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Witness: William Davis  
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**MISSOURI PUBLIC SERVICE COMMISSION**

**Case No. EA-2014-0136**

**SURREBUTTAL TESTIMONY**

**OF**

**WILLIAM DAVIS**

**ON**

**BEHALF OF**

**UNION ELECTRIC COMPANY  
d/b/a AmerenUE**

**St. Louis, Missouri  
March, 2014**



1 October 2011, I became a Senior Corporate Planning Analyst. I was responsible for Ameren  
2 Missouri's 2011 Integrated Resource Plan and the 2012 Missouri Energy Efficiency Investment  
3 Act filing and was subsequently promoted to my current position in March 2013.

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

5 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony  
6 provided by Martin Cohen on behalf of Earth Island Institute d/b/a Renew Missouri.

7 **Q. Please briefly summarize your testimony and recommendations for the**  
8 **Commission?**

9 A. The alternatives that Mr. Cohen suggests Ameren Missouri should study more in-  
10 depth are either not practical alternatives at this time and/or are more likely to result in higher  
11 costs. For these reasons, as well as all of the reasons stated in the surrebuttal testimony of my  
12 colleague, William J. Barbieri, I recommend the Commission approve Ameren Missouri's  
13 request for a Certificate of Public Convenience and Necessity ("CCN") and reject all of Mr.  
14 Cohen's proposed conditions.

15 **Q. What parts of Mr. Cohen's testimony are you responding to?**

16 A. Mr. Cohen has listed six different alternatives that he thinks Ameren Missouri  
17 should have evaluated, presumably before it filed its CCN application. I will provide a high-  
18 level discussion of each of those options to show the Commission that Ameren Missouri has not  
19 blindly chosen to develop the proposed utility-scale solar project. While this CCN proceeding is  
20 not the appropriate venue for a detailed debate on each alternative described in Mr. Cohen's  
21 testimony, because Mr. Cohen raised these alternatives as issues in this case, I will respond to  
22 each of them.

1           **Q.     What were the six alternatives that Mr. Cohen described in his testimony?**

2           A.     The following are the six alternatives that Mr. Cohen describes in his testimony:

3           1.     Providing additional customer solar rebates under Missouri statutes that relate to  
4     renewable energy resources;

5           2.     Providing additional customer solar rebates under the Missouri Energy Efficiency  
6     Investment Act ("MEEIA");

7           3.     Developing smaller and more geographically distributed utility-scale solar projects;

8           4.     Developing partnerships with customers such that Ameren Missouri has ownership of  
9     small solar projects located on customer premises;

10          5.     Developing "community solar" programs; and

11          6.     Entering into long-term power purchase agreements for electricity produced using  
12     solar energy.

13          **Q.     Could you please respond to each of the six items above?**

14          A.     Yes, although my goal is to explore the alternatives at a high level and  
15     demonstrate that a more exhaustive study is not necessary for this proceeding. But, even if more  
16     study and discussion were required of some or all of the alternatives described by Mr. Cohen, as  
17     I mentioned earlier in this testimony, this CCN application is not the appropriate forum for that  
18     discussion.

19          **Q.     Is providing additional solar rebates under current statutes mandating the**  
20     **increased use of renewable resources a viable alternative?**

21          A.     No, it is not. The first alternative that Mr. Cohen suggests is for Ameren Missouri  
22     to provide additional customer solar rebates under current laws that mandate the increased use of  
23     renewable energy, specifically, the Missouri Renewable Energy Standard ("RES"). The flaw in

1 this proposal is that Ameren Missouri and its stakeholders have already reached an agreement to  
2 cap the dollars available for customer solar rebates. The terms of that agreement are set out in  
3 the "Non-Unanimous Stipulation and Agreement," which the Commission approved in File No.  
4 ET-2014-0085. Interestingly, Renew Missouri, who is sponsoring Mr. Cohen's testimony in this  
5 case, was a signatory to that stipulation. That settlement was developed in response to the  
6 statutory cost cap of the RES. As part of its filing in File No. ET-2014-0085, Ameren Missouri  
7 presented its long-term compliance plan, which included the utility-scale project at issue in the  
8 current case. So, as the parties were discussing the immediate decision about solar rebates in that  
9 case, they were informed about the elements of the Company's long-term compliance plan. One  
10 of the terms of the approved stipulation included a cap on the aggregate amount of solar rebates  
11 payable by Ameren Missouri after July 31, 2012, at \$91.9 million.

