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Delay Analysis  
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Company  
File No.: EA-2022-0245  
Date Testimony Prepared: January 18, 2023

**MISSOURI PUBLIC SERVICE COMMISSION**

**FILE NO. EA-2022-0245**

**SURREBUTTAL TESTIMONY**

**OF**

**MIKE GRANOWSKI**

**ON**

**BEHALF OF**

**UNION ELECTRIC COMPANY**

**d/b/a Ameren Missouri**

**Chicago, Illinois  
January 2023**

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**SURREBUTTAL TESTIMONY**

**OF**

**MIKE GRANOWSKI**

**FILE NO. EA-2022-0245**

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

2       A.     Mike Granowski, 300 North Lasalle St. Suite 2000 Chicago, IL 60654.

3       **Q.     Did you file Direct Testimony in this proceeding?**

4       A.     No, I did not. However, a report prepared under my supervision and direction in  
5       support of Ameren Missouri's June 2022 Preferred Resource Plan was included in the  
6       Company's direct case filing, as Appendix A to Schedule MM-D2 to Company witness  
7       Matt Michels' Direct Testimony. I address that report later in my Surrebuttal Testimony.

8       **Q.     By whom are you employed and what is your position?**

9       A.     I am employed by Roland Berger LP as Director in the Regulated & Infrastructure  
10      practice. Roland Berger's Regulated & Infrastructure practice has significant experience  
11      and expertise in generation planning, including with the significant implementation of  
12      renewable energy resources being undertaken across the U.S. and the world. Our clients  
13      include the largest utilities in the world, national and state level governments, renewable  
14      and energy technology investors, renewable developers, and equipment manufacturers.

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

16      A.     I have BS degrees in nuclear engineering and physics from the University of  
17      Wisconsin and an MBA from the University of Iowa. I was a power plant engineer with  
18      Commonwealth Edison for 5 years at Quad Cities Nuclear Station and have been a

1 management consultant to the energy industry for a variety of firms since then for over 25  
2 years. My *curriculum vitae* is attached to this testimony as Schedule MG-S1.

3 **Q. What are your responsibilities in your current position?**

4 A. In my current position, my primary duties and responsibilities include providing  
5 strategy, transaction, and regulatory support in the electric and natural gas industries. I  
6 serve multiple utilities, investors, and original equipment manufacturers in the space. In  
7 the course of these duties, I have supported multiple resource planning efforts for US  
8 utilities and am intimately familiar with the processes, tools, and issues surrounding  
9 integrated resource planning.

10 **I. PURPOSE OF TESTIMONY**

11 **Q. What is the purpose of your Surrebuttal Testimony in this proceeding?**

12 A. The purpose of my testimony is to demonstrate two points: that Ameren Missouri's  
13 renewable development plans, including the development of the Boomtown Solar Project  
14 ("the Project"), are not "unprecedented," and that there are tangible risks to delaying  
15 Ameren Missouri's transition to a cleaner generation portfolio.

16 **II. AMEREN MISSOURI'S RENEWABLE DEVELOPMENT PLAN IS NOT**  
17 **UNPRECEDENTED**

18 **Q. Is Ameren Missouri making an "unprecedented shift to renewables,"<sup>1</sup> as Staff**  
19 **witness Fortson claims in his rebuttal testimony?**

20 A. No.

21 **Q. On what do you base your opinion that Ameren Missouri's implementation of**  
22 **renewables at this time, and as planned, is not "unprecedented"?**

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<sup>1</sup> Fortson Rebuttal Testimony, p. 4, l. 18.

1           A.     Based on my experience with the implementation of renewable energy resources  
2           occurring across the U.S. and the world, including the fact that there are numerous utilities  
3           that do not have a statutory mandate or unfulfilled renewable portfolio standard ("RPS") to  
4           serve more of their load with renewables who are nonetheless adding renewable energy  
5           resources.

