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Witness: Jane E. Epperson
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Economic Development –
Division of Energy
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Case No.: EO-2018-0211

MISSOURI PUBLIC SERVICE COMMISSION

UNION ELECTRIC COMPANY d/b/a AMEREN MISSOURI

CASE NO. EO-2018-0211

REBUTTAL TESTIMONY

OF

JANE E. EPPERSON

ON

BEHALF OF

MISSOURI DEPARTMENT OF ECONOMIC DEVELOPMENT

DIVISION OF ENERGY

Jefferson City, Missouri

August 30, 2018

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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Jane E. Epperson. My business address is 301 West High Street,
4 Suite 720, PO Box 1766, Jefferson City, Missouri 65102.

5 **Q. By whom and in what capacity are you employed?**

6 A. I am employed by the Missouri Department of Economic Development, Division of
7 Energy ("DE") as an Energy Policy Analyst.

8 **Q. On whose behalf are you testifying?**

9 A. I am testifying on behalf of the Missouri Department of Economic Development,
10 Division of Energy.

11 **Q. Please describe your educational background and employment experience.**

12 A. I received my Masters of Science in Geology from the University of Missouri –
13 Columbia and my Bachelor of Arts degree in Geology from Stephens College,
14 Columbia, Missouri. I began work with DE in 2014 as an Energy Policy Analyst.
15 In that capacity I have filed testimony in prior cases (ER-2014-0370, ER-2014-
16 0351, ER-2014-0258, ER-2016-0179), participated in Missouri Energy Efficiency
17 Investment Act ("MEEIA") rule revision dockets and various electric and gas
18 collaboratives, contributed to development of the Comprehensive State Energy
19 Plan and provided project management for development of Missouri's first,
20 statewide Technical Reference Manual. Prior to working with DE, I was employed
21 by the Missouri Department of Conservation as Supervisor of the Policy
22 Coordination Unit, which was responsible for statewide, regional, and
23 Conservation Area planning; statewide compliance with environmental and cultural

1 resource laws; Missouri River, Mississippi River and White River basin interstate
2 coordination; and human dimensions (survey) research. Prior to working with the
3 Missouri Department of Conservation, I was employed as a Hydrologist III with the
4 Missouri Department of Natural Resources – Director’s Office, focusing on
5 interstate water policy and management issues.

6 **II. PURPOSE AND SUMMARY OF TESTIMONY**

7 **Q. What is the purpose of your Rebuttal Testimony in this proceeding?**

8 A. The purpose of my testimony is to recommend that Union Electric Company d/b/a
9 Ameren Missouri’s (“Ameren Missouri” or “Company”) maintain combined heat and
10 power (“CHP”) as an eligible Business Custom measure in the Company’s third
11 cycle of MEEIA programs (“Cycle 3”). CHP is an efficient option for meeting some
12 large customers’ energy needs and is an eligible resource in certain cases under
13 MEEIA. The Company has previously included CHP in its Business Custom
14 program. DE is willing to work with the Company and stakeholders to address any
15 uncertainties related to the calculation of savings from CHP.

16 **III. COMBINED HEAT AND POWER**

17 **Q. What is CHP?**

18 A. CHP (also known as “cogeneration”) refers to an array of proven technologies that
19 concurrently generate electricity and useful thermal energy from the same fuel
20 source (conventional or renewable). A simple illustration of a separate heat and
21 power system is a typical commercial or industrial building that purchases
22 electricity generated by a utility, but that has a boiler in the basement that makes
23 hot water to heat the building. Thus, two sources of fuel are needed to meet the

1 building's electric and thermal energy needs. CHP systems use one fuel to make
2 both electric and thermal energy. This is accomplished by recovering the otherwise
3 wasted heat from the electric generation process and using it to provide the
4 thermal load of the building. CHP results in a total system efficiency of around 75
5 percent, compared with separate heat and power at around 50 percent.¹ CHP can
6 serve as the main power source in a localized "microgrid," improving energy
7 reliability and resiliency for critical infrastructure such as emergency services.

8 **Q. Is CHP an eligible measure under the MEEIA statute and rules?**

9 A. Yes. Section 393.1075.2(3), RSMo. defines a "demand-side program" as, "... any
10 program conducted by the utility to **modify** the net consumption of electricity on
11 the retail customer's side of the electric meter, **including but not limited to** energy
12 efficiency measures, rate management, demand response, and interruptible or
13 curtailable load ..." (emphases added). Thus, a demand-side program does not
14 have to "reduce" net electricity consumption by a customer – it only has to "modify"
15 consumption, e.g., by reducing the amount of electric utility service used by a
16 customer and allowing them to use energy more efficiently, as allowed for by CHP.
17 The list of potential program types is not meant to be exhaustive, as indicated by
18 the phrase, "including but not limited to."

