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Staff – Exhibit 139
Rebuttal Testimony of Shawn E. Lange PE
Case No. ER-2026-0143

Exhibit No.:	
Issue(s):	*Customer Battery Program and Green Button Connect*
Witness:	*Shawn E. Lange*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
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MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENGINEERING ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

OF

SHAWN E. LANGE

EVERGY METRO, INC. d/b/a EVERGY MISSOURI METRO

CASE NO. ER-2026-0143

Jefferson City, Missouri
August 2026

REBUTTAL TESTIMONY

OF

SHAWN E. LANGE

EVERGY METRO, INC. d/b/a EVERGY MISSOURI METRO

CASE NO. ER-2026-0143

Q. Please state your name and business address.

A. My name is Shawn E. Lange and my business address is 200 Madison Street, Jefferson City, Missouri 65101.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as an Engineer Manager for the Engineering Analysis Department, in the Industry Analysis Division.

Q. Describe your educational and work background.

A. My educational and work background is described in schedule SEL-r1.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my testimony is to respond to two issues raised in direct testimony by Renew Missouri witnesses Philip A. Fracica and Katherine Wyszkowski:

1. The creation of Customer Battery Programs, and
2. the implementation of Green Button Connect ("GBC")

CUSTOMER BATTERY PROGRAMS

Q. Please explain the Customer Battery Programs issue.

A. In the rate design direct testimony of Renew Missouri witness Philip A. Fracica,[1] Mr. Fracica proposes that Evergy Missouri Metro ("EMM") create customer battery pilot programs to "provide a practical framework for expanding battery storage in a manner that benefits participating customers, non-participating customers, and the electric system as a whole".[2] Mr. Fracica claims there are numerous potential benefits of such a program, and that the customer battery pilot programs would build on the prior pilot programs of Evergy Missouri West and EMM.

Q. How are Mr. Fracica's programs designed?

A. The battery storage pilot programs offered by Fracica recommends EMM evaluate three pilot programs: (1) a Residential Battery Demand Response Pilot Program; (2) a Targeted Residential Grid Support Rebate Pilot Program; and (3) a Large Customer Battery Partnership Pilot Program. Mr. Francica includes a proposed targeted budget of approximately $5 million to support the Residential Programs for both programs.[3]

Q. Does Staff agree that Evergy Missouri Metro's customers could benefit from such programs?

A. Staff does think that some of EMM's customers could benefit from such programs, but those customer benefits would be limited. Any customers who enroll in a customer battery program would potentially benefit from the increased reliability batteries offer. While there may be other potential benefits, those benefits would likely go to a small subset of EMM's customers, and any potential long-term benefits may be

[1] Direct Testimony of Philip Francica, pg 2-7.
[2] Direct Testimony of Philip Francica, pg 2 lines 20-22.
[3] Direct Testimony of Philip Francica, pg. 6 lines 1-3.

many years away. Additionally, any potential program would need a thorough cost-benefit analysis to determine the specific benefits to all ratepayers and whether the potential program benefits are worth the cost.

Q. What are Staff's concerns with establishing these customer battery programs?

A. Staff has two main areas of concern regarding any potential battery pilot program. First, only a subset of EMM's customers would be eligible under these proposed programs. Mr. Francica's proposal offers a large customer battery program for large commercial and industrial customers, a targeted residential program designed to encourage battery adoption with rebates in areas where EMM expects the greatest distribution system benefit as well as a voluntary residential program and a residential battery demand response pilot program. It is Staff's position that any customer battery pilot program should be offered to the widest possible group of customers. The second concern is the cost. A customer battery pilot program has the potential to be relatively expensive due to the high cost of batteries. Because of this, there should be an established cap on the programs cost to ensure costs do not become excessive. Mr. Fracica did propose a cap on the residential programs cost, there is no cap on the large customer part of the proposed program. Also, since benefits of a battery pilot program go to the program subscribers, the costs of the program should be borne by only the program subscribers or EMM. These issues were raised by Staff Witness Cedric E. Cunigan in the rate case that established Evergy's previous pilot program.[4]

[4] ER-2022-0129 & ER-2022-0130 Rebuttal Testimony of Cedric E. Cunigan. Pg 10-11.

