

**MISSOURI PUBLIC SERVICE COMMISSION**

**DOCKET NO. ER-2010-0356**

**SURREBUTTAL TESTIMONY**

**OF**

**JOHN J. REED**

**Submitted On Behalf**

**Of**

**SOUTHERN UNION COMPANY**

**D/B/A MISSOURI GAS ENERGY**

**JANUARY 12, 2011**

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Exhibit GMO-2203

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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 KCP&L Greater Missouri Operations ("GMO").  
16                  This testimony is supported by the analyses contained in Schedules JJR-SUR1  
17                  through JJR-SUR2.

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 GMO as a cost effective way to promote energy efficiency  
23                  and conservation by offering financial incentives to GMO 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 GMO 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 St. Joseph, Missouri.

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 GMO witness, Mr. Gary Goble, and in  
14 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 GMO, 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 GMO 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 GMO is not required to make another IRP filing  
15 until August 2012, 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 GMO should offer the proposed financial incentives to its customers, it is not  
22 evident from the Chapter 22 rules that GMO would be required to implement this  
23 DSM measure.

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**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 GMO 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.

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 GMO?**

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 GMO, regardless of who proposed the program.  
2 Simply put, the origin of the program has no bearing whatsoever on whether it is  
3 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 GMO's shareholders because the utility would not be able to  
19          recover its fixed costs and earn its authorized return, and would result in increased  
20          rates for electric customers because the revenue requirement would be spread  
21          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 GMO, its shareholders, or its  
8 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 GMO. From my perspective, the issues before the Commission  
11 are: (1) Is the proposed fuel switching program a cost effective use of GMO's  
12 DSM dollars?, and (2) Is the proposed fuel switching program in the public  
13 interest?

14

15 **Q. HOW IS YOUR RESPONSE 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 GMO's DSM programs in Missouri, while the second part of  
20 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 GMO'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.

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<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 GMO's electric customers a  
9           financial incentive to purchase and install certain appliances such as natural gas  
10          water heaters and natural gas furnaces if the customer believes that natural gas is  
11          the right fuel for that particular end-use application(s). Presumably customers  
12          would only choose to participate in the rebate program if they believe that it  
13          provides net benefits in terms of cost savings, reduced energy consumption, and  
14          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 GMO 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

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<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 GMO'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 GMO’S CURRENT DSM PROGRAMS?**

11 A. No, I do not. However, this would appear to be an ideal time to consider  
12 implementation of new DSM measures such as fuel switching for several reasons.  
13 First, the Commission has the opportunity to re-evaluate GMO’s current DSM  
14 programs in the context of Senate Bill 376 and the rulemaking that has occurred  
15 as a result of that legislation. Second, my understanding is that GMO’s current  
16 DSM programs were adopted as part of its last preferred resource plan (Case No.  
17 EE-2009-0237), but that GMO has expressed concern that it may not continue to  
18 invest in DSM programs at the planned levels unless the Company receives  
19 approval of different DSM cost recovery mechanisms. According to Staff witness  
20 Rogers, GMO was expected to make a revised Chapter 22 compliance filing on  
21 December 17, 2010, which might include some changes to GMO’s plans for its

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<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 DSM programs.<sup>5</sup> GMO requested an extension to file its revised Chapter 22  
2 compliance filing until January 18, 2011. The current status of GMO's resource  
3 plan affords the Commission the opportunity to re-examine GMO's current DSM  
4 programs and to determine whether the individual measures should be modified,  
5 whether new measures should be added, whether the DSM program budget should  
6 be expanded, and whether the cost recovery mechanisms are consistent with the  
7 policy objective of promoting energy efficiency.

8

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

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

18

19 Approval of such an innovative DSM measure as fuel switching will encourage  
20 creative approaches to energy efficiency and conservation programs that will  
21 continue to reduce energy consumption in Missouri in the coming years. As  
22 discussed earlier, fuel switching programs have been approved as part of the

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<sup>5</sup> Rebuttal testimony of John Rogers, at page 12.

1 electric utility's DSM programs in Washington (Puget Sound Energy), Texas  
2 (CenterPoint), and Washington/Idaho (Avista Corporation). As shown on  
3 Schedule JJR-SUR1, those utilities offer a wide array of DSM programs in  
4 addition to fuel switching.