¹ Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Direct Testimony of Jane Epperson on Behalf of Missouri Department of Economic Development – Division of Energy, March 2, 2018, pages 4-5, lines 7-16 and 1-2; U.S. Department of Energy, Midwest CHP Technical Assistance Partnerships, 2017, "CHP, The Concept – Combined Heat and Power and Waste Heat to Power for Industrial, Institutional, and Commercial Facilities," presentation, June 27, Toledo, Ohio, http://www.midwestchptap.org/events/20170627/5_Cuttica_CHP_the_Concept_6-27-17.pdf, slide 7.

1 Additionally, I would note that while the Commission’s Final Order of Rulemaking
2 on revisions to the rules implementing MEEIA did not include CHP as an explicitly
3 eligible type of MEEIA program, CHP was not excluded from MEEIA. The
4 Commission stated, in part, that, “... combined heat and power and distributed
5 generation may qualify for a demand-side program under some circumstances
6 ”² Based on this ruling, CHP should be considered as an eligible MEEIA custom
7 program measure.

8 **Q. Has CHP been included as an eligible MEEIA program measure approved by**
9 **the Commission?**

10 A. Yes. CHP was included as a measure in the Company’s second cycle Business
11 Custom program.³ It was also included in the second cycle MEEIA portfolios of
12 Kansas City Power & Light Company (“KCP&L”) and KCP&L Greater Missouri
13 Operations Company.⁴

² Missouri Public Service Commission Case No. EX-2016-0334, *In the Matter of Proposed Amendments to the Missouri Public Service Commission’s Rules Relating to the Missouri Energy Efficiency Investment Act*, Final Order of Rulemaking (4 CSR 240-20.092), June 28, 2017, pages 3-4.

³ Missouri Public Service Commission Case No. EO-2015-0055, *In the Matter of Union Electric Company d/b/a Ameren Missouri’s 2nd Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA*, Non-Unanimous Stipulation and Agreement, February 5, 2016, page 3.

⁴ Missouri Public Service Commission Case Nos. EO-2015-0240 and EO-2015-0241, *In the Matter of Kansas City Power & Light Company’s Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism and In the Matter of KCP&L Greater Missouri Operations Company’s Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism*, Non-Unanimous Stipulation and Agreement Resolving MEEIA Filings, November 23, 2015, page 4.

1 **Q. Does the Company propose the same treatment of CHP in Cycle 3?**

2 A. No. The Company cites a lack of certainty as to how to quantify savings from CHP.⁵
3 However, there are methods for doing so that should be explored by stakeholders.⁶
4 DE has offered in the past to work on defining such methods and remains willing
5 to do so.

6 **Q. What is DE's recommendation?**

7 A. DE recommends maintaining CHP as an eligible Business Custom program
8 measure. DE remains willing to work with the Company and all interested
9 stakeholders to address any uncertainties related to the calculation of savings.

10 **IV. CONCLUSIONS**

11 **Q. Please summarize your conclusions and recommendations.**

12 A. Consistent with past practice and the MEEIA statute, DE recommends maintaining
13 CHP as an eligible Business Custom program measure. DE remains willing to work
14 with the Company and stakeholders to address any uncertainties related to the
15 calculation of savings from CHP.

⁵ Company response to Data Request DED-DE No. 203 A.

⁶ See:

(1) Darrow, Ken, Tidball, Rick, Wang, James, and Hampson, Anne. 2015. *Catalog of CHP Technologies*. "Appendix A: Expressing CHP Efficiency." U.S. Environmental Protection Agency, Combined Heat and Power Partnership. https://www.epa.gov/sites/production/files/2015-07/documents/catalog_of_chp_technologies_appendix_a_expressing_chp_efficiency.pdf.

(2) Illinois Energy Efficiency Stakeholder Advisory Group. 2017. *Illinois Statewide Technical Reference Manual for Energy Efficiency*. Version 6.0. http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Version_6/Final/IL-TRM_Version_6.0_dated_February_8_2017_Final_Volumes_1-4_Compiled.pdf. Pages 280-287.

(3) Simons, George, and Barsun, Stephan. 2017. The Uniform Methods Project: Methods for Determining Energy-Efficiency Savings for Specific Measures. "Chapter 23: Combined Heat and Power Evaluation Protocol." Golden, CO: National Renewable Energy Laboratory. NREL/ SR-7A40-68579. <http://www.nrel.gov/docs/fy18osti/68579.pdf>.

1 **Q. Does this conclude your Rebuttal Testimony?**

2 A. Yes.