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FILE NO. ET-2021-0082

DIRECT TESTIMONY

OF

JARED SCHNEIDER

ON

BEHALF OF

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

**St. Louis, Missouri
September, 2020**

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1 **I. INTRODUCTION**

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

3 A. Jared Schneider, Ameren Missouri, One Ameren Plaza, 1901 Chouteau Avenue, St.
4 Louis, Missouri 63103.

5 **Q. What is your position with Ameren Missouri?**

6 A. I am a Product Development Analyst for Union Electric Company d/b/a Ameren
7 Missouri ("Company" or "Ameren Missouri"). The Product Development team is focused on
8 evaluating opportunities to increase revenues that will offset the Company's retail revenue
9 requirement and ultimately reduce the rates paid by its customers through offering new, cost-
10 effective products and services that address customer needs as part of the Company's affordability
11 initiative.

12 **Q. Please describe your educational background and employment experience.**

13 A. I graduated from Southern Illinois University with a bachelor's degree in industrial
14 engineering. I started my career working for Eaton Corporation as a technical specialist providing
15 pricing for engineered-to-order products. I then transitioned into a product management role where
16 I was responsible for the financial performance of two, multi-million dollar product lines, which
17 involved the ideation and commercialization of new product developments. In August of 2018, I
18 left Eaton, and enrolled in the Olin School of Business at Washington University in St. Louis

1 pursuing a master's degree in finance. I joined Ameren Missouri in my current role in November
2 of 2019.

3 **II. PURPOSE OF TESTIMONY**

4 **Q. What is the purpose of your direct testimony?**

5 A. The purpose of my direct testimony is to explain the proposed voluntary Surge
6 Protection Program (the "Program"), including its programmatic details and economics, which
7 demonstrate that it will provide a cost-effective electric service offering to Ameren Missouri
8 customers to the benefit of both Program participants and the general body of customers.

9 **III. PROGRAM BACKGROUND**

10 **Q. What is a surge?**

11 A. A surge is a transient wave of voltage or current in an electric circuit typically
12 lasting less than a few milliseconds. One of the most common sources of surges outside the home
13 is from lightning, but other sources include power quality disturbances and utility power switching
14 when repairing a down power-line.

15 **Q. Is the Company's system designed to limit the number and severity of surges
16 that impact its customers?**

17 A. Yes. Ameren Missouri follows industry best practices in designing and constructing
18 its electric system – and as a result the basic level of service provided to all customers is, and will
19 continue to be regardless of the existence of this Program, designed to provide as high of a level
20 of surge protection as is practical. The system wide measures to prevent surges include the
21 installation of surge arrestors at many different points, including virtually all distribution
22 transformers and switchgear, and along some overhead conductor spans where there are not line
23 transformers nearby. This type of equipment is present at all voltage levels of the system.

1 Additionally, current system design practices include the addition of a static wire along with
2 overhead conductor spans that will provide a ground path for lightning based surges to divert them
3 from entering the system. All of these measures limit the number of surge events that will impact
4 customers, regardless of their participation in the Program. All of that said, there are still surge
5 events that simply cannot be prevented even with system design following best practices. The
6 surge protection Program is a means whereby customers can choose to further protect their
7 appliances and equipment from potential damage when surges still occur.

8 **Q. What is a surge protection device?**

9 A. A surge protection device is designed to protect electrical devices from voltage
10 surges and spikes. The device provides this protection by limiting voltage surges that occur in the
11 normal electrical system as power is supplied to an electronic device.

12 **Q. Do surge protection devices have a warranty?**

13 A. Yes, almost all manufacturers provide a warranty on the surge protection device
14 and on the covered appliances which the device is designed to protect. The device Ameren
15 Missouri will deploy through the Program has a 15-year warranty.

16 **Q. How often do surge protection devices fail?**

17 A. Experience indicates the failure rate for surge protection devices is extremely small,
18 just 0.05%, or about 5 devices out of each 10,000.

19 **Q. Why should Ameren Missouri offer the Program?**

20 A. First, as discussed further below, there is a need for such a program both because
21 while the Company's system contains a number of features as discussed above that provide a high
22 level of protection from damage from surges, not all surges can be protected via design and
23 operation of the utility's electric system itself. Some customers, including the significant number

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1 of customers who have expressed interest in such a program, desire protection beyond the
2 protection that the Company can reasonably provide via its electric system. Second, the program
3 is cost-effective in that it will provide benefits, for all customers, in excess of its costs. As discussed
4 in the Direct Testimony of Company witness Steve Wills, enhancing the Company's service
5 offerings through programs like this that benefit program participants while generating incremental
6 revenues that will, in the long-term, reduce Company revenue requirements. These incremental
7 revenues, which exceed the costs of the Program, will help keep the Company's electric service
8 rates as affordable as possible for the general body of customers.

