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Sponsoring Party: Public Counsel
Case No.: EA-2022-0245

SURREBUTTAL TESTIMONY
OF
GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

UNION ELECTRIC COMPANY
D/B/A AMEREN MISSOURI

FILE NO. EA-2022-0245

Denotes Highly Confidential Information that has been redacted

January 18, 2023

PUBLIC

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1 **I. INTRODUCTION**

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

3 A. Geoff Marke, PhD, Chief Economist, Office of the Public Counsel (OPC or Public Counsel),
4 P.O. Box 2230, Jefferson City, Missouri 65102.

5 **Q. Are you the same Dr. Marke who prefiled rebuttal testimony in this case on behalf of**
6 **Public Counsel?**

7 A. I am.

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

9 I am responding to the rebuttal testimony of other parties' witnesses on select topics. The
10 following is a list of the topics and witnesses to which I am responding:

- 11 • Integrated Resource Plan ("IRP")
 - 12 ○ Staff witness Brad J. Fortson
- 13 • Public Interest
 - 14 ○ Missouri Public Service Commission Staff ("Staff") witness J. Luebbert
- 15 • Decisional Prudence
 - 16 ○ Staff witness J. Luebbert
- 17 • Revenue Solutions Program
 - 18 ○ Missouri Industrial Energy Consumers witness Maurice Brubaker

19 My silence regarding any issue should not be construed as an endorsement of, agreement
20 with, or consent to any party's filed position.

1 **Q. Have you changed any of your positions from what you took in your rebuttal testimony?**

2 A. Yes. In addition to continuing to not support Ameren Missouri's Renewable Solutions
3 Program, I now am opposing that the Public Service Commission grant Ameren Missouri a
4 certificate of convenience and necessity for its Boomtown Solar Farm based on Staff's rebuttal
5 testimony and new information that has since come to light around the economics of the
6 project.

7 **II. INTEGRATED RESOURCE PLAN ("IRP")**

8 **Q. Has the Commission addressed Staff's concern over adding copious amounts of**
9 **renewable generation in place of existing dispatchable generation to which Staff witness**
10 **Mr. Fortson testifies?**

11 A. Yes, as Mr. Fortson testifies, Staff raised these concerns when Ameren Missouri filed its last
12 integrated resource plan in Case No. EO-2021-0021, and the Commission agreed with Staff's
13 concerns.

14 In its Order Regarding 2020 Integrated Resource Plan filed in Case No. EO-2021-0021, at
15 pages 3-4, the Commission stated:

16 The other aspect of Staff's alleged deficiency is a concern that Ameren Missouri has
17 proposed a significant shift to renewable energy supply-side resources without
18 considering whether the additional capacity is needed to meet current needs for
19 capacity. Ameren Missouri denies that there is any deficiency in its analysis. It explains
20 it has used a consistent analytical framework for consideration of all resources and
21 alternative plans. The company argues that the transition to cleaner sources of energy
22 are not just a question of capacity, but will also provide cost savings to customers while
23 mitigating the risk resulting from changing climate policy.

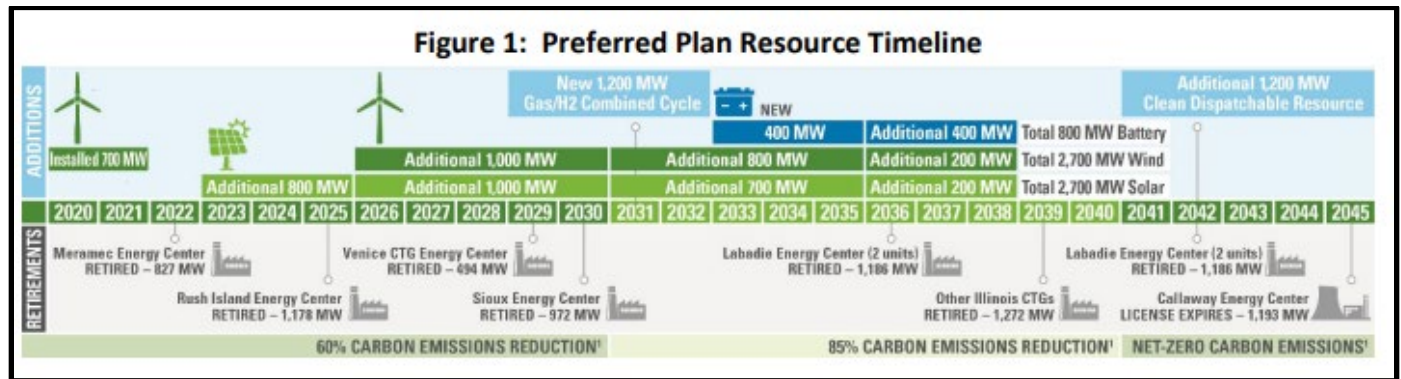
24 The Commission does not believe that any further response to Staff's alleged
25 deficiency is necessary. However, **the Commission shares Staff's concern (Concern**
26 **C) that adding large amounts of renewable generation that are not required to**

1 meet MISO resource adequacy requirements or Missouri statutory or rule
 2 requirements, including providing safe and adequate service, may place an undue
 3 level of risk on ratepayers based on the speculation that market revenues will
 4 exceed the overall cost of the assets. (Emphasis added). Ameren Missouri inherently
 5 benefits its shareholders by investing in renewable energy while seeking a return on
 6 those investments through future rates. However, that same investment may shift risk
 7 to ratepayers that market revenues from the investments may not exceed the cost of the
 8 investments.

