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MISSOURI PUBLIC SERVICE COMMISSION

File No. EA-2016-0208

DIRECT TESTIMONY

OF

WILLIAM J. BARBIERI

ON

BEHALF OF

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

St. Louis, Missouri
April 27, 2016

Ameren Exhibit No. 2
Date 10-17-16 Reporter KE
File No. EA-2016-0208

1 **DIRECT TESTIMONY**

2 **OF**

3 **WILLIAM J. BARBIERI**

4 **FILE NO. EA-2016-0208**

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

6 A. My name is William J. Barbieri. My business address is One Ameren Plaza,
7 1901 Chouteau Avenue, St. Louis, Missouri 63103.

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

9 A. I am employed by Ameren Services Company ("Ameren Services"), a subsidiary
10 of Ameren Corporation, in the Corporate Planning Department as Director, Renewable Strategy,
11 Policy and Generation.

12 **Q. Please describe Ameren Corporation and Ameren Services Company.**

13 A. Ameren Corporation ("Ameren") is a public utility holding company with four
14 primary subsidiaries. Three of these are operating companies and the fourth, Ameren Services,
15 is a service company that provides common and necessary services for Ameren and its
16 subsidiaries. Ameren Missouri is one of the three operating companies served, as is Ameren
17 Illinois, a rate-regulated electric and natural gas transmission and distribution business in Illinois,
18 and Ameren Transmission Company, a Federal Energy Regulatory Commission ("FERC")
19 rate-regulated electric transmission business. Ameren Services is the service company within the
20 Ameren family of affiliated companies that provides services such as corporate planning,
21 information technology, supply, finance, and human resources to Ameren and its subsidiaries.

1 **Q. Please describe your employment history with Ameren and its affiliates.**

2 A. I joined the Fossil Fuel Department of Ameren Services in August 1999 as Senior
3 Business Development Executive. In 2000, I was promoted to Coal Business Development
4 Director handling procurement and sales of third party coal along with marketing functions for
5 coal terminal activities. In November 2004, I was asked to coordinate the renewable energy
6 initiative for Ameren Missouri and its affiliates, as Managing Executive, Renewables. In 2007, I
7 was promoted to Manager, Renewables. In January of 2010, Ameren Missouri created its own
8 renewables department at which time my title was changed to Manager, Renewable Energy. On
9 January 1, 2013, my title was changed to Director, Renewable Strategy, Policy and Generation.
10 On January 1, 2016, my group was transferred to the Corporate Planning group of Ameren
11 Services.

12 **Q. Please describe your duties and responsibilities as Director, Renewable**
13 **Strategy, Policy and Generation.**

14 A. My primary responsibilities are the development of the renewable energy policy,
15 goals and procedures for Ameren Missouri, including all strategy and planning. Of primary
16 importance is ensuring Ameren Missouri is in full compliance with the requirements of the
17 Missouri Renewable Energy Standard ("RES"). My duties involve leading negotiations related
18 to the acquisition of renewable energy resources in the form of power purchase agreements,
19 Renewable Energy Credit ("REC") procurement, and project development resulting in renewable
20 generation facilities owned and operated by Ameren Missouri. I am also responsible for
21 coordinating activities of groups related to research and analysis concerning technology
22 assessments for wind, solar, biomass, landfill gas, hydro-electric and all other renewable
23 resource options. This includes financial feasibility analysis. I am responsible for the

1 preparation of all renewable energy-related compliance plans and reports required by the
2 Commission. I also provide support to the regulatory and legislative departments, providing
3 guidance and information on renewable energy issues at both the state and federal level. My
4 department further assists in providing relevant renewable information to customer support
5 groups within Ameren Missouri.

6 **Q. Please describe your qualifications.**

7 A. I received a Bachelor of Science Degree in Business Administration from
8 St. Louis University in 1977, with accounting as my area of specialization. I have been in the
9 energy industry for approximately 36 years, and I have extensive contract negotiation
10 experience.

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

12 A. The purpose of my direct testimony is to address a pilot program that Ameren
13 Missouri proposes to launch related to a type of distributed solar generation. The type of
14 distributed solar generation to be implemented through this pilot program is to site, construct,
15 and operate small-scale solar generation facilities on property owned by Ameren Missouri
16 business and/or residential customers.

17 **Q. What is the purpose of this pilot program?**

18 A. The purpose of this program is to gain insight and knowledge about the unique
19 benefits and challenges of distributed generation in general and, more specifically, benefits and
20 challenges related to the deployment of Ameren Missouri-owned solar generation on properties
21 owned by Ameren Missouri customers. An increasing number of Ameren Missouri commercial
22 customers have contacted various personnel at Ameren Missouri, expressing an interest in
23 partnering with the utility by making their properties available for the installation of solar

1 facilities and by also contributing to its cost. These customers have indicated that they would be
2 willing to support and house the solar facility but without the responsibility to build, operate and
3 maintain it. These installation options allow the facility to be owned by the utility, but without
4 the utility having to buy properties on which to complete the installation. This allows continued
5 development of solar generation, which is expected to play an increasing role in energy
6 production in the future as its costs continue to fall. The option to partner with business or
7 residential customers for such installations is attractive for Ameren Missouri and all of its
8 customers.

