

EXHIBIT

FILED
December 12, 2018
Data Center
Missouri Public
Service Commission

Exhibit No.: 201
Issue(s): Performance Base Metric
Witness/Type of Exhibit: Marke/Supplemental Rebuttal
Sponsoring Party: Public Counsel
Case No.: ET-2018-0132

SUPPLEMENTAL REBUTTAL TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of
the Office of the Public Counsel

**UNION ELECTRIC COMPANY D/B/A
AMEREN MISSOURI'S**

Case No. ET-2018-0132

November 6, 2018

OPC Exhibit No. 201
Date 12-4-18 Reporter TW
File No. ET-2018-0132

EXHIBIT

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**


In the Matter of the Application)
of Union Electric Company d/b/a) File No. ET-2018-0132
Ameren Missouri for Approval)
of Efficient Electrification Program)

AFFIDAVIT OF GEOFF MARKE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Geoff Marke, of lawful age and being first duly sworn, deposes and states:

1. My name is Geoff Marke. I am a Regulatory Economist for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my supplemental rebuttal testimony.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

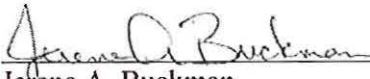


Geoff Marke
Chief Economist

Subscribed and sworn to me this 6th day of November 2018.



JERENE A. BUCKMAN
My Commission Expires
August 23, 2021
Cole County
Commission #13754037



Jerene A. Buckman
Notary Public

My commission expires August 23, 2021.

TABLE OF CONTENTS

Testimony	Page
Introduction	1
Performance Base Metric	2

SUPPLEMENTAL REBUTTAL TESTIMONY

OF

GEOFF MARKE

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

CASE NO. ET-2018-0132

1 **I. INTRODUCTION**

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

3 A. Geoffrey Marke, PhD, Chief Economist, Office of the Public Counsel (“OPC”), P.O. Box
4 2230, Jefferson City, Missouri 65102.

5 **Q. Are you the same Geoff Marke who filed rebuttal testimony in ET-2018-0132?**

6 A. Yes.

7 **Q. What is the purpose of your supplemental rebuttal testimony?**

8 A. To provide further explanation for the performance base metric of OPC’s risk-sharing
9 mechanism for the Ameren Missouri Charge Ahead—Electric Vehicle program laid out in the
10 rebuttal testimony based on feedback from Ameren Missouri and stakeholders to this docket.
11 As stated in rebuttal testimony, OPC suggests that the Commission could consider approval of
12 Ameren Missouri’s Charge Ahead—Electric Vehicle application with the following customer
13 protections based on forecasted figures provided in Ameren Missouri’s testimony:

- 14 • \$10 million in subsidies to promote EV charging stations;
- 15 • \$1 million in associated program administration and marketing;
- 16 • A 5-year time limit on program spend; and
- 17 • A risk-sharing mechanism between ratepayers and shareholders based on the number
18 of registered plug-in EVs in Ameren Missouri’s service territory by the close of
19 calendar year 2028.

20 The rest of the testimony will provide for the performance base metric.

1 **II. PERFORMANCE BASE METRIC**

2 **Q. What is Ameren Missouri's EV adoption projections?**

3 A. Ameren Missouri's triennial IRP provides for three adoption scenarios for years 2019 -2028
4 and are reprinted in table 1.

5 Table 1. Ameren Missouri Low, Base, and High EV adoption projections

Year	Low	Base	High
2019	3,262	3,768	7,688
2020	3,996	4,538	9,436
2021	4,915	5,422	11,583
2022	6,078	6,952	14,218
2023	6,801	9,129	17,453
2024	7,646	11,604	21,424
2025	8,659	14,378	26,297
2026	9,533	17,451	32,280
2027	10,440	20,375	39,624
2028	11,346	24,516	48,638

6
7 **Q. How many additional EV cars would need to be adopted to achieve the full performance
8 base metric of the EV charging station subsidies?**

9 A. According to Ameren Missouri witness Steve Wills, it would be approximately 7,500.

10 **Q. How long is Ameren Missouri proposing to subsidize EV charging stations?**

11 A. They are requesting five years.

12 **Q. How many registered EV cars would need to operational in Ameren Missouri's service
13 territory for the Company to receive achieve the full performance base metric?**

14 A. In rebuttal testimony OPC put forward that there would need to be 32,500 post-2018 registered
15 EV cars in Ameren Missouri's service territory for full recovery over a ten-year period. That

1 number has been amended to 33,016 to reflect Ameren Missouri's base forecast filing for ten
2 years.

