

*Exhibit No.:*

*Issues: CHP for Critical Infrastructure*

*Witness: Claire M. Eubanks, P.E.*

*Sponsoring Party: MoPSC Staff*

*Type of Exhibit: Rebuttal Testimony*

*Case No.: GR-2017-0216 and  
GR-2017-0216*

*Date Testimony Prepared: October 12, 2017*

**MISSOURI PUBLIC SERVICE COMMISSION**

**COMMISSION STAFF DIVISION**

**ENGINEERING ANALYSIS SECTION**

**REBUTTAL TESTIMONY**

**OF**

**CLAIRE M. EUBANKS, P.E.**

**SPIRE MISSOURI, INC., d/b/a SPIRE**

**LACLEDE GAS COMPANY and MISSOURI GAS ENERGY  
GENERAL RATE CASE**

**CASE NOS. GR-2017-0215 and GR-2017-0216**

*Jefferson City, Missouri  
October 2017*

1 **REBUTTAL TESTIMONY**

2  
3 **OF**

4  
5 **CLAIRE M. EUBANKS, P.E.**

6  
7 **SPIRE MISSOURI, INC., d/b/a SPIRE**

8  
9 **LACLEDE GAS COMPANY and MISSOURI GAS ENERGY**  
10 **GENERAL RATE CASE**

11  
12 **CASE NO. GR-2017-0215 and CASE NO. GR-2017-0216**

13 Q. Please state your name and business address.

14 A. Claire M. Eubanks, and my business address is Missouri Public Service  
15 Commission, P.O. Box 360, Jefferson City, Missouri, 65102.

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

17 A. I am employed by the Missouri Public Service Commission (“Commission”)  
18 as a Utility Regulatory Engineer II in the Engineering Analysis Unit, Operational Analysis  
19 Department, Commission Staff Division.

20 Q. Please describe your work and educational background.

21 A. A copy of my work and educational experience is attached to this testimony as  
22 Schedule CME-r1.

23 Q. What is the purpose of your Rebuttal Testimony?

24 A. The purpose of my Rebuttal Testimony is to respond to Division of Energy  
25 (DE) witness Jane Epperson’s Direct Testimony regarding a pilot program for Combined Heat  
26 and Power (CHP) for critical infrastructure.<sup>1</sup>

27 Q. What is CHP and what types of customers may be interested in CHP?

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<sup>1</sup> As proposed the pilot program would be applicable to a subset of critical infrastructure sectors

1           A.     CHP refers to technologies that simultaneously generate electricity and useful  
2 thermal energy from a single fuel source. Therefore, CHP may be beneficial to customers who  
3 simultaneously need power and thermal energy. A few examples of customers who may find  
4 benefit in CHP systems are hospitals, universities, data centers, and industries which require  
5 heating processes.

6           Q.     What is critical infrastructure?

7           A.     The US Patriot Act<sup>2</sup> defines critical infrastructure as:

8                   Systems and assets, whether physical or virtual, so vital to the United States  
9                   that the incapacity or destruction of such systems and assets would have a  
10                   debilitating impact on security, national economic security, national public  
11                   health or safety, or any combination of those matters.

12          Q.     What is Ms. Epperson’s recommendation for defining “critical infrastructure”?

13          A.     Ms. Epperson recommends that the Commission establish a definition of  
14 “critical infrastructure” and includes a number of examples in her testimony to be included in  
15 the definition. It appears Ms. Epperson desires the proposed CHP pilot to be limited to  
16 specific critical infrastructure sectors<sup>3</sup> or situations, specifically:

17                   Hospitals, nursing homes, public water and wastewater treatment  
18                   facilities, government facilities (military, correctional, police, and  
19                   fire), emergency shelters (schools, universities, or community  
20                   centers) and data centers.

21          Q.     Please briefly summarize Ms. Epperson’s proposal for a CHP pilot program.

22          A.     Ms. Epperson provides recommended guidelines for a pilot program to be  
23 implemented by Spire for certain critical infrastructure CHP projects. The guidelines include  
24 recommending the Commission:

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<sup>2</sup> USA Patriot Act of 2001, Public Law 107-56, Section 1016 (e), <https://www.gpo.gov/fdsys/pkg/PLAW-107publ56/pdf/PLAW-107publ56.pdf>.

<sup>3</sup> The Department of Homeland Security identifies 16 sectors as critical infrastructure, <https://www.dhs.gov/what-critical-infrastructure>.

