

Exhibit No.:
Issue(s): *In-service criteria,
Project Concerns*
Witness: *Shawn E. Lange*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Rebuttal Testimony*
Case No.: *EA-2022-0328*
Date Testimony Prepared: *January 17, 2023*

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. EA-2022-0328

*Jefferson City, Missouri
January 2023*

**** Denotes Confidential Information ****

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1 **REBUTTAL TESTIMONY**

2 **OF**

3 **SHAWN E. LANGE, PE**

4 **EVERGY MISSOURI WEST, INC.,**
5 **d/b/a Evergy Missouri West**

6 **CASE NO. EA-2022-0328**

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. What is your present position with the Missouri Public Service Commission
11 (“Commission”)?

12 A. I am a Senior Professional Engineer in the Engineering Analysis Department,
13 Industry Analysis Division.

14 Q. Would you please review your educational background and work experience?

15 A. A list of the cases in which I have filed testimony and my credentials can be
16 found in Schedule SEL-r1.

17 **EXECUTIVE SUMMARY**

18 Q. What is the purpose of your testimony?

19 A. The purpose of my testimony is to address Staff’s concerns with In-service
20 Criteria and Environmental aspects associated with the Persimmon Creek acquisition.

21 **IN-SERVICE CRITERIA**

22 Q. What are in-service criteria?

1 A. In-service criteria are a set of operational tests or operational requirements
2 developed by the Staff to determine whether a new unit is “fully operational and used for
3 service.”

4 Q. Where does the phrase “fully operational and used for service” come from?

5 A. The phrase comes from Section 393.135, RSMo. 2000, a statute that was adopted
6 by Initiative, Proposition No. 1, on November 2, 1976. Section 393.135, RSMo. 2000, provides
7 as follows:

8 Any charge made or demanded by an electrical corporation for service, or
9 in connection therewith, which is based on the costs of construction in
10 progress upon any existing or new facility of the electrical corporation, or
11 any other cost associated with owning, operating, maintaining, or
12 financing any property before it is **fully operational and used for service**,
13 is unjust and unreasonable, and is prohibited. (Emphasis added.)

14 Q. Has Evergy Missouri West, Inc., d/b/a Evergy Missouri West (“EMW” or
15 “Company”) provided their perspective of applicable in-service criteria?

16 A. Staff requested EMW to provide its proposed in-service criteria for this project
17 in Data Request (DR) No. 0007. EMW’s response was:

18 From a technical and engineering criteria the site is already in-service
19 and producing electric energy in the SPP. The site was commissioned in
20 2018 and has been operating in bulk-electric power service since with
21 historical capacity factors 50%+. We would propose that the site is
22 already in technical in-service and this is an operating CCN for an
23 operating asset.

24 As an existing asset Missouri West would propose to In-Service the asset
25 as soon as is practicable after the transaction closes and the units of
26 property are properly setup on Missouri West’s books and records.
27

28 In response, Staff issued DR No. 0007.1 to EMW asking for information that
29 corresponds to in-service criteria that were agreed to and were used to determine in-service of

1 the most recent Ameren Missouri wind farm. EMW has objected to that DR but provided
2 responsive information.¹

3 Q. Has Staff used in-service criteria to determine “fully operational and used for
4 service” for existing, operating facilities?

5 A. Yes. Staff has used in-service criteria on acquisition of existing, operating
6 generation facilities several times. For example, in ER-2007-0002, Staff used in-service criteria
7 on many existing, operating CTGs that Ameren Missouri purchased from another party.
8 Further, Staff evaluated in-service criteria for Aquila’s acquisition of Crossroads in
9 ER-2010-0356. The West Gardner units of Evergy Metro had construction completed in
10 April 2003² and Staff evaluated in-service criteria in ER-2006-0314. The Osawatomie unit 1
11 of Evergy Metro had construction completed in June 2003³ and Staff evaluated in-service
12 criteria in ER-2006-0314.

13 Q. If the Commission grants a Certificate of Convenience and Necessity (“CCN”),
14 does Staff have a recommendation for the Commission with regard to in-service criteria?

15 A. Yes. For any CCN granted in this case, Staff recommends that the Commission
16 order that the in-service criteria contained in attached Schedule SEL-r2 are appropriate for use
17 in a future case to determine whether the Persimmon Creek project is in-service. Staff prefers
18 to have in-service criteria that the parties can agree to prior to the case(s) in which the plant is
19 put into rate base, it is unclear whether that will happen in this case.

¹ EMW response to Staff DR No. 0007.1.

² ER-2006-0314 Direct Testimony of Michael E. Taylor Schedules 2-5.

³ ER-2006-0314 Direct Testimony of Michael E. Taylor Schedule 6.

1 **ENVIRONMENTAL CONCERNS**

2 Q. Does Staff have additional concerns with the project?

3 A. Yes, Staff has some environmental concerns pertaining to the location of the
4 project.

5 Q. What Environmental concerns does Staff have?

6 A. ** [REDACTED]
7 [REDACTED]
8 [REDACTED]

9 [REDACTED]
10 [REDACTED] 4**

11 Q. Why is this language concerning?

12 A. This language is concerning partly because of additional language that provides
13 additional context in the report/memo. The report/memo states:

14 ** [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]

21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]
26 [REDACTED]
27 [REDACTED]

⁴ Every Response to Staff DR No. 0007.1 Summary of Persimmon Creek Wind Farm 1 Technical Diligence Section 3.1.2.

