

Exhibit No.:  
Issue(s): Surge Protection Program  
Witness: Jared Schneider  
Type of Exhibit: Direct Testimony  
Sponsoring Party: Union Electric Company  
File No.: ET-2021-0082  
Date Testimony Prepared: September 21, 2020

**MISSOURI PUBLIC SERVICE COMMISSION**

**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**

## TABLE OF CONTENTS

I.	INTRODUCTION .....	1
II.	PURPOSE OF TESTIMONY .....	2
III.	PROGRAM BACKGROUND.....	2
IV.	PROGRAM PRINCIPLES .....	5
V.	PROGRAM SPECIFICS .....	7
VI.	PROGRAM ECONOMICS .....	8

**DIRECT TESTIMONY**

**OF**

**JARED SCHNEIDER**

**FILE NO. EO-2021-0082**

**I. INTRODUCTION**

1

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

Direct Testimony of  
Jared Schneider

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.     Ameren Missouri's online residential panel is a diverse group of approximately  
2     4,180 Ameren Missouri customers that we survey 1-2 times every month regarding a vast array of  
3     utility topics. Panel participants are asked a series of questions in order to gauge their interest or  
4     garner feedback. The panel includes Ameren Missouri residential customers that vary across race,  
5     gender, ethnicity, age, and income.

6           **Q.     What were the results of your survey of the panel respecting a proposed surge**  
7     **protection program?**

8           A.     The results indicate that more than half of panel participants are very interested in  
9     such a program, and that 9 out of 10 are at least somewhat interested. These results suggest strong  
10    demand for the Program.

11          **Q.     You mentioned the existence of similar programs across the country, please**  
12    **explain.**

13          A.     Surge protection programs offered by electric utilities and cooperatives are not new.  
14    At least four major investor owned utilities across the country have similarly structured programs  
15    and coverage as do many cooperatives. Our utility industry research indicates that over 1 million  
16    surge devices have been deployed across the country protecting residential customers from  
17    harmful surges that could enter the home through the electric meter. The existence of these  
18    programs, in some cases for multiple decades, clearly indicates two major points: 1) residential  
19    electric customers across the country desire this type of service and 2) programs of this nature are  
20    profitable.

21   **IV.     PROGRAM PRINCIPLES**

22          **Q.     What are the basic principles that underlie the proposed program?**

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.

1           **Q.     What happens if an enrolled customer has damaged appliances from a**  
2 **suspected surge?**

3           A.     In the rare case that a Program participant believes they have experienced a surge  
4 through the meter despite the presence of the surge protection device, they will submit a claim  
5 under the manufacturer's warranty with the assistance of the Company's Program administrator.

6   **VI.     PROGRAM ECONOMICS**

7           **Q.     You earlier indicated that the Program is cost-effective. Please explain.**

8           A.     Based upon the program parameters and conservative assumptions about  
9 participation and Program costs, our modeling indicates that participation in the Program by those  
10 customers who sign-up during just its first five years is expected to generate a nominal net benefit  
11 of approximately \$48 million over the first 20 years of Program operation because the revenues  
12 provided by Program participants will exceed its costs.

13          **Q.     Please explain the approach taken for the analysis that underlies the**  
14 **determination that the Program will provide net benefits of \$48 million over its first 20 years**  
15 **of operation.**

16          A.     We took a conservative approach, i.e., an approach that likely understates the  
17 Program's net benefits, by only analyzing the expected costs and benefits of the Program associated  
18 with those customers who participate during the Program's first five years of operation. In reality,  
19 the Company expects to operate the Program over the long term, which will mean that net benefits  
20 from the cohort of customers participating in the first five years will continue and in fact would be  
21 expected to be greater than the net benefits delivered by that initial cohort since the Program's  
22 startup costs would not be repeated in later years. For clarification, our analysis assumes that  
23 customers joining in year 1 will stop generating revenue in year 16 and similarly customers joining

Direct Testimony of  
Jared Schneider

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.

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

In the Matter of the Application of Union	)	
Electric Company d/b/a Ameren Missouri	)	File No. ET-2021-_____
for Approval of its Surge Protection Program.	)	

**AFFIDAVIT OF JARED SCHNEIDER**

**STATE OF MISSOURI**     )  
  ) **ss**  
**CITY OF ST. LOUIS**     )

Jared Schneider, being first duly sworn on his oath, states:

1.     My name is Jared Schneider. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as a Product Development Analyst.
  
2.     Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 12 pages and Schedule(s) all of which have been prepared in written form for introduction into evidence in the above-referenced docket.
  
3.     Further, under the penalty of perjury, I declare that the information contained in the foregoing and attached testimony is true and correct to the best of my knowledge and belief.

*/S/Jared Schneider*  
JARED SCHNEIDER

Sworn to me this 21st day of September, 2020.