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**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO.: ER-2010-0355**

**REBUTTAL TESTIMONY**

**OF**

**GARY L. GOBLE**

**ON BEHALF OF**

**KANSAS CITY POWER & LIGHT COMPANY**

**Kansas City, Missouri  
December 2010**

*Cunningham* Exhibit No. 26  
Date 1/31/11 Reporter NS  
File No. ER-2010-0355

**REBUTTAL TESTIMONY**

**OF**

**GARY L. GOBLE**

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**REBUTTAL TESTIMONY**

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**GARY L. GOBLE**

**Case No. ER-2010-0355**

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

2 **Q: Please state your name, occupation and business address.**

3 A: My name is Gary L. Goble. I am a Managing Consultant with the firm of  
4 Management Applications Consulting, Inc. ("MAC"). MAC's primary offices are  
5 located at 1103 Rocky Drive, Suite 201, Reading, PA 19609. My business  
6 address is 11405 Cezanne Street, Austin, TX 78726.

7 **Q: On whose behalf are you testifying and what is the purpose of your Rebuttal**  
8 **Testimony?**

9 A: I am testifying on behalf of Kansas City Power & Light ("KCP&L" or  
10 "Company"). The purpose of my Rebuttal Testimony is to respond to proposals  
11 made by Mr. John Reed testifying on behalf of Missouri Gas Energy ("MGE")  
12 relating to electric to gas substitution (also referred to as "fuel switching").

13 **Q: Please describe your qualifications and experience.**

14 A: I am a consultant with over 36 years of experience in regulatory matters. I have  
15 an undergraduate degree (BSPA) from the University of Arkansas at Fayetteville,  
16 Arkansas, and a graduate degree (MBA) from St. Edward's University in Austin,  
17 Texas. I have worked as a staff analyst for two regulatory commissions and as a  
18 consultant to natural gas utilities, electric utilities, municipalities, electric  
19 cooperatives, and industrial consumers. I have provided expert testimony before  
20 state and local regulatory agencies and boards on numerous occasions. The

1 primary focus of my work experience has been in the areas of cost analysis,  
2 pricing, and economic analysis. My qualifications and experience are provided in  
3 greater detail in Schedule GLG-1.

4 **II. SUMMARY OF REBUTTAL ISSUES**

5 **Q: What issues are addressed in your Rebuttal Testimony?**

6 A: My Rebuttal Testimony addresses issues related to MGE's proposed electric to  
7 gas substitution payments to consumers for the purpose of influencing electric  
8 customers to switch to using natural gas water heaters and space heaters rather  
9 than electric appliances. My Rebuttal Testimony addresses the following issues:

- 10 1. Assessing the policy goals of electric to natural gas substitution. MGE's  
11 proposal involves changes to the existing energy supply market, end use  
12 appliance market, and KCP&L energy efficiency ("EE"), demand side  
13 management ("DSM") and Demand Response ("DR") activities. A  
14 number of problems will potentially arise if the Commission adopts  
15 MGE's proposed electric to gas substitution program. These problems  
16 may be substantial and will require a careful examination of the effects of  
17 electric to gas substitution upon costs faced by end-use consumers.
- 18 2. Examining the methods for assessing EE, DSM and DR impacts upon  
19 program participants, other ratepayers, the environment, and upon all  
20 societal resources.
- 21 3. Providing a critical review of methods for assessing EE, DSM and DR  
22 impacts. There are a number of recognized measures of energy efficiency  
23 impacts. Site specific methods address decisions consumers face once

1           they have made their choice of whether to use electricity or natural gas.  
2           Societal test measures attempt to incorporate the total costs from the point  
3           of fuel extraction to the use of energy at the end-use site. Other evaluation  
4           methods examine the impact of a given program upon other ratepayers of  
5           the utility. Environmental costs not already taken into account by market  
6           prices of fuel costs may be measured in an evaluation of environmental  
7           impact.

8           4. Describing other miscellaneous issues related to the proposal. These other  
9           issues include economic and miscellaneous issues.

10   **Q: Do you recommend that MGE's proposal for electric to gas substitution**  
11   **incentives to be paid for by KCP&L should be approved?**

12   **A:** No, I do not. I recommend that the proposal be rejected in the current docket. As  
13   described in my Rebuttal Testimony below, MGE's proposal seeks to achieve a  
14   greater market saturation of natural gas using appliances by regulatory mandates  
15   instead of market interactions. MGE's proposal will result in KCP&L failing to  
16   recover the fixed costs associated with the lost revenues of customers switching.  
17   Moreover, MGE's analyses are flawed, do not reflect accurate information, and  
18   provide results that are not credible. Finally, MGE's proposal would seriously  
19   undermine EE, DSM and DR programs that have previously been shown to be  
20   beneficial to all parties and would stifle development and implementation of  
21   additional EE, DSM and DR program activity.

1 **III. POLICY ISSUES RELATED TO ELECTRIC TO GAS SUBSTITUTION**

2 **Q: In your opinion, must the Missouri Public Service Commission ("MPSC" or**  
3 **"Commission") address any threshold policy decisions before approving the**  
4 **electric to gas substitution rebate MGE witness Mr. Reed recommends on**  
5 **page 19, lines 7-17?**

6 A: Yes, I believe that Mr. Reed has proposed a fundamental and potentially dramatic  
7 shift in regulatory policy that would interfere with market factors affecting  
8 electric and natural gas distribution industries. It is only reasonable that regulators  
9 should undertake a close and careful examination of the proposed policies and  
10 undertake a thorough review of the consequences of MGE's electric to gas  
11 substitution proposal.

12 **Q: What policy issues must the MPSC address in adopting Mr. Reed's**  
13 **recommendations?**

14 A: I believe that the MPSC must examine and address the following issues in its  
15 consideration of MGE witness Mr. Reed's recommendations:

- 16 1. What is the appropriate role of the Missouri Public Service Commission in  
17 restructuring the power supply and end use appliance markets?
- 18 2. Should the Commission use this proceeding to implement electric to gas  
19 substitution?
- 20 3. How should the Commission balance social goals with economic  
21 efficiency goals?
- 22 4. What are the true environmental impacts of electric to gas substitution?

- 1           5. Should the Commission adopt policies to address environmental impacts
- 2           in advance of pending investigations at the national level?
- 3           6. Should the Commission address KCP&L's loss of revenue recovering its
- 4           fixed costs which would result from electric to gas substitution?
- 5           7. Will MGE's proposal that KCP&L pay customers to switch from electric
- 6           to natural gas appliances benefit non-participating customers?
- 7           8. What impacts will the proposed incentives for electric to gas substitution
- 8           have upon existing or future energy efficiency, energy conservation,
- 9           demand side management and demand response activities of KCP&L?
- 10          9. How accurate are the data that must be used to assess the costs and
- 11          benefits of electric to gas substitution?
- 12          10. How have other stakeholders and regulatory agencies addressed electric to
- 13          gas substitution?

14   **Q: What do you believe is the appropriate role of the Missouri Public Service**  
15   **Commission concerning tariffs that serve to restructure the energy supply**  
16   **market?**

17   A: I am not an attorney. Nor have I reviewed the statutes of the State of Missouri  
18   that determine the MPSC's jurisdiction. However, I have broad experience over a  
19   large number of years before numerous regulatory agencies, and, based upon my  
20   experience, it would seem reasonable that the MPSC has the authority to  
21   determine whether the programs implemented by a utility are just and reasonable.  
22   Similarly, the Commission likely has the authority to consider the potential for  
23   fuel switching as it applies to the more general "public interest" standard.

