Exhibit No.:

Issue(s): "Need"

Witness: Shawn E. Lange PE

Sponsoring Party: MoPSC Staff
Type of Exhibit: Rebuttal Testimony

Case No.: EA-2022-0099

Date Testimony Prepared: April 8, 2022

# MISSOURI PUBLIC SERVICE COMMISSION INDUSTRY ANALYSIS DIVISION ENGINEERING ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

**OF** 

SHAWN E. LANGE, PE

# AMEREN TRANSMISSION COMPANY OF ILLINOIS

**CASE NO. EA-2022-0099** 

Jefferson City, Missouri April 2022

1		REBUTTAL TESTIMONY		
2		OF		
3		SHAWN E. LANGE, PE		
4		AMEREN TRANSMISSION COMPANY OF ILLINOIS		
5		CASE NO. EA-2022-0099		
6	Q.	Please state your name and business address.		
7	A.	My name is Shawn E. Lange, and my business address is Missouri Public		
8	Service Commission, P.O. Box 360, Jefferson City, Missouri, 65102.			
9	Q.	By whom are you employed and in what capacity?		
10	A.	I am employed by the Missouri Public Service Commission ("Commission") as		
11	a Senior Pr	ofessional Engineer in the Engineering Analysis Department of the Industrial		
12	Analysis Division.			
13	Q.	Please describe your educational and work background.		
14	A.	Please see Schedule SEL-r1.		
15	Q.	What is the purpose of your testimony?		
16	A.	The purpose of my rebuttal testimony is to provide support for Staff's		
17	determination that the proposed project meets the need section of the Tartan Criteria <sup>1</sup> and to			
18	respond to the Direct and Supplemental Direct Testimonies of Ameren Transmission Company			
19	of Illinois ("	ATXI") witness Sean Black.		
20	Project			
21	Q.	What is the purpose of the project?		
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Please see the testimony of Staff witness Claire M. Eubanks, PE for a description of the Tartan Criteria.

A. The Project is the result of a collaborative effort among ATXI, the City of Sikeston and Sikeston Municipal Board of Utilities ("SBMU"), New Madrid, and the Missouri Joint Municipal Electric Utility Commission ("MJMEUC") to address certain energy needs of Sikeston and New Madrid in a manner that benefits all parties while also balancing the interests of the other stakeholders in the AMMO Pricing Zone. <sup>2</sup>

- Q. What are the components of the Project?
- A. The Project, as described in the Supplemental Direct Testimony of ATXI witness Black differs from that initially proposed by ATXI, and consists of both construction of new infrastructure, some of which will be partially or fully owned by entities other than ATXI, and acquisition of existing infrastructure by ATXI.
  - (a) Construction of the Comstock Substation, at an estimated cost of \$5.4 million to ATXI, \$5.4 million to the Missouri Joint Municipal Electric Utility Commission, ("MJMEUC"), and \$8.3 million to Sikeston Board of Municipal Utilities ("SBMU"), for a total of approximately \$18.8 million with approximately \$10.6 million to be allocated to the Ameren Missouri MISO Pricing Zone.<sup>3</sup> ATXI will retain a partial interest in this component;
  - (b) Construction and modification of the six transmission lines adjacent to the new Comstock substation, at an estimated cost of approximately \$124,000 to ATXI, \$124,000 to MJMEUC, and \$2 million to SMBU, for a total of approximately \$2.2 million, with approximately \$242,000 to be allocated to the Ameren Missouri MISO Pricing Zone. ATXI will retain interest in certain lines, but not each;
  - (c) Construction of an approximately 1.2 mile long single circuit 161 kV transmission line, at an estimated cost of approximately \$700,000 to ATXI, and \$673,000 to MJMEUC, for a total of \$1.4 million, fully

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<sup>&</sup>lt;sup>2</sup> Sean Black Direct page 6, lines 5-8.