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[REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED] ^{5**}
13 (Emphasis added.)

14 Q. Has Staff seen similar issues on other projects?

15 A. Yes. ** [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED] **

19 Q. Should the Commission grant a CCN, does the Staff have a recommendation for
20 the Commission with regard to environmental concerns?

21 A. ** [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]
26 [REDACTED]

⁵ Confidential Energy Response to Staff DR No. 0007.1 Summary of Persimmon Creek Wind Farm 1 Technical Diligence Section 4.4.1

Rebuttal Testimony of
Shawn E. Lange, PE

1

[REDACTED]

2

[REDACTED]

3

[REDACTED] **

4

Q. Does this conclude your rebuttal testimony?

5

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Evergy)
Missouri West, Inc. d/b/a Evergy Missouri West)
for Permission and Approval of a Certificate of)
Public Convenience and Necessity Authorizing)
It to Purchase, Own, Operate, Maintain and)
Otherwise Control and Manage an Existing)
Wind Generation Facility in Oklahoma)

Case No. EA-2022-0328

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
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 11th day of January 2023.

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

D. Suzie Mankin
Notary Public

CREREDENTIALS 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 & 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*

| Case Number | Utility | Testimony | Issue |
|--------------------|-----------------------------------------------|------------------|------------------------------------------------------------------|
| 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 |
| EA-2014-0207 | Grain Belt Express CCN | Rebuttal | Certificates of Convenience/Feasibility Analysis |
| | | Surrebuttal | |

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

| Case Number | Utility | Testimony | Issue |
|--------------------|-----------------------------------------------|----------------------|--------------------------------------------------|
| 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-2019-0021 | 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 |

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

| Case Number | Utility | Testimony | Issue |
|--------------------|-------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------|
| 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 |
| EA-2022-0099 | ATXI CCN | Staff Direct Testimony | 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 | Staff Rebuttal Testimony | Certificates of Convenience/Feasibility Analysis |
| ER-2022-0337 | Union Electric Company, d/b/a Ameren Missouri | Staff Direct Testimony | Variable Fuel Costs |

Wind Turbine In-Service Criteria

1. For each wind turbine to be considered for inclusion in rate base, the criteria in part 2, 3, 4, 5, and 6 shall be met.

2. Mechanical completion has been achieved, meaning:

a. The turbine and its support tower are assembled, erected, and installed in accordance with the turbine supplier's technical specifications and quality assurance procedures;

b. Utility has installed, or caused to be installed, all necessary communication facilities needed to achieve SCADA functionality; and

c. The Mechanical Completion Checklist has been satisfied and the turbine is ready to commence commissioning.

3. The turbine has been commissioned and a Commissioning Completion Certificate has been completed.

4. An operational test of the turbine as outlined in this part 4 has been successfully completed on at least ten percent of the total number of turbines in a Wind Farm for which a Commissioning Completion Certificate has been issued for each such turbine. The operational test shall be completed using the plant SCADA and turbine-mounted sensing and monitoring equipment. Each tested turbine shall have sustained for two consecutive hours a power output of at least 90% of the turbine supplier's guaranteed output as determined by wind speed observed at or above the Predicted Mean Turbine Hub-height Wind Speed and the Air Density, subject to the following:

a. Failure of any turbine to achieve the operational test provided for by this part 4 shall mean that the turbine shall be repaired, if needed, and retested. In addition, the test population size shall be increased from ten percent to twenty percent and each of the tested turbines shall comply with this part 4.

5. Sufficient Interconnection Facilities exist to carry the Wind Farm energy output at the nameplate capacity from the completed turbines into the distribution/transmission system at the point of interconnection, the turbines have been synchronized to the grid, and conditional energy resource interconnection service (ERIS) is available on the transmission system.

6. Review of operating Data. The Company will provide Operating Data for each commissioned turbine and its review of such data.

7. Definitions:

a. "Air Density" shall mean the average air density at average hub elevation as determined by the wind resource assessment report or by field measurement equipment.

- b. "Commissioning Completion Certificate" has the meaning given it in the Turbine Supply Agreement.
- c. "ERIS" means conditional Energy Resource Interconnection Service as defined in Attachment Attachment V, Section 1, of the Southwest Power Pool's Open Access Transmission Tariff.
- d. "Interconnection Facilities" shall mean those facilities that interconnect the Wind Farm generator step-up transformer high voltage terminals to the point of interconnection to the grid.
- e. "Mechanical Completion Checklist" has the meaning given it in the Turbine Supply Agreement.
- f. "Operating Data" shall mean the quantity of electricity produced by each Turbine, the average wind speed at each Turbine, and the output voltage at each Turbine, in each case on an hourly interval.
- g. "Predicted Mean Turbine Hub-height Wind Speed" shall mean the mean wind speed at the turbine's hub height as predicted in the pre-construction wind resource assessment.
- h. "Wind Farm" shall mean a collection of completed wind turbine generators aggregated into one point of interconnection to the grid.