5  
6 **Q. DO YOU AGREE WITH MR. GOBLE THAT YOU HAVE GIVEN THE**  
7 **COMMISSION THE IMPRESSION THAT FUEL SWITCHING**  
8 **PROGRAMS HAVE BEEN ADOPTED IN NUMEROUS OTHER**  
9 **JURISDICTIONS?**

10 A. No, I do not. My direct testimony provides several examples of electric utilities  
11 that have implemented fuel switching programs after receiving regulatory  
12 approval. I acknowledge that fuel switching programs are just beginning to gain  
13 traction, and I agree with Mr. Rogers that there is growing momentum for fuel  
14 switching programs across the country. For example, the Connecticut Department  
15 of Public Utility Control ("DPUC") recently issued a decision in its review of the  
16 2010 Integrated Resource Plan docket for the states' electric utilities in which the  
17 Commission endorsed the concept of fuel switching. The DPUC wrote:

18 The traditional approach to conservation and load management has  
19 not focused on determining the most efficient use of the fuel  
20 needed to power end use equipment or the environmental impact of  
21 these decisions. Instead, as the Chiller Retirement Initiative  
22 demonstrates, energy efficiency has meant reducing the electricity  
23 needed to power electric equipment. The current energy  
24 environment and cultural shift noted above demands that we  
25 modify our approach and look to determine the most efficient use  
26 of the fuel used to power our needs. Fuel switching must be  
27 examined to achieve this benefit. Therefore, a comparison of the  
28 costs and benefits of alternate fuels (where applicable) must be

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integrated into the review of C&LM [Conservation and Load Management] activity.<sup>6</sup>

**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 GMO 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 GMO'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 GMO 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 GMO'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. GMO's position also appears to be at odds with its support for other electric DSM programs that have

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<sup>6</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, at page 58.

1           been approved by the Commission, at least in part, because they were expected to  
2           reduce carbon emissions and produce other environmental benefits.

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

11

12   **Q.   DO YOU AGREE WITH MR. GOBLE’S STATEMENTS REGARDING**  
13   **THE RELATIVE ENVIRONMENTAL IMPACT OF NATURAL GAS AND**  
14   **ELECTRICITY?**

15   A.   I agree with Mr. Goble that “natural gas CO<sub>2</sub> emissions are lower than for the coal  
16          generation of electricity.”<sup>7</sup> However, I strongly disagree with Mr. Goble  
17          regarding the environmental impact of electric generation, especially coal-fired  
18          generation. According to the EIA, “In 2008, 41 percent of total CO<sub>2</sub> emissions  
19          came from electricity generation. With its high carbon content and 48 percent  
20          share of generation, coal accounted for 82 percent of power sector CO<sub>2</sub>  
21          emissions.”<sup>8</sup>

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<sup>7</sup> Rebuttal testimony of Gary Goble, at page 11.

1 **Q. MR. GOBLE HAS CITED A CORNELL UNIVERSITY ANALYSIS AS**  
2 **SUPPORT FOR HIS POSITION REGARDING THE ENVIRONMENTAL**  
3 **IMPACT OF NATURAL GAS.<sup>9</sup> WHAT IS YOUR RESPONSE?**

4 A. The purpose of the Cornell University draft analysis, "Preliminary Assessment of  
5 the Greenhouse Gas Emissions from Natural Gas Obtained by Hydraulic  
6 Fracturing," is to compare the greenhouse gas emissions from natural gas as the  
7 fuel source for power generation to the greenhouse gas emissions from coal-fired  
8 electric generation. This analysis is not directly relevant to an assessment of the  
9 relative environmental impact of natural gas and electricity for end-use  
10 applications because it fails to consider the energy losses associated with coal-  
11 fired electric generation. That is, for end-use applications, electricity consumes  
12 three times as many BTUs as natural gas. Consequently, if we assume that  
13 everything in the Cornell University draft analysis is true, the direct-use of natural  
14 gas would be expected to produce one-third as much greenhouse gas emissions as  
15 electricity for the same end-use application.

16  
17 In addition, the Cornell University draft analysis is filled with numerous caveats  
18 and cautionary statements. For example, in reference to the natural gas GHG  
19 emission values, the article states: "These numbers should be treated with  
20 caution."<sup>10</sup> Similarly, the article concludes: "The comparison with coal is  
21 difficult, as the energy needs and greenhouse gas emissions from mining and

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<sup>8</sup> U.S. Energy Information Administration, Annual Energy Outlook 2010, April 2010, at page 82.  
<sup>9</sup> Rebuttal testimony of Gary Goble, at page 12.

