

Exhibit No.:
Issue(s): Variable Fuel Expense
Witness: Shawn E. Lange
Sponsoring Party: MoPSC Staff
Type of Exhibit: True-Up Rebuttal Testimony
Case No.: ER-2022-0337
Date Testimony Prepared: March 24, 2023

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENGINEERING ANALYSIS DEPARTMENT

TRUE-UP REBUTTAL TESTIMONY

OF

SHAWN E. LANGE, PE

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

CASE NO. ER-2022-0337

*Jefferson City, Missouri
March 2023*

**** Denotes Confidential Information ****

1 **TRUE-UP REBUTTAL TESTIMONY**

2 **OF**

3 **SHAWN E. LANGE, PE**

4 **UNION ELECTRIC COMPANY**

5 **d/b/a AMEREN MISSOURI**

6 **CASE NO. ER-2022-0337**

7 Q. Please state your name and business address.

8 A. My name is Shawn E. Lange, and my business address is Missouri Public Service
9 Commission, P.O. Box 360, Jefferson City, MO 65102.

10 Q. Are you the same Shawn E. Lange who filed direct, rebuttal, surrebuttal and true-up
11 direct testimony in this case?

12 A. Yes, I am.

13 **EXECUTIVE SUMMARY**

14 Q. Can you please summarize your true-up rebuttal testimony?

15 A. My true-up rebuttal testimony includes updated results to the variable fuel and
16 purchased power expense for Ameren Missouri as a result of errors to the planned outages for the
17 coal generation facilities, updates to the coal prices used in the production cost model, the amount
18 of virtual transactions Staff has calculated for inclusion in Staff's revenue requirement, and a
19 discussion of the Company's modeling of Rush Island.

20 **TRUE-UP REBUTTAL TESTIMONY**

21 Q. What is the purpose of your True-up rebuttal testimony?

22 A. The purpose of my true-up rebuttal testimony is to provide the variable
23 fuel and purchase power expense incorporating all known and measurable changes as of
24 December 31, 2022, as well as to discuss any revisions from my true-up direct testimony.

True-Up Rebuttal Testimony of
Shawn E. Lange

1 Q. How have you revised your production model for true-up rebuttal?

2 A. Staff determined there was an error regarding the planned outages for the coal
3 plants. When determining the level of normalized planned outages to include in its production
4 cost model, Staff looks at the most recent six year period. However, when the test years span
5 two calendar years, Staff will consider the most recent seven years and weigh the outages to obtain
6 six full years of normalized planned outages. This weighting did not update properly when Staff
7 switched to the true-up period from the update period due to a spreadsheet error.

8 Staff also determined the heat rate curve for the Audrain facility was entered incorrectly
9 and was shifted by one operating point. Staff has modeled the Audrain facility with multiple
10 operating points and heat rate pairs. The pairing is to say at a particular operating level, the unit
11 would have this heat rate.

12 Q. Did Staff make any other adjustments?

13 A. Yes, the coal prices used changed. Please see Staff witness Matt Young's true-up
14 rebuttal testimony for additional information regarding that change.

15 Q. What is the value of the variable fuel and purchase power expense?

16 A. The Staff calculates the variable fuel and purchased power expense for Ameren
17 Missouri for known and measureable changes through December 31, 2022, to be \$408,350,617.

18 Q. Did Staff make any other revisions or updates that impact the Net Base Energy
19 Costs ("NBEC")?

20 A. Yes, Staff determined a level of virtual transactions to be included in this case.
21 Please see Staff witness Amanda Conner's direct, rebuttal, and true-up direct testimony for
22 additional context on virtual transactions.

23 Q. What is the true up value of the virtual transactions?

24 A. The adjustments for virtual transactions are ** [REDACTED] **

True-Up Rebuttal Testimony of
Shawn E. Lange

1 Q. What is your recommendation?

2 A. I recommend that the Commission adopt Staff's updated variable fuel and purchase
3 power expense of \$408,350,617 and the virtual transactions adjustment of ** [REDACTED] **. **

4 Q. Has the Company provided a description of how they modeled the Rush Island
5 dispatching?

6 A. In his direct testimony, Company witness Mark Peters states on page 11 line 21
7 through page 12 line 10:

8 For those months where the expected operations indicate that the units
9 would be expected to operate, the unit maximums were adjusted to match a
10 reasonably expected operating profile. For January, February and
11 December, one unit was set to a maximum of 602 MW and the second unit
12 to 300. For the summer months of June, July, August and September, these
13 limits were set to 300 for both units. Attempting to model forced outage
14 rates on units whose output is already significantly restricted with both
15 maximum generation constraints, and limits to their economic maximums,
16 is likely to distort the expected output. As such, forced outage rates for these
17 units were set to zero. I believe that this method of modeling the Rush Island
18 units provides a reasonable representation of the net output, fuel cost and
19 associated off-system sales revenue for these units during the period for
20 which rates will be in effect. The results of our modeling also conform with
21 the operations described by witness Meyer. We will update the modeling as
22 part of the true-up to incorporate the operating parameters established by
23 the court.