12 **Q. How do you respond to Mr. Cohen's suggestion that in lieu of the solar**  
13 **project under consideration in this case Ameren Missouri could provide additional**  
14 **customer rebates under MEEIA?**

15 A. The second alternative discussed by Mr. Cohen would be for Ameren Missouri to  
16 implement a program under MEEIA to provide additional solar rebates to customers. This is a  
17 subtle attempt to circumvent the renewables cost cap – both the solar rebate cap described in my  
18 previous answer as well as the one percent cap prescribed by the RES – by using energy  
19 efficiency funds. But there are at least two obstacles to implementing Mr. Cohen's proposal.

20 The first obstacle is that MEEIA requires programs to be cost-effective, which is  
21 determined based on the Total Resource Cost (TRC) test. The TRC considers the out-of-pocket  
22 costs of customers as well as the program costs of Ameren Missouri. Under this cost  
23 effectiveness standard, the full cost of the solar system (not just the \$2/watt rebate that Ameren

1 Missouri provides) is considered. Ameren Missouri's latest demand-side resource potential  
2 study analyzed distributed solar as a program option and concluded that the program did not pass  
3 the TRC test until the mid-2020s. During the time the study was underway, there were several  
4 interaction points for stakeholder participation and Renew Missouri was a participant throughout  
5 that entire process. Consequently, Renew Missouri should be aware that Mr. Cohen's proposal  
6 will not satisfy this requirement of MEEIA.

7       The second obstacle is related to whether solar distributed generation qualifies as a  
8 "demand-side program" as defined by MEEIA. Under MEEIA, "demand-side program" means  
9 "any program conducted by the utility to modify the net consumption of electricity on the retail  
10 customer's side of the electric meter, including, but not limited to energy efficiency measures,  
11 load management, demand response and interruptible or curtailable load." As Mr. Cohen  
12 pointed out in his testimony, MEEIA's definition includes options that "modify the net  
13 consumption of electricity on the retail customer's side of the utility meter." Based on that part  
14 of the definition, Mr. Cohen posits that if the consumption at the meter goes down because of  
15 solar generation, then clearly solar generation qualifies. But a different interpretation of the  
16 MEEIA definition is more likely – one that requires that "net consumption" (i.e. the customer's  
17 total consumption of electricity regardless of the source of that electricity) must be modified. I  
18 say this interpretation is more likely because the statute clearly specifies a change in net  
19 consumption of electricity *on the customer's side of the meter* rather than a change in net  
20 consumption of electricity *from the utility*. I am not aware of any study that shows installing  
21 solar panels on a customer's home, in and of itself, results in the customer consuming less  
22 electricity on the customer's side of the meter. Consider this simple example; if a customer  
23 installs a more efficient light bulb, then the net consumption is lower because the light bulb uses

1 less energy. But, what if a customer simply installs a generator without taking any additional  
2 steps to reduce his or her overall consumption of electricity? In that case, consumption has not  
3 changed, only the source of the electricity has changed.

4 **Q. Are there any other considerations associated with providing rebates for**  
5 **customer solar generation?**

6 A. Absolutely. Solar rebate costs are paid by all Ameren Missouri customers, while  
7 the customers who install solar generation experience the bulk of the benefits associated with the  
8 solar generation. Furthermore, those customers with solar generation are able to push the fixed  
9 costs of the utility's delivery infrastructure onto other customers which creates another cost  
10 burden for others. In short, solar generation is not cost effective and only with the subsidy (i.e.  
11 the solar rebate) provided by other ratepayers will the investment of the solar generation  
12 potentially provide positive financial returns only to those customers who choose to install it. In  
13 contrast, the full costs and benefits of the proposed utility-scale project will be shared by all of  
14 Ameren Missouri's customers.