1 transporting the coal are not well known.”<sup>11</sup> The article provides no information  
2 or supporting analysis for the proposition that natural gas obtained from hydraulic  
3 fracturing produces higher emissions; rather, it simply indicates that no such  
4 analysis is publicly available and calls for a more comprehensive assessment. In  
5 addition, any such analysis only applies to gas produced through hydraulic  
6 fracturing, which is currently less than one-sixth of America’s natural gas supply.  
7 Consequently, Mr. Goble’s reliance on the Cornell University draft article appears  
8 to be misplaced. As indicated above, data from the EIA demonstrate the known  
9 and measurable CO<sub>2</sub> emissions from electricity generation and the high carbon  
10 content of coal.

11

12 **Q. DO YOU AGREE WITH MR. GOBLE’S CRITICISM OF YOUR**  
13 **ANALYSIS OF THE RELATIVE MERITS OF NATURAL GAS IN**  
14 **TERMS OF ITS ENVIRONMENTAL IMPACT COMPARED TO**  
15 **ELECTRICITY?**

16 A. No, I do not. Mr. Goble criticizes my analysis as not being specific to the  
17 circumstances in Missouri. In response to Mr. Goble’s criticism, I note that Table  
18 6 in my direct testimony provides the generation mix for GMO<sup>12</sup>, and my direct  
19 testimony indicates that the CO<sub>2</sub> emissions produced by GMO in Missouri are  
20 approximately 6 million tons per year.<sup>13</sup> As further support for my position, a

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<sup>10</sup> Robert W. Howarth, “Preliminary Assessment of the Greenhouse Gas Emissions from Natural Gas obtained by Hydraulic Fracturing,” Cornell University, Department of Ecology and Evolutionary Biology, March 17, 2010 draft, at page 1.

<sup>11</sup> *Ibid*, at page 3.

<sup>12</sup> Direct testimony of John J. Reed, at page 14.

<sup>13</sup> *Ibid*, at page 15.

1 report by the Gas Technology Institute allows for comparison of the emissions  
2 produced by natural gas and electric water heaters in Missouri. Table 1  
3 demonstrates that the energy required for electric water heaters produces  
4 significantly more emissions than the energy required for natural gas water  
5 heaters in each of the reported categories.

6 **Table 1: Water Heater Source Emissions in Missouri<sup>14</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%

7  
8 Mr. Goble also states that “CO<sub>2</sub> emissions that would have occurred at a remotely  
9 located generation station will now be imported to the appliance site, i.e., to the  
10 residential consumer’s home,”<sup>15</sup> and that the remote generation station’s “location  
11 was carefully chosen as the most advantageous site for any emissions to occur.”<sup>16</sup>  
12 These statements display a remarkable misunderstanding of the environmental  
13 issues associated with CO<sub>2</sub>. A ton of CO<sub>2</sub> emitted into the atmosphere in a remote  
14 corner of Missouri, or in downtown Kansas City, has the exact same effects in  
15 terms of climate change. Unlike the other adverse consequences of coal

<sup>14</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.  
<sup>15</sup> Rebuttal testimony of Gary Goble, at page 11.  
<sup>16</sup> Ibid, at page 30.



1 combustion, location and proximity to the human population have no  
2 consequence whatsoever to CO<sub>2</sub> emissions.

3

4 **Q. DO YOU AGREE WITH MR. GOBLE THAT MGE'S PROPOSAL HAS**  
5 **NOT CONSIDERED THE EFFECT ON GMO'S REVENUE?**

6 A. No, I do not. As indicated in my direct testimony, the revenue impact for GMO  
7 would be a reduction of approximately 0.08 percent of 2009 electric operating  
8 revenues in Missouri.<sup>17</sup> Contrary to Mr. Goble's assertion that MGE's proposal  
9 has not considered the effect on GMO revenue, I indicated in my direct testimony  
10 that MGE fully supports either a revenue decoupling mechanism or straight-fixed  
11 variable rate design which would make this proposal revenue neutral for GMO in  
12 terms of cost recovery.

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<sup>17</sup> Direct testimony of John J. Reed, at page 34.