1           Although the Commission likely has broad authority, its authority is not  
2           unlimited. In approaching any issue, including fuel-switching, the Commission  
3           typically must focus on regulating the companies and avoiding managing the  
4           businesses. The Commission is typically authorized to perform the former, while  
5           the latter is within the realm of the companies' management and board of  
6           directors.

7                         Additionally, whether the Commission should use its authority to supplant  
8           the competitive fuel market and to promote one type of energy industry over a  
9           competing energy industry is a different matter. In my opinion, the Commission  
10          should not use its regulatory authority to skew market behavior, particularly when  
11          the actions of that market are beyond the control of KCP&L and the Commission.  
12          The economic justification for regulation is to serve as a substitute for  
13          competition in a monopoly market, thereby making the utility operate and set  
14          prices as if it were subject to competitive forces while simultaneously enabling  
15          the lower average costs that result from a single supplier of high fixed costs  
16          services. I believe that this requires the Commission to allow the market to  
17          function in an efficient manner when competition is present. I do not believe that  
18          the Commission should reduce competition and pick market winners and losers as  
19          MGE's proposal would require.

20       **Q: Is there any guidance available to state regulatory agencies that addresses this**  
21       **topic?**



1 A: A May 29, 2009 National Regulatory Research Institute ("NRRI") paper "Electric-  
2 to-Gas Substitution: What Should Regulators Do?" identified the risks of  
3 regulatory intervention as follows:

4 Regulation has benefits and costs. The benefits are the removal of  
5 the economic efficiency losses associated with market defects and  
6 customer error. Regulatory failure occurs when there is  
7 intervention that is unwarranted, either because markets are  
8 performing adequately, because the intervention did not correct a  
9 market failure efficiently, or because the cost of regulatory  
10 intervention exceeds the benefits. The potential costs of regulatory  
11 intervention include: (1) inadvertent subsidies (e.g., improper  
12 price signals leading to a resource misallocation); (2) procedural  
13 delays and costs, especially those associated with multi-utility  
14 integrated resource planning; (3) welfare losses from stakeholders  
15 expending dollars and resources in the regulatory process to  
16 advance their positions (e.g., "fighting costs" from gas utilities  
17 pushing hard for electric-to-gas substitution, counteracted by  
18 electric utilities' resistance; and (4) administrative costs (e.g., the  
19 enforcement cost of regulatory mandates or targets).<sup>1</sup>

20 MGE's witness has not demonstrated that regulatory failure has occurred.  
21 Nor has he demonstrated that the costs of regulatory intervention outweigh any  
22 benefits that are likely to be derived as a result of MPSC market intervention in  
23 the manner recommended by Mr. Reed.

24 **Q: Should the Commission use this proceeding to implement electric to gas**  
25 **substitution?**

26 A: No, while Mr. Reed makes an argument for immediate action, there are far too  
27 many unanswered questions and far too much questionable information to  
28 implement fuel substitution in the immediate proceeding. Although a number of  
29 other state regulatory commissions have addressed the subject of electric to gas  
30 substitution, Mr. Reed fails to mention that most have examined the subject and

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<sup>1</sup> National Regulatory Research Institute "Electric-to-Gas Substitution: What Should Regulators Do?" by Ken Costello, Principal, May 29, 2009, page 13.

1 chosen to reject electric to gas substitution. After a thorough analysis, the  
2 Commission may be able to determine whether some sort of electric to gas  
3 substitution program has merit. However, to undertake such an analysis, the  
4 specific merits of fuel substitution programs in Missouri should first be  
5 quantified. When, and only if, the programs are found to be meritorious, then the  
6 next threshold question is how should the programs be implemented. Obviously,  
7 MGE could offer fuel switching incentives without any involvement from  
8 KCP&L.

9 As discussed below, MGE witness Mr. Reed's analyses do not employ the  
10 utility specific information necessary to determine whether the costs of the  
11 proposed subsidy outweigh its benefits. Furthermore, his analyses understate the  
12 costs of natural gas service while overstating the benefits of natural gas service.  
13 He has not provided evidence that his proposed level of incentives are necessary  
14 nor sufficient. His electric to gas substitution proposal relies upon faulty  
15 reasoning and is not supported by evidence. Furthermore, he has not provided  
16 compelling evidence to suggest that KCP&L must offer the necessary customer  
17 incentives.

18 **Q: How should the Commission balance social goals with economic efficiency**  
19 **goals?**

20 **A:** I believe that the Commission should seek to protect and promote informed,  
21 unbiased consumer choice of efficiently priced energy. To that end, I believe that  
22 the Commission should seek to implement economically justified goals.  
23 Naturally, the Commission can and should examine and consider social goals in

1 its regulatory decisions. But in so doing, the costs of implementing these social  
2 goals must also be considered. The economic goal of regulation can, and should,  
3 seek to "internalize" social goals such as environmental impact to the extent  
4 practicable. For example, in estimating the costs of generating electricity,  
5 KCP&L internalizes environmental impacts by including an estimate of  
6 incremental environmental costs in its energy cost forecasts. In estimating the  
7 incremental costs of natural gas that might be expected from a fuel switching  
8 program, one must impute a value to the cumulative environmental impact of  
9 importing pollution from remote generation plant locations to the concentrated  
10 urban areas containing many gas-consuming appliances.

11 Another point to consider is that KCP&L profitably markets energy  
12 available from its coal generating units in order to minimize revenues required  
13 from ratepayers. So most electric energy conserved by fuel substitution programs  
14 will still be generated and sold. The net effect of the fuel substitution program  
15 will not produce a positive environmental impact in Missouri. Quite the contrary,  
16 the total impact of the program will have a deleterious effect.

17 As discussed in the following section of my Rebuttal Testimony, imputing  
18 values to external factors beyond the control and direct knowledge of KCP&L and  
19 the Commission is a practice whose results should be carefully and fully  
20 scrutinized. Although the costs of pursuing social objectives through the utility  
21 ratemaking process are difficult to quantify, they are, nonetheless, real and  
22 significant. MGE has proposed that the Commission tilt the fuels supply market  
23 to favor natural gas by making KCP&L pay its customers to replace their electric

1 appliances with natural gas burning appliances. That recommendation obviously  
2 comes at a high cost to KCP&L and potentially to its ratepayers. While that cost  
3 may be difficult to quantify, they should nonetheless be taken into consideration  
4 by the MPSC in assessing whether the social objectives sought are worth the  
5 costs.

6 **Q: What are the true environmental impacts of electric to gas substitution?**

7 A: It is not evident that electric to gas substitution will reduce energy consumption  
8 and, thus, carbon dioxide ("CO<sub>2</sub>") emissions. Mr. Reed's logic assumes that  
9 KCP&L would simply reduce electric generation if sales to residential customers  
10 declined. This is not likely to happen. KCP&L, like any rational utility with  
11 regulatory pressures to minimize its revenue requirements, would seek to market  
12 available capacity and energy in the wholesale power market. Any sales in such a  
13 market would lower the average costs of power to other customers and provide  
14 additional earnings to the Company. As long as KCP&L can sell the freed up  
15 capacity and energy at a price greater than its short-run marginal costs, both the  
16 Company and its customers will be better off if the capacity and energy can be  
17 marketed. Thus, total CO<sub>2</sub> emissions would be more likely to increase since there  
18 would be little or no decrease in electric generation, but there would be added  
19 natural gas consumption at the customers' homes.

