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Issues: *Integrated Resource
Planning*
Witness: *Krishna L. Poudel*
Sponsoring Party: *MO PSC Staff*
Type of Exhibit: *Rebuttal Testimony*
Case Nos.: *EA-2023-0017*
Date Testimony Prepared: *April 19, 2023*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

ENERGY RESOURCES DEPARTMENT

REBUTTAL TESTIMONY

OF

KRISHNA L. POUDEL, PhD

GRAIN BELT EXPRESS, LLC

CASE NO. EA-2023-0017

Jefferson City, Missouri
April 2023

1 **REBUTTAL TESTIMONY**

2 **OF**

3 **KRISHNA L. POUDEL, PhD**

4 **GRAIN BELT EXPRESS, LLC**

5 **CASE NO. EA-2023-0017**

6 Q. Please state your name and business address.

7 A. My name is Krishna L. Poudel, 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 an Economist for the Energy Resources Department.

12 Q. What is your educational background and work experience?

13 A. Please refer to the attached Schedule KLP-r1.

14 Q. Have you previously filed testimony before this Commission?

15 A. Yes. Please refer to the attached Schedule KLP-r2 for a list of cases in which I
16 have previously filed testimony.

17 Q. What is the purpose of your rebuttal testimony?

18 A. My testimony will briefly discuss the Grain Belt Express LLC (“Grain Belt”)
19 transmission line project (“Project”) and its relation to the Evergy Missouri West, Inc.,
20 d/b/a Evergy Missouri West (“EMW”), Evergy Metro, Inc., d/b/a Evergy Missouri Metro
21 (“EMM”) (EMM and EMW collectively “Evergy Missouri”), and Union Electric Company
22 d/b/a Ameren Missouri’s (“Ameren Missouri”) most recent Integrated Resource Plan (“IRP”)
23 filings and its decarbonization goals.

1 **AMEREN MISSOURI AND EVERGY MISSOURI IRPS**

2 Q. Does Grain Belt reference the Ameren Missouri and Evergy Missouri IRPs in
3 its filing?

4 A. Yes. Grain Belt references the most recently filed Ameren Missouri and Evergy
5 Missouri IRPs and certain goals set forth within and how the Grain Belt Project could help meet
6 certain of those goals.¹

7 Q. How does Grain Belt attempt to demonstrate how the Grain Belt Project could
8 help meet certain IRP goals of Ameren Missouri?

9 A. Grain Belt cites Ameren Missouri's IRP references to increased demand for
10 renewables and reduced carbon emission goals. Grain Belt points to Ameren Missouri's current
11 Preferred Resource Plan² where Ameren Missouri represents an acceleration in the
12 retirement of approximately 3,000 MW of coal-fired generation by the end of 2030,
13 acceleration in the retirement of approximately 1,000 MW of gas-fired generation,³ and an
14 addition of total renewable generation of 3,500 MW by 2030, among other items. It is further
15 stated that these accelerated transitions and retirements will permit Ameren Missouri to achieve
16 greater reductions in carbon emissions by 2030, in furtherance of its stated goal of
17 net zero carbon emissions.

18 Q. Did Ameren Missouri state in its most recent IRP filings and preferred resource
19 plans that the Grain Belt Project was needed in order to achieve any of the goals of the preferred
20 resource plan?

¹ Direct Testimony of Shashank Sane, page 13.

² *Notice of Change in Preferred Resource Plan* filed on June 22, 2022, in Case No. EO-2022-0362.

³ Acceleration of the retirement of Rush Island Energy Center from 2039 to 2025 (coal fired); retirement of Venice Energy Center (gas) by the end of 2029.

1 A. No. Ameren Missouri did not mention Grain Belt or the need for the Grain Belt
2 Project to achieve any of its stated IRP goals.

3 Q. How does Grain Belt attempt to demonstrate how the Grain Belt Project could
4 help meet certain IRP goals of Evergy Missouri?

5 A. Mr. Shashank Sane, in his direct testimony,⁴ cited the information from
6 Evergy Missouri's IRP to further justify the Grain Belt Project.⁵ Evergy Missouri's most recent
7 IRP announced its new carbon reduction timeline. Evergy Missouri has set a goal to reduce
8 carbon emissions 70% by 2030 (relative to 2005 levels) and achieve net-zero carbon emissions
9 by 2045. Evergy Missouri plans to retire nearly 1,200 MW of coal-based fossil generation and
10 add 3,200 MW of renewable generation in the next 10 years. Within the next three years,
11 Evergy Missouri plans to retire its Lawrence (KS) Energy Center and add 700 MW of solar
12 energy. Grain Belt has further derived that those circumstances support its conclusion that
13 adding capacity to the Grain Belt Project will help Evergy Missouri achieve its goals.
14 Mr. Michael L. Stahlman and Mr. Cedric E. Cunigan, PE explain more on this issue in their
15 witness testimony.

16 Q. Did Evergy Missouri state in its most recent IRP filings and preferred resource
17 plans that the Grain Belt Project was needed in order to achieve any of the goals of the preferred
18 resource plan?

