

*Exhibit No.:*  
*Issue(s):* *Economic Feasibility,  
Energy and Capacity  
Needs*  
*Witness:* *Michael L. Stahlman*  
*Sponsoring Party:* *MoPSC Staff*  
*Type of Exhibit:* *Rebuttal Testimony*  
*Case No.:* *EA-2023-0286*  
*Date Testimony Prepared:* *October 11, 2023*

**MISSOURI PUBLIC SERVICE COMMISSION**

**INDUSTRY ANALYSIS DIVISION**

**TARIFF/RATE DESIGN DEPARTMENT**

**REBUTTAL TESTIMONY**

**OF**

**MICHAEL L. STAHLMAN**

**UNION ELECTRIC COMPANY,  
d/b/a AMEREN MISSOURI**

**CASE NO. EA-2023-0286**

*Jefferson City, Missouri  
October 2023*

**\*\* Denotes Confidential Information \*\***

1  
2  
3  
4  
5  
6  
7  
8  
9

**TABLE OF CONTENTS OF  
REBUTTAL TESTIMONY OF  
MICHAEL L. STAHLMAN  
UNION ELECTRIC COMPANY,  
d/b/a AMEREN MISSOURI  
CASE NO. EA-2023-0286**

Economic Feasibility .....1  
Energy and Capacity Needs in MISO Market .....7  
Duck Curve Concerns .....11

1 **REBUTTAL TESTIMONY**

2 **OF**

3 **MICHAEL L. STAHLMAN**

4 **UNION ELECTRIC COMPANY,**  
5 **d/b/a AMEREN MISSOURI**

6 **CASE NO. EA-2023-0286**

7 Q. Please state your name and business address.

8 A. My name is Michael L. Stahlman, and my business address is Missouri Public  
9 Service Commission, P.O. Box 360, Jefferson City, Missouri, 65102.

10 Q. Please provide your credentials.

11 A. Please see Attachment MLS-1.

12 Q. What is the purpose of your testimony?

13 A. I will discuss economic feasibility and the energy and capacity of the solar projects  
14 impact on Ameren Missouri's system with respect to Midcontinent Independent System  
15 Operator ("MISO").

16 **ECONOMIC FEASIBILITY**

17 Q. Has Ameren Missouri specified what makes the proposed solar projects  
18 economically feasible?

19 A. No. In response to Staff Data Request 0030.3, Ameren Missouri stated,  
20 "economic feasibility" is not capable of reduction to a single definition, or an exclusive list of  
21 factors or indicia." Ameren Missouri went on to list "factors or indicia" that are largely  
22 irrelevant to economic feasibility.

1 Q. Why is it important for Ameren Missouri to have a definition of  
2 “economic feasibility”?

3 A. An outsider cannot properly assess the validity of a claim of economic feasibility  
4 without understanding what definition that the claimant is using. For example, regardless of  
5 whether a hotdog is a sandwich, a claimant should be able to posit a definition of “sandwich”  
6 so that a reviewer can see if the claimant’s position is internally consistent (i.e. a hot dog meets  
7 the claimant’s own definition of sandwich). Without Ameren Missouri providing its own  
8 definition of “economic feasibility”, Staff cannot effectively analyze the validity of  
9 Ameren Missouri’s claim.

10 Q. Is Staff able to define economic feasibility?

11 A. Yes. The Cambridge Dictionary defines “economic feasibility” as “the degree to  
12 which the economic advantages of something to be made, done, or achieved are greater than  
13 the economic costs.”<sup>1</sup> In the Grain Belt Express case, EA-2023-0017, all parties were consistent  
14 on the definition of “economic feasibility”. As discussed in Staff’s Initial Brief for that case,

15 As Dr. Won put it, economic feasibility is the “focus on the comparison to investment  
16 and return.” The goal is to determine whether the project will be profitable or not. This  
17 is similar to what other witnesses at the hearing understood economic feasibility to be.  
18 Grain Belt Express witness Shawshank Sane defined economic feasibility to be the view  
19 that the Project cover costs and offer a minimum return. Grain Belt Express witness  
20 Rolanda Shine defined economic feasibility to be “having an executable plan on how  
21 we intend to construct and finance the Project in an economic viable and financial  
22 matter.” Grain Belt Express witness David Loomis defined economic feasibility as “a  
23 forward-looking standard for a project” that indicates “whether the revenues for that  
24 project would be sufficient to cover the expected cost” and that the revenues from the  
25 Project would have to exceed costs for the project to be economically feasible.  
26 Clean Grid Alliance witness Michael Goggin defined economic feasibility to be “the  
27 ability of a proposed investment to generate sufficient revenue to recover its costs with  
28 an adequate rate of return to make the investment worthwhile to the investors.”<sup>2</sup>

---

<sup>1</sup> <https://dictionary.cambridge.org/us/dictionary/english/economic-feasibility> (15SEP2023).

<sup>2</sup> Staff’s Initial Brief, EA-2023-0017, filed July 7, 2023, pp. 7 – 8.

1 The dictionary definition combined with a testimony of all witnesses in the Grain Belt Express  
2 hearing indicates that there exists a generally accepted definition of economic feasibility.

3 Q. Should Ameren Missouri use the definition of economic feasibility above?

4 A. Ameren Missouri should at least have a general basis in that definition and be able  
5 to explain and defend deviations from the generally accepted definition of economic feasibility.