20 In addition, although natural gas CO<sub>2</sub> emissions are lower than for the coal  
21 generation of electricity, there are additional environmental consequences with  
22 the use of natural gas that must be considered. For example, CO<sub>2</sub> emissions that  
23 would have occurred at a remotely located generation station will now be

1 imported to the appliance site, i.e., to the residential consumer's home. Although  
2 the CO<sub>2</sub> emissions of natural gas are lower than for the coal generation of  
3 electricity, none of the electric caused emissions are local while much of the  
4 natural gas emissions taken into account occur locally. Just as important, electric  
5 generation is a central station technology that allows for cost effective treatment.  
6 In past years, a number of technologies have been implemented such as taller  
7 smokestacks to disperse emissions more effectively into the higher atmosphere,  
8 CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub> treatments to lower emissions. The consumption of natural  
9 gas in a large number of dispersed small appliances makes it impractical to  
10 implement subsequent environmental protection strategies.

11 **Q: Are there concerns about the environmental consequences of natural gas**  
12 **extraction?**

13 **A:** Yes, there are. Natural gas extraction is not without serious environmental  
14 consequences of its own. On page 36 of his Direct Testimony, Mr. Reed points  
15 out that access to shale gas has increased "technically recoverable natural gas  
16 resources" considerably in recent years, suggesting that there is no shortage of  
17 natural gas supplies. And it is true that hydraulic fracturing of shale formations  
18 has led to significant increases in the availability of natural gas supplies.  
19 However, this process of natural gas extraction is not without its environmental  
20 critics. Critics have argued that the process of extraction of natural gas from shale  
21 formations has forced methane gas into people's homes and water supplies and  
22 that the fluid used to fracture shale formations regularly employs chemicals that

1 have been linked to cancer or other health problems.<sup>2</sup> In New York concerns are  
2 so great that the New York state assembly recently passed a bill placing a  
3 moratorium on hydraulic fracturing. Any discussion of the environmental  
4 consequences of electric to gas substitution should also include an assessment of  
5 all environmental impacts of natural gas extraction. Failure to recognize the  
6 environmental costs of natural gas extraction would understate the environmental  
7 costs of natural gas use and give natural gas an undue market advantage over  
8 electricity.

9 Furthermore, the electric to gas substitution program proposed by Mr.  
10 Reed would result in additional MGE gas customers, which, in turn, would have  
11 an unintended consequence. Connecting existing customers requires excavation,  
12 construction and resurfacing, all of which have some environmental  
13 consequences. In addition, the new customer will require meter reading and  
14 billing, processes which also result in some impact to the environment.

15 The replacement of existing electric appliances represents another  
16 environmental factor to consider. An electric to gas substitution program may  
17 result in the premature replacement of serviceable electric equipment, which will  
18 affect the timing and level of environment impact considering the disposal of  
19 existing equipment and the impact of manufacturing new equipment. A fuel  
20 substitution program will also have an economic impact as resources are  
21 expended for the premature replacement of usable equipment.

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<sup>2</sup> For example, in June 2010, the Pennsylvania Department of Environmental Protection publication, "Chemicals Used by Hydraulic Fracturing Companies" identified ethylbenzene, thylene glycol, glutaraldehyde, isopropanol, and methanol as some of the chemicals employed in the fluid used in the hydro-fracturing process. These chemicals have been linked to cancer and other health problems.

1 **Q: Do you believe that the Commission should adopt policies to address**  
2 **environmental impacts in advance of pending investigations at the national**  
3 **level?**

4 A: No. I believe it would be more expedient and prudent to study the issues being  
5 addressed at the national level and allow those issues to be fully vetted before  
6 attempting to address the issues at the state level. Determinations made by the  
7 MPSC in this proceeding would be premature insofar as its actions may be  
8 preempted or limited by subsequent federal action. Furthermore, the Commission  
9 could build upon the experiences of the DOE and others if it determines that the  
10 full-fuel-cycle analysis proposed by Mr. Reed should be adopted. For these  
11 reasons, I do not believe it would be prudent to approve MGE's proposed electric  
12 to gas substitution subsidy in this proceeding.

13 **Q: If the Commission was to implement electric to gas substitution programs,**  
14 **should the Commission recognize the resulting KCP&L revenue shortfalls?**

15 A: Yes, I believe it should. KCP&L will not be able to recover its allowed return  
16 under MGE's proposal, and this earnings shortfall should be addressed by the  
17 MPSC. Nowhere in MGE's proposal is a discussion of how KCP&L will recover  
18 the fixed costs embedded in the sales that migrate from electric appliances to  
19 natural gas appliances as a result of the proposed natural gas subsidy payments.  
20 Because KCP&L will not have a reasonable opportunity to earn its allowed return  
21 on the lost revenues, KCP&L stockholders will be harmed as a result of the  
22 proposed subsidies unless the Commission provides a means for KCP&L to  
23 recover the "lost" fixed cost revenue levels that would have otherwise occurred.

1 For this reason, if the Commission finds it fair and reasonable to adopt MGE's  
2 proposal, I believe that it should also recognize KCP&L's loss of fixed cost  
3 recovery and provide for the recovery of these earnings. Regardless of the cost  
4 recovery mechanism ultimately employed, KCP&L should not be adversely  
5 impacted financially by the promotion of EE, DSM and DR activities. From a  
6 policy standpoint, the Commission should avoid implementing programs that are  
7 not "self-policing". In this case, the programs should be designed so that  
8 implementation benefits the utility's ratepayers as well as its stockholders.  
9 Without this common goal, the program provides a disincentive for proper  
10 implementation.

11 Lost revenue is an important issue. It is also quite complex and does not  
12 lend itself to a one-size-fits-all policy. I understand that KCP&L and other parties  
13 have engaged in discussions regarding the cost recovery mechanisms that are  
14 needed for implementation of Senate Bill No. 376. A rulemaking addressing  
15 proposed rules to implement the provisions of the Missouri Energy Efficiency  
16 Investment Act consolidated the workshop dockets into Docket No. EX-2010-  
17 0368. Until such time as adequate cost recovery mechanisms are in place to  
18 assure KCP&L of a reasonable opportunity to earn its allowed rate of return it is  
19 premature to implement electric to gas substitution payments from KCP&L to  
20 promote natural gas service.

21 **Q: In your opinion, will MGE's proposal that KCP&L pay customers to switch**  
22 **from electric to natural gas appliances benefit non-participating customers?**



1 A: No, non-participating customers will see their bills rise as a result of the added  
2 costs as well as the stranding of fixed cost recovery. In describing the benefits of  
3 his recommendations on page 30, lines 11 through 21, MGE witness Mr. Reed  
4 states that both program participants and non-participants will benefit from his  
5 electric to gas substitution proposal. One of the cost savings necessary for non-  
6 participants to benefit from this program is that future KCP&L revenue  
7 requirements will be lower with the electric to gas substitution than without it. As  
8 recognized by Mr. Reed on page 30, lines 14 and 15, deferral of future generation  
9 and transmission capacity expansion is the only benefit that KCP&L will  
10 theoretically receive from the proposal.