19 A. No. Evergy Missouri did not mention Grain Belt or the need for the Grain Belt
20 Project to achieve any of its stated IRP goals.

⁴ *Direct Testimony of Shashank Sane*, page 14

⁵ Case Nos. EO-2021-0035 and EO-2021-0036.

1 **ENVIRONMENTAL ASPECTS**

2 Q. What does Grain Belt claim as its emissions reduction projection for the
3 Grain Belt Project?

4 A. Mr. Mark Repsher, a member of PA’s Management Group for PA Consulting
5 Group, Inc. (“PA Consulting”) states in his direct testimony:

6 The Project is projected to reduce emissions of CO₂, SO₂, and NO_x in
7 Missouri by 9.3%, 19.2%, and 17.2%, respectively, enhancing local
8 utilities’ abilities to meet their climate and reliability goals while also
9 delivering immediate local air quality and health benefits. Quantifying
10 these emission reduction benefits to the State, the Expanded GBX Case
11 Configuration could offer Missouri over \$7.6 billion in social benefits
12 from 2027-66, in addition to the over \$17.6 billion in direct ratepayer
13 savings in the energy and capacity costs over this same period—bringing
14 the total cumulative benefit to over \$25.3 billion by 2066.⁶

15 Q. Is this emission reduction projection beneficial to the state of Missouri?

16 A. It is likely to be beneficial to the state of Missouri. It depends on the economic
17 welfare distribution plan such as utilization of carbon pricing amongst the stakeholders.

18 Q. What assumptions did Mr. Repsher use in regards to carbon pricing?

19 A. Mr. Repsher states:

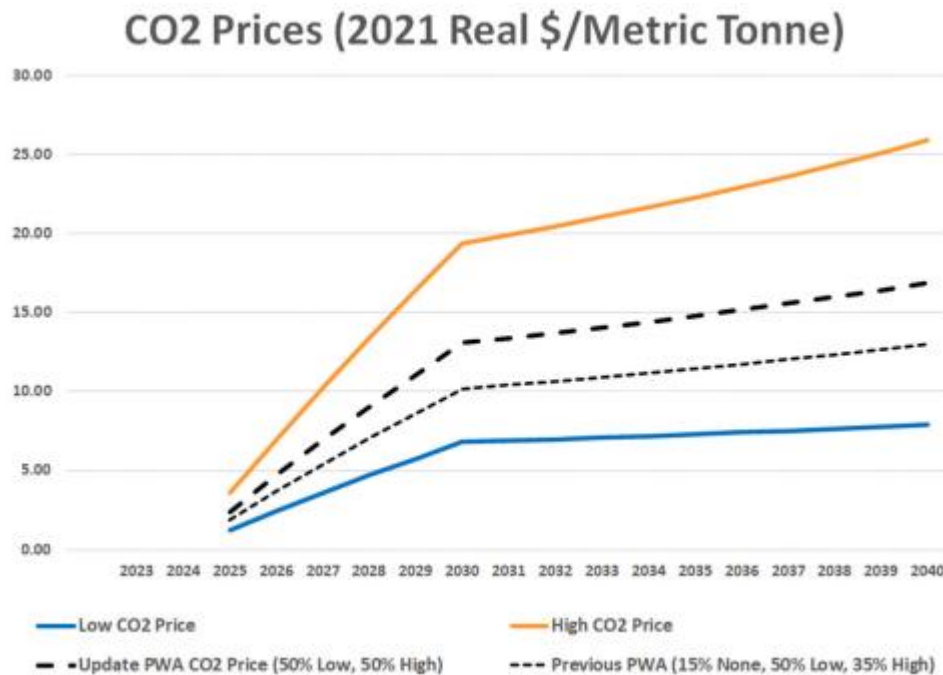
20 For the purposes of the analysis, PA assumed that a national carbon
21 pricing regime would be implemented in 2026. The carbon price is set at
22 \$24.55/short ton in 2026 (nominal dollars) and increases at 2.2% per
23 year, tracking inflation throughout the study period. These assumptions
24 are broadly representative of values commonly utilized in utility resource
25 planning and regulatory processes in the region. The use of an alternative
26 carbon price assumption (either higher or lower) will still result in
27 directionally consistent outcomes (i.e., ratepayer savings), albeit with
28 differences in specific benefits values. The assumption of a carbon
29 pricing regime is a relatively common practice in utility (e.g., Ameren in
30 their IRP) and ISO (e.g., MISO in their LRTP) planning processes.
31 Carbon pricing can be reflected as a broad ‘shadow cost’ within
32 fundamental market models to analyze varying regulatory outcomes, and

⁶ Direct Testimony of Mark Repsher, page 6.

1 the use as a modeling variable is not necessarily tied to/dependent on a
2 single legislative outcome at the federal or state level.⁷

3 Q. What did Ameren Missouri use as its carbon price assumption in its most recent
4 IRP preferred resource plan?

5 A. Ameren Missouri's projection in its high carbon price scenario is below \$10 per
6 metric ton in the year 2026 while PA Consulting's carbon price estimate is \$24.55/short ton.⁸
7 Ameren Missouri does not project a value of approximately \$24.55 until the year 2038. This is
8 illustrated in the below figure:



11 Q. Why is the clarification between the use of PA Consulting and Ameren
12 Missouri's carbon pricing assumptions important in regards to the Grain Belt Project?