9 **Q. Can you illustrate that concern with an example?**

10 A. Yes. Figure 1 is taken from the Company’s Change in Preferred Plan filed in EO-2022-0362.

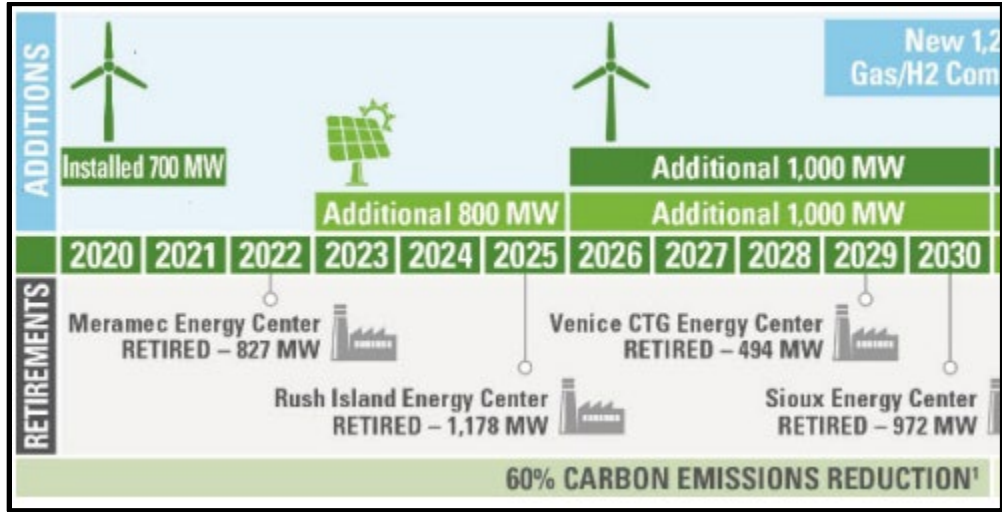
11 **Figure 1: 25-year Ameren Missouri Preferred Plan Resource Timeline¹**



12 Figure 1 provides a timeline breakdown of Ameren Missouri’s planned generation resource
 13 retirements and investments over a twenty-five year period. For illustrative purposes I am
 14 going to emphasize years 2020-2030 as seen in Figure 2.
 15

¹ Case No. EO-2022-0336 2022 Change in Preferred Plan: Integrated Resource Plan Report. Ameren Missouri p.2

1 Figure 2: 10-year Ameren Missouri Preferred Plan Resource Timeline



2
 3 Readers should note that the following breakdown of retirements and investments over the ten
 4 year period can be seen in Table 1:

5 Table 1: 2020-2030 Breakdown of retirements and investments based on nameplate capacity

Retirements	Nameplate Capacity	Investments	Nameplate Capacity
Meramec	827 MW	Installed Wind (2021)	700 MW
Rush Island	1,178 MW	Additional Solar #1 (2025)	800 MW
Venice CTG	494 MW	Additional Wind (2030)	1000 MW
Sioux	972 MW	Additional Solar #2 (2030)	1000 MW
Total	3,471 MW		3,500 MW (+29MW)

6 **Q. What is nameplate capacity?**

7 A. Each power plant (aka, energy center or generating facility) has a “nameplate capacity” which
 8 indicates the maximum output that the generator can produce. For example, if Rush Island has

1 a nameplate capacity of 1,178 megawatts, it means the plant is capable of producing 1,178
2 megawatts operating at continuous full power at ideal conditions.

3 **Q. Does that mean 3,500 MW of renewable generation is equivalent to 3,471 MW of fossil**
4 **fuel generation for purposes of resource adequacy?**

5 A. No.

6 **Q. Why not?**

7 A. The short answer is the differences in the availability of and control over the energy source
8 from which electricity is generated. Renewable energy is an intermittent resource. That is, the
9 generation does not have the same attributes as traditional fossil fuel generation. Solar only
10 produces energy when it is sunny and wind farms only produce energy when it is windy. A
11 generation's accredited capacity, which is typically expressed as a percent of a resource's
12 nameplate capacity and is a measure of a resource's contribution to grid reliability during
13 periods of heightened risk of load shedding, is much smaller.

14 **Q. What is accredited capacity?**

15 A. Accredited capacity is based on the historical measurement of reliability, availability, and
16 usage to produce a valuation of a given generating resource's contribution to maintaining
17 resource adequacy within a given energy market.