- 1 • Establish a definition of critical infrastructure;
- 2 • Authorize Spire to investigate and develop a proposed CHP pilot
- 3 program to serve critical infrastructure with a budget of \$5.1
- 4 million;
- 5 • Allow Spire to track and seek future recovery of costs. Costs may
- 6 include offsetting a portion of the project's feasibility study and
- 7 contribution to the project's installed cost;
- 8 • Allow Spire to extend cost recovery periods up to 15 years for
- 9 customer repayments of natural gas line extensions<sup>4</sup> and other
- 10 natural gas facilities;
- 11 • Allow Spire to offer on-bill financing;
- 12 • Require Spire to use a societal cost test to evaluate the potential
- 13 benefits of projects;
- 14 • Develop a formula to allocate and assign value of energy savings
- 15 and project costs between natural gas and electric utilities when
- 16 jointly offered with electric Missouri Energy Efficiency
- 17 Investment Act (MEEIA) programs; and
- 18 • Allow potential CHP pilot program customers to participate in
- 19 otherwise-applicable EDRs or Special Contract service rates.

20 Q. Ms. Epperson claims Missouri ranks the lowest in terms of percent of total  
21 installed generating capacity from CHP.<sup>5</sup> What policies are in place in other states which may  
22 contribute to the level of CHP generation?

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<sup>4</sup> Customer repayments of natural gas line extensions related to CHP systems should follow the line extension policy as discussed in the rebuttal testimony of Staff Witness Sarah Kliethermes.

<sup>5</sup> Direct Testimony of Jane Epperson Page 6, Lines 2-4.

1 A. Ms. Epperson compares Missouri to four other Midwestern, cost-of-service  
2 states: Iowa, Indiana, Minnesota, and Wisconsin. These states all have laws in place which  
3 provide a standardized interconnection process for system sizes up to at least 10 MW.<sup>6,7</sup>

4 Q. What policies does Missouri have in place for small power production and  
5 cogeneration?

6 A. The Commission's Cogeneration rule (4 CSR 240-20.060) implements  
7 Sections 201 and 210 of the Public Utility Regulatory Policies Act of 1978 ("PURPA") with  
8 regard to small power production and cogeneration. However, Missouri's standardized  
9 interconnection requirements are for net-metered systems under 100 kW (4 CSR 240-20.065).  
10 The Commission recently opened a working case, Case No. EW-2018-0078, to review the  
11 Commission's rules related to cogeneration.

12 Q. Are there other policies regarding CHP in the four states mentioned above?

13 A. In addition to interconnection standards, CHP is an eligible resource in  
14 Wisconsin's renewable portfolio standard<sup>8</sup> and topping-cycle CHP systems are eligible in  
15 Minnesota's energy efficiency standards.<sup>9</sup>

16 Q. Does Staff recommend the Commission authorize the development of a CHP  
17 pilot program as proposed by DE?

18 A. No. Staff has several concerns with Ms. Epperson's proposal. First of all,  
19 Ms. Epperson's proposal has the potential to impact the sales and revenues of electric utilities  
20 that are not intervenors in this case. Secondly, the proposal includes allowing Spire to recover

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<sup>6</sup> Iowa Administrative Code §199-45 ; Indiana Administrative Code, [Title 170, Article 4](#); Minnesota Statutes §216B.1611; Wisconsin Administrative Code, Chapter PSC 119.

<sup>7</sup> Wisconsin's Interconnection Standard goes up to 15 MW; Indiana has a three-tier standard with no size limitation on the Level 3 review procedures though fees apply to systems over 2 MW.

<sup>8</sup> Wisconsin [Statute § 196.378](#) Renewable Resources.

<sup>9</sup> Minnesota Statute § 216B.241 Energy Conservation Improvement.

1 costs associated with contributing to a project's installed cost, potentially a prohibited  
2 promotional practice. Finally, to the extent Ms. Epperson's recommendation to jointly offer  
3 the program under the MEEIA program of an electric utility, the societal cost test she  
4 recommends is inconsistent with the MEEIA's statutory requirement for Commission-  
5 approved energy efficiency programs or its requirement to use the total resource cost test  
6 ("TRC") as a primary cost-effectiveness test.