6 Q. Has Ameren Missouri provided any workpapers demonstrating the project's  
7 economic feasibility?

8 A. No. Ameren Missouri witness Matt Michels provided workpapers, but as further  
9 discussed by Staff witness Sarah Lange, these workpapers show that the projected costs exceed  
10 the projected benefits even under the best case scenarios.

11 Q. Does Ameren Missouri provide other factors or indicia that Ameren Missouri  
12 claims to show economic feasibility?

13 A. Yes, but these factors and indicia clearly show that Ameren Missouri does not  
14 understand what economic feasibility is. In response to Staff Data Request 0030.3,  
15 Ameren Missouri contended that each project was economically feasible on the following  
16 factors or indicia (seemingly identical for each project):

- 17 • The Company has the ability to finance the cost of the proposed facility;
- 18 • The Company has a means to recover the revenue requirement associated with the  
19 facility;
- 20 • The proposed facility will create jobs and will pay substantial lease payments to  
21 landowners;
- 22 • The proposed facility will generate substantial taxes (or payments in lieu of taxes)  
23 Ameren will pay to local taxing authorities;
- 24 • Adding additional renewable resources, as discussed in my direct testimony, promotes  
25 economic activity, development, and retention of development within Missouri given  
26 customer preferences for renewable energy, including large customers whose  
27 investment creates substantial jobs and tax revenues;

Rebuttal Testimony of  
Michael L. Stahlman

1 • Under current law, the proposed facility will qualify for substantial federal tax credits,  
2 either the ITC or the PTC (based on the Company's current assessment, the ITC is likely  
3 to be the most beneficial tax strategy for our customers – this facility qualifies for  
4 an ITC of 40%);

5 • The proposed project is being constructed/acquired at a fair market value having been  
6 the result of a competitive request for proposal process and arms-length negotiation with  
7 the developer;

8 • The proposed project advances the implementation the Company's preferred resource  
9 plan, which was selected to meet customers energy and capacity needs in a manner that  
10 is feasible to execute and at a substantially lower net present value of revenue  
11 requirement than alternative approaches to meeting those same needs;

12 • The proposed project will lessen reliance on the MISO market during higher market  
13 price periods.

14 I will address each of these points below, though out of order.

15 Q. Do you agree that the ability to finance the cost of the proposed facility shows  
16 economic feasibility?

17 A. No. Financial Ability is a separate Tartan criterion, which is distinct from  
18 economic feasibility. The financial ability of Ameren Missouri is discussed by Staff Witness  
19 Dr. Seoungjoun Won.

20 Q. Do you agree that the proposed facility will create jobs and will pay substantial  
21 lease payments to landowners shows economic feasibility?

22 A. No. This is a cost to the project, but could potentially be an externality to be  
23 considered under the "Public Interest" Tartan criteria. If Ameren Missouri was to pay  
24 landowners 1000% higher payments or hire a crew of personnel to dig holes and another crew  
25 to come fill the holes back in, the cost to construct the project would increase without any  
26 additional revenue streams to Ameren Missouri.

27 Q. Do you agree that Ameren Missouri's payment of additional taxes shows  
28 economic feasibility?

1           A. No. Taxes are a component of the project's cost. Ameren Missouri could virtually  
2 accomplish the same effect by donating shareholder money to local authorities instead of  
3 constructing projects at ratepayer expense.

4           Q. Do you agree that the substantial federal tax credits Ameren Missouri could receive  
5 show economic feasibility?

6           A. No. Just like above, the tax credits would be a reduction in the project's cost and  
7 do not show feasibility in and of themselves. The fact that Ameren Missouri states that paying  
8 additional taxes shows economic feasibility in one sentence only to state paying less taxes  
9 demonstrates economic feasibility in a subsequent sentence is a pure demonstration of  
10 Ameren Missouri's illogical understanding of economic feasibility.

11          Q. Assuming that proposed project is being constructed/acquired at a fair market value  
12 and been the result of a competitive request for proposal process and arms-length negotiation  
13 with the developer, does this demonstrate that the project is economically feasible?

14          A. No. This is related to the cost of the project and not overall economic feasibility.  
15 By way of allegory, I have recently looked at a steam juicer. The price was in line with other  
16 models available on the internet at the store and at a price that I could easily afford the purchase  
17 (this half being financial ability), but ultimately decided to not purchase the juicer because  
18 I determined that the amount that I would actually use it was not sufficient to cover the cost.

19          Q. Do you agree that adding additional renewable resources could promote economic  
20 activity, development, and retention of development within Missouri?

21          A. It could, but so would keeping low and affordable rates. These projects, if approved  
22 and included entirely in Ameren Missouri's rate base, will increase rates of its customer classes.

1 Q. Would additional economic activity, development, and retention of development  
2 in Missouri be a factor to include in the economic feasibility of the projects?

3 A. No. These are externalities that should be included in the “Public Interest”  
4 Tartan criteria as they do not impact the project’s cost or revenue streams.

5 Q. Assuming that the proposed project will lessen reliance on the MISO market during  
6 higher market price periods, would this demonstrate economic feasibility?

