in other jurisdictions may not be relevant in  
8 Missouri because several of the states which have adopted fuel switching  
9 programs are served by electric utilities that are winter peaking. As a result, Mr.  
10 Rogers contends that a fuel switching program for certain end-use applications  
11 such as water heating and space heating would not be expected to contribute  
12 toward a reduction in generation, transmission or capacity requirements. While I  
13 agree with Mr. Rogers that the fuel switching proposal described in my direct  
14 testimony might be more effective where the electric utility's peak occurs during  
15 the winter, Mr. Rogers fails to consider that water heating is a baseload activity  
16 that would impact electric generation and transmission requirements. Further, the  
17 fuel switching program offered by CenterPoint in Texas, a summer-peaking  
18 utility, has been quite effective at producing demand reduction and energy  
19 savings. Specifically, under CenterPoint's Multi-Family Water and Space  
20 Heating Program, 7,200 units have been converted to natural gas since 2004. In  
21 2009, this program produced verified energy savings of 2,957 MWh and demand  
22 reduction of 0.63 MW. The corresponding figures for 2008 were 3,174 MWh and  
23 0.53 MW.

1

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

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

16

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

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

1 be approved and implemented by KCP&L, regardless of who proposed the  
2 program. Simply put, the origin of the program has no bearing whatsoever on  
3 whether it is in the public interest.  
4

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

7 A. Yes. Mr. Rogers indicates that the approved fuel switching programs which were  
8 described in my direct testimony involve combination electric/gas utilities, so that  
9 the utility is simply encouraging its customers to switch from electricity to natural  
10 gas. However, as explained in my direct testimony, some of these programs  
11 provide the same financial incentives to electric customers who are served by a  
12 different gas utility. For example, Puget Sound Energy's electric customers are  
13 eligible for a financial incentive for switching to Cascade Natural Gas, and  
14 CenterPoint's electric customers may qualify for customer rebates for switching  
15 to Texas Gas Service. More importantly, however, the respective Commissions  
16 have approved the fuel switching programs because the utility has demonstrated  
17 that the programs are cost effective and in the public interest.  
18

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

2

3     **Q.     PLEASE SUMMARIZE MR. GOBLE’S REBUTTAL TESTIMONY.**

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

22

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

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

14

15 **Q. HOW IS YOUR REPOSENSE TO MR. GOBLE'S REBUTTAL TESTIMONY**  
16 **ORGANIZED?**

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

23

1           A.     *Regulatory Policy Considerations*

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

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

---

<sup>1</sup> Rebuttal testimony of Gary Goble, at page 4.

<sup>2</sup> *Ibid.*, at page 6.

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

15  
16 **Q. DO YOU AGREE WITH MR. GOBLE THAT APPROVAL OF THE**  
17 **PROPOSED FUEL SWITCHING PROGRAM WOULD BE A SIGN THAT**  
18 **THE COMMISSION IS LIMITING COMPETITION OR FAVORING**  
19 **NATURAL GAS OVER ELECTRICITY?**

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

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

7  
8 The National Regulatory Research Institute (“NRRI”) report that Mr. Goble cites,  
9 “Electric to Gas Substitution: What Should Regulators Do?,” provides a good  
10 overview of the circumstances under which regulators should intervene to help  
11 promote more rational and efficient customer choices. These circumstances,  
12 which have long been used to support the policy rationale for energy efficiency  
13 and renewable energy programs, include:

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

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

3                   7. Home builders choosing appliances tend to focus on the initial  
4                   installation cost, not the life-cycle cost.<sup>3</sup>

5  
6                   The proposed fuel switching program would enhance consumer choice, not limit  
7                   competition in the energy markets, because consumers would have the  
8                   information necessary to make an informed decision and there would be a  
9                   financial incentive available to reduce the upfront cost associated with converting  
10                  from electricity to natural gas.

11  
12   **Q.   DO YOU AGREE WITH MR. GOBLE THAT THE COMMISSION**  
13   **SHOULD WAIT UNTIL THERE IS MORE CLARITY AT THE**  
14   **NATIONAL LEVEL REGARDING ADOPTION OF THE FULL-FUEL-**  
15   **CYCLE APPROACH?**

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

22  

---

<sup>3</sup>           “Electric to Gas Substitution: What Should Regulators Do?,” National Regulatory Research  
            Institute, Ken Costello, May 29, 2009, at pages 8-9.