7 Q. How does Ms. Epperson's proposal potentially impact non-intervening electric  
8 utilities?

9 A. Ms. Epperson's recommended guidelines, if followed, may target various  
10 electric and/or steam utility customers including: hospitals, nursing homes, public water and  
11 wastewater treatment facilities, government facilities (military, correctional, police, and fire),  
12 emergency shelters (schools, universities, or community centers) and data centers. MGE's  
13 natural gas service territory overlaps with portions of the electric service territories of Kansas  
14 City Power and Light, KCP&L Greater Missouri Operations, and Empire District Electric  
15 Company and LAC's natural gas service territory overlaps with portions of  
16 Ameren Missouri's electric service territory. Veolia Steam Kansas City (Veolia) has steam  
17 customers located within the MGE service territory. Ameren Missouri, Empire District  
18 Electric Company, and Veolia have not intervened in this case. Additionally, non-regulated  
19 utility companies may also be impacted by the proposed CHP pilot program and have not  
20 intervened in this case.

21 Q. In what instances would a natural gas company contributing to a CHP project's  
22 installed cost be considered a Prohibited Promotional Practice?

1           A.     The Commission’s rule 4 CSR 240-14.020, describes Prohibited Promotional  
2 Practices, including practices which have the purpose of inducing any person to select and use  
3 the service or use additional service of the utility through the financing of real property not  
4 owned or otherwise possessed by the utility. Ms. Epperson proposes that Spire should  
5 contribute to a CHP project’s installed cost which may be considered Prohibited Promotional  
6 Practices if the project causes customers to utilize more natural gas than their normal usage as  
7 the fuel source for the project (either as a new Spire customer or an existing customer  
8 utilizing more natural gas).

9           Q.     Are there ways to develop a CHP pilot program for natural gas utilities which  
10 does not include Prohibited Promotional Practices?

11          A.     Possibly, for example, if the pilot was limited to renewable CHP systems, or if  
12 the pilot did not include financing of projects. However, a solely renewable CHP pilot  
13 program removes the natural gas utility’s incentive to offer such a program, which is load-  
14 building.

15          Q.     Would a CHP pilot program which did not include financing of projects be  
16 beneficial to the targeted customers?

17          A.     Uncertainty around the cost and financing of CHP projects appears, at least in  
18 DE’s view, to be the largest obstacle to a customer’s deployment of CHP.<sup>10</sup> DE responds to  
19 the question of how the proposed pilot program addresses customer obstacles to CHP  
20 deployment:

21                   The proposed CHP Pilot Project could provide clarity regarding what  
22 incentives the utility is willing to cover, as well as, address the  
23 important financing component. The Pilot Project could also enable  
24 flexibility in determining specific customer needs that can be addressed

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<sup>10</sup> DE Response to Staff Data Request 0480.

1 through the company's future application and Commission approval of  
2 each specific project.

3 Q. What is MEEIA?

4 A. MEEIA is a state policy which is designed to encourage electric investor-  
5 owned utilities to offer and promote energy efficiency programs designed to reduce the  
6 amount of electricity used by the utility's customers. Under MEEIA and with Commission  
7 approval, electric utilities may offer demand-side programs and special incentives to  
8 participating customers.

9 Q. Does MEEIA apply to natural gas utilities?

10 A. No. However, Ms. Epperson seems to envision a pilot program that, at least  
11 in some cases, would be jointly offered by Spire and the electric utilities. Specifically,  
12 Ms. Epperson recommends the Commission develop a formula to allocate and assign value of  
13 energy savings and project costs between natural gas and electric utilities when jointly offered  
14 with electric MEEIA programs. However, she does not provide any specific recommendations  
15 or formulas. Additionally, Ms. Epperson does not discuss whether individual CHP can  
16 qualify as demand-side programs under MEEIA or the Commission's rules regarding  
17 qualifying MEEIA demand-side programs.

18 Q. Were some of the above mentioned issues discussed in other cases?

19 A. Yes. In Ameren Missouri's Cycle 2 MEEIA case, Staff questioned whether  
20 individual CHP programs qualify as demand-side programs under MEEIA and noted that care  
21 must be taken before qualifying projects under the Commission's MEEIA rules.<sup>11</sup>

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<sup>11</sup> 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*, Staff Witness John Roger's Rebuttal to Supplemental Direct Testimony, July 15, 2015, pages 10-12.



1 Q. Does Staff have any other concerns regarding the interaction of the proposed  
2 CHP pilot program and MEEIA?

3 A. Yes. First, Staff is concerned that all interested stakeholders vital to properly  
4 consider the interaction of the proposed CHP pilot program and MEEIA are not intervenors in  
5 this case and, therefore, will not be given a chance to provide input. Staff is also concerned  
6 that a formula to allocate and assign the value of energy savings and project costs to the  
7 natural gas and electric utilities may not be possible given the unique site-specific nature of  
8 individual CHP projects. While a given CHP project may improve the overall energy  
9 efficiency for both gas and electricity, under MEEIA only programs that reduce electricity  
10 consumption at the customer's site can qualify for the extraordinary ratemaking treatment  
11 made available to electric utilities under MEEIA.<sup>12</sup> Finally, MEEIA requires that the TRC be  
12 a primary cost effectiveness test<sup>13</sup> while the proposed CHP pilot program uses the societal  
13 cost test to evaluate the potential benefits of specific projects.