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 GMO'S SERVICE TERRITORY. WHAT IS**  
6   **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 GMO  
10   customer characteristics; (2) my projected operating cost savings for water  
11   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 YOU AGREE WITH MR. GOBLE THAT IT IS MORE**  
17   **APPROPRIATE TO CALCULATE OPERATING COST SAVINGS**  
18   **BASED ON RETAIL RATE STRUCTURES RATHER THAN AVERAGE**  
19   **REVENUES?**

20   A. No, not in all cases. More importantly, however, the operating cost savings  
21   calculations should be based on comparable information for both the electric and  
22   gas utility, that is, average cost vs. average cost, or marginal cost vs. marginal  
23   cost. Mr. Goble's analysis is skewed because he has included the monthly

1 customer charge of \$26.88 for MGE, but has not included the equivalent fixed  
2 customer charge for GMO. Consequently, Mr. Goble's analysis will always tend  
3 to favor electricity over natural gas.

4  
5 **Q. MR. GOBLE ASSERTS THAT YOUR USE OF THE AVERAGE**  
6 **REVENUE RATE SIGNIFICANTLY UNDERSTATES THE ACTUAL**  
7 **COSTS CUSTOMERS WILL BE BILLED, ESPECIALLY IN THE CASE**  
8 **FOR WATER HEATING FUEL SUBSTITUTION.<sup>18</sup> HOW DO YOU**  
9 **RESPOND?**

10 A. I strongly disagree with Mr. Goble's assertion for two reasons. First, Mr. Goble  
11 assumes that customers will only use natural gas for water heating, while my  
12 operating cost savings analysis assumes that there are multiple end-use  
13 applications (e.g., cooking, clothes drying, gas logs, etc.), which would generate  
14 additional volume across which the fixed monthly customer charge could be  
15 spread. Second, Mr. Goble fails to consider that water heating is a baseload  
16 application, and that the average cost of natural gas during the summer months  
17 would be expected to be significantly lower, while space heating demand  
18 primarily occurs during the winter months when the average cost of natural gas is  
19 substantially higher. For both of these reasons, it is appropriate to analyze cost  
20 savings for the proposed fuel switching program based on actual revenues divided  
21 by actual customer usage, as I have done in Schedule JJR-1 (attached to my direct  
22 testimony).

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<sup>18</sup> Rebuttal testimony of Gary Goble, at page 25.

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Further, Mr. Goble relies on GMO's current rate design. As MGE witness Michael Noack explains, GMO's rate design provides electric customers with an inappropriate incentive to choose electricity over natural gas for water heating and space heating. This rate design is subject to scrutiny in this proceeding, and has recently been noted to be a concern for the Kansas Corporation Commission, which opened a separate proceeding to address rate design issues.<sup>19</sup> Please see Mr. Noack's testimony for further discussion of rate design issues.

**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.<sup>20</sup> 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

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<sup>19</sup> Kansas Corporation Commission, Kansas City Power and Light, Docket No. 10-KCPE-415-RTS, November 22, 2010, at page 125.  
<sup>20</sup> Rebuttal testimony of Gary Goble, at page 22.

1 comparison of source energy and emission factors for different fuel sources  
2 including natural gas, liquefied petroleum gas, fuel oil, and electricity.<sup>21</sup> I agree  
3 that state-specific data should be examined for analyzing the avoided generation,  
4 and my testimony has done that. Missouri's state-specific information indicates  
5 that it will achieve greater-than-average benefits because it is more coal-  
6 dependent than other regions.

7

8 **Q. HAVE YOU REVIEWED ANY ADDITIONAL SOURCES THAT**  
9 **SUBSTANTIATE THE ENERGY CONSUMPTION ESTIMATES THAT**  
10 **ARE CONTAINED IN SCHEDULE JJR-1 TO YOUR DIRECT**  
11 **TESTIMONY?**

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

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<sup>21</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.

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

Data Source	Region	Gas (MMBtu)	Electric (kWh)
AGA Report – 2009 <sup>22</sup>	Nationwide	25.4	4,865
ENERGY STAR – Final Criteria Analysis	Nationwide	26.1	4,857
US DOE, EERE <sup>23</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

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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 \$172, or \$28 less than my estimate. However, the savings are still substantial.

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<sup>22</sup>
<sup>23</sup>

The AGA report is the source for the consumption data that were used to develop Schedule JJR-1. 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-1, (attached to  
5    my direct testimony) I calculated energy consumption for natural gas furnaces and  
6    electric resistance heating. Those calculations indicate that a natural gas furnace  
7    would consume approximately 65.7 MMBtu annually, while an electric resistance  
8    furnace would consume approximately 15,563 kWh (or 53.1 MMBtu) annually.<sup>24</sup>  
9    As with the water heating consumption figures, the space heating estimates for the  
10   West North Central region, which includes Missouri, are approximately 11.5  
11   percent lower than the national average for natural gas furnaces and 13.5 percent  
12   lower for electric resistance furnaces. If I had used the West North Central  
13   estimates, the annual operating cost savings for gas space heating compared to  
14   electric resistance heating would have been \$508, or \$98 less than my estimate.  
15   As with water heating, the space heating savings remain substantial.

