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| Exhibit No.: | |
| Issues: | Demand Response Programs |
| Witness: | Randy S. Gross |
| Sponsoring Party: | MO PSC Staff |
| Type of Exhibit: | Rebuttal Testimony |
| Case No.: | EO-2014-0095 |
| Date Testimony Prepared: | March 28, 2014 |

# MISSOURI PUBLIC SERVICE COMMISSION

## REGULATORY REVIEW DIVISION

# REBUTTAL TESTIMONY

## OF

## RANDY S. GROSS

## KANSAS CITY POWER & LIGHT COMPANY

## Case NO. EO-2014-0095

***Jefferson City, Missouri***
***March 2014***

## BEFORE THE PUBLIC SERVICE COMMISSION

## OF THE STATE OF MISSOURI

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| In the Matter of Kansas City Power & Light Company's Filing for Approval of Demand-Side Programs and for Authority to Establish a Demand-Side Programs Investment Mechanism | ) ) ) ) ) | Case No. EO-2014-0095 |

### AFFIDAVIT OF RANDY S. GROSS

**STATE OF MISSOURI** )
) **ss**
**COUNTY OF COLE** )

Randy S. Gross, of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of 11 pages of Rebuttal Testimony to be presented in the above case, that the answers in the following Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

Randy S. Gross

Subscribed and sworn to before me this 27th day of March, 2014.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 03, 2014
Commission Number: 10942086

Notary Public

**REBUTTAL TESTIMONY**

**OF**

**RANDY S. GROSS**

**KANSAS CITY POWER & LIGHT COMPANY**

**FILE NO. EO-2014-0095**

Q. Please state your name and business address.

A. My name is Randy S. Gross, and my business address is Missouri Public Service Commission, P. O. Box 360, Jefferson City, Missouri 65102.

Q. What is your present position at the Missouri Public Service Commission ("Commission")?

A. I am an Engineer in the Energy Resource Analysis Section of the Tariff, Safety, Economic and Engineering Department of the Regulatory Review Division.

Q. Please state your educational background and experience.

A. These are contained in Schedule RSG-1.

Q. Is your testimony consistent with Staff's overall recommendation to reject Kansas City Power & Light Company's ("KCPL") application made under the Commission's MEEIA rules[1]?

A. Yes. For the reasons discussed by various Staff witnesses I recommend the Commission reject KCPL's MEEIA application.

Q. Do you identify and discuss any deficiencies in KCPL's filing?

[1] The Commission's rules promulgated as a result of the Missouri Energy Efficiency Investment Act of 2009 ("MEEIA") (Section 393.1075, RSMo, Supp. 2012) include Rules 4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093 and 4 CSR 240-20.094.

A. Yes. I will provide Staff's position on KCPL's deficiencies in the following areas:

- The Demand Response Incentive program. I will discuss how the proposed program submitted in this filing includes program participants that do not meet the rule requirements to qualify as a demand-side program.
- The Programmable Thermostat program. I will discuss how KCPL has added an Electric Power Research Institute ("EPRI") pilot program to this program, how this EPRI pilot program should be submitted as a separate program pilot and how the EPRI pilot program as currently submitted may create a risk to ratepayers.

Q. What other information do you provide in your rebuttal testimony?

A. I provide Staff's review, analysis and recommendations concerning KCPL's proposed Demand Response Incentive (currently known as MPower) and Programmable Thermostat (currently known as Energy Optimizer) demand response programs with respect to the minimum filing requirements contained in Rules 4 CSR 240-20.094(3) and 4 CSR 240-3.164(3)(C).

I present Staff's following recommendations related to KCPL's proposed Demand Response Incentive and Programmable Thermostat demand response programs:

1. The Commission reject the Demand Response Incentive program as presented in KCPL's filing.
2. The Commission reject KCPL's proposed Programmable Thermostat program.

Q. What are KCPL's Demand Response Incentive and Programmable Thermostat programs?

A. They are two existing KCPL demand response programs that KCPL has utilized to curtail KCPL's load during the summer months when peak electric demand occurs. Demand Response Incentive (known today as "MPower") is a voluntary load curtailment program for large commercial and industrial customers and provides a payment to customers for curtailing their load when requested to do so by KCPL.