14 Q. Ms. Epperson described Empire District Electric Company's ("Empire") CHP  
15 activities; how do those activities compare to the recommended pilot?

16 A. The "Amended Stipulation and Agreement as to Division of Energy and  
17 Renew Missouri" filed in EM-2017-0213,<sup>14</sup> includes a detailed process which describes how  
18 Empire will assist DE and USDOE CHP Technical Assistance Partnership ("CHP TAP") with  
19 an outreach effort for screening potential CHP customers within the Empire District Gas  
20 Company's service territory. This effort does not include the financing of real property not

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<sup>12</sup> Section 393.1075.2.(4) and 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."

<sup>13</sup> Section 393.1075. 4 and 4 CSR 240-20.094

<sup>14</sup> Missouri Public Service Commission Case No. EM-2016-0213, *In the Matter of the Empire District Electric Company, Liberty Utilities (Central) Co. and Liberty Sub Corp, Concerning an Agreement and Plan of Merger and Certain Related Transactions*, Amended Stipulation and Agreement as to Division of Energy and Renew Missouri, August 23, 2016, pages 2-4.

1 | owned by the utility as Ms. Epperson's CHP pilot proposed in this case does. The effort may  
2 | result in more detailed feasibility studies being completed by CHP TAP. Empire also agreed  
3 | to consider a microgrid interconnection strategy consistent with the best practices  
4 | recommended by the Microgrid Industrial Consortium. Finally, Empire's budget for assisting  
5 | with the CHP partnership is \$5,000.

6 | Q. What was Staff's position on the "Amended Stipulation and Agreement as to  
7 | Division of Energy and Renew Missouri" in EM-2017-0213?

8 | A. Staff did not oppose the stipulation and agreement but was not a signatory.

9 | Q. Does Staff have any other general concerns with DE's proposed pilot program?

10 | A. Yes. Broadly, Staff is concerned with the overall lack of specificity provided  
11 | by DE on various topics, such as on-bill financing, line extension policies, and interaction  
12 | with MEEIA. DE's recognizes the lack of specificity in its response to Staff's Data request  
13 | 480, stating that "Consideration of a CHP Pilot Program is still in the conceptual phase."  
14 | Further, Staff is concerned that there is not a time period proposed for the pilot or an  
15 | explanation of how and when such a pilot would be evaluated. Overall, it appears that there is  
16 | an insufficient amount of detail provided in DE's proposal to implement this pilot program.

17 | Q. Does this conclude your testimony?

18 | A. Yes.

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

In the Matter of Laclede Gas Company's )  
Request to Increase Its Revenues for ) Case No. GR-2017-0215  
Gas Service )

In the Matter of Laclede Gas Company )  
d/b/a Missouri Gas Energy's Request to ) Case No. GR-2017-0216  
Increase Its Revenues for Gas Service )

**AFFIDAVIT OF CLAIRE M. EUBANKS, PE**

STATE OF MISSOURI )  
 ) ss.  
COUNTY OF COLE )

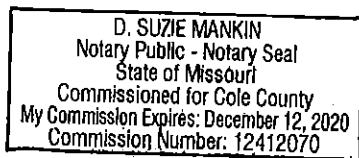
COMES NOW CLAIRE M. EUBANKS, PE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to her best knowledge and belief.

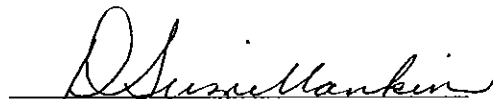
Further the Affiant sayeth not.

  
CLAIRE M. EUBANKS, PE

**JURAT**

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16<sup>th</sup> day of October, 2017.



  
Notary Public

**CLAIRE M. EUBANKS, PE**

**PRESENT POSITION:**

I am a Utility Regulatory Engineer II in the Engineering Analysis Unit, Operational Analysis Department, of the Commission Staff Division of the Missouri Public Service Commission.