18 **Q. In what energy markets does Ameren Missouri participate?**

19 A. Primarily, the Midcontinent Independent System Operator ("MISO") markets.

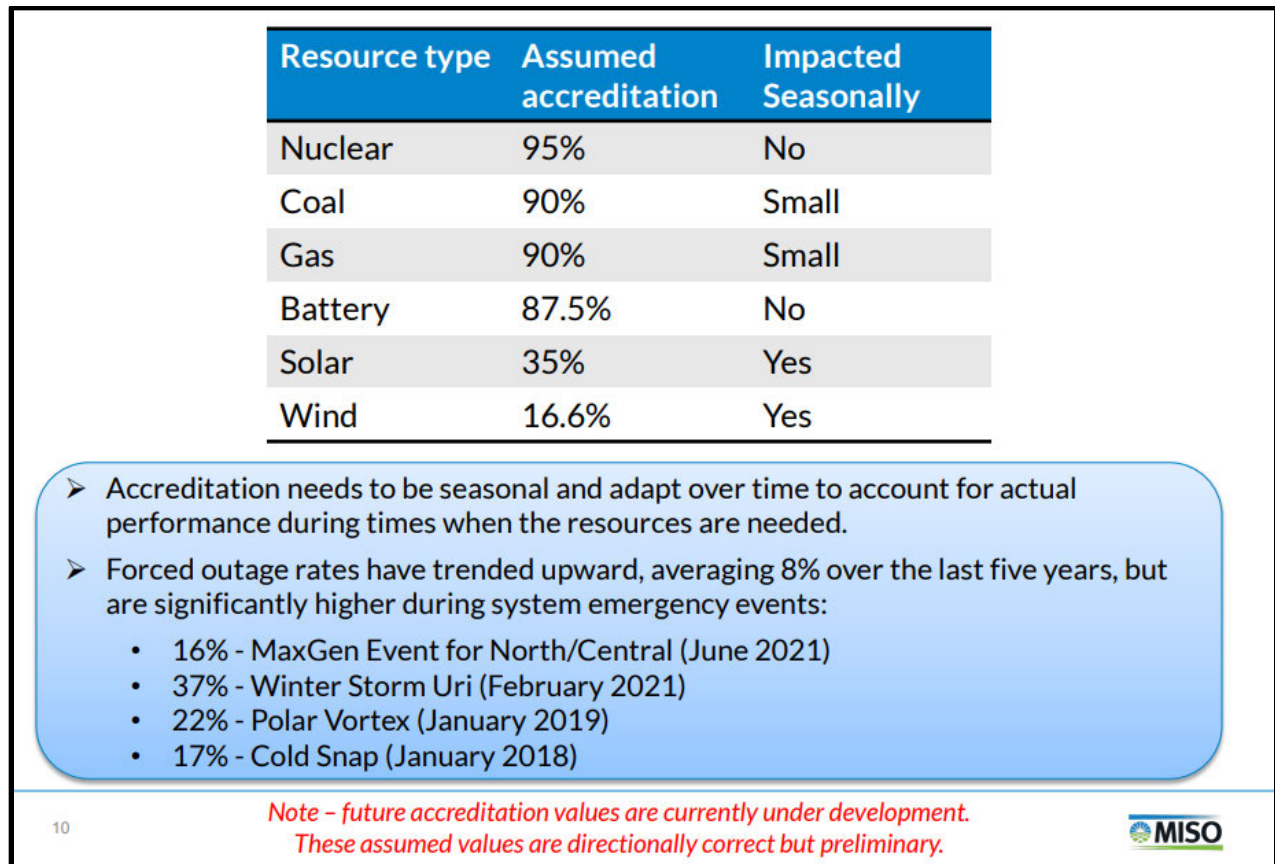
20 **Q. Is MISO's accredited capacity valuation important to Ameren Missouri?**

21 A. Yes, because Ameren Missouri participates in both the MISO energy and capacity markets.
22 Failure to meet resource adequacy can result in system reliability issues and/or exposure to
23 volatile market fluctuations.

1 **Q. What is the assumed accredited capacity amount for various generation sources in**
2 **MISO?**

3 A. Accredited capacity is a bit of a moving target at the moment in MISO due to enhanced
4 concerns about reliability. Figure 3 provides a breakdown of the assumed accreditation of
5 various generation sources from a June 2022 MISO presentation titled “Managing Reliability
6 Risk in the MISO Footprint.”

7 Figure 3: Assumed MISO Resource Accreditation and Seasonal Impact²



8

² MISO (2022) Managing Reliability Risk in the MISO Footprint. June 16, 2022.
<https://cdn.misoenergy.org/20220616%20Board%20of%20Directors%20Item%2008a%20Reliability%20Imperative625168.pdf> See also GM-1.

1 **Q. How does Ameren Missouri’s preferred plan look in light of these assumed accreditation**
2 **percentages?**

3 A. Not good. Ameren Missouri would have a shortfall of (at least) 2,212 MW in accredited
4 capacity by 2030 if MISO accredited capacity methodology were to mirror the assumed
5 accreditation percentages listed in Figure 3. Table 2 provides a rough approximation.

6 Table 2: 2020-2010 Breakdown of retirements and investments based on accredited capacity

Retirements	Accredited Capacity	Investments	Accredited Capacity
Meramec	744 MW	Installed Wind (2021)	116 MW
Rush Island	1060 MW	Additional Solar #1 (2025)	280 MW
Venice CTG	445 MW	Additional Wind (2030)	166 MW
Sioux	875 MW	Additional Solar #2 (2030)	350 MW
Total	3,124 MW		912 MW (-2,212 MW)

7 **Q. Are your capacity assumptions reasonable?**

8 A. In part. The accredited capacity shortfall (-2,212 MW) is still likely understated. Ameren
9 Missouri’s High Prairie Wind farm (that has a nameplate capacity of 400MW) has not been
10 operational at night for seven months a year since it began operating because of the excessive
11 deaths of endangered bats and protected bald eagles, deaths that resulted from poor siting
12 decisions by Ameren Missouri’s management. As such, based on historical operating
13 availabilities, the 116 MW assumed accredited capacity that I have listed on Table 2 is likely
14 overstated. This also assumes that accredited capacity valuation will align with the 2022
15 assumptions, which appears wholly unlikely as the concern surrounding reliability gains
16 traction.

1 **Q. Does Ameren need to replace all of that accredited generation?**

2 A. In the long-term, yes. Ameren Missouri had been long on capacity with the loss of its largest
3 customer Noranda in 2016, but expected load increases from electrification and EV market
4 penetration likely means that Ameren’s load will increase moving forward.