9 **Q. You noted that the electric system itself cannot completely eliminate the risk**
10 **of damage from surges. Please elaborate on the specific problem the Program will address.**

11 A. Every piece of electrical equipment is designed to operate at a specified nominal
12 voltage. While electrical equipment can handle minor variations from this nominal voltage, the
13 equipment will suffer damage from surges that originate from outside the home, which are many
14 times more than the minor variations the equipment is designed to handle. According to the
15 National Lightning Safety Institute, it is estimated that damage due to electrical surges is one of
16 the leading causes of failure of electrical equipment, with damage due to lightning alone estimated
17 to cost the U.S. economy \$5-6 billion dollars every year. As noted, the Company's system is
18 designed to minimize this risk but it simply cannot prevent all surges, especially in a state like
19 Missouri, which ranks in the top 10 of most "lightning struck" states in the United States.

20 **Q. Have customers expressed a desire for such a surge protection program?**

21 A. Yes, as indicated by market research on that question using Ameren Missouri's
22 online residential panel, and the experience of other utilities offering similar programs.

23 **Q. What is Ameren Missouri's online residential panel?**

1 A. Offering the Program is premised on the principles of improved service,
2 affordability, flexibility, fair value, and transparency.

3 **Q. Please explain each principle.**

4 A.

5 Improved Service: While as noted the Company's system is designed to minimize surges
6 and does a good job of doing so, there is only so much that can be done at the electric
7 system level to prevent damage from surges. A surge protection device can nearly eliminate
8 this risk, which is protection a substantial number of customers want and value, as indicated
9 by the existence of similar programs across the country and by the survey results I spoke
10 of earlier.

11 Affordability: As Mr. Wills discusses in detail in his direct testimony, programs like this
12 will provide incremental revenues that offset the Company's revenue requirement to the
13 benefit of all customers, which will aid in promoting the continued affordability of electric
14 service for customers.

15 Flexibility: Program participation is entirely voluntary and after a short, two-year period
16 (which will allow participation fees to fully cover the cost of the device), customers are
17 free to stay on or leave the Program at no cost.

18 Fair value: The Program charges a fair rate, commensurate with charges for similar
19 programs offered across the country, and provides significant, long-term coverage against
20 damage to covered appliances.

21 Transparency: The Program tariff together with a dedicated Program website will disclose
22 Program risks, costs, and benefits to participants. Participating customers' energy
23 statements will also include a clearly labelled line item identifying the Program charges.

V. PROGRAM SPECIFICS

Q. Please outline the key terms of the Program

A. For a recurring monthly fee of \$9.95, Ameren Missouri will install a Company-owned surge protection device within the participating customer's meter box. This device will protect covered home appliances from surges that pass through the meter and in the unlikely event it fails to do so, will provide compensation to the customer via the device manufacturer's limited warranty. The warranty will provide this coverage for 15 years, providing compensation of up to \$5,000 per appliance, \$5,000 per occurrence (i.e., per surge event), and \$50,000 in the aggregate over the 15-year warranty term. If the covered equipment can be repaired within the coverage limits, the manufacturer's warranty will pay for the repair; otherwise, the value of the damaged equipment (taking into account applicable depreciation) will be paid to the participating customer up to the applicable coverage limits.

Q. Who is eligible for the Program?

A. The Program will be offered to Ameren Missouri Rate Schedule 1M residential electric service customers where the device can be safely installed within their meter box, including owners and those who rent (with permission from the premise owner to install the device in the premise's meter box). We estimate the eligible customer base to be approximately 1,000,000 customers.

Q. What items are covered under the Program?

A. The Program provides coverage for motor driven household equipment such as HVAC units, refrigerators, clothes washers and dryers, dishwashers, freezers, hard wired fans, and cooking appliances.

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1 in in year 5 will stop generating revenue in year 20. As noted, this is a conservative assumption
2 for two reasons: 1) in year 6 and beyond the Program will experience new customers enrolling
3 meaning more revenue will actually be generated and that the costs in those years will in reality
4 be allocated over more customers, producing greater net benefits; and 2) If a customer is enrolled
5 for the full 15-year lifecycle of the device, they will likely continue on the Program (having
6 obviously been satisfied with long term participation), just with a new device that Ameren
7 Missouri will install to replace the device for which the warranty will expire.

