

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

In the Matter of the Application of Grain )  
Belt Express, LLC for a Siting Permit for the )  
Construction of Two 345 kV Transmission ) Docket No. 24-GBEE-790-STG  
Lines and Associated Facilities through )  
Gray, Meade, and Ford Counties, Kansas. )

**REBUTTAL TESTIMONY OF**

**DAVID GELDER**

**ON BEHALF OF**

**GRAIN BELT EXPRESS LLC**

**July 26, 2024**

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1       **I.       INTRODUCTION**

2           **Q.       Please state your name, business address, and present position.**

3           A.       My name is David Gelder. I am a Senior Engineering Manager at Invenergy LLC  
4 (“Invenergy”). My business address is One South Wacker Drive, Suite 1800, Chicago, IL 60606.

5           **Q.       Are you the same David Gelder who previously filed direct testimony in this**  
6 **proceeding?**

7           A.       Yes, I am.

8           **Q.       Has this testimony been prepared by you or under your direct supervision?**

9           A.       Yes, it has.

10          **Q.       What is the purpose of your rebuttal testimony?**

11          A.       The purpose of my testimony is to respond to portions of testimony submitted by  
12 Staff witness Paul Owings and Sunflower Electric Power Corporation witness Dr. Al Tamimi.  
13 Specifically, I will address Mr. Owing’s recommendation that Grain Belt Express construct the  
14 two proposed lines to allow a double circuit unless it is demonstrated to be inefficient.  
15 Additionally, I will address Dr. Tamimi’s testimony regarding paralleling Sunflower’s East Liberal  
16 to Cimmaron River to Crooked Creek line.

17          **II.       RESPONSE TO STAFF’S DOUBLE-CIRCUITING RECOMMENDATION**

18          **Q.       What is Staff’s suggested recommendation regarding the double-circuiting?**

19          A.       Staff recommends that “GBE shall construct the two proposed lines to allow a  
20 double circuit unless they can demonstrate double circuiting to be inefficient.”<sup>1</sup>

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<sup>1</sup> Direct Testimony of Paul Owings, p. 35 (July 3, 2024).

1           **Q.     What is Grain Belt Express’ position on that recommendation?**

2           A.     Grain Belt Express currently plans to install the Meade-Dodge City Line as a  
3 double-circuit line. For the Bucklin-Dodge City Line, additional cost-benefit analysis is required  
4 to determine whether Grain Belt Express will initially construct a single- versus a double-circuit  
5 line (or similarly design the line for a future double-circuit). Specifically, the decision will depend  
6 on interconnection requests, as referenced in the Application (page 1, footnote 3). The cost of  
7 installing a double-circuit line compared to a single-circuit line can be an approximately 1.75 cost  
8 multiplier. This is per an industry benchmark entitled, “MTEP24,” published by the Midcontinent  
9 Independent System Operator (“MISO”). The main drivers for increased costs are larger structures  
10 and foundations, and also additional conductor and hardware. Therefore, a double-circuit line  
11 cannot simply be installed (or designed for) without corresponding interconnection requests to  
12 support the added costs. Grain Belt Express does understand the Staff’s request from a land use  
13 perspective and intends to factor that into the cost-benefit analysis.

14           What Grain Belt Express can provide at this time is the following:

- 15           1) Current interconnection requests for Bucklin-Dodge City include 600 MW of  
16           generation (see Application, paragraph 25).
- 17           2) Each circuit will be designed for at least 1200 MW of capacity—due to minimum  
18           conductor sizing—and therefore will have additional capacity for future  
19           interconnections beyond the initial 600 MW interconnection.
- 20           3) The proposed ROW of 150 ft is sufficient for either a single- or double-circuit  
21           footprint; Grain Belt Express plans to evaluate future capacity needs as part of  
22           initial construction.

1           **Q.     Do you have a proposal for informing the Commission of the decision to single**  
2 **or double circuit the Bucklin-Dodge City Line?**

3           A.     Grain Belt Express can agree to make a compliance filing in this docket prior to  
4 construction regarding its determination of whether the Bucklin-Dodge City Line will be single or  
5 double circuit.

6           **III.    RESPONSE TO SUNFLOWER’S CONCERN REGARDING PARALLELING**  
7 **THE EAST LIBERAL TO CIMARRON RIVER TO CROOKED CREEK**  
8 **TRANSMISSION LINE**

9           **Q.     What is Sunflower’s concern regarding the East Liberal to Cimarron River to**  
10 **Crooked Creek transmission line?**

11          A.     Sunflower expressed potential protection concerns. Specifically, Sunflower states:  
12 Protection of three terminal lines is not preferable, and difficult to protect with  
13 relays. To the extent there is any introduction of mutual impedance to Sunflower’s  
14 three-terminal line, such impedance would add complexity as the parallel path will  
15 cause the line impedance to add or subtract, depending on fault current directions.<sup>2</sup>

16          **Q.     How do you respond?**

17          A.     The comments regarding introduction of mutual induction, as well as the difficulty  
18 of implementing electrical relay protections of a three-terminal line, are understood and  
19 acknowledged. However, it is not uncommon for 345 kV lines to parallel 115 kV lines and to the  
20 extent additional mitigation is necessary, there are effective options available.

21          **Q.     What actions is Grain Belt Express taking to mitigate these concerns?**

22          A.     The introduction of mutual induction between parallel lines is a function of several  
23 factors such as: power flow, conductor size, voltage, line length, length of the parallel path, line  
24 separation, and environmental factors. Grain Belt Express believes the effects of mutual induction

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<sup>2</sup> Direct Testimony of Al Tamimi, p. 6–7 (July 3, 2024).

1 will likely be mitigated by the current proposed line separation (i.e., centering the proposed Meade-  
2 Dodge City line within the 150 ft ROW, while bordering the existing easement). However, Grain  
3 Belt Express plans to perform an induction study to quantify the change in impedance and to  
4 evaluate the impacts of changing the separation between the lines. The question requires further  
5 study because while some of the required information is known (i.e., 115 kV and 345 kV voltages,  
6 5-mi length of parallel path), some of the information is not known at this time (i.e., power flow,  
7 length and topology of the Sunflower line, conductor sizes, existing easement width, etc.) and will  
8 require coordination with Sunflower. Grain Belt Express looks forward to working with Sunflower  
9 to evaluate the impacts and, to the extent necessary, developing mitigation solutions.

10 **IV. CONCLUSION**

11 **Q. Does this conclude your testimony?**

12 **A. Yes, it does.**

**VERIFICATION**

I, David Gelder, do solemnly, sincerely and truly declare and affirm that I am a Senior Engineering Manager for Invenegy Transmission, LLC, that I have read the foregoing testimony and know the contents thereof, and that the facts set forth therein are true and correct to the best of my knowledge and belief, and this I do under the pains and penalties of perjury.

By: /s/ David Gelder  
David Gelder

July 26, 2024

## CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was served upon the parties listed below by email or U.S. mail, postage prepaid, this 26th day of July, 2024.

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*/s/ Anne E. Callenbach*

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