5 **Q. Are there any other concerns with more intermittent generation being added to the grid?**

6 A. Yes, an increase in renewables can result in diminishing economic returns (aka “declining
7 marginal value” or “value deflation”) at higher penetrations. Here’s how MIT’s *Future of Solar*
8 study puts it:

9 [A]s a result of basic supply-and-demand dynamics, solar capacity systematically
10 reduces electricity prices during the very hours when solar generators produce the most
11 electricity. Beyond low levels of penetration, an increasing solar contribution results in
12 lower average revenues per kW of installed solar capacity. For this reason, even if solar
13 generation becomes profitable without subsidies at low levels of penetration, there is a
14 system-dependent threshold of installed PV capacity beyond which adding further
15 solar generators would no longer be profitable.³

16 Ameren Missouri’s IRP should capture decreasing returns to understand the competitiveness
17 of wind, solar, energy storage, and other system resources. Metrics like the levelized cost of
18 electricity (LCOE) neglect diminishing economic returns and system costs (transmission build
19 out, voltage and frequency impacts), attributes (ability to ramp up and down, the ability to stay
20 on more than four-hours, etc...) which make them poor proxies for understanding
21 competitiveness of different resources and as well as being silent regarding any assurance
22 towards reliability moving forward.

23 **Q. Are the accredited capacities of fossil fuel plants their nameplate capacities?**

24 A. No, they do not run all the time. Presently MISO assumes a 90% accredited capacity for coal
25 and gas units, but those units will no doubt come under greater scrutiny moving forward. This

³ MIT (2015) The Future of Solar: An Interdisciplinary Study. <https://energy.mit.edu/wp-content/uploads/2015/05/MITEI-The-Future-of-Solar-Energy.pdf>

1 is because planned and unplanned outages affect when they can run, and changing loads and
2 market prices will affect whether they run, thereby affecting their availability. That being said,
3 the most significant difference between dispatchable and intermittent generation is the ability
4 to immediately generate electricity when needed to maintain system reliability and prevent
5 load shedding. The inability for solar and wind to perform on demand is a critical missing
6 attribute.

7 **Q. Couldn't we just pair solar and wind with batteries?**

8 A. We could, but there are some issues with this as well. First, it would change the economics
9 behind the application considerably. But even if we assumed costs was not a concern, batteries
10 (today) have physical limitations that prevent them from functioning more than four hours.
11 This limitation make it appropriate for arbitrage, operating reserve or black-start applications
12 but much less applicable for firm capacity. For example, a solar-storage pairing would leave
13 customers exposed to the elements in a multi-day event like a Winter Storm Uri.

14 **Q. Are there other concerns with fossil fuel-fired plants of which the Commission should be
15 aware?**

16 A. Yes. There are environmental and health related negative externalities that should be factored
17 into any model's assumptions and ultimately in the decision to move forward with a resource.

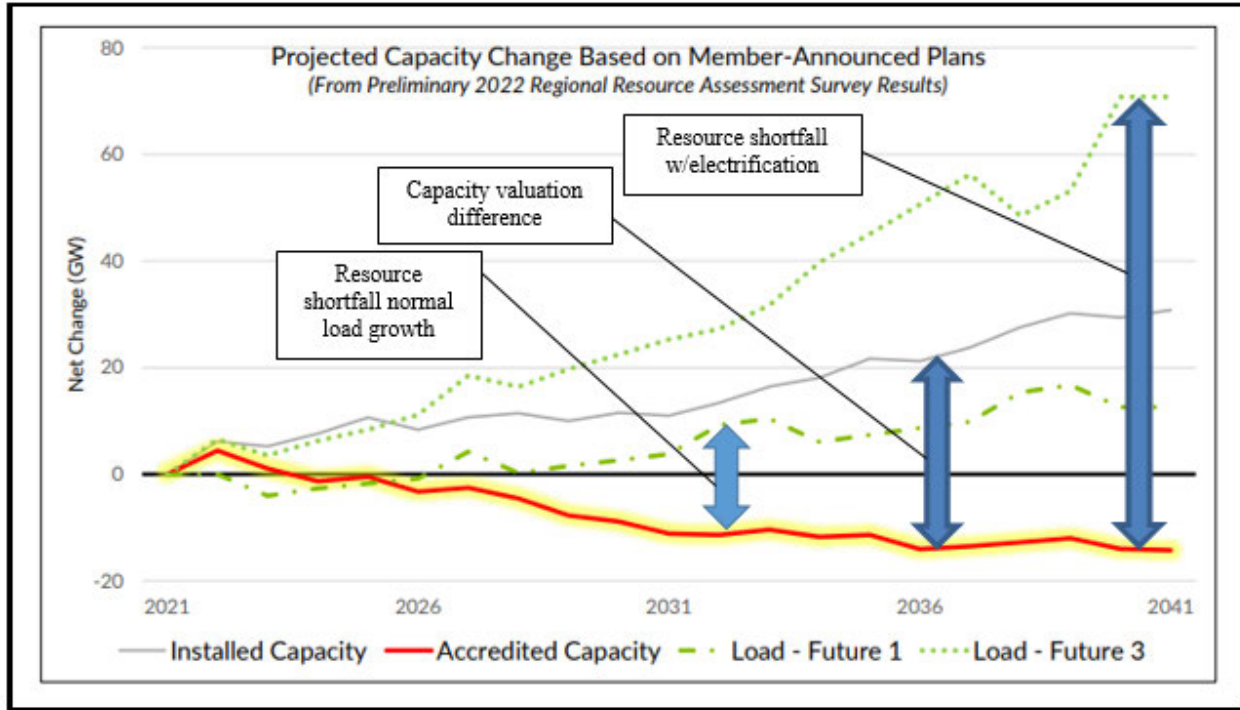
18 **Q. Did Ameren Missouri consider these externalities when it conducted its IRP?**

19 A. Yes. Although reasonable minds agree to disagree as to the appropriate values for those inputs.

20 **Q. Haves any authoritative bodies addressed the resource adequacy issues Staff raised in
21 rebuttal and that you are supporting here?**

22 A. Yes. On August 17th the MISO Vice President of external affairs central region Melissa
23 Seymour gave a presentation to this Commission titled, "MISO Update on Resource
24 Adequacy". Figure 2 in that presentation shows the twenty-year discrepancy between planned
25 installed capacity and planned accredited capacity based on existing interconnection queue
26 projects and how short the MISO market would be under both a normal load growth scenario
27 and an aggressive electrification scenario.