7 A. No, this would be an externality and is generally not accurate for two of Ameren  
8 Missouri’s proposed solar projects. Ameren Missouri will still bid all its generation into the  
9 MISO markets and separately purchase energy from the MISO markets to meet its load  
10 requirement, so the MISO market is being utilized regardless of this generation. The exception  
11 to this is the two proposed distribution-level solar projects, Vandalia and Bowling Green,  
12 offset Ameren Missouri’s load requirement, thus Ameren Missouri would not bid these projects  
13 into the MISO markets and the load requirement for purchases would be reduced. However,  
14 this aspect is still an externality for these two projects; economic feasibility would be a  
15 demonstration that the higher revenues due to operating at higher market price periods would  
16 be sufficient to offset the costs of the project.

17 Q. If the proposed project advances the implementation of Ameren Missouri preferred  
18 resource plan, would this demonstrate economic feasibility?

19 A. No. This statement employs the logical fallacy of begging the question, as it  
20 assumes what it needs to prove. Ameren Missouri’s response states that the preferred resource  
21 plan “was selected...in a manner that is feasible...”<sup>3</sup> As discussed by Staff witness Brad

---

<sup>3</sup> Response to Staff Data Request 0030.3.



1 Fortson, Ameren Missouri’s integrated resource plan (“IRP”) did not include these specific  
2 projects, but generic solar facilities.

3 Ameren Missouri’s IRP also did not find the optimal amount of renewable energy to  
4 incorporate into its portfolio, but applied fixed values to batches. And the IRP also did not  
5 consider the impact of additional generation on locational marginal prices. Staff witness  
6 J Luebbert further discusses the flaws of the IRP analysis.

7 Q. Does the concept that Ameren Missouri could recover the revenue requirement  
8 associated with the facility demonstrate economic feasibility?

9 A. This is a determination for a future rate case and is currently not part of the current  
10 case. In the past Staff has assumed that rate recovery of various projects, including the  
11 Boomtown project in EA-2022-0245, through retail rates was sufficient to show economic  
12 feasibility of the project from the perspective of shareholders. However, retail rate recovery  
13 does not establish that a project is an improvement justifying its cost. This is further discussed  
14 by Staff witness Sarah Lange.

15 **ENERGY AND CAPACITY NEEDS IN MISO MARKET**

16 Q. Ameren Missouri’s witness, Ajay Arora discusses the need for energy resources  
17 starting on page 13. On page 14 he states,

18 Specifically, even under normalized planning conditions, Ameren Missouri  
19 becomes short by approximately 1 million megawatt-hours ("MWhs") as early  
20 as 2028, by approximately 2 million MWhs by 2029, approximately 6 million  
21 by 2031 and approximately 14 million MWhs by 2037, if no new generation  
22 resources are added.<sup>4</sup>

23 Is it a problem for a utility to be a net purchaser?

---

<sup>4</sup> Direct Testimony of Ajay K. Arora p. 14, ll. 3-6.

Rebuttal Testimony of  
Michael L. Stahlman

1 A. No. In response to Staff Data Request 0118, Ameren Missouri stated,  
2 “The Company is not aware of any federal or state law, rule or regulation or MISO rule or  
3 regulation that requires Ameren Missouri to generate energy in excess of the Ameren Missouri  
4 load.” Additionally, there are other utilities in Missouri that are annual net energy purchasers.

5 Q. Is it unusual for Ameren Missouri to be a net purchaser?

6 A. No. In reviewing the data reported by Ameren Missouri per 20 CSR 4240-3.190  
7 from January 2021 through April 2023, Ameren Missouri was a net purchaser of energy for  
8 about 27% of all hours.<sup>5</sup>

9 Q. Would it be possible for all entities on an interconnected electrical grid to be net  
10 sellers of energy for a given time period?

11 A. No, it is physically impossible to generate more energy than is consumed when  
12 losses are factored in the consumption. This means that if there is any utility on the electrical  
13 grid that is a net energy seller, there must also be another entity that is a net purchaser.

14 Q. For the hours that Ameren Missouri was a net purchaser of energy, did  
15 Ameren Missouri utilize all of its existing capacity to avoid being a net purchaser of energy?

16 A. No. Ameren Missouri still had generators that were not running.

17 Q. Would it be desirable for Ameren Missouri to have all existing generation  
18 generating in a given period prior to becoming a net purchaser of energy?

19 A. No. It would not make sense for Ameren Missouri to start additional generators  
20 when energy could be obtained through the MISO energy markets at a lower price.  
21 In Case No. EW-2019-0370, Ameren Missouri stated, “In making its commit status decisions,

---

<sup>5</sup> For much of 2021, the Callaway Energy Center was offline. However, for the subsequent year, 2022, the number of hours that Ameren Missouri was a net purchaser of energy increased.

1 the Company's guiding principle is to clear (i.e., sell energy from) its units in the market when  
2 doing so benefits customers.”<sup>6</sup>

3 Q. Does Ameren Missouri run a generator even when it is not profitable in a  
4 given hour?

5 A. Yes. Due to ramp rates, startup and shutdown costs, Ameren Missouri will decide  
6 to operate a generator based on forecasted LMP. Ameren Missouri discussed this  
7 in Case No. EW-2019-0370:

8 However, making a unit commitment status decision merely by looking at one 24-hour  
9 period is not appropriate and would harm customers. This is because the market  
10 participant must look past the next 24 hours and assess whether this one-day revenue  
11 shortfall is projected to persist for a prolonged period of time such that the cumulative  
12 shortfalls would exceed the total of the expected foregone margins, the cost to restart  
13 the unit and the risk of significant maintenance and capital expenses arising from  
14 cycling the unit if it is committed and then decommitted and then committed again. The  
15 market participant must also account for unit downtime minimums which means that if  
16 a unit downtime minimum is for more than one day, de-committing the unit based only  
17 on the next day's MISO model results could mean that the unit will forego margins for  
18 the following days when it remains shut-down.<sup>7</sup>

19  
20 Q. Did Ameren Missouri consider the impact of a new generator's dispatch on  
21 the LMP?