Q. Does Staff oppose the creation of a customer battery program for Evergy Missouri Metro's customers?

A. Staff does not oppose the concept of a customer battery program, but the details of any such program could change that. Should the Commission order EMM to propose customer battery pilot programs in its next general rate case, Staff recommends the Commission further order EMM to provide:

- A cost-benefit analysis supporting the proposals.
- The programs should be available to all EMM customers except EMM employees, contractors, board of directors, agents, and affiliate employees.
- A clear statement of all learning objectives for the pilots including all hypotheses EMM seeks to test, and the criteria and methods used to evaluate the programs' success or failure in meeting the stated objectives.
- Any costs associated with the programs should be borne by the program subscribers and EMM's shareholders in some allocation as determined by the cost-benefit analysis. This would require separate record keeping delineating the programs' revenue, expense and investment in EMM's general ledger to ensure non-subscribers were held harmless during a rate case proceeding.
- A semi-annual report to stakeholders updating them on the progress towards the programs' learning objectives for the length of the pilot.
- An end-date for the pilot or clear transition plan to permanent programs.

GREEN BUTTON CONNECT MY DATA

Q. What is GBC?

A. The Green Button initiative strives to allow utility customers to easily obtain their usage data in an industry standard, computer-friendly format. GBC is an extension of earlier efforts to allow customers to download their historical data, to now allow customers to directly connect to utility databases to provide near real-time data. This would enable customers to directly monitor and adjust their energy usage to save money. This could also include a customer allowing a third-party energy manager access to the customer's data in order to help optimize the customer's bill.

Q. Is GBC different from Green Button Download My Data ("GB Download")?

A. Yes. GB Download is also part of the Green Button Initiative, and enables customers to download their usage data through the utility's online portal.

The key difference between the two programs is that with GB Download, the customer must actively choose to download the data themselves through the customer portal, where GBC allows the customer or their agent to directly connect to a utility's billing system for near real-time data that is easier for energy managers to access and track.

Q. What are the issues related to GBC raised in this case?

A. In the revenue requirement direct testimony of Renew Missouri witness Katherine Wyszkowski, Ms. Wyszkowski argues for the implementation of GBC and requests a revenue requirement of $347,327 be added to EMM's cost of service to

facilitate that implementation and study participation in a regional data hub.[5] In Ms. Wyszkowski's subsequent class cost of service direct testimony,[6] Ms. Wyszkowski additionally proposes a new tariff to govern EMM's future GBC program.

Q. Does Staff agree that GBC should be implemented by Evergy Missouri Metro?

A. Not at this time; however, Staff agrees that there are significant customer benefits that could be realized through GBC adoption. Granting customers more access to their data and more control of their energy usage is something that Staff generally supports. That being said, though the cost of obtaining GBC certification is low,[7] an implementation of GBC needed to obtain that certification could still be technically difficult and costly, and those challenges need to be thoughtfully considered before moving forward with GBC.

Q. Does Staff have any concerns related to the potential implementation of GBC?

A. Yes. First, there are real cybersecurity concerns associated with GBC. GBC is not only about adopting a standard computer-friendly format to data, but also involves the direct connection of customers or their third-party representatives to a utility's data systems through an Application Programming Interface ("API"). While APIs are commonly used throughout the world safely each day, care does need to

[5] Revenue Requirement Direct Testimony of Katherine Wyszkowski, page 19, line 20-21.
[6] CCOS Direct Testimony of Katherine Wyszkowski, Appendix A.
[7] $3,200 according to https://www.greenbuttonalliance.org/testing.

be taken to minimize potential security vulnerabilities.[8] Staff is also concerned about the risk to customer privacy since there are few guardrails on what third-party energy managers can do with customer data after the customer has authorized the third-party to obtain it. Finally, Staff is concerned with the costs associated with a GBC implementation and the costs to operate and maintain such a system. Currently Staff does not have a reliable estimate for how much GBC would cost ratepayers.