1 Figure 2: Organization of MISO States (“OMS”) installed and accredited capacity⁴



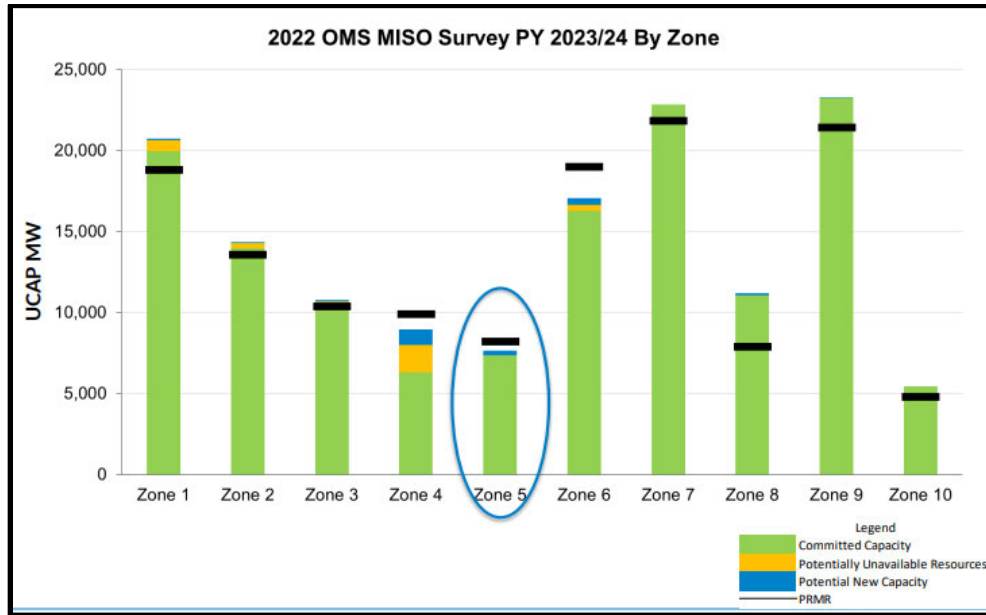
2
3 Figure 2 emphasizes that while total capacity is steadily trending up, accredited capacity is
4 moving in the opposite direction due to the limitations of solar and wind resources.

5 **Q. Did MISO meet its planning reserve margin (peak load plus reserve margin) in 2022?**

6 A. Not for zones 4 through 7 as seen in Figure 3 which indicates that these zones were below their
7 reserve limits and needed to import capacity to meet their requirements. Of particular note is
8 zone 5 which houses Ameren Missouri. In 2022, that meant a clearing price set at the cost of
9 new entry (“CONE”) which was \$236.66 a megawatt a day was imposed on Ameren Missouri.

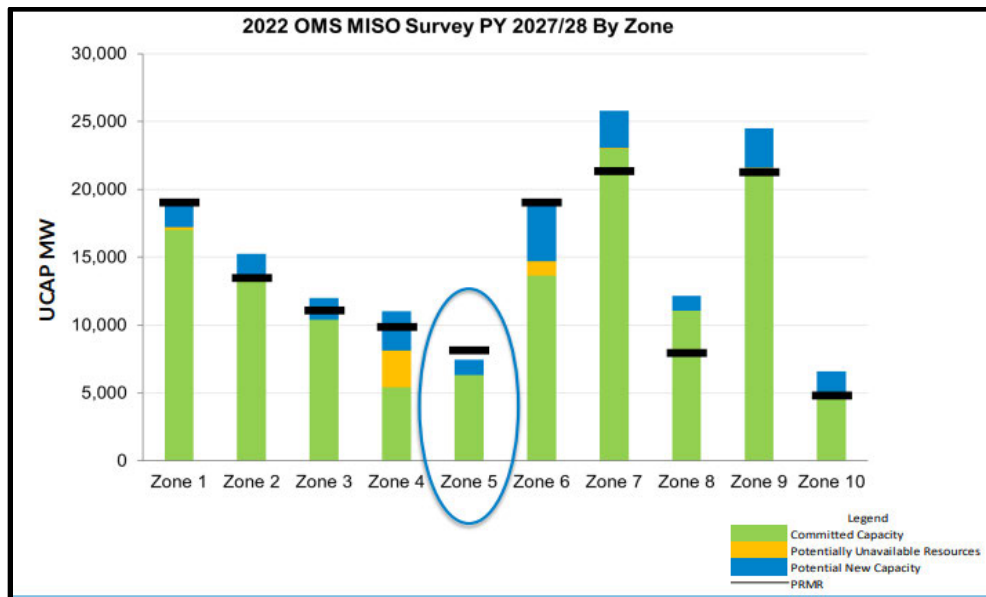
⁴ Seymour, M. (2022) MISO Update on Resource Adequacy. Missouri Public Service Commission August 17, 2022.
<https://psc.mo.gov/CMSInternetData/Agenda%20Presentations/2022%20Presentations/8-17-2022%20MISO%20Update%20on%20Resource%20Adequacy.pdf> (emphasis added and not in original)

1 Figure 3: Capacity positions across MIO zones in 2022 (Ameren Missouri = zone 5)⁵



2
 3 The near-term paints a discouraging picture as well. Figure 4 shows Ameren Missouri will
 4 need to continue to import resources over the next five years as well.

