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MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENGINEERING ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

OF

MATTHEW W. LUCAS

**UNION ELECTRIC COMPANY,
d/b/a Ameren Missouri**

CASE NO. ER-2024-0319

*Jefferson City, Missouri
January 2025*

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1 A. In the rate design direct testimony of Renew Missouri witness James Owen,¹
2 Mr. Owen proposes that Ameren Missouri create a RBSP program to better understand the
3 benefits and challenges with implementing utility-scale battery storage in the future. Mr. Owen
4 claims there are numerous potential benefits of such a program, and that the RBSP could be
5 similar to those of Evergy Missouri West and Evergy Missouri Metro, stating:

6 It may be worthwhile for the Company to look at Evergy Metro and
7 Evergy West’s Residential Battery Storage Pilot program and work
8 towards offering a similar pilot program to get more experience
9 integrating battery storage with renewable energy.²

10 Q. Mr. Owen suggests Ameren Missouri base its future RBSP on the existing
11 battery storage pilot offered by Evergy Missouri West and Evergy Missouri Metro. How are
12 those programs designed?

13 A. The battery storage pilot program offered by Evergy was established in cases
14 ER-2022-0129 and ER-2022-0130. It is an optional program that consists of installing batteries
15 owned by Evergy Missouri at up to 50 of its residential customers’ homes. Evergy’s pilot
16 intended to explore a network of batteries that could reduce demand and minimize grid
17 constraints. These demand reductions would be accomplished by charging the batteries during
18 off-peak periods and discharging the batteries during on-peak periods. For customers, this
19 would mean reduced on-peak usage and potentially lower bills. These batteries also provide a
20 back-up power supply in the event of an outage. The customers chosen for the program are
21 subject to “site suitability requirements³”, and are charged \$10 per month for the service.

¹ Direct Testimony of James Owen, page 17-24.

² Direct Testimony of James Owen, page 18, lines 10-13.

³ Evergy Missouri Metro PSC MO No. 7 Original Sheet 57 and Original Sheet 57A. Eligibility (3). More specifically, these were customers on a TOU rate who own either an electric vehicle, roof-top solar, or other smart home appliances (ER-2022-0129 & ER-2022-0130 Direct Testimony of Kimberly H. Winslow. page 44-45.).

1 Q. Does Staff agree that Ameren Missouri's customers could benefit from such
2 a program?

3 A. Staff does think that some of Ameren Missouri's customers could benefit from
4 such a program, but those customer benefits would be limited. Any customers who enroll in a
5 RBSP would potentially benefit from the increased reliability batteries offer. While there may
6 be other potential benefits, those benefits would likely go to a small subset of Ameren
7 Missouri's customers, and any potential long-term benefits are many years away. Additionally,
8 any potential program would need a thorough cost-benefit analysis to determine the specific
9 benefits to all ratepayers and whether the potential program benefits are worth the cost.

10 Q. What are Staff's concerns with establishing a RBSP?

11 A. Staff has two main areas of concern regarding any potential RBSP. First,
12 assuming that the hypothetical RBSP is similar to those of Evergy Missouri,⁴ the prospective
13 pilot would be limited to a small number⁵ of customers currently on a time-based rate who own
14 an electric vehicle, roof-top solar, or other smart home devices⁶. Staff had two main issues with
15 this proposal. First, only a subset of Ameren Missouri's customers would be eligible under a
16 RBSP similar to that of Evergy because the population of customers who own an electric
17 vehicle,⁷ roof-top solar,⁸ or other smart appliances is small relative to Ameren Missouri's total
18 customer base. It is Staff's position that any RBSP should be offered to the widest possible

⁴ Evergy Missouri Metro PSC MO No. 7 Original Sheet 57 and Original Sheet 57A.

⁵ ER-2022-0129 & ER-2022-0130 Direct Testimony of Kimberly H. Winslow. page 41, line 6. Evergy's pilot was limited to 50 customers.

⁶ ER-2022-0129 & ER-2022-0130 Direct Testimony of Kimberly H. Winslow. pages 44-45.

⁷ Electric vehicle registrations in Missouri show only 0.7% of total registrations in 2023 were electric or plug-in hybrid. <https://afdc.energy.gov/vehicle-registration>.

⁸ Ameren Missouri has 9,125 net-metered customers as of 5/3/24. Ameren Missouri has 1.09 million residential customers. If all 9,125 net-metered customers were residential, that represents only 0.8% of Ameren's residential customers. BANM-2024-1413 *Annual Net Metering Report*. 2024 Net Metering Report (Completions through 2023).pdf.