6           **Q.     How did you determine that numerous utilities without such mandates or RPS**  
7           **requirements are adding renewable energy resources?**

8           A.     Roland Berger conducted research relating to renewable energy resource  
9           development in the U.S. That research indicates that of the 387 utilities in the United States  
10          with decarbonization commitments,<sup>2</sup> 41 utilities are regulated investor-owned utilities  
11          ("IOUs") operating in states without state-level decarbonization targets and without unmet  
12          RPS targets.<sup>3</sup> These 41 utilities are therefore in similar circumstances to Ameren Missouri  
13          relative to renewable mandates and unmet RPS requirements and can serve as useful  
14          comparison points to determine if Ameren Missouri's proposed renewable development  
15          plan is in fact "unprecedented."

16          **Q.     Are those identified 41 utilities developing renewable resources?**

17          A.     Yes. These 41 utilities have received approval for 3,699 megawatts ("MW") of solar  
18          generation and 6,001 MW of wind generation from their respective state regulatory  
19          commissions, above and beyond their state RPS requirements.

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<sup>2</sup> Smart Electric Power Alliance "Utility Carbon-Reduction Tracker"

<sup>3</sup> Please see Schedule MG-S2 for a list of the 41 comparable utilities

1           **Q.     Of those 41 utilities, do any of them find themselves in situations like Ameren**  
2           **Missouri, with an existing fleet of primarily fossil-based resources undertaking a**  
3           **transition to a cleaner generating portfolio, despite no specific legal requirement to**  
4           **do so?**

5           A.     Yes. While the specific circumstance of each individual utility and jurisdiction are  
6           unique, and the precise conditions vary to some degree across the industry, it is evident  
7           that themes are emerging in other state regulatory commission approvals of renewables  
8           like those Ameren Missouri is proposing to add. Based on my research, other utilities, with  
9           the support of their state commissions, have a different viewpoint of "need" than the  
10          viewpoint reflected in the rebuttal testimony of the Missouri Public Service Commission  
11          Staff. As evidenced by multiple decisions from eight different jurisdictions,<sup>4</sup> Ameren  
12          Missouri's peer utilities are:

- 13           • Transitioning away from fossil generation facilities;
- 14           • Developing renewable generation facilities, sometimes with fossil resource  
15           facilities in parallel;
- 16           • Using Integrated Resource Plan analysis as guidance and support for intended  
17           development and timing; and
- 18           • Developing renewables beyond immediate or "just in time" capacity needs as  
19           measured by their planning reserve margins at a given point in time.

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<sup>4</sup> Indiana, South Dakota, North Dakota, Wisconsin, Michigan, Oklahoma, Arkansas, Mississippi. I selected these eight jurisdictions because of their geographic and other similarities to Ameren Missouri.

1           **Q. For these approved projects, what was the rationale used by their state**  
2           **commissions when those commissions approve the projects?**

3           A. Across the multiple cases, these state commissions commonly referenced two  
4           themes in their rationale for approval:

- 5           • Public benefits of renewable resources; and
- 6           • Risk mitigation effects of renewable resource deployment.

7           In sections III and IV below, I will discuss relevant examples from the eight selected  
8           jurisdictions where one of these two rationales was referenced in the approval of renewable  
9           energy projects, and I will discuss the specific work Roland Berger completed for Ameren  
10          Missouri, as referenced earlier, related to the risk of delayed renewable resource  
11          deployment.

### 12                   **III. PUBLIC BENEFITS OF RENEWABLE RESOURCES**

13          **Q. Staff witness Fortson references Boomtown as a renewable facility “providing**  
14          **limited, if any, benefits to those ratepayers.”<sup>5</sup> Do you agree?**

15          A. No, and my disagreement is shared when looking at similar renewable additions  
16          approved by regulatory commissions in the eight jurisdictions I referenced above, where  
17          the state commissions have consistently cited public benefits that Boomtown would also  
18          provide, including providing environmental benefits such as emissions reduction and  
19          satisfying customer demands for renewable energy.

20                 The Boomtown Solar Project will make the MISO fleet greener (as will continued  
21                 renewable generation additions by Ameren Missouri, according to its plans). The Project  
22                 will also satisfy customer demands for renewable energy given that ten customers have

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<sup>5</sup> Brad Fortson Rebuttal Testimony, p. 8, l. 12.

1 already signed up for the proposed Renewable Solutions Program for all 150 MW of  
2 available capacity from the Project.