22 A. No. Ameren Missouri stated it did not in response to Staff Data Request 0091.

23 “The Company does not explicitly account for changes in LMPs for existing resources  
24 resulting from specific proposed additions. The Company's market price scenarios do account  
25 for price impacts resulting from the broad transition of the resource mix within MISO and the  
26 Eastern Interconnect, including the addition of wind and solar resources.”

---

<sup>6</sup> Ameren Missouri's Response to Order Opening an Investigation of Missouri Jurisdictional Generator Self-Commitments and Self Scheduling and to Order Directing Comments, filed on July 8, 2019 in Case No. EW-2019-0370. Paragraph 8.

<sup>7</sup> Ameren Missouri's Response to Order Opening an Investigation of Missouri Jurisdictional Generator Self-Commitments and Self Scheduling and to Order Directing Comments, filed on July 8, 2019 in Case No. EW-2019-0370. Paragraph 10.

1 Ameren Missouri made a very simplistic approximation, but the specific impact would  
2 depend on the change in Locational Marginal Prices (“LMP”), depend on how the generation  
3 would impact other generation units in the MISO stack, and on bid strategies for those  
4 generation units.

5 Q. Did Ameren Missouri properly model the impact of additional capacity regarding  
6 capacity markets?

7 A. No. While Ameren Missouri properly assumed that the new capacity would be  
8 sold into the capacity markets with approximately correct capacity factors, Ameren Missouri  
9 did not factor into account that the additional capacity will offset existing capacity that is  
10 currently being sold into MISO’s capacity markets. Figure 1, on the following page, is a slide  
11 from a May 19, 2023 MISO presentation on the Planning Resource Auction Results for  
12 Planning Year 2023-24.<sup>8</sup>

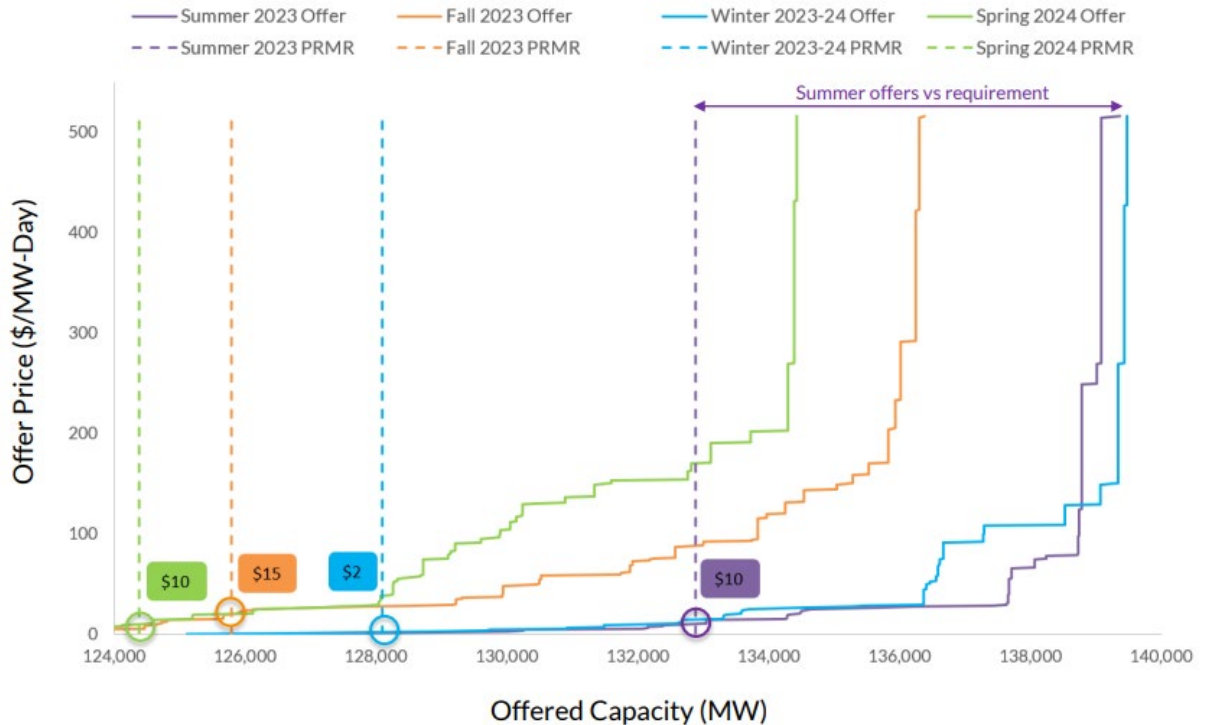
---

<sup>8</sup> Slide 7 of 49. [2023 Planning Resource Auction \(PRA\) Results628925.pdf \(misoenergy.org\)](#)

1

Figure 1.