1 group of customers. The second concern is the cost. An RBSP has the potential to be relatively
2 expensive due to the high cost of batteries. Because of this, there should be an established cap
3 on the program cost to ensure costs do not become excessive. Also, since benefits of a RBSP
4 go to the program subscribers, the costs of the program should be borne by only the program
5 subscribers or Ameren Missouri. These issues were raised by Staff witness Cedric E. Cunigan
6 in the rate case that established Evergy's pilot program.⁹

7 Q. Does Staff oppose the creation of a RBSP for Ameren Missouri's customers?

8 A. Staff does not oppose the concept of a RBSP, but the details of any such
9 program could change that. Should the Commission order Ameren Missouri to propose a RBSP
10 in its next general rate case, Staff recommends the Commission further order Ameren Missouri
11 to provide:

- 12 • A cost-benefit analysis supporting the proposal.
- 13 • The program should be available to all Ameren Missouri customers except
14 Ameren Missouri employees, contractors, board of directors, agents, and
15 affiliate employees.
- 16 • A clear statement of all learning objectives for the pilot including all hypotheses
17 Ameren Missouri seeks to test, and the criteria and methods used to evaluate the
18 program's success or failure in meeting the stated objectives.
- 19 • Any costs associated with the program should be borne by the program
20 subscribers and Ameren Missouri's shareholders in some allocation as
21 determined by the cost-benefit analysis. This would require separate record
22 keeping delineating the program's revenue, expense and investment in Ameren
23 Missouri's general ledger to ensure non-subscribers were held harmless during
24 a rate case proceeding.

⁹ ER-2022-0129 & ER-2022-0130 Rebuttal Testimony of Cedric E. Cunigan, pages 10-11.

- 1 • A semi-annual report to stakeholders updating them on the progress towards the
- 2 program's learning objectives for the length of the pilot.
- 3 • An end-date for the pilot or clear transition plan to a permanent program.

4 **GREEN BUTTON CONNECT MY DATA**

5 Q. What is GBC?

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

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

14 A. Yes. GB Download is also part of the Green Button Initiative, and enables
15 customers to download their usage data through the utility's online portal. According
16 to the response to Staff Data Request No. 0691, Ameren Missouri currently offers
17 GB Download to all customers with an Advanced Metering Infrastructure ("AMI") meter
18 through My Energy Manager.

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

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

2 A. In the revenue requirement direct testimony of Renew Missouri witness
3 Michael Murray, Mr. Murray argues for the implementation of GBC and requests a revenue
4 requirement of \$851,000 be added to Ameren Missouri's cost of service to facilitate that
5 implementation and study participation in a regional data hub.¹⁰ In Mr. Murray's subsequent
6 class cost of service direct testimony,¹¹ Mr. Murray additionally proposes a new tariff to govern
7 Ameren Missouri's future GBC program.

8 Q. Does Staff agree that GBC should be implemented by Ameren Missouri?

9 A. Not at this time; however, Staff agrees that there are significant customer
10 benefits that could be realized through GBC adoption. Granting customers more access to their
11 data and more control of their energy usage is something that Staff generally supports. That
12 being said, though the cost of obtaining GBC certification is low,¹² an implementation of GBC
13 needed to obtain that certification could still be technically difficult and costly, and those
14 challenges need to be thoughtfully considered before moving forward with GBC.

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

16 A. Yes. First, there are real cybersecurity concerns associated with GBC. GBC is
17 not only about adopting a standard computer-friendly format to data, but also involves the direct
18 connection of customers or their third-party representatives to a utility's data systems through
19 an Application Programming Interface ("API"). While APIs are commonly used throughout the
20 world safely each day, care does need to be taken to minimize potential security vulnerabilities.
21 Staff is also concerned about the risk to customer privacy since there are few guardrails on what

¹⁰ Revenue Requirement Direct Testimony of Michael Murray, page 16, lines 19-20.

¹¹ CCOS Direct Testimony of Michael Murray, Schedule MM-1.

¹² \$3,200 according to <https://www.greenbuttonalliance.org/testing>.

1 third-party energy managers can do with customer data after the customer has authorized the
2 third-party to obtain it. Finally, Staff is concerned with the costs associated with a GBC
3 implementation and the costs to operate and maintain such a system. Currently Staff does not
4 have a reliable estimate for how much GBC would cost ratepayers.