3 **Q. Can you provide examples where state regulatory commissions cited**  
4 **environmental benefits in the approval of a renewable facility approval?**

5 A. Yes. In Docket No. 45462, Indiana’s Utility Regulatory Commission approved  
6 NIPSCO’s Bridge I & II and Cavalry Solar facilities totaling 900 MW, stating “The Solar  
7 Offtake Agreements terms and costs are reasonable, they provide needed energy, diversify  
8 NIPSCO’s supply portfolio, provide environmental benefits, and defend against fuel cost  
9 volatility.”<sup>6</sup>

10 In Docket No. 19-019-U Order No. 7, the Arkansas Public Service Commission  
11 approved Entergy Arkansas’ 100 MW Searcy Solar facility, stating “Searcy Solar offers an  
12 opportunity to further diversify EAL’s generation portfolio with the addition of a resource  
13 that avoids exposure to volatile fuel prices as well as anticipated CO2 and other  
14 environmental emission-based costs.”<sup>7</sup>

15 **Q. Are there any examples of these jurisdictions citing customer demand for**  
16 **renewable energy as a rationale for renewable development approval?**

17 A. Yes. In Docket EL-18-003, the South Dakota Public Utilities Commission  
18 approved Northern States Power Company (d/b/a Xcel Energy)’s 302 MW Dakota Range  
19 I & II Wind Farm, stating “Applicant presented evidence of consumer demand and need  
20 for the Project. The Project would install up to 302.4 MW of wind generating capacity in  
21 South Dakota that would contribute to satisfying utilities', commercial and industrial

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<sup>6</sup> Pg. 73, Indiana Regulatory Utility Commission, NIPSCO 900 MW Bridge I & II, Cavalry Solar Project, Cause No. 45462, Approved 05/05/2021.

<sup>7</sup> Pg. 96, Arkansas Public Service Commission, Entergy 100 MW Searcy Solar facility, Docket No. 19-019-U Order No. 7, Approved 4/23/2020.



1 customers', and consumers' demands for renewable energy and meet utility renewable  
2 requirements or individual sustainability goals.”<sup>8</sup> Northern States Power Company (d/b/a  
3 Xcel Energy)’s 2016 South Dakota Biennial 10-Year Plan analysis noted they “expect to  
4 have sufficient capacity to meet [their] customers’ needs through 2024,”<sup>9</sup> indicating a  
5 proactive move towards “a combination of renewable resource additions in the early  
6 years.”

#### 7 IV. RISK MITIGATION EFFECT OF RENEWABLE RESOURCE

#### 8 DEPLOYMENT

9 **Q. How have these jurisdictions characterized risk mitigation when approving**  
10 **these renewable projects?**

11 A. In these eight jurisdictions, commissions have consistently cited the following  
12 risks which renewables mitigate as a rationale for approval:

- 13 • Fuel Diversity;
- 14 • Price Volatility; and
- 15 • Implementation Risk.

16 These are the same kinds of risks Ameren Missouri is seeking to address, starting  
17 with the Boomtown Solar Project, and continuing to steadily add additional renewable  
18 resources in the near- to intermediate-terms.

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<sup>8</sup> Pg. 6, South Dakota Public Utility Commission, Xcel Energy 302 MW Dakota Range I & II Wind Farm, Docket No. EL-18-003, Final Decision and Order Granting Permit to Construct Wind Energy Facility, Approved 7/23/2018.

<sup>9</sup> Pg. 20, Northern States Power Company Biennial 2016 South Dakota 10-Year Plan, Xcel Energy.

1           **Q.     Are there specific examples of jurisdictions citing the risks of fuel diversity as**  
2           **a rationale for renewable development approval?**

3           A.     Yes. In Docket No. 19-019-U Order No. 7, the Arkansas Public Service  
4           Commission approved Entergy Arkansas' 100 MW Searcy Solar facility, stating "...Searcy  
5           Solar offers an opportunity to further diversify EAL's generation portfolio with the  
6           addition of a resource that avoids exposure to volatile fuel prices."<sup>10</sup>

7                     In Docket No. 45529, the Indiana Utility Regulatory Commission approved  
8           NIPSCO's 200 MW Elliott Solar Facility, stating the "Solar Projects and Solar Offtake  
9           Agreements is a reasonable and necessary addition to NIPSCO's portfolio of generating  
10          resources to meet the need for electricity within NIPSCO's service area, while also  
11          mitigating the risk through the diversification and use of an economic mix of resources that  
12          provides flexibility."<sup>11</sup>