Programmable Thermostat (known today as "Energy Optimizer") is an air conditioning cycling program for residential and small commercial customers that allows KCPL to cycle program participants' air conditioners off and on when KCPL provided thermostats receive a paging signal from KCPL that calls for a load reduction.[2]

Q. Has KCPL provided a description of the proposed plans for its evaluation, measurement and verification ("EM&V") of the Programmable Thermostat or Demand Response Incentive programs ("EM&V plans")?

A. Yes. KCPL witness Kimberly H. Winslow provides a description of the proposed EM&V plans in her testimony in Schedule KHW-2, pages 53 and 54 for the Programmable Thermostat program and pages 84 and 85 for the Demand Response Incentive program.

Q. What is the purpose of EM&V plans?

A. The purpose of the EM&V plans is to evaluate the process of a utility's demand-side program delivery and oversight and also to estimate and/or verify the estimated actual energy and demand savings, lost utility revenues, cost effectiveness, and other effects of demand-side programs such as customer satisfaction, etc.

[2] Direct testimony of Kimberly H. Winslow page 5, line 1 and Schedule KHW-2 pages 49-54 and pages 81-85

Q. Has Staff reviewed KCPL's EM&V plans?

A. Yes.

Q. Does Staff have any comments regarding KCPL's EM&V plans for these two programs?

A. Staff reviewed both of these EM&V plans and finds them to be reasonable, but Staff recommends KCPL require its EM&V contractor to prepare the EM&V reports in accordance with industry best practices, including the International Performance Measurement and Verification Protocol ("IPMVP"), similar to the GMO MEEIA filing.[3]

Q. Do KCPL's EM&V plans satisfy the requirements of Rule 4 CSR 240-3.163(C)(13)?

A. Yes they do.

Q. Does KCPL's filing include a current market potential study as required by Rule 4 CSR 240-3.164(2)(A)?

A. Yes. KCPL's filing did include a current market potential study found in Kimberly H. Winslow's testimony as Schedule KHW-5.

Q. What is the significance of a market potential study?

A. Under the Commission rule, such studies are to include the target customer base, baseline annual energy and demand forecasts, realistic achievable potential ("RAP") and maximum achievable potential ("MAP")[4] for annual energy savings and annual demand savings for individual measures, for individual programs such as Demand Response Incentive (currently known as MPower) and Programmable Thermostat (currently known as Energy Optimizer). A current market potential study is important when the utility screens potential

[3] Direct testimony of Allen D. Dennis, page 23, lines 12-14 of Docket File No. EO-2012-0009,
[4] Realistic achievable potential is defined in 4 CSR 240-3.164(1) (T).

measures and programs, but in particular, it is necessary to develop a 20-year baseline of the annual energy and demand forecasts and savings for RAP and MAP. The information contained in a potential study will provide a more accurate determination of target customer penetration rates and will aid in the development of a MEEIA implementation plan that has the goal of achieving all cost-effective demand-side savings.[5] It is typical for demand response programs to initially target the "low hanging fruit," i.e., the easy to achieve demand response reductions. To increase participation in established programs, the program design may very well require an increased or different incentive than what has been used to date.

Q. What estimated incremental annual demand savings has KCPL included in its MEEIA application?

A. Per KCPL witness Kimberly H. Winslow, the Programmable Thermostat program demand savings will be 20,019 kW for 2014 and 19,931 kW for 2015.[6] The Demand Response Incentive Program has MW demand savings of 39,065 for each year in 2014 and 2015.[7]

Q. Did KCPL provide the detailed description of each demand response program required by Rule 4 CSR 240-3.164(2)(C)?

A. Yes. The detailed description of each plan was provided in the testimony of KCPL witness Kimberly H. Winslow. [8]

Q. Does Staff have any concerns with either KCPL's Demand Response Incentive or Programmable Thermostat programs?

[5] Section 393.1075 is known as the Missouri Energy Efficiency Investment Act ("MEEIA") and Section 4 of MEEIA directs that "The commission shall permit electric corporations to implement commission-approved demand-side programs proposed pursuant to this section with a goal of achieving all cost-effective demand-side saving."
[6] Direct testimony of Kimberly H. Winslow Schedule KHW-2 page 50
[7] Direct testimony of Kimberly H. Winslow Schedule KHW-2 page 81
[8] Direct testimony of Kimberly H. Winslow Schedule KHW-2 pages 49-54 and pages 81-85