## Adequate supply resulted in flat auction clearing prices across the footprint for all seasons, with the exception of Zone 9



2

3 As can be seen in Figure 1 above, the Planning Reserve Margin Requirement (“PRMR”) is a  
4 fixed quantity, while the generation bids make up the seasonal offer curves. Depending on the  
5 bid strategy, new capacity would shift the offer curves right, which could mean a lower capacity  
6 price and that generation currently being cleared would no longer clear and thus receive no  
7 capacity market revenue.

### 8 DUCK CURVE CONCERNS

9

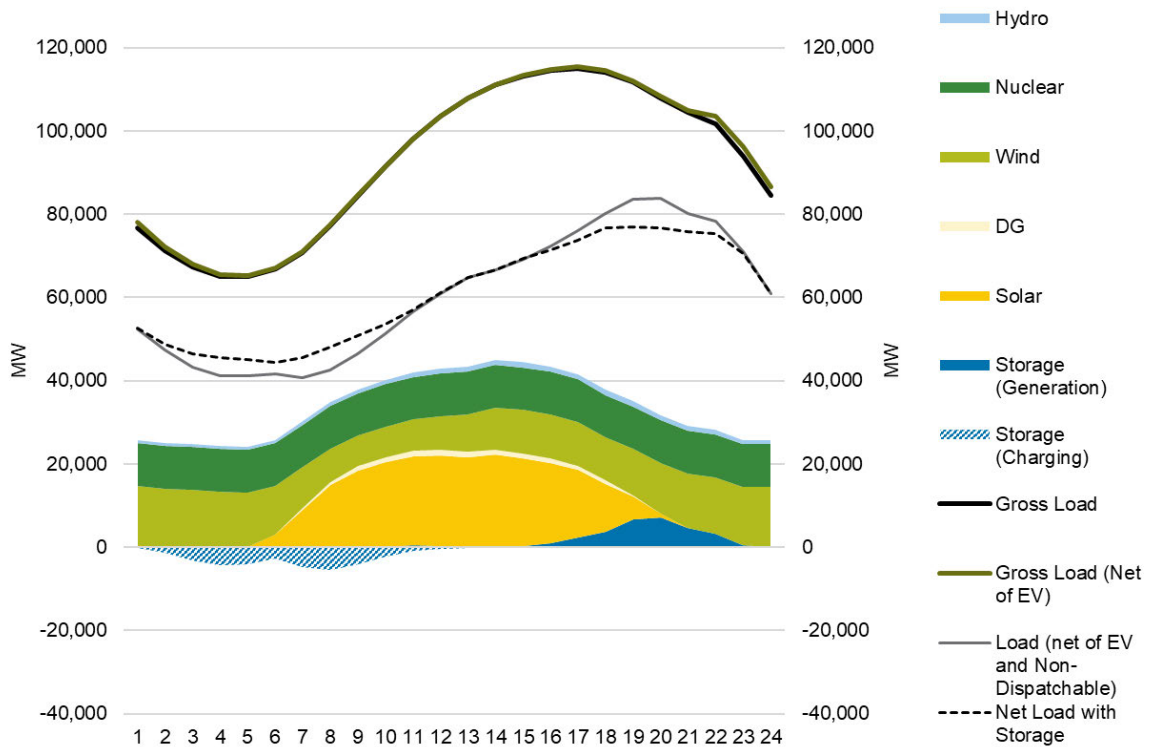
Q. What is a “duck curve” and why is it a concern?

1 A. A “duck curve” is the result of a large amount of solar energy being put on a grid  
2 that causes a steeper evening ramp-up. The sun starts to set, resulting in less solar generation  
3 just as residential households typically increase their load.

4 Q. Are there concerns with Ameren Missouri’s system dispatch with respect to these  
5 solar generators?

6 A. Yes and no. Exhibit 20 in the Charles River Associates study provided in response  
7 to Staff Data Request 0094 begins to show indications of a “duck curve”, particularly in the  
8 summer period (Figure 2).

9 Figure 2: 2030 Summer Average Hourly Load and Generation Profiles<sup>9</sup>



<sup>9</sup> Net Load with Storage = Gross Load (Net of EV) – Solar – Wind – Nuclear – Hydro – Storage.

1 Figure 2 shows that the Load (net of EV [electric vehicles] and Non-Dispatchable) curve begins  
2 to resemble a “duck”, which is the average generation shape that dispatchable generators will  
3 need to produce to meet the load.

4 Q. Doesn't the graph above show a less steep ramp than the gross load?

5 A. Yes, but that is due to issues with the modeling of the graph above. For example,  
6 by averaging the wind profile to just one day, the graph smooths out issues with wind producing  
7 more in the early morning hours and typically not generating during summer peak hours. The  
8 summer peak usage tends to occur when the temperatures are hottest, which is also when a high  
9 pressure system tends to dominates and is associated with very little breeze. Because wind  
10 facilities tend to generate more during the early morning hours, when load is the lowest, it tends  
11 to make the ramping issue worse.

12 Q. Does Staff believe that the proposed projects will cause a “duck curve”?

13 A. No. Staff does not believe that the proposed solar projects would result in a  
14 duck curve in and of themselves, but Staff does have concerns if a large number of renewable  
15 projects were to be approved through the MISO region. Part of this concern is that by taking  
16 the cases in piecemeal hides the final costs of the projects; if energy storage is determined to be  
17 needed because of the impacts of new solar and wind facilities, the cost of installing storage  
18 should be factored into the cost of adding more renewables.

