

*Exhibit No.:*  
*Issue(s):* Variable Fuel Expense  
*Witness:* Shawn E. Lange, PE  
*Sponsoring Party:* MoPSC Staff  
*Type of Exhibit:* Rebuttal Testimony  
*Case No.:* ER-2024-0189  
*Date Testimony Prepared:* August 6, 2024

**MISSOURI PUBLIC SERVICE COMMISSION**

**INDUSTRY ANALYSIS DIVISION**

**ENGINEERING ANALYSIS DEPARTMENT**

**REBUTTAL TESTIMONY**

**OF**

**SHAWN E. LANGE, PE**

**EVERGY MISSOURI WEST, INC.,**

**d/b/a Evergy Missouri West**

**CASE NO. ER-2024-0189**

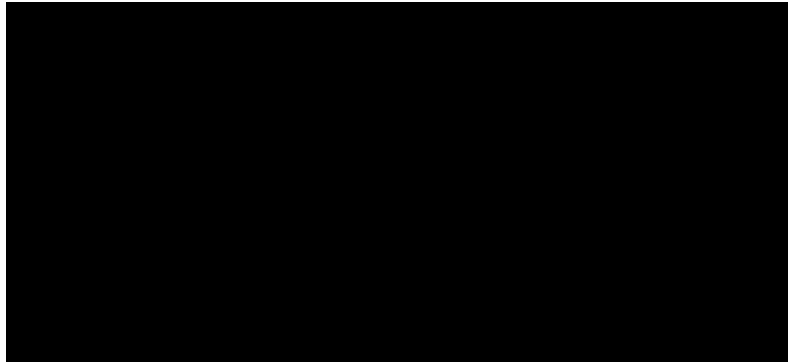
*Jefferson City, Missouri*

*August 6, 2024*



Table 1

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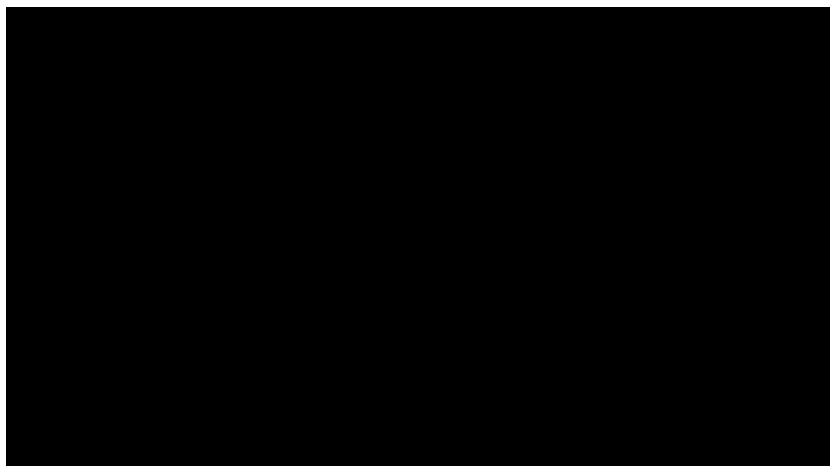
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Q. How does this level of generation compare to historical generation at Crossroads?

A. Staff reviewed the data provided as part of the reporting requirements under Commission Rule 20 CSR 4240-3.190, Reporting Requirements for Electric Utilities and Rural Electric Cooperatives. Using that data, the historical generation in MWhs for Crossroads is shown below:

Table 2

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A large black rectangular redaction box covers the content of Table 2.

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Q. Why is this an issue for concern?

1 A. The modeled generation for units 1 and 2 is an approximately 45-50% increase  
2 over the highest annual generation level since 2015. However, this is not the only concern with  
3 EMW's modeled Crossroads generation.

4 Q. What other concerns does Staff have with EMW's modeled Crossroads  
5 generation?

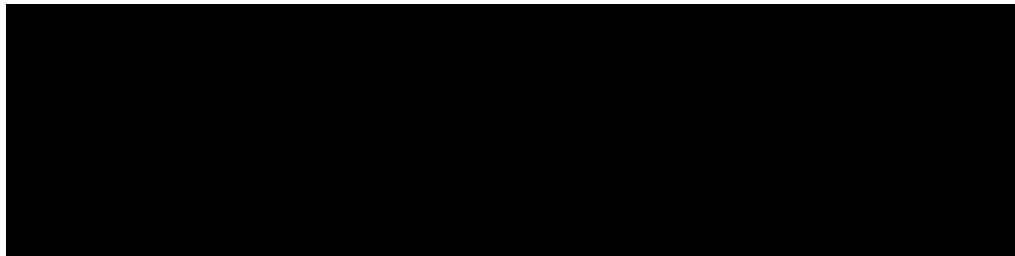
6 A. Not only does EMW anticipate Crossroads 1 & 2 running more than any  
7 Crossroads unit ever has, they expect it to be dispatched in a majority of the hours at a Location  
8 Marginal Price ("LMP")<sup>1</sup> point less than the cost.

