

Exhibit No.:
Issue(s): *Reporting*
Witness: *Claire M. Eubanks, P.E.*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Surrebuttal Testimony*
Case No.: *EO-2025-0154*
Date Testimony Prepared: *September 12, 2025*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENGINEERING ANALYSIS DEPARTMENT

SURREBUTTAL TESTIMONY

OF

CLAIRE M. EUBANKS, P.E.

**EVERGY METRO, INC.,
d/b/a Evergy Missouri Metro**

and

**EVERGY MISSOURI WEST, INC.,
d/b/a Evergy Missouri West**

CASE NO. EO-2025-0154

Jefferson City, Missouri
September 2025

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REPORTING REQUIREMENTS

Q. Dr. Marke recommends in his rebuttal testimony certain metrics and studies be included in Evergy's "intake process and as a condition for future service under the LLPS tariff."¹ What requirements does Dr. Marke recommend?

A. Dr. Marke proposes on Page 5, lines 12-17 of his rebuttal testimony, pre- and post- construction reporting of:

- Power Usage Effectiveness ("PUE");
- Water Usage Effectiveness ("WUE"); and
- Total Harmonic Distortion ("THD").

Q. Does Dr. Marke intend for the Commission to receive the metrics or studies?

A. Yes. On page 11, lines 14-17 of his rebuttal testimony, Dr. Marke recommends that these metrics be reported to Evergy annually and Evergy be required to consolidate the information in an annual public report filed with the Commission.

Q. Is Staff opposed to an annual report requirement for Evergy to report to the Commission and the public on its large load customers?

A. No. However, Dr. Marke's proposal mixes and matches metric reporting with the suggestion of a larger study. Dr. Marke suggests metrics would be reported by individual customers to Evergy, with Evergy required to submit an annual report. However, later in testimony Dr. Marke recommends² a joint request for proposal ("RFP") be issued for each of the three "studies" in conjunction with all electric utilities, Staff, and OPC. To the extent the

¹ Rebuttal testimony of Geoff Marke, Page 5, lines 10-11.

² Rebuttal testimony of Geoff Marke, Page 14, lines 19-22.

1 Commission orders such metric reporting, Staff recommends appropriate technical standards or
2 guidance documents be referenced.³

3 In lieu of Dr. Marke's recommendation, Staff recommends the Commission order
4 parties to collaborate on an annual reporting requirement for Evergy to report to the
5 Commission and the public on its large load customers. Additionally, Staff recognizes that
6 Dr. Marke's concern stems from the same overall public policy observation that Staff made in
7 its Recommendation Report, "that resources such as land are finite, and that resources such as
8 electric capacity are temporally finite. Staff also must note that generation capacity is
9 expensive, cannot be instantaneously built, is subject to extensive federal and environmental
10 regulation, increases cost of service for decades, and causes its own risks to captive
11 ratepayers."⁴ Ameren Missouri recommended a process by which the Commission would
12 approve each customer service agreement under its large load tariff. Staff provided its rebuttal
13 report regarding Ameren Missouri's large load tariff case in Case No. ET-2025-0184;
14 however, Staff recommends elements of Ameren Missouri's proposal, such as inclusion of a
15 form service agreement in the tariff coupled with Commission approval, be applicable to any
16 electric utility service large loads as defined in Section 393.130.7, RSMo.⁵ I present Staff's
17 recommended minimum filing requirements for such an application later in testimony.

18 Q. On page 5, line 20-21 and page 9, line 11-21 of his rebuttal testimony,
19 Dr. Marke notes that the PUE and WUE metrics apply to both data centers or other large
20 energy-intensive facilities; do you agree?

³ For example, International Organization for Standardization (ISO)/ International Electrotechnical Commission (IEC) 30134-2:2016 Information technology — Data centres — Key performance indicators and IEEE 519-2022 IEEE Standard for Harmonic Control in Electric Power Systems may be useful. However, Staff notes it does not currently own these standards.

⁴ Staff Recommendation, page 6, line 14-19.

⁵ Effective August 28, 2025, enacted pursuant to SB 4.

1 A. Not exactly. PUE, the ratio of total energy used by a facility divided by the total
2 energy used by computing equipment, is a metric for data centers and other similar IT driven
3 organizations, but is not helpful as a metric for other large users such as manufacturing.
4 Similarly, WUE is the ratio of annual water consumed divided by the energy used by its
5 computing equipment. These metrics are likely helpful to individual data centers, but may be
6 misleading as a metric without additional expectations on the post-construction
7 data collection requirements.