A. Yes, Staff has concern with both programs.

Q. Please explain Staff's concerns.

A. The Demand Response Incentive program (known today as MPower) does not satisfy or meet the MEEIA definition of a demand-side program when customers self-generate. The calculated value of the Total Resource Cost ("TRC") test is incorrect because it includes the program costs and demand savings associated with the self-generating customers.

Q. Please explain.

A. Rule 4 CSR 240-20.093(1)(L) defines a Demand-side program as "… any program conducted by the utility to **modify the net consumption of electricity on the retail side of the customer's side of the meter** including, but not limited to, energy efficiency measures, load management, demand response, and interruptible or curtailable load". (emphasis added).

Rule 4 CSR 240-20.093(1) (U) defines Energy Efficiency as "measures that reduce the amount of electricity required to achieve a given end use," i.e., replacing a 65-watt incandescent light bulb with a 15-watt CFL that produces the same amount of light as the incandescent.

Rule 4 CSR 240-20.093(1)(K) defines Demand Response as "… measures that decrease peak demand or shift demand to off-peak periods."

When customers self-generate in response to KCPL's call for a curtailment event, the customer can meet the contractual requirements of the Demand Response Incentive tariff[9] by reducing the load on KCPL's side of the meter and, therefore, may qualify for the incentive payment. If the customer's self-generation capability either meets or exceeds the contracted load reduction amount and the customers choose to not interrupt or curtail load, the self-

[9] Direct Testimony of Kim Winslow, Schedule KHW-3, pages 11-15

generation may not modify the net consumption of electricity on the customer's side of the meter. Staff understands that KCPL can only verify the load reduction on KCPL's side of the meter and not on the customer's retail side of the meter. [10] Customers who self-generate and, therefore, do not reduce load on their side of the meter, do not satisfy the requirements for the program to qualify as a demand-side program.

Q. How many self-generation customers presently participate in the existing MPower program and are currently being proposed to participate in the new Demand Response Incentive program?

A. KCPL indicated that approximately 45% of the 39 MW of MPower load reduction is accomplished through self-generation.[11] KCPL also indicated it has utilized MPower to meet operational and reliability needs on system peak days, not for economic reasons.[12] This means approximately 45% of the MPower load reduction incorporated in KCPL's MEEIA application is attributable to non-eligible demand-side program participants.

Q. Does Staff have a recommendation on how to resolve this issue?

A. Staff recommends the Commission reject KCPL's proposed Demand Response Incentive program. Staff includes a discussion of the modifications necessary for the Demand Response Incentive program that need to occur before the Commission can even begin to modify KCPL's proposed Demand Response Incentive program to be consistent with MEEIA and the MEEIA rules. Any modification to the Demand Response Incentive program should reflect only qualified program participants. The modification should also include a revised TRC calculation to reflect the change in the participants.

[10] January 31 or February 7, 2014 technical conference.
[11] February 14, 2014 response to stakeholder questions from the February 7, 2014 technical conference.
[12] *Id.*

Q. If a Demand Response Incentive program is modified, what will happen to the self-generating customers who are not eligible to participate in this MEEIA program?

A. The self-generating customers can continue to participate in the current MPower program.

Q. What financial impact will modifying the percentage of eligible participants in the MEEIA Demand Response Incentive program have on KCPL?

A. Staff understands that KCPL currently recovers the cost for the MPower program through the rate case process. The primary difference between cost recovery through an approved MEEIA program, such as the proposed Demand Response Incentive program, versus through a rate case, is the timing of the recovery.

Overall, if this proposed program excludes self-generating customers, KCPL will benefit from this arrangement because KCPL will receive more timely cost recovery of the costs associated with this modified MEEIA program, while receiving cost recovery for MPower as set in the last rate case.

Q. What is the calculated TRC for the Demand Response Incentive program and what are Staff's concerns with this calculated value?