9 Q Does the Crossroads modeling show that EMW receives a positive margin from  
10 the energy market over the normal year?

11 A. No. As shown below,<sup>2</sup> on an annual basis Crossroads is consistently dispatched  
12 at price points lower than the cost of operating:

13 Table 3

14 \*\*



15 \*\*

16 Q. What did EMW model for natural gas prices?

17 A. EMW used the following Henry Hub prices:<sup>3</sup>

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<sup>1</sup> Locational Marginal Price (LMP) is the **market-clearing price** for energy at a given Price Node equivalent to the marginal cost of serving demand at the Price Node, while meeting SPP Operating Reserve requirements.

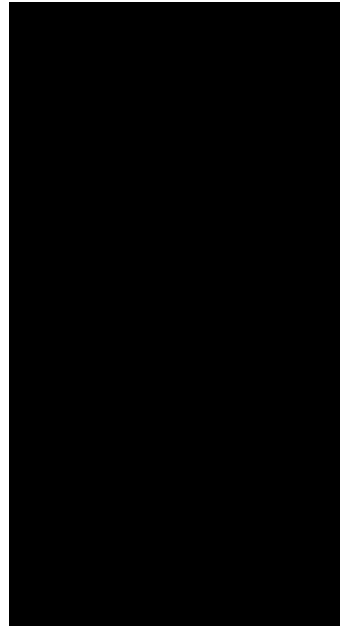
<https://www.spp.org/markets-operations/>

<sup>2</sup> Evergy Missouri West Response to Staff Data Request No. 0041.

<sup>3</sup> Evergy Missouri West Response to Staff Data Request No. 0041.

**Table 4**

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Q What is the Henry Hub?

A. Henry Hub is a natural gas pipeline located in Erath, Louisiana. It interconnects with nine interstate and four intrastate pipelines. Spot and future natural gas prices set at Henry Hub are denominated in US\$ per millions of British thermal units and are generally seen to be the primary price set for the North American natural gas market. North American unregulated wellhead prices are closely correlated to those set at Henry Hub.

Q. What were the Henry Hub prices for calendar year 2023?

A. Henry Hub prices for 2023<sup>4</sup> are shown below:

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<sup>4</sup> <https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>.

1

**Table 5**

<b>Date</b>	<b>Henry Hub Natural Gas Spot Price (\$/MMBTU)</b>
Jan-23	3.27
Feb-23	2.38
Mar-23	2.31
Apr-23	2.16
May-23	2.15
Jun-23	2.18
Jul-23	2.55
Aug-23	2.58
Sep-23	2.64
Oct-23	2.98
Nov-23	2.71
Dec-23	2.52

2

3 c Q. What do these fuel price tables show?

4 A. The EMW modeled Henry Hub price is, on average, \*\* [REDACTED] \*\* higher than for  
5 the actual Henry Hub price seen in 2023. The Southwest Power Pool (SPP) market clearing  
6 price for electricity in the summer and winter tend to be based on natural gas, so everything  
7 being equal, a higher natural gas price should equate to higher LMPs in those periods.

8 Q. How does the EMW modeling of dispatch correspond to actual 2023 dispatch of  
9 Crossroads as far as LMPs?

10 A. The average LMP price for the hours of dispatch for Crossroads in 2023 is  
11 approximately \*\* [REDACTED] \*\*. The modeled average LMP price for the hours of dispatch  
12 for Crossroads by EMW is approximately \*\* [REDACTED] \*\*. EMW modeled, for Crossroads  
13 unit 1 and unit 2, higher generation than what has historically occurred over the last five (5)  
14 years and used higher fuel prices than what occurred in 2023 with lower market LMPs than

1 2023 at an overall negative net margin. This results in \*\* [REDACTED] \*\* in additional costs  
2 associated with EMW's modeling of Crossroads.

3 Q. In the two highest years of generation for Crossroads, what was the average LMP  
4 prices in hours of dispatch?

5 A. As can be seen from Table 1 above, the years of highest generation for  
6 Crossroads was 2022 and 2023. For 2023, the average LMP in hours of Crossroads Generation  
7 was approximately \*\* [REDACTED] \*\*. In 2022, the average LMP in hours of Crossroads  
8 Generation was approximately \*\* [REDACTED] \*\*.