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<sup>24</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 requested the workpapers that Mr.  
8       Goble relied upon for his operating cost analysis. GMO has not yet responded to  
9       MGE's Data Request 5-1. Therefore, I have assumed for purposes of this answer  
10      that Mr. Goble followed the same approach in GMO as he did in the Kansas City  
11      Power and Light ("KCP&L") filing (Case No. ER-2009-0355). I have reviewed  
12      Mr. Goble's response to MGE Data Request 7-9 in the KCP&L docket, which is  
13      attached to my surrebuttal testimony as Schedule JJR-SUR2. In that response, it  
14      is clear that Mr. Goble's analysis is seriously flawed and reaches the wrong  
15      conclusion. Mr. Goble compares the cost of operating a gas-fired water heater,  
16      including the full gas distribution monthly customer charge, to the cost of an  
17      electric water heater, without any consideration of the electric customer charge.  
18      This biased approach obviously and unduly favors the electric appliance. As can  
19      easily be seen from Mr. Goble's attached workpapers to this response, it is  
20      cheaper to operate a gas-fired water heater and/or a gas-fired furnace than their  
21      electric counterparts when one makes the comparison on an energy rate  
22      equivalent basis. In addition, it is my understanding that the gas CGA charge that  
23      Mr. Goble uses (i.e., \$8.09 per Mcf) contains a substantial amount (i.e., \$1.10 per



1 Mcf) related to prior period under-recoveries. When this charge expires later this  
2 year, natural gas appliances will have an even greater economic advantage over  
3 their electric counterparts. Finally, Mr. Goble's analysis uses GMO's current  
4 residential electric rates rather than the requested electric rates, which are  
5 approximately 14.0 percent higher. To the extent the Commission approves an  
6 electric rate increase for GMO, Mr. Goble's analysis understates the operating  
7 cost for electric appliances.

8

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

13 **A.** Yes. As indicated in my previous answer, I have assumed that Mr. Goble  
14 followed the same approach in the GMO docket, and that his analysis produces  
15 similar results. Mr. Goble's attachment to MGE Data Request 7-9 indicates that  
16 annual operating costs for the customer switching to natural gas space and water  
17 heating are \$1,129.29 (including the monthly delivery charge of \$26.88), while  
18 the annual operating costs for the customer using electric space and water heating  
19 would be \$1,152.16 (not including the monthly customer charge). I reserve the  
20 right to revise this answer, if necessary, once I receive GMO's response to MGE  
21 Data Request 5-1.

22

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

6 A. As indicated in my direct testimony, this assumption was based on the experience  
7 of Puget Sound Energy, which implemented a similar fuel switching program in  
8 January 2009. PSE found that 85 percent of customers participated in the water  
9 heating rebate program, while 15 percent participated in the space heating rebate  
10 program during 2009. In a subsequent filing with the Washington Utilities and  
11 Transportation Commission, PSE projected that the percentages in 2010/2011  
12 would be 80 percent for water heating and 20 percent for space heating. Since  
13 2009 represented the first year of PSE's fuel switching program, I thought that  
14 percentage best reflected what might be expected in Missouri during the first year  
15 of a similar program offering from GMO.

16

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

21

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

1 A. Mr. Goble indicates in his rebuttal testimony that he “attempted to estimate the  
2 required data in order to provide a very crude TRC test.”<sup>25</sup> Mr. Goble also  
3 indicates that he conducted a Ratepayer Impact Measure test and a Total  
4 Participants test. Based on his TRC test calculation, Mr. Goble determines that  
5 the benefit/cost ratios for the water heating rebate program are less than 1.0.  
6 Again, however, Mr. Goble fails to provide any supporting exhibits, schedules or  
7 other calculations that would allow the Commission or other parties to understand  
8 and verify his calculations. Mr. Goble’s conclusions are both fully unsupported  
9 by and contrary to the fully-supported calculations that other electric utilities have  
10 submitted in support of fuel switching programs.