13          **Q.     What have other commissions had to say about the risk of price volatility as a**  
14          **rationale for renewable development approval?**

15          A.     In addition to the Arkansas case cited previously, in Docket EL-18-003, the South  
16          Dakota Public Utilities Commission approved Northern States Power Company (d/b/a  
17          Xcel Energy)'s 302 MW Dakota Range I & II Wind Farm, stating the project offers "firm  
18          price stability due to the availability of a renewable resource that would replace the need  
19          for ongoing fuel costs."<sup>12</sup>

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<sup>10</sup> Pg. 96, Arkansas Public Service Commission, Entergy 100 MW Searcy Solar facility, Docket No. 19-019-U Order No. 7, Approved 4/23/2020.

<sup>11</sup> Pg 29, Indiana Utilities Regulatory Commission, NIPSCO 200 MW Elliott Solar Facility, Docket No. 45529, Approved 7/21/2021.

<sup>12</sup> Pg. 6, South Dakota PUC, Xcel Energy 302 MW Dakota Range I & II Wind Farm, Docket No. EL-18-003, Final Decision and Order Approved 7/23/2018.

1           In Docket No. 2018-UA-267, the Mississippi Public Service Commission approved  
2           Entergy Mississippi’s 100 MW Sunflower Solar facility, stating “The Commission finds  
3           that the Facility diversifies and balances EML's resource portfolio, thereby mitigating the  
4           risk to EML customers of future significant and unexpected fuel price increases. The  
5           diversity in EML's owned generation portfolio provided by ownership of the Facility will  
6           mitigate the risk to EML customers of fluctuations in cost, availability and disruptions  
7           associated with particular fuel sources or delivery channels.”<sup>13</sup>

8           **Q.     And do you also have an example of these jurisdictions citing implementation**  
9           **risks of renewables as a rationale for renewable development approval?**

10          A.     Yes. In Docket No. 45462, Indiana’s Utility Regulatory Commission approved  
11          NIPSCO’s Bridge I & II and Cavalry Solar facilities totaling 900 MW, stating “In an  
12          uncertain world, making several smaller resource decisions over time and maintaining  
13          decision optionality as long as practical can be beneficial, particularly compared to making  
14          fewer larger commitments that foreclose opportunities to adapt to changing industry  
15          circumstances.” We have also expressed the need for a utility’s overall generation portfolio  
16          to be diverse, flexible, and adaptable. NIPSCO’s implementation of the Short-Term Action  
17          Plan, as illustrated by its evidence, reveals NIPSCO has been cognizant of these principles.  
18          NIPSCO has now sought approval from the Commission for ten different renewable  
19          projects to replace Schahfer’s retiring capacity,<sup>14</sup> which are a mix of wind, solar, and solar  
20          plus storage. Only two of these projects are 400 MW or larger, with all others being 300  
21          MW or smaller. NIPSCO has also utilized a mix of ownership/joint venture and PPA

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<sup>13</sup> Pg 16, Mississippi Public Service Commission, Entergy 100 MW Sunflower Solar Project, Docket No. 2018-UA-267, 4/14/2020.

<sup>14</sup> Rollin M. Schafer Coal Generating Station

1 structures, and the duration of renewable generation project commitments has been  
2 staggered at various lengths between 20 and 30 years—both of which diversify NIPSCO’s  
3 portfolio in metrics beyond fuel-source diversity.”<sup>15</sup>

4 **Q. Has Ameren Missouri evaluated the risk of delaying or waiting to transition**  
5 **to a cleaner generation portfolio?**

6 A. Yes. Ameren Missouri asked Roland Berger to conduct a study this past spring in  
7 connection with the submission of a change to its Preferred Resource Plan. The study  
8 identified eight risks associated with delaying a transition to a cleaner generation portfolio  
9 and was submitted as part of the Company's June 2022 Notice of Change in Preferred  
10 Resource plan. As noted, the study report was included with Company witness Michels'  
11 Direct Testimony in this case.