<sup>&</sup>lt;sup>3</sup> ATXI did not include information concerning on-going operational costs for the Project in its Application or testimonies. These values were presumably included in the analysis performed by Sean Black, however Staff is unable to verify that the gross amounts are accurately reflected in ATXI's analysis at this time, or to identify the level of expense by component.

1 allocable to the Ameren Missouri MISO Pricing Zone. ATXI will retain 2 a partial interest in this component. 3 (d) Acquisition of an interest in the existing 28 mile 161 kV line owned 4 by SBMU, at a cost of \$510,000 to ATXI, \$490,000 to MJMEUC, fully 5 allocable to the Ameren Missouri MISO Pricing Zone, with proceeds to 6 SBMU. ATXI will acquire a partial interest in this existing component; 7 Additional potential components discussed in the testimonies, but for which authority 8 is not sought at this time include: 9 (e) A distribution line, which would be owned by SMBU, which is necessary to fully facilitate the connection of SBMU's system with the 10 Comstock substation, as described by ATXI witness Black at page 8, 11 footnote 3,4 in order to achieve the benefits for SBMU described by 12 ATXI witness Black at page 8, footnote 2,5 which describes 13 circumstances that would factor into an evaluation of the economic 14 feasibility of the Project with regard to SBMU, however SBMU is not 15 the Applicant in this proceeding, and the infrastructure and associated 16 costs described in ATXI witness Black footnote 3 were not included in 17 the Application, except as described in the Supplemental Direct 18 Testimony of Sean Black at page 7; 19 20 (f) Additional infrastructure including but not limited to a second switching station as discussed by ATXI witness Black at page 12 21 22 acknowledging that additional infrastructure would be necessary to

<sup>&</sup>lt;sup>4</sup> Sean Black Direct, page 8, footnote 3 states "As described by Ms. Timmermann in ATXI Exhibit 3.0, in addition to the Area Connections that have currently been identified, ATXI may also help facilitate the connection, to the Comstock substation, of a SBMU-owned distribution line. That connection has been omitted from the diagram embedded below and from the costs presented by Ms. Thomson ATXI Exhibit 2.0, as it is uncertain at this time whether the connection will be required. Should it be required, ATXI and SBMU will coordinate regarding the connection of that line, which will ultimately be paid for by SBMU."

<sup>&</sup>lt;sup>5</sup> Sean Black Direct, page 8, footnote 2 states "The current system configuration does not provide SBMU a direct connection between its own generation and its retail load, or a direct interconnection with the systems of MISO and AECI; their power has to transfer across the SWPA Sikeston bus bar that is under SPP control. When the current Transmission Service Agreement (which is grandfathered in the SPP Tariff) between SBMU and SWPA expires on May 31, 2023, SBMU will have to start paying SPP transmission charges to deliver energy from its own generation to its retail load, and its wholesale customers in MISO and AECI will have to start paying pancaked service charges. The Project will eliminate the institution of pancaked transmission service charges by creating a direct, physical interconnection between SBMU and the systems of SPP, MISO and AECI."

1 accommodate significant load growth at New Madrid, such as the load 2 associated with a new steel mill; 3 (g) The infrastructure necessary to provide additional transmission from 4 the extant Ameren Missouri system to Ameren Missouri customers in 5 Hayti and Portageville, or to establish a North-South MISO tie, as 6 discussed by ATXI witness Black at pages 32-33; and 7 (h) Transfer of additional interest in the existing 161 kV line from SBMU 8 to ATXI. 9 Q What other approvals does ATXI request? 10 A. ATXI requests Commission approval of the following documents: (a) a Joint Ownership Agreement (JOA) among ATXI, 11 12 MJMEUC, and Sikeston (including SBMU); 13 (b) a Construction Agreement between ATXI and SBMU; and 14 (c) an Operation and Maintenance Services Agreement (O&M 15 Agreement) among ATXI, MJMEUC, and SBMU. What is Staff's overall conclusion regarding whether the project is needed? 16 Q. 17 A. Staff finds with regard to need, the potential benefits to Sikeston of serving their 18 own load with their own generation and with the addition of Circular SynTech, LLC ("CST") 19 in or around the City of New Madrid are improvements for both of those entities. Staff does 20 have concerns as raised by Staff witness Sarah L.K. Lange and Michael L. Stahlman. Staff 21 witness Michael L. Stahlman, in his rebuttal testimony, explains how in the event that the 22 monthly demands do not increase in a manner that mitigates the revenue requirement of the 23 Project, other entities in that zone, including ATXI's affiliate Ameren Missouri, may see higher 24 transmission rates.