15 **Q. Whether providing solar rebates through MEEIA or the RES, does**  
16 **Mr. Cohen provide a fair comparison between the cost per MWh of solar rebates and the**  
17 **cost of Ameren Missouri's proposed solar project?**

18 A. No. Mr. Cohen simply divided the rebate cost by the output and concluded that  
19 providing rebates seems cheaper; which is at best an incomplete comparison. First, the rebates  
20 do not capture all of the costs of developing customer-owned distributed generation because it  
21 completely ignores the out-of-pocket costs of customers. Ignoring those costs supports an  
22 inefficient use of customer money because utility-scale projects are cheaper than smaller scale  
23 projects. Secondly, the Company receives ten years of solar renewable energy credits

1 ("S-RECs") upon providing a customer its rebate, while a utility-scale project will provide  
2 S-RECs for at least 20 years. Therefore, from a compliance standpoint, Ameren Missouri would  
3 need to add additional resources after the tenth year, which means additional costs will be  
4 incurred when complying with solar rebates. Mr. Cohen is able to paint a rosy picture by simply  
5 ignoring about 50% of the upfront costs and ignoring the fact that customer solar generation only  
6 provides 50% of the compliance value. In summary, providing solar rebates will not be a more  
7 cost effective compliance strategy compared to a utility-scale solar project.

8 **Q. How do you respond to Mr. Cohen's next alternative – that Ameren Missouri**  
9 **should consider developing smaller and more geographically-distributed solar projects?**

10 A. The third alternative that Mr. Cohen suggests is to spread out solar projects  
11 geographically so output would vary less with weather conditions across the region. One flaw  
12 with this alternative is that Ameren Missouri would lose economies of scale; that is, larger  
13 projects in centralized locations tend to be less costly because the work is localized and  
14 procurements can be discounted. Ameren Missouri anticipates building more utility-scale solar  
15 projects at different locations in the future – the one at issue in this case is simply the Company's  
16 first such project. So, instead of simultaneously starting projects at multiple locations, Ameren  
17 Missouri will finish the project at the O'Fallon site, then, at the appropriate time, move to another  
18 site and construct another solar facility, and so on. This process streamlines permitting  
19 requirements and lowers the costs of projects. Over time, there will likely be projects spread out  
20 over Ameren Missouri's service territory, accomplishing the objectives of geographically-  
21 distributed solar projects that Mr. Cohen discusses in his testimony without losing the economies  
22 of scale benefits of utility-scale solar.



1           In addition, I would point out that for planning purposes, normalized weather data is used  
2   to estimate the output of solar projects. Therefore, it is not practical to quantitatively analyze  
3   daily scenarios of cloud cover in sub-regions of Ameren Missouri's service territory to determine  
4   the value of more geographically-distributed solar resources compared to the additional costs of  
5   smaller scale projects and the potential increases in maintenance costs. In short, the degree of  
6   geographic disbursement is better suited as a qualitative factor and does not warrant additional  
7   studying, especially considering that Ameren Missouri will also have about 50 megawatts of  
8   widely dispersed solar generation in its service territory on customer premises as a result of solar  
9   rebates.

10           **Q.    How do you respond to Mr. Cohen's fourth alternative – developing**  
11 **partnerships with customers that would enable Ameren Missouri to own small solar**  
12 **projects located on customer's premises?**

13           A.    As his fourth alternative, Mr. Cohen proposes that Ameren Missouri should  
14   develop partnerships with customers such that the Company has ownership of small solar  
15   projects on customer premises. The main flaw with this alternative is cost-related. First,  
16   partnering with customers does not inject any "free" money into the project. The customers who  
17   participate need to provide funding and, although that is not included in the utility's revenue  
18   requirement, those are real costs that have to be paid by someone. In addition, from a total cost  
19   perspective, smaller scale projects simply do not match the economies of scale (i.e. cost savings)  
20   associated with larger utility-scale projects. There would most likely be additional costs such as  
21   those related to administration of many small, spread-out systems; including the costs in  
22   determining who would be responsible for maintaining the systems, to what standards the

1 systems would need to be maintained, and how issues of liability between the customer and the  
2 Company would be resolved.