8 **Q. Please explain the results of this analysis in greater detail.**

9 A. The analysis examined both Program costs and revenues and is driven most
10 substantially by the customer adoption rate. We examined this variable under three scenarios: a
11 best case, worst case, and expected case, in order to understand the costs/benefits of the program
12 under varying assumptions. Those assumptions are summarized in Table 1 below:

13 **Table 1**

	Worst	Expected	Best
Total Customers Enrolled as of Year 5	20,000	50,000	80,000
As a % of customer base	2%	5%	8%

14

15 Table 2 summarizes the net benefits for each scenario, together with the net present value
16 ("NPV") of those net benefits for the cohort of customers participating in the first five years over
17 the Program's first 20 years of operation.

18 **Table 2**

	Worst	Expected	Best
Nominal Net Benefits	\$5,789,624	\$48,687,931	\$102,862,158
NPV	\$3,786,815	\$28,584,318	\$58,528,748

1 **Q. What do these results show?**

2 A. They show that the Program is highly likely to benefit not only the Program
3 participants, but the general body of customers since even under the worst case scenario (which is
4 worse than we would actually expect due to the conservative approach we took for the analysis as
5 explained earlier), the Program produces nearly \$6 million of net benefits from the initial cohort
6 of participating customers.

7 **Q. Please explain the basis for your assumptions on the key variables.**

8 A. In evaluating the economics of the Program, we conducted extensive industry
9 research. We had conversations with other major utilities regarding their experiences with surge
10 programs including: implementation strategies, adoption rates, churn rates, field experience, etc.
11 Additionally, we also engaged in discussions with device suppliers and utility surge program
12 contractors to help validate information regarding the utility programs they service. Those
13 discussions, including experience with the major utility programs we examined, were used as a
14 baseline to develop our assumptions.

15 Our projected adoption rate for this program after year 5 is roughly 5% of our residential
16 customer base, or 50,000 customers. We believe this to be a highly attainable target considering
17 the estimated adoption rates for mature utility surge programs that currently exist. Additionally,
18 we believe we have put together a robust marketing plan and budget to drive us to this adoption
19 rate.

20 Our best case scenario matches the adoption rate of mature utility programs that already
21 exist, which is approximately 8% customer adoption.

22 In our worst case scenario we are assuming a 2% adoption rate, or just 20,000 customers,
23 after 5 years. Our industry research indicates that only one other major utility has a current

1 adoption rate of this magnitude. However, this utility has only had their program for approximately
2 2 years. Our assumption for our worst case scenario is that we achieve that 2% adoption rate but
3 over 5 years instead of 2 years. So, our worst case scenario models a situation where our surge
4 program performs more poorly than any of the major utility programs that we analyzed.

5 **Q. How did you determine the costs associated with this program?**

6 A. The costs used to develop the Program economics were determined in multiple
7 ways. The key and largest costs (for the devices, device installation, and Program administration)
8 are based on responses to Requests for Proposal (RFP) issued for the Program; i.e., they are
9 competitive, market-based costs from those who will supply the devices and provide installation
10 and Program administration on the Company's behalf.

11 Other expenses such as marketing, digital, and billing are informed estimates from internal
12 (Ameren Missouri or Ameren Services Company) resources based on their experience with similar
13 or analogous projects implemented in the past.

14 **Q. How was the monthly cost of the program determined?**

15 A. As noted earlier, we analyzed various utility programs from across the nation,
16 including their pricing. We then coupled that analysis with our customer survey results to
17 determine a willingness to pay and, as discussed earlier, overall program interest. Furthermore, we
18 evaluated the costs of the program and projected enrollment over time to develop a cost-based
19 estimate. We then used a combination of the foregoing information to determine a monthly charge
20 that should be attractive to customers, cover the Program's costs, and provide additional margins
21 to achieve a key purpose of the Program: generating additional revenues to offset the Company's
22 revenue requirement and promote the Company's affordability efforts.

1 **Q. How do the parameters of the other similar surge programs compare to the**
2 **parameters of the Company Program, in particular, in terms of cost and coverage?**

3 A. The Company Program is very comparable to other utility programs in terms of
4 cost, coverage, and overall value. The fundamentals of our program and other programs are
5 inherently the same: for a reoccurring monthly fee customers have a surge protection device
6 installed in their meter box that will protect their home from surges that enter through the meter.
7 Protection is the value of the program and the reason customers enroll. While warranty coverage
8 varies from utility to utility the key value driver remains the same. The price for this service and
9 comparable coverage in other utility programs range from \$7.95 to \$10.95. Two other major utility
10 programs which have equivalent coverage to our program charge \$9.95 per month and \$10.95 per
11 month, so we believe our fee of \$9.95 is a very fair and competitive price to offer customers for
12 this service and coverage.

13 **Q. Does this conclude your direct testimony?**

14 A. Yes.