9 **Q. What is this pilot program called?**

10 A. The pilot program is called the Solar Partnership Pilot. The specific details of the
11 program are contained in the direct testimony of Ameren Missouri witness Michael Harding.
12 Generally, it is a program under which Ameren Missouri would own, operate and maintain
13 photovoltaic solar equipment on the customer's premises under a long-term lease agreement in
14 order to learn about distributed generation, how it impacts the Company's electrical grid and to
15 test the level of customer interest in sharing in the investment necessary to install this type of
16 renewable generation.

17 **Q. Is this pilot program necessary for compliance with the Renewable Energy**
18 **Standard?**

19 A. Although the RECs earned through this program will be used to comply with the
20 RES, the pilot is not being proposed as part of its RES compliance plan. It will, however, assist
21 Ameren Missouri in planning for future compliance. I would also note that RES compliance is
22 not the only relevant consideration relating to increasing the prevalence of renewable generation
23 of the Company's system. While the exact form of carbon restrictions or other environmental

1 limits may not yet be clear, particularly given the recent stay of the Clean Power Plan, it is the
2 Company's expectation that federal policies (and perhaps state policies) will continue to lead to
3 emissions restrictions that will make renewable generation more and more important. The more
4 we know about how to operate it, and how it affects our system, the more options we have to
5 displace emission-causing megawatt-hours with megawatt-hours from renewable generation as
6 compliance with such restrictions becomes necessary.

7 **Q. What role would the pilot program play?**

8 **A.** This pilot is consistent with and is a next step in the Company's renewable
9 strategy, and is an important part of the Company's learning curve for gaining experience with
10 different kinds of solar installations. Ameren Missouri's initial efforts were focused on the
11 purchase of RECs from other states and its own hydroelectric facilities. Initially, it installed
12 solar panels on its own general office building in St. Louis, in order to study three different types
13 of solar panel technologies. The Company made that information available on its website so that
14 its customers could benefit from that information as well. Ameren Missouri then moved to
15 construction of utility-scale renewable generation facilities – including a 15 megawatt (“MW”)
16 methane-to-megawatts facility in Maryland Heights and a 5.7 MW solar generation facility in
17 O’Fallon, Missouri. Both of these facilities are the largest investor-owned facilities in Missouri
18 of each type. Ameren Missouri customers have also chosen to install solar panels on homes and
19 businesses. Under the RES, Ameren Missouri has paid close to \$100 million in rebates to
20 support these installations. Up until now, Ameren Missouri has only utilized large-scale, utility-
21 owned solar generation, but such large-scale installations are not the only option for complying
22 with the RES. Small-scale generation, located throughout the Company's distribution system, is

1 also an option for RES compliance, but is an area in which Ameren Missouri currently lacks any
2 real experience.

3 **Q. Is there a budget for the pilot program?**

4 A. Yes. Ameren Missouri proposes to invest up to \$10 million over the three years
5 of the pilot program. To put that number in perspective, Ameren Missouri's average annual
6 capital expenditures over the past five years have been approximately \$582.6 million and its
7 current rate base is approximately \$7 billion. While the program should provide valuable insight
8 into this kind of distributed generation, its financial impact on Ameren Missouri and its
9 customers will be quite small.

10 **Q. You have used the phrase "distributed generation" several times. Can you**
11 **explain what that phrase means, as you use it?**

12 A. Distributed generation is electricity generated by one of a variety of small,
13 grid-connected devices, which can be located throughout the Company's service territory at the
14 distribution level as opposed to the transmission level. Distributed generation can be renewable
15 (solar panels) or non-renewable (back-up, gas-fired generation). In this pilot, the Company is
16 focused on renewable generation.

17 **Q. Does Ameren Missouri believe distributed generation is beneficial?**

18 A. Yes. The Company believes distributed generation has benefits for the larger
19 electric grid but, regardless of those benefits, the Company also realizes distributed generation
20 will play an increasingly prevalent role in Ameren Missouri's electrical system. According to
21 numerous industry resources such as the Solar Electrical Producers Association ("SEPA") as
22 well as government agencies such as the National Renewable Energy Lab ("NREL"), distributed
23 generation is expected to increase as the cost of solar panels decreases. In order to prepare for

1 that reality, Ameren Missouri needs to deepen its understanding of the benefits and challenges of
2 distributed generation, for both the Company and for its customers.