11

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

15 A. If the Commission determines that it requires more information before  
16 implementing the proposed fuel switching program on a permanent basis, it  
17 should move forward with a pilot program. Mr. Goble has acknowledged that  
18 GMO does not have company-specific energy consumption data for electric water  
19 heating and space heating equipment. A pilot program would allow the  
20 Commission to test the fuel switching program over a shorter time period (e.g.,  
21 three years or during GMO’s next rate case, whichever is later), and with a more  
22 limited number of customers (e.g., residential and multi-family customers who

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<sup>25</sup> Rebuttal testimony of Gary Goble, at page 27.

1           reside in St. Joseph, Missouri), while gathering more information and assessing  
2           the energy savings and customer response to the program.

3

4   **Q.   MR. GOBLE ASSERTS THAT THE COMMISSION SHOULD BE**  
5           **CONCERNED ABOUT THE POTENTIAL FOR SIGNIFICANT AND**  
6           **SUDDEN CHANGES IN NATURAL GAS PRICES.<sup>26</sup> DO YOU HAVE**  
7           **SIMILAR CONCERNS ABOUT GMO'S ELECTRIC RATES?**

8   A.   Yes, I do. In light of the U.S. Environmental Protection Agency's stated intention  
9           to regulate carbon emissions, I would expect a significant impact on GMO's  
10          electric rates because the company's generation mix is approximately 80 percent  
11          coal. The average fuel cost per kilowatt hour for coal-fired generation is  
12          estimated at \$0.0182 in 2010, while the average fuel cost for natural gas and oil  
13          generation is estimated at \$0.0993.<sup>27</sup> These facts indicate that GMO faces a very  
14          uncertain future if it needs to rely less on its coal resources. By contrast, as  
15          indicated in my direct testimony, the available supply of natural gas resources has  
16          increased dramatically in the past few years, and new pipeline construction has  
17          enhanced pipeline transportation options.

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<sup>26</sup> Ibid, at page 36.

<sup>27</sup> Great Plains Energy Inc., SEC 2009 Form 10-K, filed February 25, 2010, at page 8.

1                    **IV. CONCLUSIONS AND RECOMMENDATIONS**

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**Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

A. I recommend that the Commission approve a fuel switching program to be implemented by GMO as a cost effective way to promote energy efficiency and conservation by offering financial incentives to GMO 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 GMO would offer the proposed customer rebates to residential and multi-family electric customers residing in St. Joseph, Missouri. The Commission could then review the results of the pilot program after three years or during GMO'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., GMO'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.

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 Natural 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 advertising 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 Residential feedback demonstration project City of Houston dashboard project - monitor energy usage Solar energy pilot project Renewable energy integration 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	
	Residential	Multi-family	CFL bulbs - PECL buy down
			Heating and cooling efficiency
Single family - natural gas		UCONS	
		Energy efficient appliance rebates	
Residential new construction	Multi-family	Home weatherization rebates	
		Energy Star homes	
	Single family - natural gas	Water heater efficiency rebates	
		Heating and cooling efficiency	
Low Income	Electric	UCONS	
		Site specific	
		Energy efficient appliance rebates	
		CFLs for seniors	
	Natural Gas	Home weatherization rebates	
		Space and Water Heat Direct Use Efficiency - fuel conversion	
		Water heater efficiency rebates	
		Heating and cooling efficiency	
Non-residential	Electric	Purchase/installation of Energy Star products	
		Home weatherization rebates	
		Water heater efficiency rebates	
		Heating and cooling efficiency	
		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
Non-residential	Natural Gas	Prescriptive Demand Controlled Ventilation Prescriptive Food Service Prescriptive LED traffic signals Prescriptive Lighting Prescriptive 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 Purchase/installation of Energy Star products EnergySmart - rebates for refrigeration systems Prescriptive 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

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 page 24, 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.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of )  
KCP&L Greater Missouri Operations )  
Company for Approval to Make Certain ) ER-2010-0356  
Changes in its Charges for Electric Service )

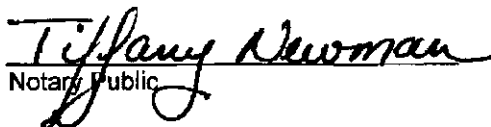
AFFIDAVIT OF JOHN J. REED

DISTRICT OF COLUMBIA ) 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 10 day of January 2011.

  
\_\_\_\_\_  
Notary Public

My Commission Expires: April 14, 2014

Tiffany M. Newman  
District of Columbia, Notary Public  
My Commission Expires  
April 14, 2014