19 Q. Are there additional issues with the CRA model?

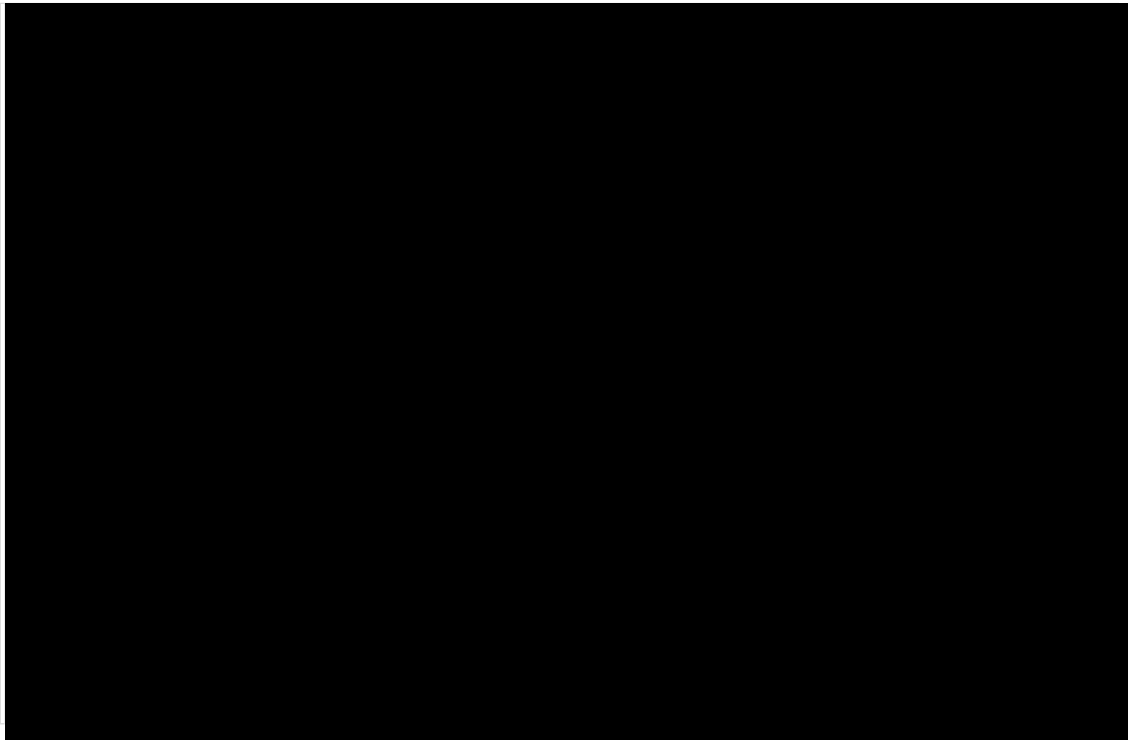
20 A. Yes. On page 22 of the CRA study, it states, “With high levels of renewables and  
21 storage added to the system, the prices in the BaseBaseBase case completely converge by  
22 2040.” The statement does not make sense, as the monetary incentive to install storage is to  
23 take advantage of price differentials between peak and off peak hours. Without any differential

1 between peak and off peak prices, there would also be no signal for when storage would charge  
2 and discharge. This assumption would also imply that there would be no incentive for  
3 consumers to shift their usage away from peak periods. This is an indication that there is an  
4 issue with the model.

5 Q. Did you also find additional issues with Ameren Missouri's models?

6 A. Yes. In reviewing Ameren Missouri's generation shapes of the individual proposed  
7 projects given in response to Staff Data Request 0037, Staff found that the number of hours the  
8 proposed projects operated at 100% to be unreasonably high. Confidential Figure 3 below is  
9 for the proposed Bowling Green facility but is representative of the shapes for all  
10 proposed facilities.

11 \*\*



12  
13 \*\*



Rebuttal Testimony of  
Michael L. Stahlman

1 Staff would anticipate only a few hours of 100% operation around solar noon daily. Instead, as  
2 the figure above shows, there are several hours that showed the proposed facilities operating  
3 at 100%. The data that generated the above graph also showed 100% operation at unreasonable  
4 times, such as 7am in April. Specifically, Staff would anticipate that there would be several  
5 more hours where the generator is operating at near max capacity (90% to 100%) rather than  
6 at 100% because 100% implies that the sun is hitting the solar panels at the optimum angle. It's  
7 unclear, however, how this would factor into Ameren Missouri's assumed revenues or  
8 the CRA report.

9 Q. What is your recommendation?

10 A. My testimony adds support to Staff's overall recommendation as set forth by  
11 Staff Witness James A. Busch. .

12 Q. Does this conclude your testimony?

13 A. Yes it does.

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-2023-0286  
Permission and Approval and Certificates of )  
Public Convenience and Necessity Authorizing )  
it to Construct Renewable Generation Facilities )

**AFFIDAVIT OF MICHAEL L. STAHLMAN**

STATE OF MISSOURI )  
 ) ss.  
COUNTY OF COLE )

**COMES NOW MICHAEL L. STAHLMAN** and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Michael L. Stahlman*; and that the same is true and correct according to his best knowledge and belief.