8 Q. Specific to THD, what is Dr. Marke's recommendation?

9 A. Dr. Marke suggests using the metric THD to ensure LLPS customers are
10 responsible for the costs associated with harmonic-related and other power quality impacts to
11 the grid.⁶

12 Q. Does Staff share Dr. Marke's concerns?

13 A. Yes. Staff shares Dr. Marke's concerns with the potential for harmonic and other
14 power quality impacts to the grid from large load customers. Also, that general principles to
15 ratemaking related to cost causation should be appropriately considered when the Commission
16 sets rates in this case and others.⁷

17 Attached to my testimony is a whitepaper by North American Electric Reliability
18 Corporation's Large Load Task Force ("NERC's LLTF") *Characteristics and Risks of*
19 *Emerging Large Loads*, July 2025 (Schedule CME-s1). NERC's LLTF discusses various risks
20 of emerging large loads and prioritized the identified risks through "analysis of their exposure,
21 scope, and duration as well as impact and likelihood." Harmonics and voltage fluctuations were

⁶ Rebuttal testimony of Geoff Marke, Page 14, lines 15-16.

⁷ See Sarah Lange's surrebutal testimony regarding incorporating these costs, if ordered, into the LLPS customer charge.

1 characterized as a low-priority risk for the bulk power system. NERC's LLTF is expecting to
2 publish a second whitepaper on assessing gaps in existing practices in fourth quarter 2025.

3 Q. How is Evergy addressing harmonics and other power quality impacts?

4 A. Evergy recently⁸ revised its Transmission Facility Interconnection
5 Requirements "to require the inclusion of high-speed monitoring devices at large load customer
6 sites to enable measurement of harmonics and other potential impacts to the
7 transmission system."⁹

8 Q. Does Staff support Dr. Marke's recommendation for a third party to perform
9 PUE, WUE, and THD studies?

10 A. No, not as Staff currently understands his proposal. I appreciate Dr. Marke's
11 desire for third-party experts to be engaged to ensure the independence of reports presented to
12 the Commission. However, in this case, it is not clear what exactly would be studied. To the
13 extent the Commission orders metric reporting as a result of this case, Staff recommends
14 appropriate technical standards or guidance documents are referenced.

15 **CUSTOMER APPROVAL PROCESS**

16 Q. In lieu of Dr. Marke's recommendation for solely pre- and post- reporting
17 requirements, what does Staff recommend?

18 A. Staff recommends the Commission require elements of Ameren Missouri's
19 proposed Commission-approval process for large load customers seeking service.
20 Specifically, Ameren Missouri proposed inclusion of a form service agreement¹⁰ into its large

⁸ Evergy response to Staff Data Request 142.1.

⁹ Evergy response to Staff Data Request 142.

¹⁰ Referred to by Ameren Missouri as Electric Service Agreement and by Staff as Service Agreement.

1 load tariff and a process by which the Commission would review and approve each service
2 agreement. Staff recommends the Commission include in its order in this case:

- 3 1. A process for review of a new LLPS customer prior to Evergy constructing
4 interconnection facilities for that customers; making upstream transmission
5 investments to facilitate service to that customer; or building or acquiring
6 power plants, or energy contracts, or capacity contracts to serve that customer.
- 7 2. Minimum filing requirements for the direct testimony of Evergy in a proceeding
8 seeking authorization to serve a new LLPS customer, and
- 9 3. A commitment from the Commission to prioritize such proceedings to the extent
10 possible.

11 Q. What would the Commission consider during review of a new LLPS customer?

12 A. Staff recommends that the Commission review consist of (1) whether the terms
13 are just, reasonable, and not unduly discriminatory, (2) that they are consistent with the
14 applicable statutes and the tariff approved in this case by the Commission, and (3) review of
15 the projected demand and energy requirements of the potential customer being feasible for
16 service by the utility.

17 Q. How does Staff's recommendation alleviate Dr. Marke's concern?

18 A. Staff's recommended minimum filing requirements include components of
19 Dr. Marke's areas of concern: annual reporting requirements, evidence of interconnection
20 studies that include consideration of harmonics, and documentation of customer consultation
21 with other utility providers (i.e. water, sewer, and gas).