While Staff is concerned about these issues surrounding GBC, other Missouri utilities have become GBC certified[9] while facing these issues. Staff needs additional information about the implementation costs, operations and maintenance costs, and any potential privacy safeguards related to GBC before it can state a position on this issue.

Q. Does Staff agree that adopting a tariff governing the use of GBC as proposed by Ms. Wyszkowski is appropriate at this time?

A. No. The tariff proposed by Ms. Wyszkowski is pre-mature. Should the Commission order EMM to adopt GBC, and after EMM assesses the ability of its existing systems to incorporate GBC standards, only then would it be appropriate to consider tariff language to govern its use. As it is, Ms. Wyszkowski is suggesting a tariff that mandates the offering of GBC data without the infrastructure needed for EMM to comply.

[8] APIs are susceptible to various attacks, including injection attacks, authentication and authorization issues, availability, and data breaches. Consequently, securing APIs has become an urgent priority for the DoD and other organizations that depend on them. Pg.12; Application Programming Interface (API) Technical Guidance Department of Defense; October 2023.
[9] Liberty Utilities. ER-2024-0261 Direct Testimony of Candice Kelley, page 4, line 10-11.

Q. You mentioned cybersecurity and customer privacy risks among Staff's concerns with GBC. How is alleged illegal activity relating to GBC addressed in the proposed tariff?

A. Section (f)4 of the proposed tariff[10] states:

> Termination. – Evergy is prohibited from terminating an active customer authorization. If Evergy has a reasonable suspicion that an authorized third party is engaged in illegal conduct or is violating customer privacy, then Evergy shall report such suspicions to the Commission for investigation. Only a customer or the Commission may direct Evergy to terminate an active customer authorization.

According to this language, Evergy cannot revoke service if they detect likely illegal activity. This provision makes Staff's concerns about cybersecurity and customer privacy more serious since potential risks may be left unaddressed until the Commission has time for a full investigation and hearing on the matter. Additionally, this leaves the Commission in the position of regulating the activities of third-parties outside its jurisdiction. Therefore, Staff recommends the Commission reject the Termination provision in its entirety.

Q. Is the revenue requirement suggested by Ms. Wyszkowski reasonable?

A. No. Any revenue requirement associated with GBC would be determined in a future rate case after any such upgrades are complete and providing service to customers. Further, Ms. Wyszkowski used the up-front and on-going costs per meter of several studied utilities during the years of 2017-2020[11] to construct her revenue requirement. There are two main problems with this. First, the mixture of up-front and

[10] CCOS Direct Testimony of Katherine Wyszkowski, Appendix A.
[11] Direct Testimony of Katherine Wyszkowski (6-30-2026). Pg 14-19.

on-going costs make constructing a per meter cost problematic. While the on-going costs of GBC may be affected by the number of customers served, most of the up-front costs are not. The problems with this manifest as the extreme cost per meter differences that Ms. Wyszkowski provides,[12] ranging from $0.15 to $5.29 per meter.