11 However, it is not evident that capacity will be deferred by MGE's  
12 proposed electricity to gas substitution proposal. Since KCP&L is primarily a  
13 summer peaking utility, a reduction in water heating and space heating load will  
14 have minimal impact to capacity needs.

15 Since the impact to capacity needs will be minimal, MGE's electric to gas  
16 substitution proposal is more likely to have a negative impact on rates. Rather  
17 than lowering the rates to non-participating customers, MGE's proposal is more  
18 likely to increase the rates of non-participating customers in the long term.  
19 Revenues to be recovered from customers must inevitably increase, since the  
20 incentive payments must be recovered from ratepayers. Moreover, these  
21 increased costs as well as existing fixed costs must be spread among fewer and  
22 fewer billing determinants with each succeeding rate case causing prices to rise.  
23 See the discussion of the Ratepayer Impact Measurement ("RIM") test in Section

1 V. Analysis of Costs and Benefits of my Rebuttal Testimony for more  
2 information about measuring the impact of electric to gas substitution upon  
3 ratepayers.

4 **Q: Mr. Reed has justified his electric to gas substitution proposal using full fuel**  
5 **cycle economics. What impacts will a shift to full fuel cycle economics have**  
6 **upon KCP&L's existing and future energy efficiency, energy conservation**  
7 **and demand side management activities?**

8 A: Because KCP&L, like most utilities, currently employs site based analyses of  
9 DSM, DR and EE programs, major changes in the market place and in the  
10 economics of these measures will require a complete re-evaluation of all  
11 KCP&L's existing and contemplated programs. Programs that have previously  
12 been justified by site based studies may no longer appear to be beneficial. As  
13 explained below, the numerous unsupported data assumptions inherent in the full-  
14 fuel-cycle approach MGE recommends make the results of any such study highly  
15 unreliable. MGE proposes to modify the energy market and estimate the impact  
16 of the market preferences based upon unreliable, suspect data. Decisions that  
17 establish market preferences should be made based upon reasonable information.  
18 I do not believe that it would be prudent for KCP&L to continue with its current  
19 EE, DSM and DR programs without a full re-evaluation of the programs if the  
20 MPSC were to adopt new EE, DSM and DR measurement standards, revise  
21 program requirements and adopt new methods of program evaluation in response  
22 to the MGE proposal. The need to establish EE, DSM and DR standards,  
23 methods, and data is likely to take some time and introduce delay further activity

1 for some time to come. This result is contrary to the notion of giving customers  
2 more choices in their energy decisions. I believe that the Commission should be  
3 more focused on expanding rather than limiting the options available to utility  
4 customers in Missouri.

5 **Q: How accurate are the data that Mr. Reed employ to assess the costs and**  
6 **benefits of electric to gas substitution?**

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

17 **Q: How have other stakeholders and regulatory agencies addressed electric to**  
18 **gas substitution?**

19 A: Contrary to the implications of Mr. Reed's testimony, there has certainly been no  
20 significant nationwide movement to implement electric to gas substitution. Some  
21 regulatory agencies such as the Arkansas Public Service Commission and Oregon  
22 Public Utility Commission have investigated electric to gas substitution and found  
23 that fuel switching should not be included as part of that state's energy efficiency

1 programs. In Arkansas Public Service Commission Order No. 12 in APSC  
2 Docket No. 06-004-R (a rulemaking for developing and implementing energy  
3 efficiency programs), the Commission ruled that fuel switching may not be  
4 included as part of utilities' energy efficiency and conservation (EE&C) program.  
5 Energy Trust of Oregon, Inc. (Energy Trust), which provides guidance and whose  
6 guidelines are consistent with the Oregon Public Utility Commission, has  
7 developed a policy on fuel-switching as it applies to energy efficiency. This  
8 policy states, "Energy Trust should not advocate fuel-switching, but may provide  
9 fuel-neutral technical information on efficiency options."<sup>3</sup>

10 In the Kansas Corporation Commission Docket No. 09-GIMX-160-GIV,  
11 the Commission Staff filed its report and recommendations on September 28,  
12 2010. Among other recommendations in the Staff report, the Staff recommended

13 Finally, Staff recommends that the Commission should not pursue  
14 a policy to proactively encourage use of natural gas over  
15 electricity. Staff suggests that, at this time, the Commission  
16 maintain its definition of energy efficiency as encourage site  
17 efficiency of the particular fuel used for a particular end-use.  
18 Additionally, maintaining this definition will allow the  
19 Commission to preserve its current benefit-cost analysis for energy  
20 efficiency programs at least until the DOE makes progress in  
21 adopting the recommendation of the NAS Letter Report to  
22 incorporate source-to-site analysis. The Commission can then  
23 build upon the experience of the DOE if the Commission  
24 determines that source-to-site analysis should be incorporated into  
25 benefits-cost analysis at a later date.<sup>4</sup>

26 In addition, the Staff Report also pointed out that issues such as incentives offered  
27 to developers, builders and equipment dealers as well as the line extension  
28 policies of both electric and gas distribution utilities must also be examined. The

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<sup>3</sup> Source <http://energytrust.org/library/policies/4.03.000-P.pdf>

<sup>4</sup> "Second Staff Report and Recommendations", before the State Corporation Commission of the State of Kansas, Docket No. 09-GIMX-160-GIV, page 3.

1 Kansas Staff's recommendations are consistent with my recommendations  
2 contained herein.

3 In cases in which regulatory agencies have accepted electric to gas  
4 substitution within EE&C plans, some have allowed it as an option, but not a  
5 mandate. This approach enables the regulatory agencies to neither encourage nor  
6 discourage electric to gas substitution. Instead, each specific electric to gas  
7 substitution proposal would compete against the other potential EE, DSM, and  
8 DR programs considered by the stakeholders to meet the mandated consumption  
9 and demand reduction targets.

10 With regard to the utilities that Mr. Reed indicates are contemplating  
11 providing incentives for fuel switching, on page 21, lines 14 through 18, of his  
12 Direct Testimony, Mr. Reed states that

13 Additionally, the City of Austin and Texas Gas Service are  
14 discussing initiation of a fuel switching program under which  
15 customers who currently obtain their electric service from the City  
16 of Austin would be eligible for rebates if they switched certain  
17 electric appliances to natural gas and obtained gas service from  
18 Texas Gas Service.

19 A footnote in Mr. Reed's testimony states that this statement was based on a  
20 telephone conversation with representatives of Texas Gas Service Company in  
21 October, 2010. However, the statement quoted above is incorrect. In response to  
22 my inquiry to Austin Energy<sup>5</sup> management regarding Mr. Reed's assertion, I was  
23 advised that Austin Energy has had discussions with Texas Gas Service aimed at  
24 reducing barriers to more efficient use of energy, but Austin Energy rebates are  
25 not being considered.

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<sup>5</sup> Austin Energy is the City of Austin's municipally-owned electric utility.

1           Based upon the above information, I believe that there is no clear  
2           indication that electric to gas substitution programs are gaining acceptance in  
3           other regulatory jurisdictions or by the energy industry.