22 Q. Please list the proposed minimum filing requirements.

23 A. For the minimum filing requirements in proceedings to authorize service of a
24 new LLPS customer, Evergy should file the following information under affidavit, and
25 simultaneously file in the EFIS docket fully operable supporting workpapers describing:

1. The interconnection facilities to serve the LLPS customer, including:
 - a. a projection of the cost of removing the facilities at the end of the contract term,
 - b. a projection of property tax and insurance expense, each year, associated with the facilities for the projected life of the facilities,
 - c. a projection of operation and maintenance expenses, each year, associated with the facilities for the projected life of the facilities,
2. All information required under the Service Agreement included in Staff's recommended tariff. At a high level this includes projected demands and energy requirements for the full term of service, information related to financial assurances, and information related to day-to-day load management.
3. An updated capacity forecast without the new LLPS customer.
4. An updated capacity forecast with the new LLPS customer.

In addition to fully operable¹¹ supporting workpapers, Evergy should file supporting documentation including:

1. Evidence that site control by the proposed customer is established, including local zoning approval as applicable.
2. The boundary of Evergy's facilities serving the customer in a format supported by the State's geographic information system (GIS) software.
3. Documentation of customer consultation with other utility providers (i.e. water, sewer, gas) that will provide service to the proposed customer whether regulated by the Commission or not.
4. Evidence that Evergy completed all internal engineering studies supporting the interconnection.
5. Proposed annual reporting requirements for Evergy to report to the Commission and the public on the proposed customer.

Q. Staff recommends the Commission prioritize the customer approval process; does Staff recommend a specific deadline for Commission decision?

A. No. As the Commission is well aware, Staff and the Commission have finite resources. It is not reasonable to set a strict deadline for such determinations; however, streamlining the process is necessary. The best way for any case to move quickly is for the utility to present credible evidence of its request upon filing and for the Commission to

¹¹ Executable excel files with formulas intact and assumptions supported.

1 articulate its expectations through minimum filing requirements. This reduces Staff time spent
2 on the discovery process.

3 **EMERGENCY CURTAILMENT**

4 Q. On page 25, lines 9-10 of his rebuttal testimony, Dr. Marke recommends service
5 under LLPS be subject to mandatory emergency curtailments. Did Staff propose tariff language
6 that addresses Dr. Marke's concern?

7 A. Yes. Staff recommends the following language be included in Evergy's
8 Emergency Energy Conservation Plan tariff:¹²

9 Customers taking service under Schedule LLPS may be interrupted during grid
10 emergencies under the same circumstances as any other customer.

11 Staff recommends the above language as it allows for operational flexibility while making clear
12 that LLPS customers not receive special advantages in reliability as compared
13 to other customers.

14 Q. You previously mentioned the NERC's LLTF whitepaper characterizing risks
15 of large loads. Did NERC's LLTF identify potential impacts of large loads to load-shedding
16 programs in its whitepaper?

17 A. Yes, as a medium priority risk.¹³

18 Q. On page 25, lines 23-24 and page 26, lines 1-2 of his rebuttal testimony,
19 Dr. Marke discusses an ongoing Value of Lost Load ("VOLL") Study, suggesting the study
20 should influence the emergency curtailment tariffs. Do you agree?

¹² EMW at P.S.C. MO. No. 1, 2nd Revised Sheet R-55 – R-56 and for EMM at P.S.C. MO. No. 2, 1st 13 Revised Sheet No 1.59 – 14 1.60.

¹³ *Characteristics and Risks of Emerging Large Loads*, July 2025, Page 36 and 39.

1 A. Not at this time. Staff was a signatory to the various stipulations and
2 agreements¹⁴ regarding the VOLL study. Only the stipulation and agreement in the Empire case
3 even suggests that Empire will consider recommending tariff modifications. Staff will continue
4 to engage in discussions regarding the VOLL study.

5 Q. Does this conclude your surrebuttal testimony?

6 A. Yes it does.

¹⁴ For Every Missouri Metro and West, the applicable agreement is paragraph 7c. of the Stipulation and Agreement in ER-2022-0129 and ER-2022-0130 filed on August 30, 2022, and ordered by the Commission on October 2, 2022.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Evergy Metro,)
Inc. d/b/a Evergy Missouri Metro and Evergy) Case No. EO-2025-0154
Missouri West, Inc. d/b/a Evergy Missouri West)
for Approval of New and Modified Tariffs for)
Service to Large Load Customers)

AFFIDAVIT OF CLAIRE M. EUBANKS, PE

STATE OF MISSOURI)
)
COUNTY OF COLE) ss.

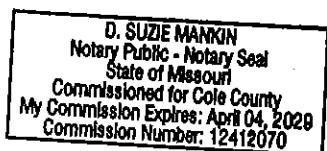
COMES NOW CLAIRE M. EUBANKS, PE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Surrebuttal Testimony of Claire M. Eubanks, PE*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Claire M Eubanks
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 10th day of September 2025.



D. Suzie Mankin
Notary Public