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And Necessity
Witness: Shawn E. Lange
Sponsoring Party: MO PSC Staff
Type of Exhibit: Surrebuttal Testimony
Case No.: EA-2015-0146
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MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

SURREBUTTAL TESTIMONY

OF

SHAWN E. LANGE

AMEREN TRANSMISSION COMPANY OF ILLINOIS

CASE NO. EA-2015-0146

*Jefferson City, Missouri
November 2015*

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CASE NO. EA-2015-0146

13 Q. Please state your name and business address.

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

16 Q. Are you the same Shawn E. Lange that filed rebuttal testimony in this
17 proceeding?

18 A. Yes, I am.

19 **Overview**

20 Q. What is the purpose of your surrebuttal testimony?

21 A. I will discuss the topic of electric fences that was brought up in local public
22 hearings and address points that were brought up by Neighbors United witnesses Dr. Dennis
23 Smith and Mr. William E. Powers.

24 **Electric Fence Chargers**

25 Q. Does Staff agree with Mr. Tandy Hawkins' statement at the Shelbyville Local
26 Public Hearing:

27 "...that electric fences can carry charges even without being plugged into a
28 charger. My electric fence representatives, who I buy chargers from, tell me
29 that I will have trouble with my chargers blowing out"¹?
30

¹ Shelbyville Local Public Hearing Transcript pg. 41, lines 12-15

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1 A. It is possible, that due to the placement of the proposed Mark Twain project
2 and any fence, induced voltage and/or induced current may occur on the fence thus creating
3 potential issues for the owner. “Any insulated conductive object may deliver a shock that is
4 relative to the size of the conductive object (e.g. the length it runs along a transmission
5 line)”.² Depending on the configuration of the fence and the route of the proposed Mark
6 Twain Project, it is also possible to use low impedance chargers, filters, and/or additional
7 grounding to mitigate this effect³.

8 Any modification equipment that may be needed to address the possible problems
9 with the electric fences would be dealt with during the negotiation process with ATXI. The
10 negotiation process occurs after a Certificate of Convenience and Necessity is granted by the
11 Commission. During the negotiation process the affected landowners would be able to
12 present evidence of the problems ATXI’s transmission line poses to their electric fences and
13 this evidence would be taken into consideration when compensation is awarded during the
14 easement proceedings.

15 Additionally, Staff witness Daniel I. Beck discusses compensation issues in the
16 excerpted testimony below⁴:

- 17 1. Every landowner from whom ATXI requires an easement will be
18 contacted personally, and ATXI will negotiate with each such landowner in
19 good faith on the terms and conditions of the easement, its location, and
20 compensation therefor. They will be shown a specific, surveyed location for
21 the easement and be given specific easement terms.
22 2. After construction is completed, every landowner will be contacted
23 personally to ensure construction and clean-up was done properly, to discuss
24 any concerns, and to settle any damages that may have occurred.
25

² Induced Voltage and Current Report submitted by Golder Associates Inc. February 2013 pg. 12

³ Electrostatic and Electromagnetic Effects of Overhead Transmission Lines, Rural Electrification Administration; REA Bulletin 62-4; May 1976

⁴ Daniel I. Beck Rebuttal Schedule DB-R-2-3 Conditions 1 and 2

1 **Dr. Smith Rebuttal**

2 Q. Does Staff agree with Dr. Smith that “there are recent peer reviewed studies
3 that support prior studies showing adverse health effects”⁵?

4 A. Yes. Studies, including but not limited to the following, show correlation
5 between Non-Ionizing electromagnetic fields (“EMF”) and health effects:

- 6 • Wertheimer, N. and Leeper, E. Electrical wiring configurations and childhood cancer.
7 Am J Epidemiology. 1979;109(3):273-284
- 8 • Childhood leukemia close to high-voltage power lines – the Geocap study, 2002–
9 2007. British Journal of Cancer (2013), 1–8 | doi: 10.1038/bjc.2013.128
- 10 • Bioinitiative 2012, A Rationale for Biologically based Exposure Standards for Low-
11 Intensity Electromagnetic Radiation
- 12 • Electromagnetic fields act via activation of voltage-gated calcium channels to produce
13 beneficial or adverse effects. J. Cell. Mol. Med. Vol XX, No X, 2013 pp. 1-9.

14 Q. Have any studies been performed that indicate that the correlation between
15 Non-Ionizing and negative health effects is tenuous at best?

16 A. Yes. Studies, including but not limited to the following, indicate that the
17 correlation between Non-Ionizing EMF and negative long-term health effects is tenuous at
18 best:

- 19 • International Agency for Research on Cancer, IARC Monographs on the Evaluation
20 of Carcinogenic Risks to Humans, Vol. 80: Static and Extremely Low-Frequency
21 (ELF) Electric and Magnetic Fields (Lyon, France, IARC Press, 2002).
- 22 • National Radiological Protection Board (NRPB), Advice on Limiting Exposure to
23 Electromagnetic Fields (0-300 GHz), Vol. 15, No. 2 (Didcot, UK, 2004).
- 24 • International Committee on Electromagnetic Safety, IEEE Standard for Safety Levels
25 with Respect to Human Exposure to Electromagnetic Fields 0 to 3 kHz C95.6-2002
26 (Piscataway, NJ, IEEE, 2002) (Reaffirmed 2007).