4   **IV. CRITICAL ASSESSMENT OF MGE PROPOSED INCENTIVES**

5   **Q: Have you examined the Tables and Schedules prepared by Mr. Reed's ?**

6   A: Yes.

7   **Q: Starting with Tables 1 and 2 presented on pages 10 and 11 of his Direct**  
8   **Testimony, has Mr. Reed presented data for KCP&L and MGE or has he**  
9   **used more general information?**

10 A: Mr. Reed relied on an American Gas Association ("AGA") report to provide  
11 estimates of the electric consumption for electric water heaters and resistance  
12 space heating equipment. Unfortunately, this data is not utility specific, and Mr.  
13 Reed has not demonstrated that the data from the AGA report is representative of  
14 and applicable KCP&L. Consider that the footnotes of Mr. Reed's Tables 1 and 2,  
15 states that the data on these tables are from a document entitled "A Comparison of  
16 Energy Use, Operating Costs, and Carbon Dioxide Emissions of Home  
17 Appliances" prepared by the AGA. A review of that AGA document (that is the  
18 source of Mr. Reed's information) indicates that the AGA information was, in  
19 turn, developed by the Gas Technology Institute for Codes & Standards Research  
20 Consortium in a paper entitled "Source Energy and Emission Factors for Building  
21 Energy Consumption" which was published in August 2009. In this original  
22 source of the information relied upon by Mr. Reed is the following statement:

23                   Average energy and emissions calculations may be appropriate for  
24                   inventory purposes, but they do not necessarily provide good

1 information when evaluating competing energy efficiency  
2 measures.<sup>6</sup>

3 The authors of the original information relied upon by Mr. Reed  
4 specifically state that the information used by MGE to evaluate competing energy  
5 efficiency measures do not provide good information for use in such evaluations.  
6 The process of "laundering" data through AGA publications does not make the  
7 data any more useful than they were in their original presentation. Therefore, Mr.  
8 Reed's analyses must be considered suspect and are not reliable for the purposes  
9 Mr. Reed has used them.

10 **Q: Is the general data from the AGA study relied upon by Mr. Reed a**  
11 **reasonable proxy for data specific to KCP&L?**

12 A: I cannot be certain, because the Company does not have appliance-specific  
13 consumption data. However, I am aware that usage varies significantly among  
14 utilities. As an example, Mr. Reed's Table 1 shows that site based water heater  
15 usage totaled 16.6 MMBtu annually. That is the equivalent to 4,864 kWh<sup>7</sup>. The  
16 DOE's Energy Information Administration states that the average household  
17 consumption for electric water heaters in 2001 was 2,552 kWh<sup>8</sup>, which is a  
18 significantly lower figure. A 1985 Electric Power Research Institute ("EPRI")  
19 publication summarized electric water heater load research data for twelve  
20 different utilities measured in 1979. Of course, conservation measures such as  
21 flow restrictors and more efficient appliances have reduced consumption levels  
22 since that time. As a result, the absolute level of consumption from the 1979

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<sup>6</sup> "Source Energy and Emission Factors for Building Energy Consumption", Natural Gas Codes and Standards Research Consortium, August 2009, page 31.

<sup>7</sup> One kWh = 0.003412 MMBtu

<sup>8</sup> See: [http://www.eia.doe.gov/emeu/reps/enduse/er01\\_us\\_tab1.html](http://www.eia.doe.gov/emeu/reps/enduse/er01_us_tab1.html)

1 study may be overstated in comparison to today's usage. However, it is important  
2 to note that the utilities' average annual consumption at the time of the EPRI study  
3 ranged from 4,097 to 9,613 kWh per year. Obviously, with this large magnitude  
4 of variance in usage, one must question the credibility of Mr. Reed's reliance on  
5 the AGA figure as a proxy for KCP&L's Missouri customers.

6 **Q: Please describe your understanding of the calculations shown on Mr. Reed's**  
7 **Schedule JJR-1 and summarized on Table 3 set forth on page 12 of Mr.**  
8 **Reed's Direct Testimony.**

9 A: I believe these calculations are intended to measure the relative costs of  
10 employing water heating and space heating gas and electric appliances. On  
11 Schedule JJR-1 consumption is taken from Table 2, which is measured in MMBtu  
12 using the full fuel cycle approach. The prices are computed using average  
13 revenue per billing unit.

14 **Q: Are there any obvious errors in Schedule JJR-1?**

15 A: Yes, the prices are not measured in the same units as the consumption. In the case  
16 of natural gas, this is only a minor error. For most utilities, an MMBtu of natural  
17 gas is only slightly larger than an MCF of gas. However, the error in the electric  
18 calculation is more egregious. Inexplicably, the consumption is measured in  
19 MMBtu, but the price is stated in terms of Dollars per hundred kWh.

20 **Q: Did you correct those errors?**

21 A: No, I believe these calculations incorporate underlying conceptual errors which  
22 must be corrected before meaningful calculations are possible. In particular, the  
23 consumption used in these calculations represents total energy, including all



1 losses to the site. In the case of natural gas, this represents gas volumes at the  
2 well head. However, the price is not stated at the well head. MGE purchases  
3 natural gas and then bundles the cost of all losses into its retail price. Therefore,  
4 Mr. Reed's inclusion of losses in both the consumption amounts and the prices,  
5 represents a serious double counting. I believe that two alternative calculations  
6 can and should be made to provide useful insights into the fuel substitution  
7 question:

8 1. Full Fuel Cycle - When consumption is measured using the full fuel  
9 cycle, the calculation should show the cost of society's resources  
10 consumed. That is accomplished by using well-head or energy  
11 feedstock prices.

12 2. Rate Payer - The second calculation should be the conventional rate  
13 payer analysis showing the utility's metered and billed quantities and  
14 the rates charged consumers.

15 Both calculations provide meaningful results.

16 **Q: Have you evaluated the full fuel cycle calculation?**

17 A: Yes, but I must qualify it to say that the prices I employed are only rough  
18 approximations. Using the forecasted prices available from the Department of  
19 Energy's Energy Information Administration, I computed the average price for  
20 wellhead gas and for mine-mouth coal, both in units of \$/MMBtu. As the data  
21 show, natural gas is a valued commodity; its price, over three times that of coal,  
22 reflects its desirability. Recognizing that natural gas and coal price forecasts are  
23 subject to error, I evaluated an alternative source of prices - the NYMEX futures

1 market. Since these markets are actively traded and extend for a number of years  
2 into the future, they are not forecasts; they represent the competitive prices  
3 available today for natural gas and coal. Regardless of my choice of pricing  
4 assumption, the conclusions remain the same - the resources consumed by gas  
5 water heaters are more costly than those required by coal generated electricity.  
6 As economists will agree, competitive prices are the best measure of the values  
7 society places on its resources. The conclusion is significant. The total cost of  
8 the natural gas resources consumed for water heating and space heating exceed  
9 the costs for coal, even recognizing the inefficiencies of converting coal to  
10 electricity to serve the end-use needs of consumers. While this conclusion  
11 ignores the absolute level of energy consumed and the environmental impacts of  
12 consuming that energy, the implications of this result are far from trivial; they  
13 have major policy implications.