⁷ Direct Testimony of Mark Repsher, page 7.

⁸ 1 metric ton = 1.10231 short ton

Rebuttal Testimony of
Krishna L. Poudel

1 A. An overestimate of a carbon price can misrepresent the benefits of a project such
2 as this when compared to its costs.

3 Q. Are you making any recommendations in this testimony?

4 A. My testimony is primarily intended to provide the Commission with additional
5 information to consider in making its decision in this case. However, I recommend Grain Belt
6 and/or PA Consulting provide an updated cost-benefit analysis in surrebuttal that uses
7 Ameren Missouri's assumed carbon prices from its most recent preferred resource plan filed
8 in Case No. EO-2022-0362. This will help in demonstrating the impacts of its analysis
9 using what a Missouri investor-owned utility (Ameren Missouri) currently uses as carbon
10 pricing assumptions.

11 Q. Does this conclude your rebuttal testimony?

12 A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

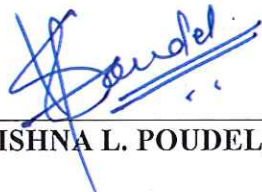
In the Matter of the Application of Grain Belt)
Express LLC for an Amendment to its) Case No. EA-2023-0017
Certificate of Convenience and Necessity)
Authorizing it to Construct, Own, Operate,)
Control, Manage, and Maintain a High Voltage,)
Direct Current Transmission Line and)
Associated Converter Station)

AFFIDAVIT OF KRISHNA L. POUDEL, PhD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW KRISHNA L. POUDEL, PhD and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Krishna L. Poudel, PhD*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.



KRISHNA L. POUDEL, PhD

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 17th day of April 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

Krishna L. Poudel, PhD

Education and Employment Background

I am an Economist of the Energy Resources Department, Industry Analysis Division of the Missouri Public Service Commission. Prior to my current position, I was employed at the Missouri Department of Natural Resources as an Economist from September 2016 through May 2019.

I received Bachelor of Science degree in Agricultural Economics in June 1998, Master of Science in Agricultural Economics in May 2003 from Tribhuvan University, Nepal and Doctoral degree in Applied Economics from University of Missouri, Columbia in 2017.

Prior to joining the Missouri Department of Natural Resources and Public Service Commission, I worked in various research positions in different countries including Nepal, SriLanka, Japan, Canada and USA. I worked for University of Missouri-Columbia as a Research Associate in Community Policy Analysis Center from August 2011 through December 2016.

I joined Commission on May, 2019.

Krishna L. Poudel, PhD

Case Participation History

<u>Case Number</u>	<u>Company</u>	<u>Issue</u>	<u>Exhibit</u>
EO-2021-0021	Union Electric Company	IRP Update	Staff Report
ER-2019-0374	The Empire District Electric Company	LED street lighting	Rebuttal Testimony
EO-2020-0280	Evergy Metro	IRP Update	Staff Report
EO-2020-0281	Evergy Missouri West	IRP Update	Staff Report
ER-2020-0311	The Empire District Electric Company	Fuel Adjustment Clause	Staff report
EO-2020-0227	Evergy Metro and Evergy Missouri West	MEEIA Prudence Review	Staff Report
EO-2021-0021	Union Elecetric Company	Triennial compliance filing	Staff Report
EO-2021-0035	Evergy Metro	Triennial compliance filing	Staff report
EO-2021-0036	Evergy Missouri West	Triennial compliance filing	Staff Report
EO-2021-0416	Evergy Missouri West	MEEIA prudence review	Staff Report
EO-2021-0417	Evergy Metro	MEEIA prudence review	Staff Report
YH-2022-0218	Vicinity Energy	Hedging	Staff Report
HT-2022-0212	Vicinity Energy	Hedging and Production Adjustment Cost Clause	Staff Report

continued K L. Poudel Case Participation

<u>Case Number</u>	<u>Company</u>	<u>Issue</u>	<u>Exhibit</u>
ER-2022-0129	Evergy MO Metro	Hedging	Rebuttal Testimony
ER-2022-0130	Evergy MO West	Hedging	Rebuttal Testimony
EO-2021-0331	The Empire District Electric Company	Triennial compliance filing	Staff Report
EA-2022-0234	NextEra Energy Transmission Southwest	Economic Impact	Staff Report
EA- 2022-0244	Huck Finn	Economic Impact	Staff Report
EA- 2022-0244	Huck Finn	IRP New Preferred plan	Staff Report
EO-2023-0087	The Empire District Electric Company	Hedging (Fuel risk management policy)	Staff Report
ER-2023-0184	Evergy MO West	DSIM	Staff report
ER-2023-0178	Union Electric Company	Rider Energy Efficiency Investment Charge	Staff Report