24 Q. Did the Company follow the method discussed above for dispatching Rush Island
25 in its true-up direct filing?

26 A. No.

27 Q. How has the Company updated their modeling as part of true-up?

28 A. The Company's variable fuel witness Mr. Peters did not file true-up direct
29 testimony outlining what changes have been made for true-up. However, in the workpaper entitled
30 "TRUE UP - RI - 2022 RR- Staff Avg Lows - OpGuide MOD2-NON PUBLIC TRANSMISSION

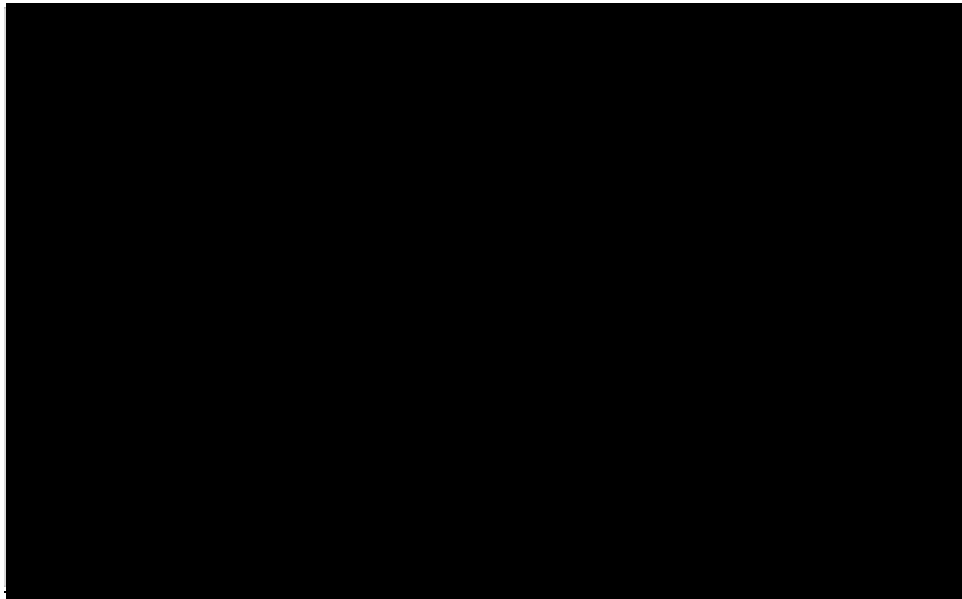
True-Up Rebuttal Testimony of
Shawn E. Lange

1 INFORMATION.xlsx,” the Company performs a Rush Island fuel analysis that contains a
2 dispatch methodology that is largely consistent with the method of dispatch that Staff employed
3 for Rush Island.

4 Q. Can you provide a graphical representation of the similarity in Ameren Missouri
5 and Staff’s results as it relates to Rush Island?

6 A. Yes. A graph of modeled output of Rush Island is shown below.

7 **



8

9 **

10 Q. The graphical representation shows there are differences in generation between
11 Staff and the Company. Are there differences in how Staff and the Company modeled Rush Island?

12 A. Yes. ** [Redacted]

13 [Redacted]

14 [Redacted] **

15 Q. Has Rush Island 1 or Rush Island 2 had outages or derates¹ since September, 2022
16 when it began operating as a System Support Resource?

¹ An example of a derate is when something on a generating unit fails and causes the unit to reduce operating level, not cease generating.

True-Up Rebuttal Testimony of
Shawn E. Lange

1 A. Yes, Rush Island 1 has had ** [REDACTED] ** of derates and ** [REDACTED] ** of
2 unplanned outages. Rush Island 2 has had ** [REDACTED] ** of derates and ** [REDACTED] ** of
3 unplanned outages.

4 Q. Is Ameren Missouri's assumption reasonable?

5 A. ** [REDACTED]
6 [REDACTED] **

7 Q. Does this conclude your true-up rebuttal testimony?

8 A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company)
d/b/a Ameren Missouri's Tariffs to Adjust)
Its Revenues for Electric Service) Case No. ER-2022-0337

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 *True-Up Rebuttal Testimony of Shawn E. Lange, PE*; and that the same is true and correct according to his best knowledge and belief.

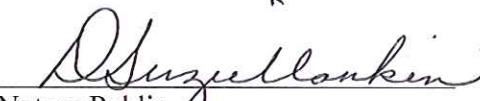
Further the Affiant sayeth not.


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 22nd day of March 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