12 **Q. Please summarize the key risks identified in the study.**

13 A. The key risks we identified and were able to quantify are as follows:

- 14 • Financing costs may rise if the transition is delayed. Investors are increasingly  
15 looking to carbon intensity as a gauge for the risk of certain investments. If  
16 Ameren Missouri is seen as delaying its transition to a cleaner generation  
17 portfolio, its cost of capital may rise and as a result, increase costs to customers.
- 18 • Attractive land suitable for development may not be available later in time,  
19 particularly for wind generation facilities.<sup>16</sup>

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<sup>15</sup> Pg 64-65, Indiana Regulatory Utility Commission, NIPSCO 900 MW Bridge I & II, Cavalry Solar Projects, Cause No. 45462, Approved 05/05/2021.

<sup>16</sup> While this case does not involve the addition of a wind resource, Ameren Missouri's plans do call for wind additions in the next few years as it builds out a geographically and technologically diverse set of resources. And while land availability is less of an issue for solar facilities than it is for wind facilities, solar project development is still challenging, as one can see from the discussion in Company witness Arora's Surrebuttal Testimony about the relatively small number of viable solar projects Ameren Missouri was able to pursue from its most recent RFP.

- Equipment costs may rise in the future, particularly for solar equipment. There has been a strong push in the US to “reshore” several manufacturing industries, solar PV included. The recently passed Inflation Reduction Act provides significant incentives to bring solar manufacturing back to the US. While this may be good industrial policy for the nation, the costs of solar panels could rise by up to 30% as a result of the reshoring. It will take some years to accomplish the reshoring, so waiting to develop projects may lead to increased customer costs.
- At the time of the report, there was no formal extension of the Investment Tax Credit or the Production Tax Credit, but there was speculation that the renewable tax credits were to be extended, resulting in further support for renewable development. The passage of the Inflation Reduction Act preserves and enhances the Production and Investment Tax Credits.

Table 1, below, summarizes the estimated impact of these risks:

*Table 1. Summary of the Impact of Key Risk Variables*

<b>Risk Variable</b>	<b>Description</b>	<b>Change in PVRR</b>
<b>Financing Costs</b>	Fossil-heavy generation portfolios likely to have higher financing costs than cleaner and less carbon-intensive portfolios	\$ 292 million
<b>Land availability</b>	Continued renewable build out will make “good land” scarcer over time, limiting capacity factors for wind	\$ 247 million
<b>Wind equipment Cost</b>	Wind equipment cost declines and performance improvements may be less pronounced than NREL ATB assumes	\$ 122 million
<b>Solar equipment cost</b>	Onshoring of solar PV equipment manufacturing as consequence of trade relations with China may result in higher costs	\$ 59 million
<b>Tax Credits</b>	Extension of ITC and PTC per the proposal in the Build Back Better plan done through separate congressional action	\$ 339 million

V. CONCLUSION

**Q. Please summarize your key conclusions.**

A. Ameren Missouri's planned transition to cleaner energy resources, which the Boomtown Solar Project is a part of, is consistent with the plans and actions many of their peer utilities are currently pursuing, with the approval of those peers' state commissions. These utilities have received approval and support from their relevant state commissions to move forward with the development of nearly 10 GW of solar and wind capacity, despite no legal requirement to do so. State commissions in other similar jurisdictions have often pointed to public benefits and the risk mitigation provided by renewable resources in their approval of solar and wind projects much like the Boomtown Solar Project. It is safe to say that Ameren Missouri's transition to renewables is in no way "unprecedented." In my opinion, waiting to transition to a cleaner generating portfolio is no longer a viable option – which is supported by our work last year, indicating that waiting to transition is a high risk and potentially high cost proposition for Ameren Missouri customers. As Wisconsin Commissioner Ellen Nowak put it, while discussing the Wisconsin Commission's unanimous approval of the 200 MW Paris solar facility in Wisconsin: “There's not a statutory mandate to do it, which I'm glad there's not. But, I also think that if we said, 'Well, let's not do it now, and wait,' there's going to be criticism that why is Wisconsin so far behind on other states (and) not moving to renewable energy?” Given that Ameren Missouri and the state of Missouri are in circumstances similar to those on which commissioner Nowak commented, those comments, in my opinion, apply equally to Missouri.