3 **Q. Do you think Mr. Cohen would agree that smaller scale projects cost more**  
4 **than larger scale projects?**

5 A. I believe he would. The same data source that Mr. Cohen referenced for the  
6 average cost of utility-scale solar projects reported that the average cost of residential solar  
7 systems was \$4.72 per watt (with a range of \$3 to \$7 per watt) which is more than double the  
8 average utility-scale cost reported<sup>1</sup>. Mr. Cohen's own data source clearly supports the  
9 conclusion that smaller scale solar projects will tend to be more expensive on a per-unit basis.

10 **Q. What about Mr. Cohen's proposed fifth alternative – developing**  
11 **"community solar" programs?**

12 A. The fifth proposed alternative relates to the development of “community solar”  
13 programs. I would first note that even the document referenced by Mr. Cohen as support of  
14 community solar programs (Cohen Schedule E) concludes that there are cost savings for larger  
15 projects and cites that as a benefit of community projects<sup>2</sup>. This again supports the notion that  
16 larger projects – like the one Ameren Missouri is proposing to build in O'Fallon – will be more  
17 cost-effective than smaller scale alternatives. That same document also recognizes that a model  
18 for implementation of community solar is one where the utility builds and owns a solar facility  
19 and allows customers to contract for fixed prices until the output is fully subscribed<sup>3</sup>. In that or  
20 any other implementation model, however, Ameren Missouri would need to retain the renewable

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<sup>1</sup> US Solar Market Insight Report 2013 Q3, GTM Research and Solar Energy Industries Association  
(<http://www.seia.org/research-resources/solar-market-insight-2013-q3>)

<sup>2</sup> “A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development”, U.S. Department of  
Energy (<http://www.nrel.gov/docs/fy12osti/54570.pdf>)

<sup>3</sup> “A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development”, U.S. Department of  
Energy (<http://www.nrel.gov/docs/fy12osti/54570.pdf>)

1 energy credits of the power generated by such a facility because those attributes will be needed  
2 for RES compliance purposes. Another challenge for a community solar type structure is in  
3 determining whether the builder would delay construction until the project is fully subscribed or  
4 should build first and look for subscribers later. Although I am not an attorney, I am told there  
5 are legal issues that prohibit Ameren Missouri from collecting from its customers any cost for a  
6 facility not yet in service. There are also challenges of how to address customers who drop out  
7 of the community project funding prior to the project being completed and/or during its  
8 operation. Instead of trying to deal with all of the challenges and questions that accompany the  
9 financing structure of a community solar project at this time, Ameren Missouri is proposing to  
10 fund and build a utility-scale project in a local community that will benefit all customers. In  
11 addition, since the renewable attributes associated with the proposed O'Fallon solar project will  
12 be retired on the behalf of all of Ameren Missouri's customers, benefits associated with the  
13 project will be spread across all customers.

14 **Q. How do you respond to Mr. Cohen's final alternative – having Ameren**  
15 **Missouri enter into long-term power purchase agreements for electricity produced using**  
16 **solar energy?**

17 A. The sixth, and final, alternative proposed by Mr. Cohen would require Ameren  
18 Missouri to enter into a long-term purchased power agreement. In support of this alternative,  
19 Mr. Cohen references solar-based purchased power agreements that are either under  
20 consideration or have been entered into by three Missouri municipalities. Unfortunately,  
21 Mr. Cohen has not provided any hard data regarding these actual or proposed agreements that are  
22 useful for purposes of comparison with Ameren Missouri's proposed O'Fallon solar facility. For  
23 example, I would note that only one of the examples that Mr. Cohen cites in his testimony has