14 **Q: Have you calculated the potential savings to consumers?**

15 A: Yes, I have computed the alternative annual utility charges for electric and gas  
16 water heating and space heating appliances. The difference between electric and  
17 gas utility charges represents potential savings to the consumer.

18 **Q: What conclusions can you draw from your calculation?**

19 A: Rate payers switching from electricity to natural gas for their water heating needs  
20 alone will experience no savings. To the contrary, their annual bill will increase  
21 by over two hundred dollars per year. This result is markedly different than the  
22 \$200 savings Mr. Reed computed on Table 3. Recall that Mr. Reed's expected  
23 first year acceptance rates for his proposed incentive program projected that 85%

1 of the customers participating in the fuel substitution program would choose to  
2 convert only their water heater. This dubious conclusion is not supported by any  
3 evidence. I strongly suspect that customers would reject the incentives for the  
4 water heater fuel substitution program knowing that they will experience no  
5 savings. Consequently, as explained below, I have expanded my analysis before  
6 making any judgments as to the likelihood that customers would be attracted to  
7 electric to gas substitution on the basis of economics.

8 **V. ANALYSIS OF COSTS AND BENEFITS**

9 **Q: Has the MPSC established a standard methodology for the evaluation of**  
10 **potential EE measures?**

11 A: Yes, as Mr. Reed pointed out, the MPSC has routinely employed the Total  
12 Resource Cost ("TRC") test in its economic analyses.

13 **Q: Could you briefly describe that method?**

14 A: The TRC test, also known as the "All Rate Payers Test", provides a measure of  
15 the net resource expenditures of a DSM program from the point of view of the  
16 utility and its ratepayers as a whole. Resource benefits include the utility's  
17 avoided supply costs. Resource costs include the utility's and participant's direct  
18 costs. Because the utility and its ratepayers are taken as a whole, incentives and  
19 revenue changes are ignored.

20 **Q: Is that method commonly employed to evaluate the effectiveness of EE, DSM**  
21 **and DR measures?**

22 A: Yes. From my experience, the TRC test is method most commonly employed by  
23 state regulators.

1 **Q: Did Mr. Reed provide the results of any TRC tests for his proposed water**  
2 **heating and space heating fuel substitution programs?**

3 A: No, he did not.

4 **Q: Has he provided sufficient information to perform these tests?**

5 A: No, I do not believe so. He has provided very little of the required information.

6 **Q: Did you attempt to perform these tests?**

7 A: Yes, I have attempted to estimate the required data in order to provide a very  
8 crude TRC test.

9 **Q: Please summarize your analysis.**

10 A: The costs exceed the benefits in absolute as well as on a present worth basis.  
11 Even using very favorable assumptions, the Benefit-Cost ratio is only 0.5.

12 **Q: Are you suggesting that all water heater fuel substitution programs should be**  
13 **shelved as a result of your TRC analysis?**

14 A: I prefer not to generalize, especially knowing the quality of data I employed in my  
15 analysis is suspect. However, I can unequivocally conclude that it would be  
16 imprudent to implement the hastily designed electric to gas water heater  
17 substitution program recommended by MGE's witness John Reed on the basis of  
18 economics. Mr. Reed's recommended electric to gas substitution recommendation  
19 should be rejected.

20 **Q: Did you limit your analysis to the TRC test?**

21 A: No, I conducted a Ratepayer Impact Measure test and a Total Participants Test, as  
22 well.

1 **Q: Without delving into the details of these tests, please interpret the results of**  
2 **the Ratepayer Impact Measure test.**

3 A: Again, the costs exceed the benefits in every year as well as on a present worth  
4 basis. While not unexpected, this result suggest that implementation of MGE's  
5 proposed water heater fuel substitution program will result in higher rates for  
6 KCP&L's customers.

7 **Q: What were your results for the Total Participants test?**

8 A: Again, the customer's costs would exceed the associated benefits every year as  
9 well as on a present worth basis. Even using very favorable assumptions, the  
10 Benefit-Cost ratio is only 0.6.

11 **Q: Up until now, you have only discussed a water heater conversion program.**  
12 **Did you perform an analysis of MGE's proposed space heating electric to**  
13 **natural gas fuel substitution program?**

14 A: Yes, I performed a similar analysis.

15 **Q: How did the space heating analysis differ from the water heater analysis?**

16 A: At a general level they did not differ. Even recognizing that much of the data  
17 were not rigorously developed, I still have no reason to believe that the proposed  
18 space heating fuel substitution program would pass the TRC test.

19 **Q: What were the results of the Ratepayer Impact Measure and Total**  
20 **Participants tests?**

21 A: All three tests revealed costs slightly in excess of benefits. Simply put, neither the  
22 participant, the non-participants, nor society as a whole would benefit

1 economically from the substitution of electricity by natural gas for both the water  
2 and space heaters.

3 **VI. ENVIRONMENTAL ISSUES**

4 **Q: Please summarize Mr. Reed's position regarding the potential benefits of fuel**  
5 **substitution.**

6 A: Beginning on page 12, line 13, of his Direct Testimony, Mr. Reed sets forth his  
7 argument that using natural gas rather than electricity results in a reduction in  
8 carbon dioxide emissions. Mr. Reed's argument is predicated upon the  
9 assumption that "... fuel switching programs would reduce the amount of  
10 generation required and therefore reduce the emissions associated with that  
11 reduction in generation."

12 **Q: Do you agree with his arguments?**

13 A: No, I do not agree. There are several problems with the assumptions made in his  
14 arguments. First, whether or not KCP&L will actually reduce output is  
15 problematic. It is more likely that KCP&L, like any economically rational utility,  
16 would sell available capacity and energy in the wholesale supply market  
17 whenever such a sale was profitable. In selling the capacity and energy made  
18 available by fuel switching, KCP&L would be able to generate additional  
19 margins, thereby reducing the costs to serve to other customers. However, in the  
20 process of producing the power to sell the otherwise avoided energy, emissions  
21 will continue to occur as before from electric generation. These additional natural  
22 gas sales will continue to produce pollution as before. As a result, there is some  
23 likelihood that pollution may actually increase since the added pollution from

1 natural gas is added to the pollution from electric generation. This raises the very  
2 real concern that the additional pollution caused by the natural gas appliances will  
3 occur at the customer's site rather than at a remote generation station whose  
4 location was carefully chosen as the most advantageous site for any emissions to  
5 occur. Electric appliances produce little or no carbon or other air pollutants,  
6 unlike natural gas appliances. This factor can and should be examined as a  
7 possible issue in urban non-attainment areas.

8 Second, Mr. Reed's assume some average mix of electric generation fuels.  
9 In practice, any reduction in generation will probably not be made from a base  
10 load coal generating unit, but from a generating resource that can cycle quickly  
11 and has a higher variable cost. Emissions vary by type of generation that is  
12 displaced by EE avoided energy. Moreover, the displaced generating unit will  
13 potentially change from minute to minute as generation units respond to load  
14 changes and other factors. Estimating the actual CO<sub>2</sub> emissions is far more  
15 involved than Mr. Reed's simple comparison suggests. Furthermore, the full fuel  
16 cycle approach advocated by Mr. Reed does not account for the efficiencies and  
17 environmental benefits of renewable resources and nuclear power. The full fuel  
18 cycle analysis penalizes electricity generated by renewable resources and nuclear  
19 energy.