Surrebuttal Testimony of  
Mike Granowski

1           **Q.     Does this conclude your Surrebuttal Testimony?**

2           A.     Yes, it does.



# Mike Granowski

Director  
Chicago

## Languages

- English

## Professional experience

- Since 2019 Roland Berger Strategy Consultants
- 2013-2019 Enovation Partners, Partner
- 2011-2013 Bridge Strategy Group, Principal, Energy Practice
- 2009-2011 Charles River Associates, Principal, Energy Practice
- 2007-2011 Hawksnest Advisory, Founder
- 2002-2007 Navigant Consulting, Director
- 2000-2002 Barrington Energy Partners, Principal Consultant
- 1996-2000 Metzler & Associates, Manager
- 1991-1996 Commonwealth Edison, Nuclear Engineer

## Key projects

- Led multiple utility asset portfolio strategy and resource planning cases in North America for IOU's, IPP's, Municipalities, and Coop's
- Led multiple "steel for fuel" coal plant replacement with renewable rate and revenue requirement projects
- Led multiple capital planning and strategic growth projects focusing on revenue and EPS growth including impact on rates
- Led or participated in 6 electric utility mergers from screening through negotiation, financing and integration
- Supported over 50 GW of successful electric generation transactions as a market and valuation expert covering all generation types including wind, solar, storage, hydro, geothermal, nuclear, coal, gas, etc.
- Led multiple new market entry cases in the utility technology, renewable, and storage sectors
- Led multiple utility scenario planning efforts for executives and boards
- Provided diligence for over 30 early stage technology and service providers for multiple clients
- Led water utility and services landscape analysis for a large privately held conglomerate
- Performed a water services market screening to support deploying \$500 in the sector

## Education

- 1995-1996 University of Iowa, MBA
- 1986-1991 University of Wisconsin-Madison, BS Nuclear Engineering
- 1986-1990 University of Wisconsin-Madison, BS Physics

## Key Testimony Support

- Provided expert testimony supporting the case against the RMR filing of Mystic Development, LLC before FERC (DOCKET NO. ER06-427-000) on behalf of NStar
- Served as special advisor to the Commission Staff regarding Case Numbers 05-0402-E-CN, "Application for a Certificate of Convenience and Necessity to Authorize Construction of Emission Control Facilities at the Fort Martin Generating Station in Monongalia County, West Virginia"
- Developed testimony in support of Public Service of New Mexico's consolidated application of the abandonment, financing, and resource replacement for San Juan Generating Station, Case No. 19-00195-UT

## Industries

- Energy & Utilities
- Renewables
- Storage
- Infrastructure
- Financial investors
- OEMs



## Schedule MG-S2

### Utility Name

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Xcel Energy

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Commonwealth Edison Co

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El Paso Electric

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Southern Company

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Entergy Corporation

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Tucson Electric Power

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Madison Gas & Electric

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FirstEnergy

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Ameren Illinois Company

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Otter Tail Power Company

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NextEra Energy, Inc.

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Exelon Utilities

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Minnesota Power

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Southwestern Public Service

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Public Service Company of New Mexico

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UGI Corporation

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Tampa Electric Company

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MidAmerican Energy Co

---

Avista Utilities

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Duke Energy

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Evergy

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Consumers Energy

NIPSCO

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Arizona Public Service

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Alliant Energy

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American Electric Power

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DTE Energy

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Emera

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Oklahoma Gas & Electric

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AES Corporation

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Ameren Corporation

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NiSource Inc.

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Mt Carmel Public Utility Co

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Northwestern Energy

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PacifiCorp

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WEC Energy Group

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PPL Corporation

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Idaho Power

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CenterPoint Energy

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Eversource Energy

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Dominion Energy

**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 for Approval                         )  
of a Subscription-Based Renewable Energy Program                 )    File No.: EA-2022-0245

**AFFIDAVIT OF MIKE GRANOWSKI**

**STATE OF ILLINOIS            )**  
  ) **ss**  
**CITY OF CHICAGO            )**

Mike Granowski, being first duly sworn on his oath, states:

My name is Mike Granowski and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Surrebuttal Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

*|s| Mike Granowski*  
Mike Granowski

Sworn to me this 18<sup>th</sup> day of January, 2023.