# 1 **Tartan Criteria** 2 Q. What is the Tartan Criteria? 3 A. When making a determination of whether an applicant or project is convenient 4 or necessary, the Commission has traditionally applied five criteria, commonly known as the 5 Tartan factors, which are as follows: a) There must be a need for the service; 6 7 b) The applicant must be qualified to provide the proposed service; 8 c) The applicant must have the financial ability to provide the service; 9 d) The applicant's proposal must be economically feasible; and e) The service must promote the public interest.<sup>6</sup> 10 11 Q. How has the Commission interpreted need? 12 A. In the Report and Order on Remand, from the Grain Belt HVDC transmission 13 line CCN case in EA-2016-0358, the Commission states: 14 When determining whether the project is necessary or convenient for the public service, the "term 'necessity' does not mean 'essential' or 15 'absolutely indispensable', but that an additional service would be an 16 improvement justifying its cost.<sup>7</sup> 17 18 My testimony focuses on the non-financial aspects to this case, including the non-financial 19 benefits. Staff witnesses Sarah L.K. Lange and Michael L. Stahlman discuss the economics of 20 the project. Staff witness Claire M. Eubanks, PE presents Staff's public interest evaluation and 21 overall recommendation in this case.

 $<sup>^6</sup>$  In re Tartan Energy, Report and Order, 3 Mo.P.S.C. 3d 173, Case No. GA-94-127, 1994 WL 762882 (September 16, 1994).

<sup>&</sup>lt;sup>7</sup> EA-2016-0358 Commission Report and Order on Remand page 41.

#### **MJMEUC**

- Q. What is MJMEUC?
- A. MJMEUC was formed under the Joint Municipal Utility Commission Act to obtain sufficient, economical electrical power supply, energy management, and transmission services for the benefit of member municipal utilities. MJMEUC provides full power purchase requirements to member utilities and arranges purchases for members in need of supplemental power. It may construct, operate, and maintain jointly owned generation and transmission facilities for the benefit of members, and it has the authority to enter into contracts for power supply, transmission service, and other services necessary for the operation of an electric utility. Currently, 70 municipal utilities in Missouri and four advisory members in Arkansas are members of MJMEUC.
- Q. Why is MJMEUC involved in this case?
  - A. Sikeston and New Madrid are members of MJMEUC.
  - Q. Is MJMEUC a party to this case?
  - A. Yes, MJMEUC requested intervener status on December 30, 2021 and was granted intervener status on January 14, 2022.

# City of New Madrid

- Q. What is the project need for the City of New Madrid?
- A. With regard to the City of New Madrid, ATXI witness Black states:

New Madrid has been actively exploring opportunities that would drive economic development to the City. One of those opportunities—the anticipated construction of a large steel mill within New Madrid's municipal boundaries— specifically prompted New Madrid to contact ATXI, via MJMEUC. New Madrid was, and is, interested in establishing

a direct connection to MISO to ensure an adequate and economical energy supply and transmission pathway to meet the City's need. As the parties formulated a project to best address that need, the **development** of the steel mill became less certain. Nevertheless, New Madrid remained, and remains, interested in establishing a direct connection to MISO as a way to continue to attract economic development opportunities and to support its current, native load. (Emphasis Added.)<sup>8</sup>

### ATXI witness Black goes on to say:

ATXI understands that, as a result of complications due to the COVID-19 pandemic, the developer of the steel mill lost its financing late in the process.<sup>9</sup>