27 Q. Does Staff agree with Neighbors United witness Dr. Smith’s statement:

28 “There is enough evidence linking EMF exposure from High Voltage
29 Overhead Lines (HVOL) to childhood leukemia and other health
30 problems such as breast cancer to cause the International Agency for
31 Research on Cancer (IARC) to list EMF as a Group 2B carcinogen
32 risk”⁶?

⁵ Dr. Smith Rebuttal Pg. 3 lines 16-17

⁶ Dr. Smith Rebuttal Pg. 4 lines 24-27

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1
2 A. Yes, the IARC has classified radiofrequency electromagnetic field as a Group
3 2B carcinogen.⁷

4 Q. What is a Group 2B carcinogen?

5 A. A Group 2B carcinogen is a type of agent that has less than limited data
6 showing carcinogenic effects in humans and less than sufficient data showing carcinogenic
7 effects in animals.⁸

8 Q. Does Staff agree with Dr. Smith's statement "the [World Health Organization]
9 [(WHO)] comments in some of its literature that even if risk is proven, it is minimal"⁹?

10 A. Yes. The WHO stated "[d]espite many studies, the evidence for any effect
11 remains highly controversial. However, it is clear that if electromagnetic fields do have an
12 effect on cancer, then any increase in risk will be extremely small. The results to date contain
13 many inconsistencies, but no large increases in risk have been found for any cancer in
14 children or adults."¹⁰

15 **Powers Rebuttal**

16 Q. What points will you discuss with regard to Mr. Powers' rebuttal?

17 A. I will focus my surrebuttal on two points Mr. Powers made in his rebuttal.
18 First, Mr. Powers' testimony below:

19 "Q. Is it true that Ameren Mo opted not to pursue a 300 MW wind
20 project in the Adair Wind Zone, despite the fact that the project output
21 would be fully deliverable via the existing 161 kV transmission system
22 at no cost to Ameren Mo customers?

23 A. Yes"¹¹

⁷ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf pg. 1 accessed 11/3/2015

⁸ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf pg. 5 accessed 11/3/2015

⁹ Dr. Smith Rebuttal Pg. 7, lines 5-6

¹⁰ <http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html>

¹¹ Powers Rebuttal Pg. 13, lines 3-6

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1 Finally, I will discuss Mr. Powers' assumptions used to determine load shedding via air
2 conditioner cycling programs was able to reduce the peak of the Adair substation by
3 approximately half.¹²

4 Q. Does Staff agree with Mr. Powers that "Ameren Mo opted not to pursue a 300
5 MW wind project in the Adair Wind Zone, despite the fact that the project output would be
6 fully deliverable via the existing 161 kV transmission system at no cost to Ameren Mo
7 customers"¹³?

8 A. No. While Mr. Powers' scenario would not have the ratepayers of Ameren
9 Missouri ("AMMO") directly paying for the interconnection upgrade costs, those costs would
10 generally be reflected in the Purchase Power Agreement ("PPA") prices and would be paid
11 for by AMMO ratepayers.

12 Obtaining Energy Resource Interconnection Service with Mid-continent Independent
13 System Operator ("MISO") requires the generator to pay for upgrade costs for constraints that
14 are injection related. Many renewables, like the proposed wind farm in the Adair wind zone,
15 are independent power producers ("IPP") and IPPs generally recover their generation costs
16 through pricing mechanisms in the PPA contract. As such, if AMMO were to be a buyer,
17 AMMO's customers would be paying at least some generation costs. Even though it may not
18 be dollar for dollar, generally speaking, an increase in the cost the wind developer will face to
19 start generating will be taken into account when determining the price point of the PPA for
20 the energy and/or renewable energy credit(s).

21 Q. Does Staff have other issues with Mr. Powers' testimony?

¹² Powers Rebuttal Pg. 29, line 7 through Pg. 31, line 20

¹³ Powers Rebuttal Pg. 13, lines 3-6

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1 A. Yes, in particular Mr. Powers' assumptions used to determine demand
2 response programs costs of approximately \$2.6 million dollars to reduce the peak load on the
3 Adair Substation by half.¹⁴

4 Q. What is Staff's issue with Mr. Powers' assumption that peak load on the Adair
5 Substation can be reduced by half?

6 A. Staff questions the reasonableness of Mr. Powers' assumption that peak load
7 on the Adair Substation can be reduced by half. To reduce the peak load on the Adair
8 Substation by half, most or all AMMO customers served by the Adair Substation would have
9 to participate in an air conditioner cycling program. An air conditioner cycling program, like
10 the one Mr. Powers refers to, typically falls under Missouri Energy Efficiency and Investment
11 Act ("MEEIA"). However, AMMO customer participation in MEEIA is uncertain because as
12 of November 21, 2015, AMMO's proposed cycle 2 MEEIA portfolio of programs has been
13 rejected by the Commission.¹⁵

14 Q. Does this conclude your surrebuttal testimony?

15 A. Yes.

¹⁴ Powers Rebuttal Pg. 29 line 7 through Pg. 31 line 20

¹⁵ EO-2015-0055 Report and Order Pg. 19