5 Figure 4: Capacity shortages shown in 2022 (Ameren Missouri = zone 5)⁶



6
⁵ Ibid.
⁶ Ibid.

1 **Q. Will MISO meet its resource adequacy requirements in the future?**

2 A. Figure 2 suggests it will not if the current planned investments and retirements occur.

3 **Q. Why does Figure 3 show zones 4 – 7 as having deficiencies, but on Figure 4 only zone 5**
4 **(Missouri) is shown to have a deficiency?**

5 A. That is because Missouri has more retirements occurring than it does generation added with the
6 same accredited capacity coming online.

7 **Q. Did the Commission respond to this information that MISO presented?**

8 A. Yes. Former Chairman Ryan Silvey had the following exchange with Ms. Seymour from
9 MISO during the presentation.

10 Silvey: So it's an issue of accredited capacity versus nameplate capacity?

11 MISO: That's correct.

12 Silvey: Of what's coming on.

13 MISO: That's correct. Right.

14 Silvey: So last week there was a resource adequacy summit. I think it was hosted by
15 OMS. And the market monitor basically called us out... Called out Missouri as a
16 problem child in this whole deal. So what can the Commission do?

17 MISO: So here's the only thing that I... There are players that you regulate like
18 Ameren. And there are other players that you don't. And that's part of the gap too.
19 States say we don't regulate our munis and co-ops and if they're having a problem
20 we can't do anything about it. But for the folks you regulate. Just making sure that
21 when you look at... You do integrated resource plans in Missouri right? Just to make
22 sure that they're covering their load with their resources and replacing resources that
23 they're retiring with some attributes and some resources that can actually get

1 capacity credit and function. And meet the requirements that are going forward. Is
2 probably what you can do for your regulated utility.⁷

3 ...

4 Silvey: **So when we are looking at the IRPs we need to pay special attention to**
5 **the accredited capacity?**

6 MISO: **That's correct.**

7 Silvey: As opposed to just what the nameplate capacity is.

8 MISO: Yeah, the accredited capacity and I would say the attributes of that capacity.
9 Like what can it do that...? What are you retiring? And what can the new capacity
10 do to fill the same attributes? Like, can it run four hours straight? Can it ramp up
11 when you need it? You know, is it flexible? (Emphasis added)⁸

12 **Q. How can Ameren Missouri meet its resource adequacy requirements in MISO?**

13 A. Ameren Missouri can own its own resources, it can enter into contracts, or it can participate in
14 the MISO planning resource auction.

15 **Q. What happens if Ameren Missouri does not have enough resources to meet its load at any**
16 **given point in time?**

17 A. It depends whether or not the rest of MISO has excess capacity that Ameren Missouri can rely
18 on. At a minimum, it means that Ameren Missouri will find itself in emergency conditions
19 more often, and that its retail customers will be paying a higher price for capacity if it continues
20 to come in at the top-end of the CONE. Absent having enough resources to cover its load, load
21 shedding actions would necessarily be a reality.

22 **Q. What does the queue for additions to MISO generation look like for zone 5 (Missouri)?**

23 A. It's all solar and wind. There are no gas plants coming online.

⁷ Missouri Public Service Commission Agenda (2022) <http://psc.mo.gov/Videos/VideoDetail.aspx?Id=6490>
8/17/2022. 26:46 – 28:04

⁸ Missouri Public Service Commission Agenda (2022) <http://psc.mo.gov/Videos/VideoDetail.aspx?Id=6490>
8/17/2022. 29:11 – 29:39

1 **Q. To be clear, the PSC Staff recognized these problems in a filed response to Ameren**
2 **Missouri’s last triennial IRP and its updated resource plan?**

3 A. Yes.

4 **Q. And the Missouri Public Service Commission publicly shared Staff’s concern that adding**
5 **large amounts of renewable generation that are not required to meet MISO resource**
6 **adequacy requirements or Missouri statutory or rule requirements, including providing**
7 **safe and adequate service, may place an undue level of risk on ratepayers based on the**
8 **speculation that market revenues will exceed the overall cost of the assets?**

9 A. Yes.

10 **Q. And a MISO representative came and provided a public presentation with the explicit**
11 **intent to emphasize the concerns surrounding resource adequacy in the Missouri zone 5**
12 **region?**

13 A. Yes.

14 **Q. With those facts in mind, do you agree with Mr. Fortson’s overall assessment to reject**
15 **the granting of a CCN for the Boomtown Solar Farm?**

16 A. I do.

17 **Q. Does that mean you are changing your recommendation as it pertains to the Certificate**
18 **of Convenience and Necessity (“CCN”) for the Boomtown Solar Farm?**

19 A. For the aforementioned reasons, and for more information that has since come to light since I
20 filed my rebuttal testimony and which will be addressed in this testimony, I am amending my
21 earlier recommendation and no longer maintain that granting a CCN is in the public interest. I
22 shall now address my other concerns.

1 **III. PUBLIC INTEREST**

2 **Q. In section II you showed that Ameren Missouri does not appear to be adequately**
3 **prepared to meet its future resource needs. Wouldn't adding 200 MW of solar help in**
4 **mitigating that gap?**

5 A. Only in the most general sense. The first immediate issue is that the 200 MW nameplate
6 capacity would only initially be accredited at 70 MW and then will likely run the risk of further
7 downgrade in the future based on a combination of historical performance and incremental
8 solar potentially crowding out the value of solar resources.

9 The next immediate issue that I see is the fact that Boomtown is not actually located in MISO
10 zone 5. It is in zone 4 (Illinois). Boomtown does not help Ameren Missouri meet its MISO
11 zone 5 resource adequacy planning needs; thus, exposing customers to high capacity costs in
12 a given planning year's residual auction.