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

6  
7 **Q. WHAT IS THE CURRENT STATUS OF THE RULEMAKING IN WHICH**  
8 **THE DEPARTMENT OF ENERGY IS CONSIDERING THE NATIONAL**  
9 **ACADEMY OF SCIENCES' RECOMMENDATION TO ADOPT THE**  
10 **FULL-FUEL-CYCLE APPROACH TO MEASURE ENERGY**  
11 **CONSUMPTION?**

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

18  
19 **Q. IS IT NECESSARY FOR THE COMMISSION TO ADOPT THE FULL-**  
20 **FUEL-CYCLE METHOD BEFORE IT CAN APPROVE THE PROPOSED**  
21 **FUEL SWITCHING PROGRAM?**

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

1 method of evaluating energy consumption before approving the fuel switching  
2 programs for CenterPoint and Puget Sound Energy, respectively. Similarly, the  
3 Connecticut Department of Public Utility Control (“DPUC”) recently endorsed  
4 the concept of fuel switching for electric utilities in the 2010 Integrated Resource  
5 Planning docket, but the DPUC order did not mention anything concerning the  
6 adoption of the full-fuel-cycle method.<sup>4</sup>

7  
8 **Q. DO YOU AGREE WITH MR. GOBLE THAT APPROVAL OF THE**  
9 **PROPOSED FUEL SWITCHING PROGRAM WOULD REQUIRE A RE-**  
10 **EVALUATION OF KCP&L’S CURRENT DSM PROGRAMS?**

11 A. No, I do not. This would appear to be an ideal time to consider implementation of  
12 new DSM measures such as fuel switching because my understanding is that  
13 KCP&L’s current DSM programs, which took effect in 2006, are scheduled to  
14 expire on December 31, 2010. It is not clear whether KCP&L will continue to  
15 offer these programs in 2011 without an order from the Commission extending  
16 the deadline contained in the KCP&L tariff. Even if KCP&L’s current DSM  
17 programs are extended for some period of time, it appears that the Commission  
18 will need to review these programs in the context of Senate Bill 376 and the  
19 rulemaking that has occurred as a result of that legislation. My conclusion is that  
20 this is an opportune time for the Commission to re-examine the DSM programs  
21 currently offered by KCP&L and to determine whether the individual measures  
22

---

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

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

4

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

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

14

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

23

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

5 A. No, I do not. My direct testimony provides several examples of electric utilities  
6 that have implemented fuel switching programs after receiving regulatory  
7 approval. I acknowledge that fuel switching programs are just beginning to gain  
8 traction, and I agree with Mr. Rogers that there is growing momentum for fuel  
9 switching programs across the country. For example, the Connecticut Department  
10 of Public Utility Control (“DPUC”) recently issued a decision in its review of the  
11 2010 Integrated Resource Plan docket for the states’ electric utilities in which the  
12 Commission endorsed the concept of fuel switching. The DPUC wrote:

13 The traditional approach to conservation and load management has  
14 not focused on determining the most efficient use of the fuel  
15 needed to power end use equipment or the environmental impact of  
16 these decisions. Instead, as the Chiller Retirement Initiative  
17 demonstrates, energy efficiency has meant reducing the electricity  
18 needed to power electric equipment. The current energy  
19 environment and cultural shift noted above demands that we  
20 modify our approach and look to determine the most efficient use  
21 of the fuel used to power our needs. Fuel switching must be  
22 examined to achieve this benefit. Therefore, a comparison of the  
23 costs and benefits of alternate fuels (where applicable) must be  
24 integrated into the review of C&LM [Conservation and Load  
25 Management] activity.<sup>5</sup>  
26

---

<sup>5</sup> *Ibid.*, at page 58.