20 **Q: Has he ignored other environmental impacts from his proposed fuel**  
21 **switching programs?**

22 **A:** Yes, I believe he has. As mentioned earlier, generation is primarily a central  
23 station technology. In an electricity to natural gas fuel substitution program,

1 central station emissions are replaced with the emissions from many dispersed  
2 natural gas-fired appliances. Future efforts to further reduce emissions are more  
3 easily and much most cost-efficiently achieved by treating a few central station  
4 sources rather than a large number of small individual in-home installations.

5 **Q: Does the Total Resource Test include an analysis of environmental impacts?**

6 A: Generally, the TRC does not include any considerations of environmental  
7 impacts. However, there is a variant of the TRC that does consider environmental  
8 costs, i.e., the Societal test. The Societal test is an expansion of the TRC that  
9 includes externalities such as environmental impacts, national security, national  
10 economic implications, and other similar hard to define societal costs. The  
11 Societal test also excludes tax credit benefits and uses a different discount rate.  
12 The Societal test has found little practical application with state regulatory  
13 agencies due to the difficulty in quantifying its additional data requirements.

14 **Q: If state regulators are not addressing the question of environmental impacts,  
15 are they being addressed at the national level ?**

16 A: Yes, as Mr. Reed points out in his direct testimony, the DOE is examining many  
17 issues of critical national importance, including consideration of the full fuel cycle  
18 analysis. The issue of pollution has been on the forefront of such examinations  
19 for many years. For the electric utility industry, the federal government has  
20 promulgated increasingly stringent regulations resulting in the development and  
21 implementation of numerous emissions reductions programs.

22 **Q: Has the DOE drawn any conclusions to date?**



1 A: To my knowledge, the DOE has not reached any conclusions regarding the use of  
2 the full fuel cycle approach or the more general policy of encouraging fuel  
3 switching. Since these topics are still under review at the national level, I believe  
4 that it would be premature to adopt the full fuel cycle approach until the approach  
5 has been fully vetted. This would allow the Commission to better review the  
6 benefits and problems with the approach prior to committing to its use and to  
7 more fully examine all aspects of the approach.

8 **Q: At present, electric generators are provided many regulatory incentives to**  
9 **control emissions. How do you see these programs affecting consumer**  
10 **choice?**

11 A: Over time, federal regulations are requiring successively cleaner, albeit more  
12 costly, electric generation technologies. In effect, the cost of generation  
13 emissions is being internalized into the price of electricity.

14 **Q: If the environmental costs of emissions are internalized into the energy prices**  
15 **provided to consumers, would the competitive marketplace address many of**  
16 **the concerns Mr. Reed has voiced?**

17 A: I am a firm believer in allowing the marketplace to guide consumer decisions. As  
18 electric prices necessarily increase, consumers will be able to examine the relative  
19 merits of electric to natural gas fuel switching and make logical decisions without  
20 the need to intervene. At some point, natural gas utilities might demonstrate cost  
21 effective incentives for fuel switching. After careful review, regulators may judge  
22 such expenses as prudent and allow gas utilities to actively encourage fuel

1 substitution programs. However, those programs will not require a mandate for  
2 electric utility participation.

3 **VII. OTHER ISSUES**

4 **Q: On page 5, line 8, through page 7, lines 20, Mr. Reed points out that the full**  
5 **fuel cycle approach was recommended to the Department of Energy**  
6 **("DOE") by the National Research Council ("NRC"). Can you comment on**  
7 **this statement?**

8 A: It is important to note that this is simply a recommendation at this time. To my  
9 knowledge, the DOE has not endorsed this recommendation and other parties  
10 have disputed it. Despite its status as "under review", Mr. Reed has  
11 recommended that the MPSC adopt the concept of full fuel cycle analysis  
12 immediately, treating it as a foregone conclusion. I believe that it would be  
13 premature to act upon the assumption that the DOE will approve the NRC report  
14 in total with no caveats or restrictions. I believe it would be much more  
15 reasonable to await the final outcome of the policy debate and to engage in a more  
16 deliberative examination of the full fuel cycle analysis.

17 **Q: Does reliance upon the NRC report suggest that the interests of the State of**  
18 **Missouri and the interests of DOE are the same?**

19 A: Yes, that is the implication of Mr. Reed's testimony. However, the portion of the  
20 report quoted on page 6 of Mr. Reed's testimony states, in part,

21 The Committee's primary general recommendation is that the  
22 DOE/EERE consider moving over time to the use of a full-fuel-  
23 cycle measure of energy consumption **for assessment of national**  
24 **and environment impacts ... [emphasis added]**

1           Note that the report is specific to national impacts. However, I believe  
2 that the MPSC must also consider whether or not the interests of Missouri  
3 ratepayers are best served by use of the full fuel cycle approach. The interests of  
4 DOE are national and the interests of the MPSC are generally limited to the State  
5 of Missouri. From a national perspective, overall efficiency of energy is  
6 maximized through a combination of resources occurring across any number of  
7 states. From a national perspective, it does not matter in which states the costs of  
8 EE, DSM and DR programs occur nor which states receive the benefits of the  
9 activities. However, from the perspective of a single state, costs incurred  
10 elsewhere and/or benefits received by residents of other states may not be costs  
11 and benefits to inure to that single state. In other words, under the full fuel cycle  
12 approach, Missouri may well be paying the entire costs of increased energy  
13 efficiency, but not receiving all of the benefits resulting from these costs.

14 **Q: Do you have any concerns about the procedures employed to measure energy**  
15 **efficiency using the full fuel cycle approach?**

16 **A:** Yes, I do. The full fuel cycle approach should always employ the actual prices of  
17 electricity and natural gas instead of imputing some other value to the energy  
18 source to compensate for that energy source being either less efficient or more  
19 efficient. The price of electricity should reflect its attendant higher consumption  
20 of energy in producing and delivering electricity compared with natural gas.  
21 Greater energy losses for electricity translated into a higher price, which would  
22 make electricity less economically favorable to natural gas. Therefore, imputing a

1 separate value to natural gas because it has a higher energy efficiency from the  
2 full fuel cycle perspective will double count the benefits of natural gas.

3 **Q: On page 18 of his Direct Testimony, MGE witness Mr. Reed states that**  
4 **KCP&L's residential rate structure provides a price incentive not to switch**  
5 **from electricity to natural gas for certain end-use applications such as space**  
6 **heating. Is that correct?**

7 A: No, KCP&L's rate structure is designed to reflect the cost of providing service.  
8 KCP&L is a summer peaking system whose capacity needs are primarily driven  
9 by summer peak demands. KCP&L's cost of service study seasonally  
10 differentiates costs and clearly demonstrates that KCP&L's costs are much higher  
11 in the summer air-conditioning season than during the winter season. KCP&L's  
12 rate structure is designed to reflect the higher costs of providing service during  
13 peak summer periods. The Company's residential rate structure is not designed as  
14 an incentive to prevent customers from taking natural gas service. It is designed  
15 to reasonably reflect the costs of providing service.