3 **Q. What learning opportunities are related to the pilot program?**

4 A. While Ameren Missouri cannot predict everything it will learn through this pilot,
5 it does expect to gain an understanding of how distributed generation functions on an electrical
6 grid designed primarily for centralized generation. Additionally, Ameren Missouri recognizes
7 that utilities across the country are increasingly placing their solar generation on customer
8 premises. This practice creates both legal and operational challenges. This program is intended
9 to assist Ameren Missouri in sorting out the requirements and in gaining experience in dealing
10 with this type of placement. The program should provide insight into questions about customer
11 behaviors, including:

- 12 • Are customers willing to invest money into utility-owned renewable generation?
- 13 • Does Ameren Missouri retaining ownership of the associated RECs impact customer
- 14 desire for this program?
- 15 • What contract terms are necessary in order to make this type of arrangement work?
- 16 • Can Ameren Missouri identify a system reliability benefit arising from the addition of
- 17 these generation assets?
- 18 • Are there any distribution system challenges associated with the use of distributed
- 19 generation?

20 **Q. How will Ameren Missouri gather the information necessary to identify the**
21 **lessons from this pilot?**

22 A. Ameren Missouri intends to conduct marketing surveys along with interviews of
23 customers participating in the program to learn first-hand their thoughts about the workings of
24 the program. Routine follow-ups on the customers' perceptions of how the program is working
25 and the benefits that the customers are experiencing will assist Ameren Missouri with potential
26 future program design changes that may be necessary.

1 As the solar industry literature continues to predict operating efficiency gains from this
2 type of generation, Ameren Missouri should also be able to determine if there are any specific
3 financial benefits from this form of solar generation or if utility-scale central station generation
4 will continue to provide a more economic means of solar electrical supply.

5 Finally, Ameren Missouri will use the Division Directors responsible for the areas in
6 which each generator is ultimately located under this pilot to track the operational benefits and
7 challenges related to having the facilities on the distribution system (versus on the transmission
8 system).

9 Ameren Missouri intends to prepare a formalized report after the first 18 months of
10 program operation with a follow-up report at the end of the 36-month pilot period. The
11 Company will file both reports in this docket. Information gathered concerning likes, dislikes,
12 system impact and benefits as well as potential program improvements can then be utilized to
13 determine necessary program changes or determine if the program should be continued.

14 **Q. Does Ameren Missouri believe it is prudent to undertake this pilot, even if it**
15 **does not result in the lowest cost electrical energy (in terms of dollars per kilowatt-hour**
16 **produced)?**

17 **A. It does.** Ameren Missouri already has customer-owned distributed generation on
18 its system. It sees distributed generation being used by other electric utilities and it recognizes
19 that such generation may play a role in providing the electric service required by its customers.
20 If the deployment of distributed generation has the potential to provide both operating and
21 financial benefits, then prudence dictates that Ameren Missouri begin to investigate and
22 determine how to harness its potential for its own electric grid. Coupled with the continuing
23 advancement in micro-grids and battery technologies, the ability to site solar generation on

1 various customer-owned properties or structures would be a logical integration of the three
2 technologies that may advance an increase in overall distributed generation.

3 Q. You have in effect addressed most if not all of these factors earlier in your
4 testimony, but to summarize, could you please explain how this pilot program relates to the
5 so-called "Tartan" criteria the Commission typically evaluates in deciding certificate of
6 public convenience and necessity ("CCN") cases?

7 A. Yes. As I understand it, the Commission usually evaluates CCN applications by
8 examining five criteria first listed in the *Tartan* case from the mid-1990s. Those criteria are need
9 for the project, qualifications of the applicant to construct and operate the project, the applicant's
10 financial ability to pursue the project, the economic feasibility of the project and whether the
11 project is in the public interest. As I understand it, if the first four criteria are evaluated
12 favorably then the last one, public interest, is presumed to also favor the project.

13 I have discussed the need for the project in detail above, namely arising from the need for
14 Ameren Missouri to learn more about this evolving technology and to provide the opportunity
15 for customers interested in housing these facilities to do so, while also learning about how these
16 installations affect the Company, customers and the operation of the Company's system. Ameren
17 Missouri also has demonstrated that it has the expertise to construct, install and operate
18 generating assets, whether they be as small as these distributed generation units or as large as a
19 baseload generating plant.

20 As noted, the \$10 million over three years is well within the Company's financial
21 capability, given the size of its rate base, its "normal" capital expenditures and its more than
22 \$3.3 billion of annual revenues. For similar reasons, the project is economically feasible. The
23 investment and the associated operating expenses will be included in the ratemaking process and

Direct Testimony of
William J. Barbieri

1 the benefits of the project will be well worth its costs. Given those facts and others I have
2 discussed above, the project is also in the public interest.

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

4 **A. Yes, it does.**

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and a Certificate of Public Convenience and Necessity Authorizing it to Offer a Pilot Distributed Solar Program and File Associated Tariff.

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

William J Barbieri
William J. Barbieri

Bessie J. Eaves
Notary Public

My commission expires: 2-21-18