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

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

22

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

8  
9           **Q.    DO YOU AGREE WITH MR. GOBLE’S STATEMENTS REGARDING**  
10           **THE RELATIVE ENVIRONMENTAL IMPACT OF NATURAL GAS AND**  
11           **ELECTRICITY?**

12          A.    I agree with Mr. Goble that “the CO<sub>2</sub> emissions of natural gas are lower than for  
13           the coal generation of electricity.”<sup>6</sup> However, I strongly disagree with Mr. Goble  
14           regarding the environmental impact of electric generation, especially coal-fired  
15           generation. According to the EIA, “In 2008, 41 percent of total CO<sub>2</sub> emissions  
16           came from electricity generation. With its high carbon content and 48 percent  
17           share of generation, coal accounted for 82 percent of power sector CO<sub>2</sub>  
18           emissions.”<sup>7</sup>

19  
20          **Q.    DO YOU AGREE WITH MR. GOBLE’S CRITICISM OF YOUR**  
21           **ANALYSIS OF THE RELATIVE MERITS OF NATURAL GAS IN**

---

<sup>6</sup> Rebuttal testimony of Gary Goble, at page 11.

<sup>7</sup> U.S. Energy Information Administration, Annual Energy Outlook 2010, April 2010, at page 82.

1           **TERMS OF ITS ENVIRONMENTAL IMPACT COMPARED TO**  
2           **ELECTRICITY?**

3       A.    No, I do not. Mr. Goble criticizes my analysis as not being specific to the  
4           circumstances in Missouri. In response to Mr. Goble’s criticism, I note that Table  
5           6 in my direct testimony provides the generation mix for KCP&L<sup>8</sup>, and my direct  
6           testimony indicates that the CO<sub>2</sub> emissions produced by KCP&L in Missouri are  
7           approximately 17 million tons per year.<sup>9</sup> As further support for my position, a  
8           report by the Gas Technology Institute allows for comparison of the emissions  
9           produced by natural gas and electric water heaters in Missouri. Table 1  
10          demonstrates that the energy required for electric water heaters produces  
11          significantly more emissions than the energy required for natural gas water  
12          heaters in each of the reported categories.

13                           **Table 1: Water Heater Source Emissions in Missouri<sup>10</sup>**

Emissions Type	Electric	Natural Gas	% Reduction vs. Electric
CO <sub>2</sub> (lb)	7,937	2,668	66.4%
SO <sub>2</sub> (lb)	27.86	0.55	98.0%
NO <sub>x</sub> (lb)	13.32	2.17	83.7%

14  
15           Mr. Goble also states that “CO<sub>2</sub> emissions that would have occurred at a remotely  
16           located generation station will now be imported to the appliance site, i.e., to the

---

<sup>8</sup> Direct testimony of John J. Reed, at page 14.  
<sup>9</sup> Ibid, at page 15.  
<sup>10</sup> “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.

1 residential consumer's home,"<sup>11</sup> and that the remote generation station's "location  
2 was carefully chosen as the most advantageous site for any emissions to occur."<sup>12</sup>  
3 These statements display a remarkable misunderstanding of the environmental  
4 issues associated with CO<sub>2</sub>. A ton of CO<sub>2</sub> emitted into the atmosphere in a remote  
5 corner of Missouri, or in downtown Kansas City, has the exact same effects in  
6 terms of climate change. Unlike the other adverse consequences of coal  
7 combustion, location and proximity to the human population have no  
8 consequence whatsoever to CO<sub>2</sub> emissions.  
9

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

12 A. No, I do not. As indicated in my direct testimony, the revenue impact for KCP&L  
13 would be a reduction of approximately 0.40 percent of 2009 electric operating  
14 revenues in Missouri.<sup>13</sup> Contrary to Mr. Goble's assertion that MGE's proposal  
15 has not considered the effect on KCP&L revenue, I indicated in my direct  
16 testimony that MGE fully supports either a revenue decoupling mechanism or  
17 straight-fixed variable rate design which would make this proposal revenue  
18 neutral for KCP&L in terms of cost recovery.  
19

---

<sup>11</sup> Rebuttal testimony of Gary Goble, at pages 10-11.

<sup>12</sup> Ibid, at page 29.

<sup>13</sup> Direct testimony of John J. Reed, at page 33.