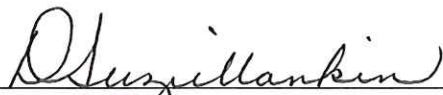
Further the Affiant sayeth not.

  
\_\_\_\_\_  
MICHAEL L. STAHLMAN

**JURAT**

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5<sup>th</sup> day of October 2023.

D. SUZIE MANKIN  
Notary Public - Notary Seal  
State of Missouri  
Commissioned for Cole County  
My Commission Expires: April 04, 2025  
Commission Number: 12412070

  
\_\_\_\_\_  
Notary Public

## Michael L. Stahlman

### Education

- 2009 M. S., Agricultural Economics, University of Missouri, Columbia.  
2007 B.A., Economics, Summa Cum Laude, Westminster College, Fulton, MO.

### Professional Experience

- 2010 - Regulatory Economist, Missouri Public Service Commission  
2007 – 2009 Graduate Research Assistant, University of Missouri  
2008 Graduate Teaching Assistant, University of Missouri  
2007 American Institute for Economic Research (AIER) Summer Fellowship Program  
2006 Price Analysis Intern, Food and Agricultural Policy Research Institute (FAPRI), Columbia, MO  
2006 Legislative Intern for State Representative Munzlinger  
2005 – 2006 Certified Tutor in Macroeconomics, Westminster College, Fulton, MO  
1998 – 2004 Engineering Watch Supervisor, United States Navy

### Expert Witness Testimony

- Union Electric Company d/b/a AmerenUE GR-2010-0363  
In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Natural Gas Service Provided to Customers in the Company's Missouri Service Area
- Union Electric Company d/b/a Ameren Missouri GT-2011-0410  
In the Matter of the Union Electric Company's (d/b/a Ameren Missouri) Gas Service Tariffs Removing Certain Provisions for Rebates from Its Missouri Energy Efficient Natural Gas Equipment and Building Shell Measure Rebate Program
- KCP&L Great Missouri Operations Company EO-2012-0009  
In the Matter of KCP&L Greater Missouri Operations Company's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism
- Union Electric Company d/b/a Ameren Missouri EO-2012-0142  
In the Matter of Union Electric Company d/b/a Ameren Missouri's Filing to Implement Regulatory Changes Furtherance of Energy Efficiency as Allowed by MEEIA
- Kansas City Power & Light Company EO-2012-0323  
In the Matter of the Resource Plan of Kansas City Power & Light Company
- KCP&L Great Missouri Operations Company EO-2012-0324  
In the Matter of the Resource Plan of KCP&L Greater Missouri Operations Company
- Kansas City Power & Light Company, KCP&L Great Missouri Operations Company, and Transource Missouri EA-2013-0098  
EO-2012-0367  
In the Matter of the Application of Transource Missouri, LLC for a Certificate of Convenience and Necessity Authorizing it to Construct, Finance, Own, Operate, and Maintain the Iatan-Nashua and Sibley-Nebraska City Electric Transmission Projects

**cont'd Expert Witness Testimony**  
**Michael L. Stahlman**

---

Kansas City Power & Light Company	EO-2012-0135
KCP&L Great Missouri Operations Company	EO-2012-0136
In the Matter of the Application of Kansas City Power & Light Company [KCP&L Great Missouri Operations Company] for Authority to Extend the Transfer of Functional Control of Certain Transmission Assets to the Southwest Power Pool, Inc.	
Kansas City Power & Light Company	EU-2014-0077
KCP&L Great Missouri Operations Company	
In the Matter of the Application of Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company for the Issuance of an Accounting Authority Order relating to their Electrical Operations and for a Contingent Waiver of the Notice Requirement of 4 CSR 240-4.020(2)	
Kansas City Power & Light Company	EO-2014-0095
In the Matter of Kansas City Power & Light Company's Notice of Intent to File an Application for Authority To Establish a Demand-Side Programs Investment Mechanism	
Veolia Energy Kansas City, Inc	HR-2014-0066
In the Matter of Veolia Energy Kansas City, Inc for Authority to File Tariffs to Increase Rates	
Grain Belt Express Clean Line, LLC	EA-2014-0207
In the Matter of the Application of Grain Belt Express Clean Line LLC for a Certificate of Convenience and Necessity Authorizing It to Construct, Own, Operate, Control, Manage, and Maintain a High Voltage, Direct Current Transmission Line and an Associated Converter Station Providing an Interconnection on the Maywood - Montgomery 345 kV Transmission Line	
Union Electric Company d/b/a Ameren Missouri	ER-2014-0258
In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariff to Increase Its Revenues for Electric Service	
Empire District Electric Company	ER-2014-0351
In the Matter of The Empire District Electric Company for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area	
Kansas City Power & Light Company	ER-2014-0370
In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service	
Kansas City Power & Light Company	EO-2014-0240
In the Matter of Kansas City Power & Light Company's Filing for Approval of Demand-Side Programs and for Authority to Establish a Demand-Side Programs Investment Mechanism	
KCP&L Great Missouri Operations Company	EO-2014-0241
In the Matter of KCP&L Greater Missouri Operations Company's Filing for Approval of Demand-Side Programs and for Authority to Establish a Demand-Side Programs Investment Mechanism	