16 **Q: On page 35, line 11, through page 36, line 2, Mr. Reed downplays**  
17 **uncertainties surrounding natural gas prices and availability. Do you agree**  
18 **with his statement on page 35, lines 15 through 16, that "... natural gas prices**  
19 **are forecasted to be much more stable than historical prices."**

20 A: I neither agree nor disagree insofar as that conclusion cannot be reached from the  
21 graph that Mr. Reed references on Figure 1 of his testimony. The forecast is a  
22 point estimate of probabilistic future values. It cannot be compared to actual  
23 prices that were subject to market impacts that have been normalized out of the

1 forecast. A more informative graph would have included high and low price  
2 forecast ranges as well as the range of prices likely to occur at a specified  
3 confidence level. The graph does not support Mr. Reed's contention that future  
4 gas prices will become more stable than past gas prices. As a result, the MPSC  
5 has no assurance that MGE's proposal will produce the best economic alternative  
6 for the consumer. As stated in the NRRRI paper discussed earlier "The problem for  
7 regulators is discerning when electric-to-gas substitution makes economic sense  
8 to customers. Regulators may encourage electric-to-gas substitution, but risk  
9 harming customers when natural gas prices rise."<sup>9</sup> The potential for significant  
10 and sudden changes in natural gas prices is an important concern that the MPSC  
11 should not ignore.

12 **Q: What is your position on long-run availability of natural gas?**

13 A: Mr. Reed has emphasized that known gas reserves have increased with the  
14 quantification of shale gas. However, he misses the point. Natural gas is not a  
15 renewable energy resource; its availability is finite. The same is true of coal.  
16 Relatively speaking, coal is more available than natural gas and policies to  
17 encourage depletion of relative scarce resources should be viewed with caution.

18 **Q: In your opinion, would it be appropriate for the Commission to consider fuel  
19 substitution programs using renewable energy sources before implementing  
20 those using natural gas ?**

21 A: Yes. Sound policy would call for incentives to disseminate fuel switching  
22 programs employing renewable technologies before considering electric to gas  
23 substitution. Obviously, renewable programs, especially zero emissions programs

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<sup>9</sup> Ibid, page 9.

1 such as solar water heating, should be considered before fuel substitution  
2 programs. However, Mr. Reed did not examine the economics of encouraging  
3 solar panels to pre-heat water feeding electric or gas-fired water heaters. In the  
4 same vein, solar panels could serve to reduce the energy requirements for oil-fired  
5 or gas-fired hot water heating systems. Frankly, I cannot comment on the  
6 economics of these alternatives without a much closer and in-depth analysis. I  
7 can only conclude that rushing to implement MGE's proposal for an electric to  
8 natural gas fuel switching program without considering other potentially more  
9 beneficial programs would be neither reasonable nor prudent.

10 **VIII. SUMMARY AND CONCLUSION**

11 **Q: Please summarize your rebuttal of MGE's electric to gas substitution**  
12 **proposal.**

13 **A:** I recommend that the MPSC reject MGE's proposed electric to gas substitution  
14 proposal at the present time. MGE's proposal seeks to achieve a greater market  
15 saturation of natural gas using appliances by regulatory mandates instead of  
16 market interactions, an action that will distort economically efficient price signals  
17 provided to consumers. MGE's proposal will result in KCP&L failing to recover  
18 the fixed costs associated with the lost revenues of customers switching. Since  
19 MGE's proposal will not result in any avoided capacity, the ultimate effect of the  
20 proposal is to increase the rates paid by non-participants. Among the more  
21 egregious problems with Mr. Reed's recommendations is that his analyses are  
22 flawed and they do not reflect accurate information. As a result, the conclusions  
23 and results of his analyses are not credible. In addition, MGE's proposal would

1 seriously undermine EE, DSM and DR programs that have previously been shown  
2 to be beneficial to all parties and would stifle development and implementation of  
3 additional EE, DSM and DR program activity. MGE's proposal fails to consider  
4 that these incentive programs could possibly be implemented without any  
5 participation from KCP&L. Finally, the costs and benefits measured by the full  
6 fuel cycle approach do not measure the costs and benefits of Missouri ratepayers  
7 and the process does not insure that either economic efficiency or energy  
8 efficiency in Missouri achieved. For these reasons and for the reasons set forth in  
9 my Rebuttal Testimony, I recommend that the Commission reject MGE's electric  
10 to gas substitution proposal.

11 **Q: Does this conclude your Rebuttal Testimony?**

12 **A:** Yes, it does.





### QUALIFICATIONS AND EXPERIENCE

I graduated from the University of Arkansas at Fayetteville in 1974 with a Bachelor of Science degree in Public Administration. In 1980, I received a Master of Business Administration degree from Saint Edward's University in Austin, Texas. Upon graduation from the University of Arkansas, I was employed by the Arkansas Public Service Commission and held several positions with the Arkansas Public Service Commission staff, including Chief of the Rates Section and Interim Chief of the Finance Section. My activities in these positions included developing and presenting staff analyses and testimony concerning cost allocation studies and rate design for electric, natural gas, water, and telephone utilities; ensuring utility compliance with Arkansas Public Service Commission rate and tariff requirements; and providing supervision and management to staff financial analysts in the determination of utility cost of capital and capital structure.

In 1978, I accepted the position of Manager of Electric and Water Rates in the Economic Research Division of the Public Utility Commission of Texas. In this capacity, I was responsible for staff analyses, testimony, and activities concerning cost analysis, rate design, pricing strategies, tariffs, and econometric applications for regulated utilities.

In 1980, I was employed by Gilbert Associates, Inc. as a Management Consultant. I was promoted to Senior Management Consultant in March 1981 and to Principal Management Consultant in July 1981. In July 1981, I became Manager of Cost and Load Analysis in Gilbert Associates' Austin office. My responsibilities at this consulting firm included the duties and areas of expertise previously described, as well as management of projects and project teams working on behalf of utility clients.

I became a principal at Management Applications Consulting, ("MAC") at the time of its formation in May 1984. My experience at MAC included continued work in the electric and gas utility industry representing investor-owned utilities, electric cooperatives, and municipally-owned utility systems. My duties at MAC included the duties and areas of expertise described above. I remained a principal at MAC from May 1984 until January 2006.

From January 2006 through March 2007, I was employed as a management consultant by R. J. Covington Consulting, LLC. While employed by this firm, I continued to provide consulting services similar to those previously described as well as work in the areas of business valuation, affiliate transactions, and revenue requirement adjustments in regulatory proceedings.

In April 2007 I returned to MAC as a managing consultant. My responsibilities and job duties at MAC are the same as those previously described.

I have previously submitted testimony before the Public Service Commission of the State of Montana, the Public Utility Commission of Texas, the Arkansas Public Service Commission, the Louisiana Public Service Commission, the Railroad Commission of Texas, the Public Service Commission of Wyoming, the North Carolina Utilities Commission, the Arizona Corporation Commission, the New Mexico Public Regulation Commission, and the New Hampshire Public Utilities Commission. In addition, I have provided formal rate presentations to a number of municipally-owned and cooperative electric utilities. I am currently, or have in the past, been a member of the following organizations: Association of Energy Economics, Association of Energy Engineers, Association of Energy Services Professionals, American Statistical Association, NARUC Committee on Utility Billing Practices (past member), and the NARUC Ad Hoc Committee on Section 133 of PURPA (past member). During the past 34 years, I have made a number of presentations at various industry associations and trade groups.