1           *B.       Economic analyses in support of proposed fuel switching program*

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

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

15  
16   **Q.   DO THE OPERATING COST SAVINGS CALCULATIONS IN YOUR**  
17       **DIRECT TESTIMONY CONTAIN AN ERROR?**

18   A.   Yes, the volume conversion factors were not carried through properly on  
19       Schedule JJR-1 to my direct testimony. This also affects Schedules JJR-4, JJR-5,  
20       and JJR-7. This error was detected just after my direct testimony was filed on  
21       November 10, 2010, and was corrected when my corresponding direct testimony  
22       was filed on November 17, 2010 in the companion docket, Case No. ER-2010-  
23       0356, which is the electric rate case filed by KCP&L Greater Missouri

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

5  
6 When I apply the correct method for calculating the operating cost savings, the  
7 results are only slightly different. Specifically, the annual operating cost savings  
8 for water heating decrease by \$6 (to \$172), while the annual operating cost  
9 savings for space heating increase by \$29 (to \$536). The corrected calculations  
10 continue to support fully the proposition that the proposed fuel switching program  
11 will allow participants to reduce their annual energy bills. This correction to  
12 Schedule JJR-1 also resolves Mr. Goble's concern regarding double counting of  
13 energy losses.

14

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

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

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

11

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

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

20

---

<sup>14</sup> Rebuttal testimony of Gary Goble, at page 21.

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

1

**Table 2: Energy Consumption – Water Heating**

Data Source	Region	Gas (MMBtu)	Electric (kWh)
AGA Report – 2009 <sup>16</sup>	Nationwide	25.4	4,865
ENERGY STAR – Final Criteria Analysis	Nationwide	26.1	4,857
US DOE, EERE <sup>17</sup>	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

2

3

4

5

6

7

8

9

10

11

12

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.

---

<sup>16</sup> The AGA report is the source for the consumption data that were used to develop Schedule JJR-SUR2.

<sup>17</sup> Energy consumption is estimated using the DOE, EERE test procedure based on the following formula:  $365 \times 12.03/EF$ , assuming an electric resistance water heater EF of 0.90.

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

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

16

---

<sup>18</sup> 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.

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

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

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

3

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

8 A. Yes. Mr. Goble's attachment to MGE Data Request 7-9 indicates that annual  
9 operating costs for the customer switching to natural gas space and water heating  
10 are \$1,129.29 (including the monthly delivery charge of \$26.88), while the annual  
11 operating costs for customer using electric space and water heating would be  
12 \$1,152.16 (not including the monthly customer charge).

13

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

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

1 Transportation Commission, PSE projected that the percentages in 2010/2011  
2 would be 80 percent for water heating and 20 percent for space heating. Since  
3 2009 represented the first year of PSE's fuel switching program, I thought that  
4 percentage best reflected what might be expected in Missouri during the first year  
5 of a similar program offering from KCP&L.

6  
7 More importantly, whether Missouri's participation rates will be higher or lower  
8 can best be determined by implementing the program here and monitoring the  
9 results. All that I am recommending is that we give the market the chance to  
10 inform all of us about the level of customer participation that will develop.

11  
12 **Q. DO YOU HAVE ANY COMMENTS REGARDING MR. GOBLE'S**  
13 **BENEFIT/COST ANALYSES?**

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

---

<sup>19</sup> Rebuttal testimony of Gary Goble, at page 26.

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

3  
4 **Q. IF THE COMMISSION WISHES TO CONSIDER THE RESULTS OF A**  
5 **TRC TEST BEFORE IMPLEMENTING THE FUEL SWITCHING**  
6 **PROGRAM, WHAT SHOULD IT DO?**

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

18  
19 **Q. MR. GOBLE ASSERTS THAT THE COMMISSION SHOULD BE**  
20 **CONCERNED ABOUT THE POTENTIAL FOR SIGNIFICANT AND**  
21 **SUDDEN CHANGES IN NATURAL GAS PRICES.<sup>20</sup> DO YOU HAVE**  
22 **SIMILAR CONCERNS ABOUT KCP&L'S ELECTRIC RATES?**

---

<sup>20</sup> Ibid, at page 35.

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

11

---

<sup>21</sup> Great Plains Energy Inc., SEC 2009 Form 10-K, filed February 25, 2010, at page 8.

1                                   **IV. CONCLUSIONS AND RECOMMENDATIONS**

2  
3   **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

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

20  
21   **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

22   A. Yes, it does.