The second reason this is a problem is that this is all based on old data. The actual revenue requirement needed to implement GBC may be significantly higher or lower than Ms. Wyszkowski's estimate, and will be heavily dependent on the ease or difficulty to adapting EMM's systems to the GBC standards. While Ms. Wyszkowski's methods do provide a rough estimate of costs, they are inadequate for using to base a revenue requirement that will be charged to the ratepayers. At this time there is simply not enough information available to set a meaningful revenue requirement should the Commission decide EMM should pursue GBC.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

[12] Direct Testimony of Katherine Wyszkowski (6-30-2026). Pg 18.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement a General Rate Increase for Electric Service	))))	Case No. ER-2026-0143

AFFIDAVIT OF SHAWN E. LANGE, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SHAWN E. LANGE, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Shawn E. Lange, PE*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Shawn E. Lange
SHAWN E. LANGE, 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 7th day of August 2026.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2029
Commission Number: 12412070

D Suzie Mankin
Notary Public

CREDENTIALS AND CASE PARTICIPATION OF SHAWN E. LANGE, PE

PRESENT POSITION:

I am the Engineering Manager of the Engineering Analysis Department, Industry Analysis Division, of the Missouri Public Service Commission.

EDUCATIONAL BACKGROUND AND WORK EXPERIENCE:

In December 2002, I received a Bachelor of Science Degree in Mechanical Engineering from the University of Missouri, at Rolla now known as the Missouri University of Science and Technology. I joined the Commission Staff in January 2005. I am a registered Professional Engineer in the State of Missouri and my license number is 2018000230.

TESTIMONY FILED:

Case Number	Utility	Testimony	Issue
ER-2005-0436	Aquila Inc.	Direct	Weather Normalization
		Rebuttal	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2006-0314	Kansas City Power & Light Company	Direct	Weather Normalization
		Rebuttal	Weather Normalization
ER-2006-0315	Empire District Electric Company	Direct	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2007-0002	Union Electric Company d/b/a AmerenUE	Direct	Weather Normalization
ER-2007-0004	Aquila Inc.	Direct	Weather Normalization
ER-2007-0291	Kansas City Power & Light Company	Staff Report	Weather Normalization
		Rebuttal	Weather Normalization
ER-2008-0093	Empire District Electric Company	Staff Report	Weather Normalization
ER-2008-0318	Union Electric Company d/b/a AmerenUE	Staff Report	Weather Normalization

Case Number	Utility	Testimony	Issue
ER-2009-0089	Kansas City Power & Light Company	Staff Report	Net System Input
ER-2009-0090	KCP&L Greater Missouri Operations Company	Staff Report	Net System Input
ER-2010-0036	Union Electric Company d/b/a AmerenUE	Staff Report	Net System Input
ER-2010-0130	Empire District Electric Company	Staff Report	Variable Fuel Costs
		Surrebuttal	Variable Fuel Costs
ER-2010-0355	Kansas City Power & Light Company	Staff Report	Variable Fuel Costs
ER-2010-0356	KCP&L Greater Missouri Operations Company	Staff Report	Engineering Review-Sibley 3 SCR
ER-2011-0004	Empire District Electric Company	Staff Report	Variable Fuel Costs
ER-2011-0028	Union Electric Company d/b/a Ameren Missouri	Staff Report	Net System Input
ER-2012-0166	Union Electric Company d/b/a Ameren Missouri	Staff Report	Weather Normalization
		Surrebuttal	Weather Normalization Maryland Heights In-Service
ER-2012-0174	Kansas City Power & Light Company	Staff Report	Weather Normalization Net System Input Variable Fuel Costs
		Surrebuttal	Weather Normalization
ER-2012-0175	KCP&L Greater Missouri Operations Company	Staff Report	Weather Normalization Net System Input
		Surrebuttal	Weather Normalization
ER-2012-0345	Empire District Electric Company	Rebuttal	Interim Rates
		Staff Report	Weather Normalization
EC-2014-0223	Noranda Aluminum v. Ameren Missouri	Rebuttal	Weather Normalization
EA-2014-0207	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	