5 While Staff is concerned about these issues surrounding GBC, other Missouri utilities
6 have become GBC certified¹³ while facing these issues. Staff needs additional information
7 about the implementation costs, operations and maintenance costs, and any potential privacy
8 safeguards related to GBC before it can state a position on this issue.

9 Q. Does Staff agree that adopting a tariff governing the use of GBC as proposed by
10 Mr. Murray is appropriate at this time?

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

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

19 A. Section (f)4 of the proposed tariff¹⁴ states:

20 Termination. – Ameren Missouri is prohibited from terminating an
21 active customer authorization. If Ameren Missouri has a reasonable
22 suspicion that an authorized third party is engaged in illegal conduct or
23 is violating customer privacy, then Ameren Missouri shall report such

¹³ Liberty Utilities. ER-2024-0261 Direct Testimony of Candice Kelley, page 4, lines 10-11.

¹⁴ CCOS Direct Testimony of Michael Murray, Schedule MM-1, page 5.

1 suspicions to the Commission for investigation. Only a customer or the
2 Commission may direct Ameren Missouri to terminate an active
3 customer authorization.

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

10 Q. Is the revenue requirement suggested by Mr. Murray reasonable?

11 A. No. Mr. Murray used the up-front and on-going costs per meter of several
12 studied utilities during the years of 2010-2020¹⁵ to construct his revenue requirement. There
13 are two main problems with this. First, the mixture of up-front and on-going costs make
14 constructing a per meter cost problematic. While the on-going costs of GBC may be affected
15 by the number of customers served, most of the up-front costs are not. The problems with this
16 manifest as the extreme cost per meter differences that Mr. Murray provides,¹⁶ ranging from
17 \$0.14 to \$3.62 per meter.

18 The second reason this is a problem is that this is all based on old data. Mr. Murray
19 claims more recent data is not currently available despite his attempts to obtain it. The actual
20 revenue requirement needed to implement GBC may be significantly higher or lower than
21 Mr. Murray's estimate, and will be heavily dependent on the ease or difficulty to adapting
22 Ameren Missouri's systems to the GBC standards. While Mr. Murray's methods do provide a

¹⁵ Direct Testimony of Michael Murray (filed 12-04-2024), page 11-16.

¹⁶ Direct Testimony of Michael Murray (filed 12-04-2024), page 12.

Rebuttal Testimony of
Matthew W. Lucas

1 rough estimate of costs, they are inadequate for using to base a revenue requirement that will
2 be charged to the ratepayers. At this time there is simply not enough information available to
3 set a meaningful revenue requirement should the Commission decide Ameren Missouri should
4 pursue GBC.

5 Q. Does this conclude your rebuttal testimony?

6 A. Yes, it does.

Credentials and Case Participation

Matthew W. Lucas

Education

I completed my undergraduate studies at Marshall University in Huntington, WV in December 2012, receiving a Regents B.A. with minors in Physics and Mathematics. I received a M.A. in Mathematics at Marshall University in May 2015.

Employment Background

I am currently employed as a Senior Project Manager in the Engineering Analysis Department within the Industry Analysis Division of the Missouri Public Service Commission (Commission). I have been employed by the Commission since November 2023.

Prior to tenure at the Commission I was employed by City of Columbia Utilities for six years. I was first hired there in August 2017 as a Rate Analyst and was promoted to Senior Rate Analyst in October 2019. In those positions I did work for each of its electric, water, sewer, solid waste, and stormwater utilities. A non-comprehensive list of my duties there includes: maintaining and programming the billing system, compiling data for and conducting cost of service studies, electric load forecasting, renewable portfolio planning, rate design, departmental budgeting, and DSM program analysis.

Case Participation

| Case Number | Utility | Participation | Issues |
|---------------------|----------------------------|---|--|
| GO-2024-0180 | Spire Missouri (Gas) | Staff Memo | Carbon Offset Program |
| ER-2024-0189 | Evergy Missouri West | Case Coordinator | - |
| EA-2024-0212 | Ameren Missouri (Electric) | Case Coordinator, Staff Memo | Community Solar Program expansion |
| ER-2024-0261 | Empire (Liberty) Electric | Case Coordinator | - |
| ER-2024-0319 | Ameren Missouri (Electric) | Case Coordinator, Rebuttal testimony | Green Button Connect, Residential Battery Pilot |