**EDUCATIONAL BACKGROUND AND WORK EXPERIENCE:**

I received my Bachelor of Science degree in Environmental Engineering from the University of Missouri – Rolla, now referred to as Missouri University of Science and Technology, in May 2006. I am a licensed professional engineer in the states of Missouri and Arkansas. Immediately after graduating from UMR, I began my career with Aquaterra Environmental Solutions, Inc., now SCS Aquaterra, an engineering consulting firm based in Overland Park, Kansas. During my time with Aquaterra, I worked on various engineering projects related to the design, construction oversight, and environmental compliance of solid waste landfills. I began my employment with the Commission in November 2012 and was promoted to my current position in January 2017. My primary responsibilities are related to the Renewable Energy Standard. I have also served on work groups related to the Clean Power Plan and Ameren Missouri’s Standby Service Rider.

**CASE HISTORY:**

<b>Case Number</b>	<b>Utility</b>	<b>Type</b>	<b>Issue</b>
EA-2012-0281	Ameren	Rebuttal	Certificate of Convenience and Necessity
EC-2013-0379 EC-2013-0380	KCP&L KCP&L GMO	Rebuttal	RES Compliance
EO-2013-0458	Empire	Memorandum	RES Compliance Plan & Report
EO-2013-0462	Ameren	Memorandum	RES Compliance Report
EO-2013-0503	Ameren	Memorandum	RES Compliance Plan
EO-2013-0504	KCPL	Memorandum	RES Compliance Plan & Report
EO-2013-0505	GMO	Memorandum	RES Compliance Plan & Report
ET-2014-0059	KCP&L GMO	Rebuttal	RES Retail Rate Impact
ET-2014-0071	KCP&L	Rebuttal	RES Retail Rate Impact
ET-2014-0085	Ameren	Rebuttal	RES Retail Rate Impact
ER-2014-0258	Ameren	Cost of Service Report, Surrebuttal	RES, In-Service

<b>Case Number</b>	<b>Utility</b>	<b>Type</b>	<b>Issue</b>
EO-2014-0151	KCP&L GMO	Memorandum	RESRAM
EO-2014-0357	Electric	Memorandum	Solar Rebates Payments
EO-2014-0287	KCPL	Memorandum	RES Compliance Plan
EO-2014-0288	GMO	Memorandum	RES Compliance Plan
EO-2014-0289	KCPL	Memorandum	RES Compliance Report
EO-2014-0290	GMO	Memorandum	RES Compliance Plan
ER-2014-0370	KCP&L	Cost of Service Report	RES
EX-2014-0352	N/A	Live Comments	RES rulemaking
EC-2015-0155	GMO	Memorandum	Solar Rebate Complaint
EO-2015-0260	Empire	Memorandum	RES Compliance Plan & Report
EO-2015-0263	KCPL	Memorandum	RES Compliance Report
EO-2015-0264	GMO	Memorandum	RES Compliance Report
EO-2015-0265	KCPL	Memorandum	RES Compliance Plan
EO-2015-0266	GMO	Memorandum	RES Compliance Plan
EO-2015-0267	Ameren	Memorandum	RES Compliance Plan & Report
EO-2015-0252	GMO	Staff Report	Integrated Resource Plan – Renewable Energy Standard
EO-2015-0254	KCPL	Staff Report	Integrated Resource Plan – Renewable Energy Standard
EA-2015-0256	KCP&L GMO	Live Testimony	Greenwood Solar CCN
EO-2015-0279	Empire	Memorandum	RES Compliance Plan & Report
ET-2016-0185	KCP&L	Memorandum	Solar Rebate Tariff Suspension
EO-2016-0280	KCPL	Memorandum	RES Compliance Report
EO-2016-0281	GMO	Memorandum	RES Compliance Report
EO-2016-0282	KCPL	Memorandum	RES Compliance Plan
EO-2016-0283	GMO	Memorandum	RES Compliance Plan
EO-2016-0284	Ameren	Memorandum	RES Compliance Plan & Report
ER-2016-0023	Empire	Report	RES
ER-2016-0156	KCP&L GMO	Rebuttal	RESRAM Prudence Review

<b>Case Number</b>	<b>Utility</b>	<b>Type</b>	<b>Issue</b>
EA-2016-0208	Ameren	Rebuttal	Certificate of Convenience and Necessity
ER-2016-0285	KCPL	Cost of Service Report	In-Service, Greenwood Solar
ER-2016-0179	Ameren	Rebuttal	In-Service, Labadie Landfill
EW-2017-0245	Electric	Report	Working Case on Emerging Issues in Utility Regulation
EO-2017-0268	Ameren	Memorandum	RES Compliance Plan & Report
EO-2017-0269	KCPL	Memorandum	RES Compliance Report
EO-2017-0271	KCPL	Memorandum	RES Compliance Plan