13 Boomtown's Illinois location also means that the project is not subject to any Renewable
14 Energy Standard adder like it would be if it were located in Missouri. It is also worth noting
15 that Ameren Missouri does not need any additional solar or renewables generating resources
16 to meet its Renewable Energy Standard in the near-term.

17 Given the aforementioned issues, moving forward with the Boomtown project makes very little
18 sense, unless it is fully supported by participating commercial and industrial customers.

19 Captive ratepayers should not have to shoulder the risk of a project that is not in their best
20 interest and does not fill an immediate need (e.g., building in zone 4 does nothing for the
21 shortfall in zone 5).

22 **Q. Do not the tax breaks from the Inflation Reduction Act make Boomtown attractive?**

23 A. Definitely better than if there were no federal subsidies. However, even here, my perspective
24 on this subject has changed since I filed rebuttal testimony.

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Q. Why?

A. ***

Needless to say this introduces a number of uncertain variables that raise the immediate question as to whether or not the application should be dismissed and a new one filed that accurately reflects what Ameren Missouri is requesting now. It also underscores my support of Staff’s position regarding decisional prudence.

IV. DECISIONAL PRUDENCE

Q. What is your understanding of the term “decisional prudence” as used by Staff?

A. Decisional prudence implies that approval of the CCN also translates into managerial prudence of the site selection and project based on the knowledge available today and before contracts have been finalized.

Q. What is your concern with decisional prudence for the Boomtown Solar Project?

A. I am concerned with the Commission finding that it was prudent for Ameren Missouri to move forward with the Boomtown project before the Commission and stakeholders have had a full and fair opportunity to weigh-in on the prudence of Ameren Missouri moving forward with the capital project before all costs are known and all relevant factors can be considered.

Q. What is the appropriate place for the Commission to examine the prudence of Ameren Missouri’s decisions to build, and the costs of the Boomtown Solar Project that its retail customers will bear?

A. In a rate case. As Staff witness J. Luebbert testifies in his rebuttal testimony:

1 The determination of the prudence of a given project has typically been reserved for
2 general rate cases. General rate cases include several advantages for Commission
3 consideration when compared to the proceedings in a CCN docket. First, the case
4 timeline for a general rate case is much longer which allows for a more thorough
5 discovery process for all parties. Next, general rate cases typically include additional
6 interveners with a wide variety of interests. Finally, and most importantly, in a general
7 rate case all parties to the case are provided the opportunity to file Direct, Rebuttal, and
8 Surrebuttal testimony which affords a more substantial record for the Commission to
9 consider all factors and costs prior to making a prudency determination on a plant that
10 costs hundreds of millions of dollars which will be recovered from ratepayers for 20+
11 years. In contrast, Staff and other parties to this case are limited to filing rebuttal
12 testimony, which is responsive to the application and direct testimony of the Ameren
13 Missouri, and surrebuttal which will only respond to the rebuttal testimony of the other
14 parties.⁹

15 **Q. Are there other reasons?**

16 **A. Yes, as Mr. Luebbert lists:**

- 17 1. A general rate case provides the Commission with a better opportunity to consider all
18 factors and costs for the prudency determination;
- 19 2. The Boomtown solar facility does not address several needs that have been identified for
20 the Ameren Missouri system;
- 21 3. Ameren Missouri has not clearly identified the need being fulfilled through this purchase;
- 22 4. The Boomtown solar facility is not particularly well-suited to meet winter capacity needs;
- 23 5. Ameren Missouri's lack of identified need calls into question the economic efficiency of
24 the project;
- 25 6. Ameren Missouri's lack of identified need calls into question the promotion of public
26 interest of the project; and

⁹ Case No. EA-2022-0245 Rebuttal Testimony of J. Luebbert p. 20, 10-22.

1 7. The timing of the Boomtown Solar project may result in additional resource acquisitions
2 to meet future ratepayer needs and may be a suboptimal resource for fulfilling those
3 needs.¹⁰

4 **Q. Are there any other concerns that you would include specifically about Ameren**
5 **Missouri’s Boomtown application?**

6 A. Yes. I would include the potential liabilities I identified in my rebuttal testimony. Specifically:

- 7 • Proper utility-scale solar conservation habitat practices;
- 8 • Appropriate storm water run-off management plans;
- 9 • The need to confirm that solar panel selections were not sourced from Chinese forced
- 10 • Uyghur labor camps; and
- 11 • Plans over end-of-life management considerations

12 **Q. Did you pose discovery to Ameren Missouri on these topics?**

13 A. Yes and Ameren Missouri’s responses went a long way to appeasing my initial concerns;
14 however, the application and these variables are still in-flux and it would be inappropriate to
15 grant decisional prudence on managerial actions that have not occurred. This underscores why
16 a rate case is the appropriate place to deal with prudence.

17 **V. RENEWABLE SOLUTIONS PROGRAM**

18 **Q. Did any party address Ameren Missouri’s Renewable Solutions Program in prefiled**
19 **rebuttal testimony?**

20 A. Yes. MIEC witness Mr. Brubaker has proposed to reduce the costs of the Boomtown Solar
21 Project for subscribing customers by means of a lower Renewable Resource Charge (“RRC”);
22 specifically a reduction in the RRC each year by 5%.

¹⁰ *Ibid.* p. 21, 5-19.

1 **Q. What is your response to his recommendation?**

2 A. I oppose it. As I testified earlier above, *** _____
3 _____
4 _____ *** That consideration alone is enough to
5 reexamine the RRC assumptions and negates Mr. Brubaker’s argument.