**cont'd Expert Witness Testimony**

**Michael L. Stahlman**

---

- Ameren Transmission Company of Illinois EA-2015-0146  
In the Matter of the Application of Ameren Transmission Company of Illinois for Other Relief or, in the Alternative, a Certificate of Public Convenience and Necessity Authorizing it to Construct, Install, Own, Operate, Maintain and Otherwise Control and Manage a 345,000-volt Electric Transmission Line from Palmyra, Missouri to the Iowa Border and an Associated Substation Near Kirksville, Missouri
- Empire District Electric Company ER-2016-0023  
In the Matter of The Empire District Electric Company's Request for Authority to Implement a General Rate Increase for Electric Service
- KCP&L Great Missouri Operations Company ER-2016-0156  
In the Matter of KCP&L Greater Missouri Operations Company's Request for Authority to Implement a General Rate Increase for Electric Service
- Kansas City Power & Light Company ER-2016-0285  
In the Matter of Kansas City Power & Light Company's Request for Authority to Implement A General Rate Increase for Electric Service
- Union Electric Company d/b/a Ameren Missouri ER-2016-0179  
In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariff to Increase Its Revenues for Electric Service
- Grain Belt Express Clean Line, LLC EA-2016-0358  
In the Matter of the Application of Grain Belt Express Clean Line LLC for a Certificate of Convenience and Necessity Authorizing it to Construct, Own, Operate, Control, Manage and Maintain a High Voltage, Direct Current Transmission Line and an Associated Converter Station Providing an Interconnection on the Maywood-Montgomery 345kV transmission line.
- Spire Missouri, Inc. GR-2017-0215 and GR-2017-0216  
In the Matter of Spire Missouri, Inc.'s Request to Increase Its Revenues for Gas Service
- Liberty Utilities GR-2018-0013  
In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company
- Spire Missouri, Inc. GO-2019-0058 and GO-2019-0059  
In the Matter of Spire Missouri, Inc. d/b/a Spire's Request to Decrease [Increase] WNAR
- Grain Belt Express Clean Line LLC EM-2019-0150  
Invenergy Transmission LLC  
Invenergy Investment Company LLC  
In the Matter of the Joint Application of Invenergy Transmission LLC, Invenergy Investment Company LLC, Grain Belt Express Clean Line LLC and Grain Belt Express Holding LLC for an Order Approving the Acquisition by Invenergy Transmission LLC of Grain Belt Express Clean Line LLC

**cont'd Expert Witness Testimony**

**Michael L. Stahlman**

---

Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase its Revenues for Natural Gas Service	GR-2019-0077
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Decrease Its Revenues for Electric Service	ER-2019-0335
Empire District Electric Company In the Matter of The Empire District Electric Company's Request for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in its Missouri Service Area	ER-2019-0374
Union Electric Company d/b/a Ameren Missouri 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 Under 20 CSR 4240-3.105	EA-2020-0371
Spire Missouri, Inc. In the Matter of Spire Missouri Inc.'s d/b/a Spire Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	GR-2021-0108
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Electric Service	ER-2021-0240
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Natural Gas Service	GR-2021-0241
The Empire District Electric Company In the Matter of the Request of The Empire District Electric Company d/b/a Liberty for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in its Missouri Service Area	ER-2021-0312
The Empire District Gas Company In the Matter of The Empire District Gas Company's d/b/a Liberty Request to File Tariffs to Change its Rates for Natural Gas Service	GR-2021-0320
Ameren Transmission Company of Illinois In the Matter of the Application of Ameren Transmission Company of Illinois for a Certificate of Convenience and Necessity Under Section 393.170.1, RSMo. Relating to Transmission Investments in Southeast Missouri	EA-2022-0099
Evergy Metro, Inc d/b/a Evergy Missouri Metro In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement A General Rate Increase for Electric Service	ER-2022-0129
Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Request for Authority to Implement A General Rate Increase for Electric Service	ER-2022-0130

**cont'd Expert Witness Testimony**  
**Michael L. Stahlman**

---

Spire Missouri, Inc. In the Matter of Spire Missouri, Inc. d/b/a Spire's Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	GR-2022-0179
Union Electric Company d/b/a Ameren 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	EA-2022-0245
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Electric Service	ER-2022-0337
Grain Belt Express Clean Line LLC In the Matter of the Application of Grain Belt Express LLC for an Amendment to its Certificate of Convenience and Necessity Authorizing it to Construct, Own, Operate, Control, Manage, and Maintain a High Voltage, Direct Current Transmission Line and Associated Converter Station	EA-2023-0017

**Selected Manuscripts**

Stahlman, Michael and Laura M.J. McCann. "Technology Characteristics, Choice Architecture and Farmer Knowledge: The Case of Phytase." *Agriculture and Human Values* (2012) 29: 371-379.

Stahlman, Michael. "The Amoralism of Signals." Awarded in top 50 authors for SEVEN Fund essay competition, "The Morality of Profit."

**Selected Posters**

Stahlman, Michael, Laura M.J. McCann, and Haluk Gedikoglou. "Adoption of Phytase by Livestock Farmers." Selected poster at the American Agricultural Economics Association Annual Meeting, Orlando, FL, July 27-29, 2008. Also presented at the USDA/CSREES Annual Meeting in St. Louis, MO in February 2009.

McCann, Laura, Haluk Gedikoglu, Bob Broz, John Lory, Ray Massey, and Michael Stahlman. "Farm Size and Adoption of BMPs by AFOs." Selected poster at the 5<sup>th</sup> National Small Farm Conference in Springfield, IL in September 2009.