A. KCPL calculated a 5.076 TRC for this program. A TRC of 1.0 is considered cost effective, but KCPL's TRC calculation for this program reflects both self-generating customers and non-self-generating customers. KCPL should revise this calculation to include only the customers who do not self-generate.

Q. What are Staff's concerns with the Programmable Thermostat program?

A. KCPL indicated that "Beginning in 2014, KCPL will be testing the implementation of new Wi-Fi smart thermostats (two-way communication) so that [it can]

begin to evaluate the potential of smart thermostats".[13] Staff's review of the Programmable Thermostat Program Description[14] did not find any reference to a "smart thermostat." Staff's review of the tariff sheets did find mention of a "Wi-Fi" signal but no reference to any "smart thermostat."[15] Staff recommends the Commission reject the Programmable Thermostat Program Description and tariff sheets as deficient. During the technical conferences with KCPL and in its written response to questions, KCPL indicated that these "smart thermostats" are proposed to be implemented as part of an EPRI pilot program in which KCPL has agreed to participate as a host utility.

Q. Are these "smart thermostats" different than the thermostats in the current Energy Optimizer program and, if so, in what way?

A. Yes. The current Energy Optimizer thermostats use a one-way paging signal from KCPL to the customers' air conditioners to cycle on and off during peak demand events. The proposed "smart thermostats" will be Honeywell "Wi-Fi" thermostats that will utilize the Internet for two-way communications. This 'Wi-Fi" thermostat will receive a signal from KCPL to the customers' air conditioners to cycle on and off during peak demand events and will transmit the customers' information back to KCPL utilizing some form of a wireless network over the Internet.

Q. Can you provide more details and explanation concerning the "Wi-Fi" thermostats, including: What type and how the wireless network is utilized; What KCPL and customer information is involved; Who owns the customer information; What data privacy issues are involved and what measures will be implemented to address them; What cyber

[13] Direct testimony of Kimberly H. Winslow page 8, lines 16-18.
[14] Direct testimony of Kimberly H. Winslow Schedule KHW-2 pages 49-54
[15] Direct testimony of Kimberly H. Winslow Schedule KHW-3 pages 27 and 28.

security measures will be implemented to protect both KCPL and the customers; and, More details concerning the EPRI program scope, goals and schedule for implementation?

A. No. This information was not provided with KCPL's filing. KCPL did provide some additional information concerning the EPRI program in response to Staff's questions during the technical conferences, but not to the degree necessary to address all the privacy and security concerns identified above.

Q. Does Staff have a recommendation for this program so it will be an acceptable program per the current MEEIA rules?

A. Yes. KCPL describes this program as an "EPRI pilot program"[16] and explains that "KCP&L-MO will participate in the EPRI project as a host utility conducting a trial under the MO MEEIA framework."[17]

Rule 4 CSR 240-3.164(3) "Designation of Program Pilots" states in part, "For programs designed to operate on a limited basis for evaluation purposes before full implementation (program pilot), the utility shall provide as much of the information required under subsections (2)(C) through (E) as is practical and shall include explicit questions that the program will address… ." Staff recommends the Commission reject KCPL's proposed Programmable Thermostat Program. Staff further recommends KCPL submit the EPRI pilot program for consideration as a standalone program pilot in accordance with the requirements of 4 CSR 240-3.164(3) "Designation of Program Pilots".

Q. Does this complete your rebuttal testimony?

A. Yes.

[16] KCP&L written response to Technical Conference #3, page 5.
[17] KCP&L written response to Technical Conference #3, page 6.

# Randy S. Gross

## Educational Background and Work Experience

I am a Utility Regulatory Engineer I in the Energy Unit of the Utility Operations Department of the Regulatory Review Division. I have Master and Bachelor of Science degrees in Electrical Engineering from the University of Missouri at Columbia. I am an active licensed Professional Engineer in the states of Kansas and Missouri with inactive licenses in Arizona and Illinois. I have co-authored nine technical papers in the areas of process instrumentation and controls, power plant performance monitoring and information technology. My work experience spans more than 39 years in electrical and instrumentation and control detailed design, information technology, training, software verification and validation, telecommunication, project management and controls, construction management, contract administration, plant start-up, project oversight, plant operating procedures, design basis reconstitution, equipment technical specifications and procurement, nuclear plant and site, detailed design engineering, plant modifications and engineering procedures. From 1972-1997, I was employed by Black & Veatch with responsibilities in electrical, instrumentation and control engineering and project management. From 1997-2001, I was employed by the Foxboro Company (Invensys) as a Principal Account Manager for Distributed Control Systems (DCS) that included hardware, software and instrumentation. From 2001-2002, I provided consulting services for the Argosy Console company in the areas of process engineering and re-engineering, supply chain management, Quality Assurance, Six Sigma and Safety program implementations.