3 **Q. How does the performance base metric work?**

4 **A.** The OPC's proposed performance base metric would essentially work as follows:

- 5 • All prudently incurred program spending within the first five years (subject to a \$10
6 million cap on subsidies to promote EV charging stations and a \$1 million cap on
7 associated program administration and marketing costs) would be booked into a
8 deferred account;
- 9 • All expenses so booked would begin accruing interest from the date booked at a rate
10 equal to the cost of short-term debt in effect at the time of the expenditure;
- 11 • During any general rate case initiated within ten years of the start of the program,
12 Ameren would be entitled to recover (as an amortization expense) the balance of this
13 deferred account pro-rated by the number of actual EV adoptions within its service
14 area at the time of filing, less pre-2019 EV adoptions and projected EV adoptions
15 for that year, divided by 7,500;
- 16 • The deferred account will then be reduced by the same amount of any such recovery
17 and all amortization expense recovered in this manner will be amortized over five
18 years;
- 19 • If the deferred account has not been fully exhausted within ten years of the start of
20 the program, during the next general rate case immediately following ten years after
21 the start of the program, Ameren will be entitled to recover (as an amortization
22 expense) the remaining balance of the deferred account pro-rated by the number of
23 actual EV adoptions within its service area as of ten years past the commencement
24 of the program less pre-2019 EV adoptions and projected EV adoptions for the tenth
25 year, divided by 7,500; and

- Any remaining portion of the deferred account not recovered in this rate case will be deemed irrecoverable. All amortization expense recovered in this manner will be amortized over five years.

Q. Would Ameren Missouri have to wait the full ten years before it can achieve the full performance base metric?

A. Not necessarily. There are a number of adoption scenarios that could play out that would provide a positive return under the performance base metric to occur during a future Ameren Missouri rate case. The two key variables would be the timing of the rate case and the inducement of more than 7,500 EVs over the base forecast and the pre-2019 registered EVs. Table 2 provides a graphical illustration of the threshold of EVs in Ameren Missouri's service territory that would need to be registered to achieve a positive return under the performance base metric assuming the pre-2019 EVs were 1,000.

Table 2: Performance Base Metric Threshold by Year

Year	Base	Pre-2019 + 1,000	Positive Performance Threshold	100% Performance Threshold (+7,500)
2019	3,768	1,000	4,768 +	12,268
2020	4,538	↓	5,538 +	13,038
2021	5,422		6,422 +	13,922
2022	6,952		7,952 +	15,452
2023	9,129		10,129 +	17,629
2024	11,604		12,604 +	20,104
2025	14,378		15,378 +	22,878
2026	17,451		18,451 +	25,951
2027	20,375		21,375 +	28,875
2028	24,516		25,516 +	33,016

1 Three illustrative scenarios under the Table 2 framework are provided below. Each of these
2 three scenarios assume that all \$11M have been spent prior to the commencement of the rate
3 case.

4 Scenario 1: Rate Case with test year ending in July of 2023 would utilize the base forecast for
5 2022 (6,952), the pre-2019 EVs (1,000) against the actual 10,000 registered EVs for 2022.

6 Base + pre-2019 = 7,952

7 Full performance metric = 15,452

8 Actual = 10,000

9
10 Actual – Base + pre-2019 ÷ Charge Ahead 100% = sharing % + carrying costs

11 1. $10,000 - 7,952 = 2,048$ induced EV adoptions

12 2. $2048 \div 7,500 = 27.31\%$ recoverable percentage of deferred account

13 3. 27.31% of \$11M = \$3,004,100

14 4. \$3,004,100 + carrying costs at short-term debt = performance base metric in
15 this case, remaining balance of deferred account left over for future rate cases.

16 Scenario 2: Rate Case with test year ending in July of 2023 would utilize the base forecast for
17 2022 (6,952), the pre-2019 EVs (1,000) against the actual 7,000 registered EVs for 2022.

18 Base + pre-2019 = 7,952

19 Full performance metric = 15,452

20 Actual = 7,000

21
22 Actual is less than Base + pre-2019 = 0% performance base metric in this rate case, but
23 balance of deferred account remains available for later rate cases.

24 Scenario 3: Rate Case with test year ending in July of 2023 would utilize the base forecast for
25 2022 (6,952), the pre-2019 EVs (1,000) against the actual 16,000 registered EVs for 2022.

26 Base + pre-2019 = 7,952

27 Full performance metric = 15,452

1 Actual = 16,000

2 Actual is greater than Base + pre-2019 + 7,500 = full performance metric + carrying
3 costs at short term debt in 2023. Deferred account exhausted, so no further money.

4 **Q. Would Ameren Missouri need 33,016 registered EVs after ten years to achieve the full**
5 **performance base metric?**

6 A. No. As illustrated in scenario 3 above, Ameren Missouri could potentially achieve the full
7 performance base metric after having only 16,000 registered EVs, or even less. That is because
8 the performance base metric also recognizes aggressive adoption above and beyond a given
9 year's pre-2019 and base forecast. If Ameren Missouri's EV adoption exceeds those numbers
10 and an additional 7,500 registered EVs in the historical test year of a rate case, then OPC
11 believes the Company should be rewarded.

12 Theoretically, under the performance base metric Ameren Missouri could achieve 100%
13 allowance of the performance base metric without there being 33,016 registered EVs in its
14 service territory in 2028. However, if such a threshold was met early in the program period it
15 would appear unlikely that the 10-year EV goal originally contemplated would fail to
16 materialize.

17 Also the Commission should be cognizant that OPC's proposal provides greater opportunity
18 to profit than the utility's initial application because it permits Ameren Missouri to receive
19 carrying costs. This concession is put forward in recognition that shareholders would bear some
20 risk in the provision of this non-essential service.

21 Finally, all numbers associated with the performance base metric have been provided by
22 Ameren Missouri. OPC did not rely on any other forecasts to inform this filing.

23 **Q. Does this conclude your testimony?**

24 A. Yes.