6 **Q. Have your concerns surrounding the Renewable Solutions Program changed?**

7 A. Yes. My concerns have been magnified based on Staff’s testimony as I was under the initial
8 impression that the program would function with a similar risk-sharing mechanism between
9 participants, non-participants, and shareholders. Under Ameren Missouri’s approach this
10 appears to be a needless way to increase its rate base and, thus, an inappropriate use of captive
11 ratepayer funding. At a minimum, the Renewable Solutions Program should be modeled
12 around a 50/50 sharing mechanism that accounts for undersubscribed accounts.

13 **Q. Beyond your concerns with equity and runaway utility profits do you have any other**
14 **reasons for employing here the 50/50 sharing mechanism that is currently in place across**
15 **Missouri utilities for Green Tariffs?**

16 A. Yes. Many commercial and industrial customers want new solar or what is known as
17 “additionality” as a result of their participation in a solar project.

18 **Q. What is additionality?**

19 A. According to Schneider electric:
20 Additionality is a term that describes renewable energy generation that is truly new –
21 i.e. additional. For example, companies responsible for financially supporting new,
22 expanding, or developing renewable generation sources, as opposed to buying into
23 what is already available or planned, can claim additionality. These projects have a
24 material impact on displacing global emissions by reducing conventional fossil
25 sources of generation on the grid.¹¹

¹¹ Schneider Electric (2022) What You Need To Know About Additionality <https://perspectives.se.com/renewable-energy/what-you-need-to-know-about-additionality>

1 Being able to confirm additionality emphasizes a company’s commitment to advancing carbon
2 reductions beyond business as usual and an accepted practice is in place with many large
3 companies.¹²

4 **Q. Would Ameren Missouri’s Boomtown Solar qualify as additionality?**

5 A. I do not believe so based on my discovery. OPC DR-2013 asks the following question and
6 received the following response from Ameren Missouri:

7 **Question:**

8 Will Ameren Missouri move forward with the BoomTown Solar Project if no one
9 participates in its Renewable Solutions Program?

10 **Response:**

11 Yes. If the Commission approves the program and CCN as filed, customers are
12 contractually obligated to participate. But in the event that the program was not
13 approved, or it was changed in a manner by a Commission order that allowed
14 customers to be excused from their contracts and the customers elected to terminate
15 their subscriptions, the Company would still pursue the Boomtown project. As
16 described in our direct testimony, the resource is needed to serve customers in
17 furtherance of the Company's preferred resource plan to transition to renewables as
18 the coal fired fleet reaches the end of its useful life.¹³

19 Based on this response, it appears as though Ameren Missouri intends to move forward
20 with the project regardless of commercial/industrial participation (i.e., “business-as-
21 usual”).

22 I believe that is a mistake and negates the Company’s ability to attract carbon-free minded
23 customers into this program.

¹² RE100 (2023) RE100 Members. <https://www.there100.org/re100-members> see also #52 How can I increase the impact of my renewable electricity purchase at RE100 (2022) Frequently Asked Questions: https://www.there100.org/sites/re100/files/2022-04/RE100%20FAQs%20-%20April%202022%20update_0.pdf

¹³ See GM-1.

1 **Q. Please explain?**

2 A. Ameren Missouri has been characterized as a fossil-fuel intensive utility by many stakeholders.
3 If there are certain customers that want Ameren Missouri to move off fossil fuels, why not
4 empower those customers by conditioning the build of new renewables (not needed for RES
5 compliance or MISO resource adequacy) on their initial and continued participation. The end
6 result should be a win-win for all parties (participants, shareholders, and non-participants).
7 Moreover, the Company should be actively exploring the concept of “emissionality” or
8 “avoided emissions as a result of said renewable being build” as means to attract participating
9 customers.

10 **Q. What do you mean by emissionality?**

11 According to WattTime (who popularized the phrase):

12 Renewable energy projects don’t pull emissions out of the atmosphere. The reason
13 it helps the environment is because it displaces fossil fuel power plants that would
14 have otherwise polluted. But... *which* plants? That can vary greatly from project to
15 project. In some locations, building new renewables today merely displaces other
16 renewables--leading to potentially as little as zero real-world impact on climate
17 change. On the flip side, renewable energy built in optimal locations can displace
18 the very dirtiest fossil fuel plants, often enabling up to double the real-world avoided
19 emissions than typical renewable energy projects of the same size and cost.¹⁴

20 A concern amongst stakeholders has continuously been that commercial and industrial
21 customers will not support a Green Tariff program for an extended period. By designing a
22 program with features that customers want, and which differentiate them from other
23 programs, Ameren Missouri could make considerable headway in alleviating risk to non-
24 participants, increasing earnings for shareholders, and providing participants the means to
25 make a meaningful contribution to carbon emission reductions. Why such considerations
26 are not in the existing application is a mystery to me.

¹⁴ WattTime (2023) Avoided Emissions / Emissionality <https://www.watttime.org/solutions/renewable-energy-siting-emissionality/>

1 I recommend that the Commission order Ameren Missouri to include both additionality and
2 emissionality considerations when offering any future green tariff programs.

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

4 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 for) Case No. EA-2022-0245
 Approval of a Subscription-Based Renewable)
 Program.)

AFFIDAVIT OF GEOFF MARKE

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Geoff Marke, of lawful age and being first duly sworn, deposes and states:

1. My name is Geoff Marke. I am a Chief Economist for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.



 Geoff Marke
 Chief Economist

Subscribed and sworn to me this 18th day of January 2023.



TIFFANY HILDEBRAND
 My Commission Expires
 August 8, 2023
 Cole County
 Commission #15037121



 Tiffany Hildebrand
 Notary Public

My Commission expires August 8, 2023.