From 2002-2005, I provided contract engineering services to AmerenUE at the Callaway Nuclear Station in the areas of Software Verification and Validation, INPO accredited training, Project Management, Cost and Schedule controls, Digital Control System procedures

and Plant Operation procedures. In 2005, I provided contract detailed instrumentation and control engineering services for the Process Division of Burns & McDonnell Engineering for the Conoco Phillips refinery in Amarillo, TX. In 2006, I was employed by CIBER as a Senior Strategist with responsibilities in Project Oversight for large software development projects and Continuity of Operations Plans. From 2007-2009, I provided staff augmentation contract engineering services for the Wolf Creek Nuclear Operating Company (WCNOC) at their Wolf Creek Nuclear Power Station as a Senior Design Professional Engineer for major design projects, emergent engineering issues and plant refueling outage engineering. In 2009, I was employed with Black & Veatch as the Nuclear Division Business Line Manager with responsibilities for business development, outside sale and marketing. I have been employed by the Missouri Public Service Commission since February 2010 as a staff Engineer to provide technical expertise in the areas of smart grid deployment and implementation, transmission, distribution, demand response, renewable/alternative energy sources, plug in hybrid and electric vehicles and coal carbon capture and sequestration. I attended the Commission's Missouri Energy Efficiency Investment Act of 2009 ("MEEIA") rulemaking workshops held in April through June, 2010 and participate in workshops addressing issues, impacts, deployment and implementation for demand response aggregation and smart grid issues. I am currently serving on the Organization of MISO States Demand Response and Technology independent working group, the NARUC staff Subcommittee on Clean Coal and Carbon Sequestration, and have worked with EISPC on various transmission line planning tasks.

## Randy S. Gross

Other cases I have been assigned to or participated are as follows:

| Date Filed | Case Number | Company Name |
|---|---|---|
| 11/10/2010 | ER-2010-0355 | Kansas City Power & Light Company |
| 11/17/2010 | ER-2010-0356 | Kansas City Power & Light Company<br>Greater Missouri Operations Company |
| 05/10/2011 | ER-2011-0028` | Ameren Missouri |
| 01/06/2012 | EO-2011-0271 | Ameren Missouri |
| 03/20/2012 | EO-2012-0009 | Kansas City Power & Light Company<br>Greater Missouri Operations Company |
| 04/12/2012 | EO-2012-0142 | Ameren Missouri |
| 08/02/2012 | ER-2012-1074 | Kansas City Power & Light Company |
| 08/13/2012 | ER-2012-0175 | Kansas City Power & Light Company<br>Greater Missouri Operations Company |
| 09/06/2012 | EO-2012-323 | Kansas City Power & Light Company |
| 09/06/2012 | EO-2012-324 | Kansas City Power & Light Company<br>Greater Missouri Operations Company |
| 10/22/2012 | ER-2012-0166 | Ameren Missouri |
| 11/30/2012 | ER-2012-0345 | Empire District Electric |
| 02/26/2013 | EO-2013-0114 | Empire District Electric |
| 04/25/2013 | EO-2013-0424 | Ameren Missouri |
| 05/29/2013 | EO-2013-0325 | Kansas City Power & Light Company<br>Greater Missouri Operations Company |
| 08/20/2013 | EO-2013-0537 | Kansas City Power & Light Company |
| 08/20/2013 | EO-2013-0538 | Kansas City Power & Light Company<br>Greater Missouri Operations Company |
| 08/28/2013 | EO-2013-0325 | Ameren Missouri |
| 12/02/2013 | EO-2013-0547 | Empire District Electric |