- Q. Has Staff asked Data Requests of New Madrid regarding the efforts of New Madrid to attract economic development opportunities?
- A. New Madrid is not a party to the case. However, MJMEUC is a party to the case and Staff requested information pertaining to the efforts to attract economic development opportunities in Data Request No. 0002 regarding New Madrid's efforts to attract economic development. Staff will note that New Madrid is not a party in this case and therefore Staff could not issue data requests to New Madrid.
  - Q. What was MJMEUC's response?
  - A. MJMEUC's response is:

MJMEUC's understanding is generally consistent with ATXI's per ATXI's representation in its Application: the City of New Madrid has been, and is currently, exploring economic development opportunities. Beyond that, MJMEUC does not retain documents or data related to the economic development of its members, but respectfully refers Staff to the Missouri Department of Economic Development, which office may

<sup>&</sup>lt;sup>8</sup> Sean Black Direct page 6, lines 10-19.

<sup>&</sup>lt;sup>9</sup> Sean Black Direct page 17, lines 18-19.

1 have additional, nonpublic information regarding New Madrid's recent 2 economic pursuits.<sup>10</sup> 3 Q. Did ATXI witness Black provide an update to the City of New Madrid's 4 economic development in his supplemental direct testimony? 5 A. Yes, ATXI witness Black states: 6 A February 18, 2022 Missouri Department of Economic 7 Development release titled "Circular SynTech to expand in New Madrid, 8 investing more than \$91 million and creating 45 new jobs" indicates that 9 Circular SynTech, LLC (CST) is expanding to New Madrid and will 10 invest up to \$91.4 million to construct a new, 200- acre campus that will 11 convert municipal solid waste and construction and demolition debris 12 into valuable renewable chemicals. According to the release, the facility 13 is expected to begin operations before the end of 2022 and is expected to 14 initially create 45 new jobs, and CST is planning future expansions 15 following its initial investment<sup>11</sup> 16 ATXI witness Black goes on to state: 17 From an electric load perspective, ATXI believes the new development represents 5-10 MW of initial load growth, with possible increases as the 18 CST plant expands operations in the future. 12 19 20 Q. Has Staff inquired to MJMEUC regarding the need for the project? 21 A. Yes, Staff sent Data Request No. 0011 to MJMEUC requesting information 22 regarding the need for this project. 23 Q. What was MJMEUC's response? 24 A. MJMEUC's response was: <sup>10</sup> MJMEUC response/objection to Staff Data Request No. 0002. <sup>11</sup> Sean Black Supplemental Direct page 2, lines 12-19.

<sup>12</sup> Sean Black Supplemental Direct page 3, lines 2-4.

The City of New Madrid ("City") is currently served by two (2) 69kV distribution lines owned by the City that are connected to the Southwestern Power Administration (SWPA) substation at the City. That substation connection is at a 161/69kV transformer that serves both of the City distribution lines and the cooperative system. The limits on the transformer and the City connections to the SWPA substation limits both the load growth and reliability of the City for serving both current and future loads. The addition of the project including the direct 161kV connection to MISO facilities enhances City reliability, and would allow for significant load growth within the city. It will additionally allow more diverse, and lower costs, options for supply.<sup>13</sup>

- Q. Does Staff agree with MJMEUC's assertion that the project enhances City of New Madrid's reliability?
- A. No. At no time in ATXI's application nor in MJMEUC's response to Staff Data Request No. 0011 did either party provide evidence that the limits on the transformer and distribution lines is currently causing or exacerbating reliability issues or future reliability issues.
- Q. Does Staff agree with MJMEUC's assertion that the project allows for diverse supply options and additional load growth for the City of New Madrid?
- A. Yes.
- Q. Was the project reviewed by MISO?
  - A. Yes, MISO reviewed the Comstock substation in accordance with Attachment FF as part of the MISO Transmission Expansion Plan 2021 ("MTEP21"). In accordance with Attachment FF of the tariff, in the event a Transmission Owner determines

<sup>&</sup>lt;sup>13</sup> MJMEUC Response to Staff Data Request No. 0011.

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- that system conditions warrant the urgent development of system enhancements an expedited review of the impacts of the project can be requested.
  - Q. How did MISO view the Comstock substation?
- A. When the Comstock substation<sup>14</sup> was reviewed by MISO in MTEP21 in accordance with Attachment FF of the tariff,<sup>15</sup> the system need was categorized as "business development"<sup>16</sup>. Thus, Staff cannot conclude this project solves current reliability issues seen by the City of New Madrid, Staff can only conclude this project was developed to serve the additional load. The steel mill project lost financing<sup>17</sup> however, CST is expanding to a site in or around the City of New Madrid.

# **City of Sikeston**

- Q. What is the project need for the City of Sikeston?
- A. With regard to the City of Sikeston, ATXI witness Black states:

SBMU seeks to partner with ATXI (and MJMEUC) to construct new transmission facilities to ensure SBMU the flexibility necessary to most economically transmit the energy it generates. Uniquely situated at the seam between the Southwest Power Pool (SPP), MISO and Associated Electric Cooperative, Inc. (AECI) markets, SBMU specifically wants to utilize the system capabilities to support its own requirements while retaining the optionality to cost-effectively serve third-party customers located in the SPP, MISO and/or AECI markets.<sup>18</sup>

<sup>15</sup> In accordance with Attachment FF of the tariff, in the event a Transmission Owner determines that system conditions warrant the urgent development of system enhancements an expedited review of the impacts of the project can be requested.

<sup>&</sup>lt;sup>14</sup> Project ID 19852.

 $<sup>^{16}</sup> https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fcdn.misoenergy.org%2FFINAL%2520 Draft%2520MTEP21%2520Appendix%2520A-$ 

New%2520Projects%2520recommended%2520for%2520approval581043.xlsx&wdOrigin=BROWSELINK

<sup>&</sup>lt;sup>17</sup> Sean Black Direct page 17, lines 18-19.

<sup>&</sup>lt;sup>18</sup> Sean Black Direct page 6, line 21 through page 7, line 4.

ATXI witness Black goes on to say:

The current system configuration does not provide SBMU a direct connection between its own generation and its retail load, or a direct interconnection with the systems of MISO and AECI; their power has to transfer across the SWPA Sikeston bus bar that is under SPP control. When the current Transmission Service Agreement (which is grandfathered in the SPP Tariff) between SBMU and SWPA expires on May 31, 2023, SBMU will have to start paying SPP transmission charges to deliver energy from its own generation to its retail load, and its wholesale customers in MISO and AECI will have to start paying pancaked service charges. The Project will eliminate the institution of pancaked transmission service charges by creating a direct, physical interconnection between SBMU and the systems of SPP, MISO and AECI.<sup>19</sup>

- Q. Has Staff inquired to Sikeston or SBMU regarding the need for the project?
- A. The City of Sikeston or SBMU are not a party to the case. However MJMEUC is a party to the case and Staff sent Data Request No. 0010 to MJMEUC requesting information regarding the need for this project.
  - Q. What was MJMEUC's response?
  - A. MJMEUC's response was:

Based on discussions with SBMU it is MJMEUC's understanding that SBMU currently serves its retail and wholesale customers through a Grandfathered Agreement with Southwest Power Administration (SWPA). This grandfathered agreement terminates in 2023 and cannot be extended. Once the agreement terminates SBMU will be required to take transmission service through SPP to serve its retail load from its own generation even though it is only using a short piece of bus work in the SWPA Sikeston substation. This would force SBMU to increase the rates to its retail customers. In addition, SBMU's wholesale customers in MISO and Associated Electric Cooperative (AECI) would see an increase in the delivery of their

<sup>&</sup>lt;sup>19</sup> Sean Black Direct page 8, footnote 2.

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energy for the same reason. The project will provide SBMU with its own facilities which connect its generation to its own retail load allowing it to serve this load without incurring an external transmission service charge. The project provides SBMU with direct interconnections to MISO, SPP and AECI allowing it to continue to receive its allocation of federal power from SWPA and to deliver wholesale power from its generator to its wholesale customers without the customer incurring pancaked rates. Since the project maintains SBMU's connections to MISO, SPP and AECI, it also preserves SBMU's ability to join the RTO of its choice in the future.<sup>20</sup>

- Q. Does Sikeston own generation?
- A. Yes, Sikeston owns a 235 MW coal plant (Sikeston Coal Plant).<sup>21</sup>
- Q. Does this plant provide generation to load in municipalities other than Sikeston?
- A. Yes, Staff is aware that there is a contract between the City of Columbia, Missouri and Sikeston for 66 MW<sup>22</sup> for the life of the plant.
- Q. When does the City of Columbia, Missouri's 2021 IRP assume the Sikeston Coal Plant to Retire?
- A. The City of Columbia, Missouri's 2021 IRP assumes the Sikeston Coal Plant to retire on December 31, 2030<sup>23, 24</sup>. With current regulations and the influx of wind at its market price point, Staff does not see that date as unreasonable as it reflects an operating life for the Sikeston Coal Plant of approximately 50 years.
  - Q. Does Staff agree with the ATXI characterization of Sikeston's need?

 $<sup>^{\</sup>rm 20}$  MJMEUC response to Staff Data Request No. 0010.

<sup>&</sup>lt;sup>21</sup> https://www.sikeston.org/departments/economic development/utilities.php.

<sup>&</sup>lt;sup>22</sup> https://www.como.gov/wp-content/uploads/2021/09/CWL-2021-Integrated-Resource-Plan.pdf page 49.

<sup>&</sup>lt;sup>23</sup> https://www.como.gov/wp-content/uploads/2021/09/CWL-2021-Integrated-Resource-Plan.pdf page 49.

<sup>&</sup>lt;sup>24</sup> Assumed retirement of the plant and the PPA for planning purposes. No confirmed date by the Operator.

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A. Yes, Staff agrees that Sikeston requires additional infrastructure to facilitate direct service to its own load with its own generation to avoid incurring costs associated with SWPA and Southwest Power Pool ("SPP"). Staff witness Sarah L.K. Lange goes into detail on the economics of the project.

# Other Stakeholder Interests in the AMMO Pricing Zone

Q. What benefits does ATXI show will be attributed to the other stakeholders in the AMMO Pricing Zone?

#### A. ATXI witness Black states:

[T]he Project positions ATXI and/or Ameren Missouri well for potential future expansions of the existing system, which could improve system reliability and allow Ameren Missouri to directly serve retail customers located in the Hayti / Portageville area, as well as improve system reliability to all customers in the region. A future expansion could also create an additional contract path between the North and South regions of MISO, which could reduce payments under the Joint Operating Agreement in place between MISO and SPP, in turn benefitting the retail customers of Ameren Missouri, as well as any other retail or wholesale customers served by the MISO transmission system. And, finally, the Project effectively extends the current MISO "border" further south into Missouri, which may help create further system and economic benefits in the future, again benefitting the region generally. In addition to potential benefits to load, an example of these other system expansion benefits and opportunities includes an expanded ability to integrate renewable generation into the MISO market.<sup>25</sup>

Q. How would this project help the other future projects?

<sup>&</sup>lt;sup>25</sup> Sean Black Direct page 10, line 19 through page 11, line 10.

A. With regard to the possibility of future project(s) between MISO North ("MISO-N") and MISO South ("MISO-S") or other potential future beneficial projects to the AMMO Pricing Region, ATXI stated: 

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- Q. Does Staff agree with ATXI's characterization of other stakeholder interest in the Ammo Pricing Zone?
- A. Yes. Staff is not aware of direct benefit of this project to Ameren Missouri's system. All stated ATXI stated benefit is predicated on one or more additional projects that may or may not happen.

#### Conclusion

- Q. What is Staff's Conclusion regarding the Tartan criteria need element?
- A. The potential benefits to Sikeston of serving their own load with their own generation and with the addition of CST in or around the City of New Madrid are improvements for both of those entities. Sikeston, potentially serving their own load with their own generation, is sufficient to say the Sikeston portion of the project is an improvement.

Based on the MJMEUC responses to Staff's data requests as well as ATXI witness Black's testimony, Sikeston may require additional infrastructure to facilitate direct service to its own load with its own generation to avoid incurring costs associated with SWPA and SPP. The Project as proposed, in potential conjunction with any additional distribution facilities, is a means for Sikeston to directly serve its load and to avoid the SWPA and SPP costs.

Further, ATXI represents that the Project is needed by New Madrid. The justification for the infrastructure associated with the New Madrid portion of the project is largely dependent

<sup>&</sup>lt;sup>26</sup> ATXI Confidential response to Staff Data Request No. 0012.

on load growth or economic expansion of the city, which may require additional infrastructure not included in the current Project scope. New Madrid has recently seen growth with the announced expansion of CST to the area. With the proposed expansion in or around the City of New Madrid portion of the project is an improvement for the City of New Madrid.

Staff does have concerns as raised by Staff witness Sarah L.K. Lange and Michael L. Stahlman.

Staff witness Michael L. Stahlman, in his rebuttal testimony, explains how ratepayers in the Ameren Missouri MISO Pricing Zone may be required to pay what is not paid by the utilization of the resources.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

# BEFORE THE PUBLIC SERVICE COMMISSION

# OF THE STATE OF MISSOURI

In the Matter of the Application Transmission Company of Illin Certificate of Convenience and Section 393.170 RSMo Relatin Investments in Southeast Misse	nois for a I Necessity Under ng to Transmission	) File No. ) )	EA-2022-0099
AFFI	DAVIT OF SHAW	VN E. LANGE, PI	Σ
STATE OF MISSOURI ) COUNTY OF COLE )	ss.		
and lawful age; that he contribute and that the same is true and confurther the Affiant sayeth no	nted to the foregoing rect according to his	, Rebuttal Testimo	ny of Shawn E. Lange, PE; nd belief.
	JURAT	Γ	
Subscribed and sworn before the County of Cole, State of Min of 2022	issouri, at my office		_
DIANNA L. VAUGHT Notary Public - Notary Seal State of Missouri Commissioned for Cole County My Commission Expires: July 18, 2023 Commission Number: 15207377		Diama L. 1 Notary Public	/aught

# CREDENTIALS AND CASE PARTICIPATION OF SHAWN E. LANGE, PE

#### PRESENT POSITION:

I am a Senior Professional Engineer in the Engineering Analysis Department, Industry Analysis Division, of the Missouri Public Service Commission.

# **EDUCATIONAL BACKGROUND AND WORK EXPERIENCE:**

In December 2002, I received a Bachelor of Science Degree in Mechanical Engineering from the University of Missouri, at Rolla now known as the Missouri University of Science and Technology. I joined the Commission Staff in January 2005. I am a registered Professional Engineer in the State of Missouri and my license number is 2018000230.

#### **TESTIMONY FILED:**

Case Number	Utility	Testimony	Issue
ER-2005-0436	Aquila Inc.	Direct	Weather Normalization
		Rebuttal	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2006-0314	Kansas City Power &	Direct	Weather Normalization
	Light Company	Rebuttal	Weather Normalization
ER-2006-0315	Empire District Electric Company	Direct	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2007-0002	Union Electric Company, d/b/a AmerenUE	Direct	Weather Normalization
ER-2007-0004	Aquila Inc.	Direct	Weather Normalization
ER-2007-0291	Kansas City Power &	Staff Report	Weather Normalization
	Light Company	Rebuttal	Weather Normalization
ER-2008-0093	Empire District Electric Company	Staff Report	Weather Normalization

Case Number	Utility	Testimony	Issue
ER-2008-0318	Union Electric Company, d/b/a AmerenUE	Staff Report	Weather Normalization
ER-2009-0089	Kansas City Power & Light Company	Staff Report	Net System Input
ER-2009-0090	KCP&L Greater Missouri Operations Company	Staff Report	Net System Input
ER-2010-0036	Union Electric Company, d/b/a AmerenUE	Staff Report	Net System Input
ER-2010-0130	Empire District Electric Company	Staff Report	Variable Fuel Costs
	Electric Company	Surrebuttal	Variable Fuel Costs
ER-2010-0355	Kansas City Power & Light Company	Staff Report	Variable Fuel Costs
ER-2010-0356	KCP&L Greater Missouri Operations Company	Staff Report	Engineering Review- Sibley 3 SCR
ER-2011-0004	Empire District Electric Company	Staff Report	Variable Fuel Costs
ER-2011-0028	Union Electric Company, d/b/a Ameren Missouri	Staff Report	Net System Input
ER-2012-0166	Union Electric Company, d/b/a Ameren Missouri	Staff Report	Weather Normalization
		Surrebuttal	Weather Normalization Maryland Heights In- Service
ER-2012-0174	Kansas City Power & Light Company	Staff Report	Weather Normalization Net System Input Variable Fuel Costs
		Surrebuttal	Weather Normalization
ER-2012-0175	ER-2012-0175 KCP&L Greater Missouri Operations Company	Staff Report	Weather Normalization Net System Input
		Surrebuttal	Weather Normalization
ER-2012-0345	Empire District Electric Company	Rebuttal	Interim Rates
	License Company	Staff Report	Weather Normalization

Case Number	Utility	Testimony	Issue
EC-2014-0223	Noranda Aluminum v. Ameren Missouri	Rebuttal	Weather Normalization
EA-2014-0207	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility
		Surrebuttal	Analysis
ER-2014-0258	Union Electric Company, d/b/a Ameren Missouri	Staff Report	Net System Input Variable Fuel Costs
ER-2014-0351	Empire District Electric Company	Staff Report	Net System Input Variable Fuel Costs
ER-2014-0370	Kansas City Power & Light Company	Staff Report	Net System Input Variable Fuel Costs
		True-up Direct	Variable Fuel Costs La Cygne In-service
EA-2015-0146	ATXI CCN	Rebuttal	Certificates of
		Surrebuttal	Convenience/Feasibility Analysis
ER-2016-0023	Empire District Electric Company	Staff Report	Net System Input Variable Fuel Costs
		Surrebuttal	Variable Fuel Costs
ER-2016-0179	Union Electric Company, d/b/a Ameren Missouri	Staff Report	Variable Fuel Costs
EA-2016-0385	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	
ER-2018-0145	Kansas City Power & Light Company	Staff Report	Variable Fuel Costs Market Prices
		Rebuttal	Variable Fuel Costs Market Prices
		True-up Direct	Variable Fuel Costs Market Prices
EA-2018-0327	ATXI CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis

Case Number	Utility	Testimony	Issue
EA-2019-0021	Ameren CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2019-0010	Empire District Electric Company CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
EC-2020-0408	MLA v. Grain Belt Complaint	Staff Recommendation	Formal Complaint
EA-2021-0167	ATXI CCN	Staff Recommendation	Certificates of Convenience/Feasibility Analysis
EA-2021-0087	ATXI CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
ER-2021-0240	Union Electric Company, d/b/a Ameren Missouri	Staff Report	Variable Fuel Costs Atchison wind farm Construction Audit and in-service review
		Rebuttal	Atchison in-service and Variable Fuel Costs
		True-up Direct	Variable Fuel Costs
ER-2021-0312	Empire District Electric Company	Staff Report	Transmission and Distribution Investment
EA-2022-0043	Evergy Metro and Evergy West Hawthorn Solar CCN	Staff Report	Certificates of Convenience/Feasibility Analysis