9 Q. Is Staff's model more consistent with actual SPP market pricing and dispatch of  
10 Crossroads than EMW's?

11 A. Yes. Staff uses actual historical data in determining market prices and fuel  
12 prices. Staff's fuel model dispatch of Crossroads is more consistent with historical SPP  
13 dispatch than EMW's dispatch of Crossroads.

14 Q. Does this conclude your rebuttal testimony?

15 A. Yes, it does.

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

In the Matter of Evergy Missouri West, Inc.     )  
d/b/a Evergy Missouri West's Request for     )           Case No. ER-2024-0189  
Authority to Implement A General Rate         )  
Increase for Electric Service                    )

**AFFIDAVIT OF SHAWN E. LANGE, PE**

STATE OF MISSOURI     )  
  )     ss.  
COUNTY OF COLE     )

COMES NOW SHAWN E. LANGE, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Shawn E. Lange, PE*; and that the same is true and correct according to his best knowledge and belief.

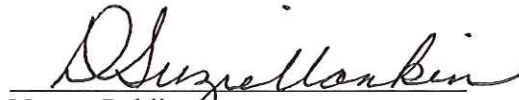
Further the Affiant sayeth not.

  
SHAWN E. LANGE, PE

**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 1<sup>st</sup> day of August 2024.

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



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

**PRESENT POSITION:**

I am a 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:**

<b>Case Number</b>	<b>Utility</b>	<b>Testimony</b>	<b>Issue</b>
ER-2005-0436	Aquila Inc.	Direct	Weather Normalization
		Rebuttal	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2006-0314	Kansas City Power & Light Company	Direct	Weather Normalization
		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 & Light Company	Staff Report	Weather Normalization
		Rebuttal	Weather Normalization
ER-2008-0093	Empire District Electric Company	Staff Report	Weather Normalization
ER-2008-0318	Union Electric Company d/b/a AmerenUE	Staff Report	Weather Normalization

*cont'd \ Case Participation of  
Shawn E. Lange, PE*

<b>Case Number</b>	<b>Utility</b>	<b>Testimony</b>	<b>Issue</b>
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
		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	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
		Staff Report	Weather Normalization
EC-2014-0223	Noranda Aluminum v. Ameren Missouri	Rebuttal	Weather Normalization

*cont'd \ Case Participation of  
Shawn E. Lange, PE*

<b>Case Number</b>	<b>Utility</b>	<b>Testimony</b>	<b>Issue</b>
EA-2014-0207	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	
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 Convenience/Feasibility Analysis
		Surrebuttal	
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
EA-2019-0010	Empire District Electric Company CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2019-0021	Ameren CCN	Staff Report	Certificates of Convenience/Feasibility Analysis

*cont'd \ Case Participation of  
Shawn E. Lange, PE*

<b>Case Number</b>	<b>Utility</b>	<b>Testimony</b>	<b>Issue</b>
EC-2020-0408	MLA v. Grain Belt Complaint	Staff Recommendation	Formal Complaint
EA-2021-0087	ATXI CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2021-0167	ATXI CCN	Staff Recommendation	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
EA-2022-0099	ATXI CCN	Direct	Certificates of Convenience/Feasibility Analysis
EA-2022-0244	Union Electric Company d/b/a Ameren Missouri	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2022-0245	Union Electric Company d/b/a Ameren Missouri	Rebuttal	Certificates of Convenience/Feasibility Analysis
EA-2022-0328	Evergy West	Rebuttal	Certificates of Convenience/Feasibility Analysis
ER-2022-0337	Union Electric Company d/b/a Ameren Missouri	Direct	Variable fuel Costs
		Rebuttal	Variable fuel Costs
		Surrebuttal/True-up Direct	Variable fuel Costs
		True-up Rebuttal	Variable fuel Costs

*cont'd \ Case Participation of  
Shawn E. Lange, PE*

<b>Case Number</b>	<b>Utility</b>	<b>Testimony</b>	<b>Issue</b>
EA-2023-0017	GrainBelt Express	Rebuttal	Certificates of Convenience/Feasibility Analysis
EA-2023-0226	Ameren Missouri	Staff Memo	Certificates of Convenience/Feasibility Analysis
ET-2023-0249	Ameren Missouri	Staff Memo	Cogeneration and Net Metering rate
EF-2024-0021	Ameren Missouri	Rebuttal	Financing Order Authorizing the Issue of Securitized Utility Tariff Bonds
EA-2024-0286	Ameren Missouri	Rebuttal	Certificates of Convenience/Feasibility Analysis