1 actually been implemented as a signed and legally enforceable contract. I would further note that  
2 none of the energy prices Mr. Cohen references from the sample agreements include the  
3 environmental attributes (e.g. the S-RECs). This means that none of the power purchase  
4 arrangements described in Mr. Cohen's testimony would be useful to Ameren Missouri for RES  
5 compliance purposes without the Company having to incur additional costs that are not specified  
6 in the contract/proposals. Additionally, those power purchase arrangements do not include  
7 interconnection costs, which are necessary to get power to customers, and none of them obligate  
8 the seller of solar-based electricity to produce even a single KWh of power. Instead, power will  
9 be supplied on an as-and-when-available basis, which is a stark contrast to the 5-year  
10 performance guarantees included in Ameren Missouri's contract.

11 **Q. Are there any other attributes of Mr. Cohen's alternatives that you believe**  
12 **the Commission should consider?**

13 A. Yes. There is a noticeable pattern that Mr. Cohen's alternatives lean towards  
14 using customer funds and/or smaller projects. In fact, two-thirds of the alternatives involve  
15 implementing smaller scale projects. It is counter-intuitive that while cost savings of bigger  
16 projects are well known, it would be more advantageous to look at smaller projects. Moreover,  
17 as I mentioned earlier in my testimony, over the long-term, Ameren Missouri will not construct  
18 all of its solar projects at one giant, single location. Instead, Ameren Missouri anticipates adding  
19 more solar projects at other locations – which would allow the Company to benefit from  
20 geographic diversity – at a scale that allows both Ameren Missouri and its customers to benefit  
21 from costs savings associated with economies of scale. The other noticeable characteristic is  
22 Mr. Cohen's desire to leverage customer funds. Using customer funds does not reduce the total

1 cost of a solar project; instead, customer funding of solar projects merely distorts the costs and  
2 benefits of solar energy to different customers and customer classes.

3 **Q. Please summarize your conclusions?**

4 A. There is an unmistakable pattern of evidence that shows Ameren Missouri's  
5 proposed project is reasonable, that the requested CCN should be approved, and that all of the  
6 conditions proposed by Mr. Cohen should be rejected. This pattern of evidence includes and is  
7 not limited to:

8 1) No party in this case is questioning the need for additional solar resources to comply  
9 with the RES.

10 2) All of the relevant data presented in this case indicates that Ameren Missouri's  
11 proposed project is within a reasonable cost range.

12 3) As I have demonstrated above, none of the alternatives posited by Mr. Cohen are  
13 inherently more advantageous than the proposed utility-scale solar project.

14 4) When solar rebate funds are fully depleted, Ameren Missouri will have spent nearly  
15 \$100 million on customer-owned solar generation. In addition, solar industry representatives and  
16 Renew Missouri were parties to that agreement. This funding will result in nearly 50 megawatts  
17 of customer-owned solar generation.

18 5) Ameren Missouri witness William J. Barbieri agrees with the Commission Staff that  
19 the Company meets the traditional CCN criteria used by the Commission.

20 6) Only Renew Missouri objected to a Non-unanimous Stipulation for approval of the  
21 CCN. Subsequently, Renew Missouri's objections seem to be more akin to red herrings.

1           7) As Ameren Missouri witness William J Barbieri discusses in his surrebuttal  
2 testimony, Renew Missouri's specific objections and proposed conditions are not pertinent to the  
3 approval of a CCN.

4           **Q. Does this conclude your surrebuttal testimony?**

5           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 Construct, Install, Own, ) File No. EA-2014-0136  
Operate, Maintain and Otherwise Control and Manage )  
Solar Generation Facilities in O'Fallon, Missouri. )

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

1. My name is William R. Davis. I am an Economic Analysis & Pricing Manager for Ameren Missouri.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company, d/b/a Ameren Missouri, consisting of 13 pages (and Schedules N/A through N/A if any), all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

2. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

William R. Davis

Subscribed and sworn to before me this 31<sup>st</sup> day of March, 2014.

Julie Irby  
Notary Public

My commission expires: 1/15/2017