Case Number	Utility	Testimony	Issue
ER-2014-0258	Union Electric Company d/b/a Ameren Missouri	Staff Report	Net System Input Variable Fuel Costs
ER-2014-0351	Empire District Electric Company	Staff Report	Net System Input Variable Fuel Costs
ER-2014-0370	Kansas City Power & Light Company	Staff Report	Net System Input Variable Fuel Costs
		True-up Direct	Variable Fuel Costs La Cygne In-service
EA-2015-0146	ATXI CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	
ER-2016-0023	Empire District Electric Company	Staff Report	Net System Input Variable Fuel Costs
		Surrebuttal	Variable Fuel Costs
ER-2016-0179	Union Electric Company d/b/a Ameren Missouri	Staff Report	Variable Fuel Costs
EA-2016-0385	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	
ER-2018-0145	Kansas City Power & Light Company	Staff Report	Variable Fuel Costs Market Prices
		Rebuttal	Variable Fuel Costs Market Prices
		True-up Direct	Variable Fuel Costs Market Prices
EA-2018-0327	ATXI CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
EA-2019-0021	Union Electric Company d/b/a Ameren Missouri	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2019-0010	Empire District Electric Company	Staff Report	Certificates of Convenience/Feasibility Analysis
EC-2020-0408	MLA v. Grain Belt Complaint	Staff Recommendation	Formal Complaint
EA-2021-0167	ATXI CCN	Staff Recommendation	Certificates of Convenience/Feasibility Analysis

Case Number	Utility	Testimony	Issue
EA-2021-0087	ATXI CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
ER-2021-0240	Union Electric Company d/b/a Ameren Missouri	Staff Report	Variable Fuel Costs Atchison wind farm Construction Audit and in-service review
		Rebuttal	Atchison in-service and Variable Fuel Costs
		True-up Direct	Variable Fuel Costs
ER-2021-0312	Empire District Electric Company	Staff Report	Transmission and Distribution Investment
EA-2022-0043	Evergy Metro and Evergy West Hawthorn Solar CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2022-0099	ATXI CCN	Staff Direct Testimony	Certificates of Convenience/Feasibility Analysis
EA-2022-0244	Union Electric Company d/b/a Ameren Missouri	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2022-0245	Union Electric Company d/b/a Ameren Missouri	Staff Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis
ER-2022-0337	Union Electric Company d/b/a Ameren Missouri	Direct Testimony	Variable fuel Costs
		Rebuttal Testimony	Variable fuel Costs
		Surrebuttal/True-up Direct	Variable fuel Costs
		True-up Rebuttal	Variable fuel Costs
EA-2022-0328	Evergy Missouri West	Staff Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis
EA-2023-0017	GrainBelt Express	Staff Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis

Case Number	Utility	Testimony	Issue
EA-2023-0226	Union Electric Company d/b/a Ameren Missouri	Staff Memo	Certificates of Convenience/Feasibility Analysis
ET-2023-0249	Union Electric Company d/b/a Ameren Missouri	Staff Memo	Cogeneration and Net Metering rate
EA-2024-0286	Union Electric Company d/b/a Ameren Missouri	Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis
EF-2024-0021	Union Electric Company d/b/a Ameren Missouri	Rebuttal	Financing Order Authorizing the Issue of Securitized Utility Tariff Bonds
ER-2024-0189	Evergy Missouri West	Rebuttal	Variable Fuel Cost
EA-2024-0237	Union Electric Company d/b/a Ameren Missouri	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
ER-2024-0319	Union Electric Company d/b/a Ameren Missouri	Staff Direct	Variable Fuel Costs
		Staff True-up Direct	Variable Fuel Cost
EA-2024-0302	ATXI	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2024-0292	Evergy Missouri West	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2025-0075	Evergy Missouri West	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2025-0028	Union Electric Company d/b/a Ameren Missouri	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis

Case Number	Utility	Testimony	Issue
ER-2024-0261	Empire District Electric Company	Direct Testimony Surrebuttal/True-up Direct	Variable Fuel Cost Variable Fuel Cost
EA-2025-0238	Union Electric Company d/b/a Ameren Missouri	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2025-0239	Union Electric Company d/b/a Ameren Missouri	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis