

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of Grain Belt Express)
Clean Line LLC for a Certificate of Convenience and)
Necessity Authorizing it to Construct, Own, Operate,)
Control, Manage, and Maintain a High Voltage, Direct) Case No. EA-2014-0207
Current Transmission Line and an Associated Converter)
Station Providing an interconnection on the Maywood-)
Montgomery 345 kV Transmission Line)

**SHOW ME CONCERNED LANDOWNERS’
PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW**

COMES NOW the Show Me Concerned Landowners (Show Me), and for its Proposed Findings of Fact and Conclusions of Law submits the following:

1. *Does the evidence establish that the high-voltage direct current transmission line and converter station for which Grain Belt Express Clean Line LLC (“Grain Belt Express”) is seeking a certificate of convenience and necessity (“CCN”) are necessary or convenient for the public service?*

Traditionally, the Commission has used the five Tartan¹ criteria to determine whether a CCN is necessary or convenient for the public service. The five Tartan criteria are:

1. There must be a need for the service;
2. The Applicant must be qualified to provide the proposed service;
3. The Applicant must have the financial ability to provide the service;
4. The Applicant’s proposal must be economically feasible;
5. The service must promote the public interest.

Here in these Proposed Findings of Fact and Conclusions of Law, Show Me addresses only 3 criteria—Nos. 1, 4, and 5. Show me also addresses other considerations.

¹ *In re Tartan Energy Company*, 3 Mo.P.S.C. 173, 177 (1994).

FINDINGS OF FACT ON NEED

1. This Commission’s review is limited to the impacts that the Grain Belt Express project will have to Missouri, not other states. “The PSC is a state agency established by the Missouri General Assembly to regulate public utilities operating within the state.” *State ex rel. Atmos Energy Corp. v. PSC*, 103 S.W.3d 753, 756 (Mo banc. 2003). The PSC has the duty to set rates that are "just and reasonable" for the ratepayers of the utilities the PSC regulates. Section 393.130²; *State ex rel. KCP&L Greater Mo. Operations Co. v. Mo. PSC*, 408 S.W.3d 153, 163 (Mo. App. W.D. 2013). It follows that this Commission’s duty is to Missouri-regulated utilities and customers, not to wind-energy producers and/or wholesale buyers in other states.
2. The Missouri Court of Appeals has held that "[t]he term 'necessity' does not mean 'essential' or 'absolutely indispensable', but that an additional service would be an improvement justifying its cost." *State ex rel. Intercon Gas v. P.S.C.*, 848 S.W.2d 593, 597 (Mo. App. W.D. 1993).
3. Grain Belt Express has no customers signed up, and no firm or non-firm commitments from customers that they will sign up as customers of Grain Belt Express. (Tr., Volume 12, p. 417, lines 6-22).
4. Grain Belt admits that the project is needed for one reason only: it “will allow users to meet the requirements of Missouri’s Renewable Energy Standard (“RES”) set forth in Section 393.1020, et seq....” (Application, par. 13; Berry Direct, Exhibit 118, p. 3, lines 16-18).
5. The Missouri RES applies only to investor-owned utilities in Missouri. (Section 393.1025(3); Section 386.020).

² All references are to the Missouri Revised Statutes (2000), as amended.

6. Missouri has four investor-owned electric utilities that are subject to the Missouri RES: Kansas City Power and Light, Kansas City Power and Light Greater Missouri Operations, Empire District Electric Company, and Ameren Missouri. (Beck Rebuttal, Exhibit 201, p. 9, lines 10-15).
7. Three of the four investor-owned electric companies in Missouri (The Empire District Electric Company, Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company) have existing renewable energy capacity and new contracts that are projected to not only supply enough Renewable Energy Certificates (RECs) for each to meet the 15% RES requirement for 2021, but also for each to have excess RECs to sell. (*Id.*).
8. The fourth investor-owned utility, Ameren Missouri, in its 2014 Integrated Resource Plan (IRP), has stated that it needs 400 MW of additional renewable energy through the year 2034 on the following schedule: 50 MW in year 2019, 50 MW in year 2020, and 100 MW each in years 2022, 2024, and 2026. (Exhibit 334, section 9.2, p. 7).
9. Ameren Missouri engaged Black & Veatch to conduct a supply-side screening analysis of various power generation technologies in support of its IRP. (Exhibit 137, section 6.1.1, p. 2).
10. As for wind energy, Black & Veatch performed a high level wind project siting analysis to identify priority multi-county development areas in a study region consisting of the following states: Montana, North Dakota, South Dakota, Kansas, Nebraska, Oklahoma, Minnesota, Iowa, Missouri, Wisconsin, Michigan, Illinois, Indiana and Kentucky. Analysis was based on a Geographic Information Systems (GIS) siting model developed

to estimate the LCOE [Levelized Cost of Energy] for wind projects across these states.
(Exhibit 137, section 6.2.6, p. 26).

11. Based on that analysis, Ameren Missouri states that it plans to meet its needs for additional wind energy resources through wind resources located in the MISO footprint:

Wind power continues to be an attractive resource option, not only for meeting requirements of the RES, but also as a low-cost source of large amounts of emission-free generation. **Ameren Missouri has identified a number of areas within MISO that are conducive to cost-effective wind power, including areas in the state of Missouri.** (Exhibit 137, Ameren 2014 IRP, section 1.3, p. 8). (Emphasis added).

12. Grain Belt Express witness Mr. Berry conceded that Missouri's RES requirements can be met without the Grain Belt Express project. (Tr., p. 1150, lines 12-17; Tr., p. 1151, lines 9-15).

CONCLUSIONS OF LAW ON NEED

13. Ameren Missouri does not need wind power from the Grain Belt Express project, nor do any of the other investor-owned utilities in the state, in order to meet the Missouri RES requirements.
14. Grain Belt Express has not met its burden to show that its project is needed in Missouri, and it is not entitled to receive a CCN.

FINDINGS OF FACT ON ECONOMIC FEASIBILITY

15. Economic feasibility for meeting the need for energy and capacity requires that the resources used to meet this need are least cost without imposing a condition that fifteen percent of energy comes from renewable energy. (Proctor Cross-Surrebuttal, Exhibit 401, p. 9, lines 3-5).
16. What Grain Belt Express failed to perform—and needs to perform to carry its burden to show economic feasibility of its project—is a five-step analysis which evaluates the need

for capacity and energy over at least a 10-year period. (Proctor Cross-Surrebuttal, p. 16, lines 6-18 and Schedule MSP-3).

17. This evaluation must include the least-cost alternatives for meeting this need for two resource portfolios; one without renewable resources and one with renewable resources.

(Id.).

18. Levelized cost analysis alone cannot determine the impact on revenues from sales in determining the cost to retail rate payers. (*Id.*, p. 13, lines 18-22 to p. 14, lines 1-2).

19. Grain Belt Express studied the impact on revenues from sales, but did this only by comparing Grain Belt Express's project to a base case alternative (Business-as-Usual).

(Cleveland Surrebuttal, Exhibit 117, p. 5, lines 9, 22).

20. Grain Belt Express' study did not include an alternative least-cost resources portfolio for Ameren Missouri (Proctor Cross-Surrebuttal, Exhibit 401, p. 15, lines 6-21) and only included one year of analysis (2019). (Tr., Volume 14, p. 1081, lines 21-24).

21. For Kansas Wind Generation there are four basic assumptions to consider: 1) the capital cost of the wind turbines; 2) the O&M costs; 3) the capacity factor for Kansas Wind; and 4) the accredited capacity for Kansas Wind. In addition, assumptions about the use of credits for production tax credit and capacity sales are critical. (Proctor Rebuttal, Exhibit 400, *see* discussion on pages 8-18).

22. For the capital costs of wind turbines, Dr. Proctor used \$1,760/kW based the DOE 2012 Wind Technologies Market Report. (Proctor Rebuttal, Exhibit 400, p. 8, lines 11-12).

23. While Mr. Berry states in cross examination that he applied an inflation factor to the capital costs for Kansas Wind (Transcript, Volume 15, p. 1223, lines 10-22), he did not.

In fact, he deflated the \$1,760/kW one year to \$1,707/kW. (Proctor Rebuttal, Exhibit 400, p. 8 line 22 to p. 9, line 1).

24. For O&M costs for Kansas Wind, Dr. Proctor provided analysis on the escalation of O&M costs resulting in an average escalation rate of 4.61% and a levelized cost of \$11.73/MWh.
25. While Mr. Berry provided no analysis to support his estimate of levelized O&M cost, at \$11.90/MWh the result appears to be similar to that of Dr. Proctor. (Proctor Rebuttal, Exhibit 400, p. 11, line 19 to p. 13, line 12).
26. On the capacity factor for Kansas Wind, differences in the capacity factor between Dr. Proctor and Mr. Berry is the largest source of differences in their calculations of the basic levelized cost for Kansas Wind. Dr. Proctor used a 50% capacity factor for wind based on data from the DOE 2012 Wind Technologies Market Report. (Proctor Rebuttal, Exhibit 400, p. 9, lines 3-6).
27. That 2012 DOE report found 50% to be the highest capacity factor in the interior region. (*Id.* at p. 9, line 4). Dr. Proctor characterizes 50% as a “mid-to-high range estimate for the western Kansas region.” (*Id.* at p. 9, lines 5-6).
28. Mr. Berry used a wind capacity factor of 55%, based on three factors: (1) the Request for Information (RFI) results received from potential wind generators interested in providing wind power to Grain Belt Express; (2) speculative future improvements in wind turbine technology; and (3) professional judgment. (Transcript, Volume 15, p. 1257, line 6, to p. 1258, line 8).

29. Mr. Berry settles on the 55% capacity factor even though he admits that his survey of potential suppliers averages only 52%. (Berry Surrebuttal, Exhibit 120, p. 29, lines 10-12).
30. Grain Belt Express did not do any independent testing or verification to validate the results from the RFI. (Transcript, Volume 15, p. 1240, lines 14-17).
31. On the accredited capacity for Kansas Wind, Dr. Proctor assumes an accredited capacity of 14.5% of total capacity for Kansas Wind. (Proctor Rebuttal, Exhibit 400, p. 17, line 11).
32. On the accredited capacity for Kansas Wind, Mr. Berry calculates a higher level of 17.05% by multiplying MISO's accredited capacity factor of 9% for existing Missouri Wind by the ratio of his assumed 55% capacity factor to a Missouri capacity factor of 30%. (*Id.* at p. 17, lines 3-5).
33. Dr. Proctor's 14.5% estimate is based on the average of the highest capacity factor region in the Dakotas and western Minnesota of 15.8% with the average for the Iowa region of 13.7%. (*Id.* at p. 17, lines 11-12).
34. Dr. Proctor notes two very important and highly relevant facts: 1) "during peak hours of the summer, wind tends to reduce significantly in both high and low wind areas, but not in proportion to the average of wind production throughout the year;" and 2) "the accredited capacity values for the summer peak were measured by the Midwest ISO in 2012, which had the highest accredited capacity values over the last three years. Even in this case, these accredited capacities for wind did not reach 17%." (*Id.* at p. 17 line 11 to p. 18, line 5).

35. Mr. Berry criticizes Dr. Proctor's use of Iowa wind which had an accredited capacity factor of 13.7% on the basis that it has lower Wind speeds than in western Kansas. (Berry Surrebuttal, Exhibit 120, p. 41, line 16 to p. 42, line 17).
36. However, Dr. Proctor did not use only the 13.7% accredited capacity of Iowa Wind, but averaged it with the higher 15.8% accredited capacity in the Dakotas. (Proctor Rebuttal, Exhibit 400, p. 17, lines 11-12). Mr. Berry presented no evidence comparing the wind speeds in the Dakotas to those in western Kansas.
37. Mr. Berry attempts to bolster his use of the 17.05% accredited capacity based on the testimony of Mr. Zavadil, which claims that Kansas Wind should be accredited with an accredited capacity of 33% of name plate capacity. (Berry Surrebuttal, Exhibit 120, p. 41, lines 9-14). He then concedes that the 33% is uncertain. (*Id.*).

Grain Belt Express Capital Costs

38. Mr. Berry provided an estimated range for the levelized cost the Grain Belt Express transmission of \$15/MWh to \$20/MWh. (Berry Direct, Exhibit 118, p. 17, lines 13-14). Since these are preliminary estimates, they are likely to be low. (Proctor Rebuttal, Exhibit 400, p. 18, line 22). The SPP has found preliminary cost estimates for transmission projects to be 30% lower than actual costs. (*Id.*, p. 18, line 23 to p. 19, line 1).
39. In order to take into account cost increases from the current cost estimate, Dr. Proctor uses the upper bound of Mr. Berry's original estimate and adjusts the levelized cost from Mr. Berry's 55% capacity factor to a more reasonable 50% capacity factor. This capacity factor adjustment is calculated as the ratio of Mr. Berry's capacity factor to Dr. Proctor's capacity factor; i.e., $55\%/50\% =$ a 10% increase above \$20/MWh, or \$22/MWh. The basis for using the upper end of Mr. Berry's cost range came from experience in the SPP

with increases in cost subsequent to preliminary estimates. (Proctor Rebuttal, Exhibit 400, p. 18, line 10 to p. 19, line 18).

40. While Mr. Berry does not view Grain Belt Express's cost estimates as preliminary, the original estimate filed in his direct testimony has already increased by \$500 million for new interconnection costs. (Galli Surrebuttal, Exhibit 113, schedule AWG-10, p. 9)³ and, as was the case for projects in the SPP, are likely to continue to increase as the planning and implementation of the project goes forward. (Exhibit 404).

Assumptions about Capital Costs

41. While Dr. Proctor and Mr. Berry both used EIA's estimate of the capital costs for a combined cycle unit, Mr. Berry's levelized cost estimate of \$28.54/MWh is higher than Dr. Proctor's estimate of \$13.48/MWh. Since both started with the same capital costs, the difference in the two calculations appears to be attributed to the differences in methodology used in the calculations.
42. For O&M expense Dr. Proctor found no forecast evidence to support an increase in the nominal level for these costs. (Proctor Rebuttal, Exhibit 400, p. 22, lines 13-14).
43. To the contrary, in doing his calculations Mr. Berry improperly used the inflation rate to escalate these O&M costs over the life of the asset. (*Id.* at p. 22, lines 10-12).

³ Although Grain Belt Express said that this \$500 million interconnection cost was already included in its \$2.2 billion estimated cost for the project, the evidence does not support this. In its Application Of Grain Belt Express Clean Line LLC For A Certificate Of Convenience And Necessity at paragraph 7, page 3, Grain Belt Express states: "Grain Belt Express estimates that the total cost of the Project will be approximately \$2.2 billion,² with \$500 million of this estimate attributable to the portion of the Project to be located in Missouri." That footnote 2 referenced after billion states, "This figure does not include the cost of network upgrades required to interconnect the Project to the electric transmission grid." On cross-examination, Grain Belt Express Witness Dr. Galli admitted that the \$500 million project mentioned in the PJM study (Galli Surrebuttal, Exhibit 113, schedule AWG-10) was a cost of a network upgrade required to interconnect the project to the electric transmission grid. (Transcript, Volume 12, p. 569, lines 13-22). According to the verified Application which Mr. Skelly affirmed under oath to be true, this \$500 million cost was not included in the original \$2.2 billion cost estimate. This brings the total cost of the project to \$2.7 billion and counting.

44. Thus, the difference between Dr. Proctor and Mr. Berry is a difference in their understanding of escalation rates compared to inflation rates. As shown in Dr. Proctor's analysis of the O&M Expense for wind farms, escalation rates are calculated in nominal dollars and represent increases in costs that occur over time in expenses (*Id.* at p. 22, line 9 to p. 23, line 17).

Fuel Expense

45. Dr. Proctor used EIA's most recent forecast of natural gas prices for electric plant fuel converted to nominal dollars using EIA's inflation rates. (Proctor Rebuttal, Exhibit 400, p 22, lines 14-19).

46. Mr. Berry also used EIA's forecast of natural gas prices, but there were some minor differences as shown on Mr. Berry's Exhibit DAB-12 to his Surrebuttal testimony. However, the difference in levelized costs over the 30 year operation of the plant show Mr. Berry's levelized cost as of \$60.60/MWh to be \$6.16/MWh higher than Dr. Proctor's levelized cost for fuel of \$54.44. (*Id.* at p. 22, table at line 8.).

47. Despite the fuel cost comparison shown on Exhibit DAB-12, the only explanation in the record for this difference is a difference in inflation rates used in the calculations. As shown above, Mr. Berry uses what he says is the Federal Reserve Bank's 2012 estimated inflation rate for personal consumption expenditures of 2.0% and then added 0.5% to account for the difference between personal consumption expenditures and the Consumer Price Index (CPI). (Berry Surrebuttal, Exhibit 120, page 43, lines 11-18). There is no explanation as to why either personal consumption expenditures from 2012 or the CPI is the appropriate inflation rate to use for levelized energy costs.

48. On the other hand, Dr. Proctor used the same inflation factor that EIA used in its most recent forecasts. (Proctor Rebuttal, Exhibit 400, p. 14, lines 9-23).

Potential CO² Cost

49. While CO² costs are not currently charged to fossil fuel generation, Dr. Proctor used a mid-range estimate starting at \$15/tom and calculated a levelized cost for CO² of \$12.60/MWh. (Proctor Rebuttal, Exhibit 400, p. 21, line 9).

50. Mr. Berry and Dr. Proctor started with the same forecast for CO² cost, but Mr. Berry added an inflation rate to the escalation rate already included in the forecast. (*Id.*, p. 21, lines 5-7).

Assumptions for Alternative Missouri Wind Generation

51. While Dr. Proctor and Mr. Berry's estimates of levelized costs for Missouri Wind differ by \$41.79/MWh, they both agree that Missouri Wind is not competitive with Kansas Wind from the Grain Belt Express project. (Proctor Rebuttal, Exhibit 400, Schedule MSP-2 and p. 25, line 21 to p. 26, line 1).

Assumptions for Alternative MISO Wind Generation

52. Grain Belt Express presented no direct testimony on energy and capacity from MISO wind as an alternative to Kansas Wind, even when the Grain Belt Express transmission costs make up a significant portion of the total delivered cost for Kansas Wind. (Proctor Rebuttal, Exhibit 400, lines 5-8).

53. MISO Wind costs are based using the same assumptions as were used for Kansas wind except for two key differences: 1) capacity factor; and 2) transmission costs. In addition, property taxes should be added for MISO Wind. Dr. Proctor's estimates of property

taxes are found at page 7 of his response to question 11 of GBX's third set of data requests. (Exhibit 126, p. 7).

Capacity Factors for MISO Wind

54. Instead of estimating a capacity factor for MISO Wind, Dr. Proctor provided levelized costs for a range of capacity factors from 30% up to 50%. (Proctor Rebuttal, Exhibit 400, p. 27, table at line 3 and p. 28, table at line 8).
55. Dr. Proctor provides a wind speed map of the United States showing comparable wind speeds for northwest Iowa, the Dakotas and southwest Minnesota to those shown for western Kansas. (Proctor Rebuttal, Exhibit 400, p. 17, map at line 10). Thus, the basis for including a 50% capacity factor for MISO Wind in Dr. Proctor's analysis is that on a capacity factor basis, there are areas of MISO wind that are comparable with Kansas Wind.
56. Mr. Berry presents maps for Kansas and Iowa Wind. (Berry Surrebuttal, Exhibit 120, p. 41, lines 21-22, referencing schedule DAB-13). However, Mr. Berry makes an important omission—he does not provide similar state maps for the Dakotas and Minnesota. Dr. Proctor made no such omission—he included the Dakotas and Minnesota in his analysis.
57. In his Surrebuttal, Mr. Berry states: “the average wind speed for northwest Iowa is around 8-8.5 m/s.” (Berry Surrebuttal, Exhibit 120, p. 41, line 22 to p. 42, line 1). He then compares this to wind speeds in a fairly narrow area around Dodge City, KS of 8.5-9 m/s. (*Id.*, p. 42, lines 1-2). To support his claim, Mr. Berry presents a graph of average annual wind speeds for ten sites in Iowa described as “having the highest capacity factors in the state,” and compares them to ten sites in the Dodge City, KS area. (*Id.*, p. 42, table

at line 9). Again, Mr. Berry made no such comparisons for the Dakotas and southwestern Minnesota, like Dr. Proctor did.

Impact of Capacity Factor on Levelized Costs for MISO Wind

58. The only levelized costs not affected by the capacity factor are the variable O&M costs for wind. (Proctor Rebuttal, Exhibit 400, p. 27, table at line 3).

Transmission Costs for MISO Wind

59. Transmission costs for MISO need to be added when MISO Wind is evaluated either as an energy-only resource or as a capacity and energy resource. (Proctor Rebuttal, Exhibit 400, p. 27, lines 6-11).

60. Mr. Berry fails to make this distinction in his Surrebuttal, where he adds the cost for congestion and the cost for firm transmission in his comparison of the Grain Belt Express project to MISO Wind. (Berry Surrebuttal, Exhibit 120, p. 35, table at line 11).

61. Dr. Proctor analyzes MISO Wind as an energy-only resource that includes an additional capacity adder to cover not taking the capacity from the wind. This analysis shows that MISO Wind with capacity factors above 35% are needed to be competitive with the proposed Grain Belt Express project. (Proctor Rebuttal, Exhibit 400, p. 28, lines 1-13).

62. While MISO Wind appears to be cheaper than the proposed Grain Belt Express project, MISO Wind having a capacity factor above 35% is not likely to be found in Ameren Missouri's transmission zone where Grain Belt Express's converter station is located, and therefore congestion costs for delivery to the Ameren Missouri transmission zone need to be added. (*Id.*, p. 28, line 12 to p. 29, line 4).

63. Because congestion costs are very specific to the location of the generator and load, instead of choosing an arbitrary location for the generator, Dr. Proctor performs an

analysis of the Costs of FTRs from MISO's 2013 Financial Transmission Rights (FTR) auction. (Proctor Rebuttal, Exhibit 400, p. 29, lines 7-14).

64. Dr. Proctor's analysis shows that with probabilities close to 100%, the differences in costs between MISO Wind and the Grain Belt Express project are more than adequate to cover congestion costs of MISO Wind. (*Id.*, p. 29, table at line 14 and p. 29, line 17 to p. 30, line 1).
65. Alternatively, Mr. Berry does pick specific locations and estimates the congestion costs from these locations to Ameren Missouri's load, but does not use the generation directly associated with each location; instead, he uses the average hourly wind profile for all of MISO Wind. (Berry Surrebuttal, Exhibit 120, p. 32, table at line 17).
66. Mr. Berry does not have the hourly generation at each of his locations needed to make a proper calculation of congestion costs. (*Id.*)
67. Third, when Mr. Berry's estimates of congestion costs are compared to Dr. Proctor's estimates of FTR costs, it is easily seen that his \$9.27/MWh is above the \$5.06 level in Dr. Proctor's table. (Berry Surrebuttal, Exhibit 120, p. 34, table at line 4; Proctor Rebuttal, Exhibit 400, p. 29, table at line 14).
68. The cost of firm transmission service from a designated resource will also vary by specific location, and the cost from those resources located outside of the utility's transmission zone are likely to be higher than for resources located within the utility's transmission zone. (Proctor Rebuttal, Exhibit 400, p. 30, lines 13-16).
69. In order to estimate a level for firm transmission cost outside of Ameren Missouri's transmission zone, Dr. Proctor first uses SPP's safe harbor limit of \$180,000/MW that

estimates the typical cost for firm transmission service for a designated resource located within the utility's transmission zone. (*Id.*, p. 33, lines 7-9).

70. "The rationale behind the safe harbor limit is that transmission service for designated network resources located outside the utility's transmission zone are likely to be more costly, and the utility should be directly assigned these additional costs rather than allowing those costs to be rolled into transmission rates." (*Id.*, p. 33, lines 11-14).
71. The next step in Dr. Proctor's estimate of firm transmission costs is to determine a reasonable multiple of the within zone firm transmission costs for firm transmission service from outside the utility's transmission zone. (Proctor Rebuttal, Exhibit 400, p. 35, lines 4-11).
72. That multiple is two and one half times larger at \$450,000/MW. This cost is then compared to the cost of the Grain Belt DC line minus the costs of the convertor stations. \$450,000/MW is approximately 74% of the cost of the DC transmission line. (*Id.*, page 35, lines 7-10).
73. In order to compare this with the Grain Belt Express project that does not include the cost of firm transmission service within the Ameren Missouri transmission zone to Ameren load, the cost for within zone transmission service is subtracted, leaving an incremental higher cost of \$270,000/MW for MISO Wind compared to Kansas Wind + DC transmission. (*Id.*, p. 35, lines 10-11).
74. Dr. Proctor then compares the cost of MISO wind power having capacity and energy to the Grain Belt Express project. Dr. Proctor finds MISO wind just above a 40% capacity factor has the same cost as the Grain Belt Express project, and MISO wind in the 45% to

50% range is significantly less costly. (Proctor Rebuttal, Exhibit 400, p. 35, table at line 16).

CONCLUSIONS OF LAW ON ECONOMIC FEASIBILITY

75. The record shows Dr. Proctor's assumptions and estimate of the levelized cost for Kansas Wind are more credible than those of Mr. Berry. Mr. Berry has provided no credible evidence showing that Dr. Proctor's rebuttal of Mr. Berry's assumptions and calculations is not correct, nor has Mr. Berry provided credible evidence that Dr. Proctor's assumptions and calculations are incorrect.

76. The evidence shows that Kansas Wind is not economically feasible for Missouri when compared to MISO Wind. Grain Belt has not met its burden to show that its project is economically feasible.

FINDINGS OF FACT ON PUBLIC INTEREST

77. According to the Tartan case, the requirement that an applicant's proposal promote the public interest is in essence a conclusory finding as there is no specific definition of what constitutes the public interest. Generally speaking, positive findings with respect to the other four standards will in most instances support a finding that an application for a certificate of convenience and necessity will promote the public interest.⁴

Landowner and Public Issues

78. In May 2010, Grain Belt Express began identifying the resource area where the wind generation for the project would be located, and the proposed point of delivery for the project (St. Francois County, Missouri). (Lawlor Direct, Exhibit 101, p. 7, lines 11-13).

79. As a result, a broad study area was identified, including 52 counties in southern Kansas and southern Missouri. (*Id.*, p. 7, lines 17-20).

⁴ *In re Tartan Energy Company*, 3 Mo.P.S.C. 173, 177 (1994); 1994 Mo. PSC LEXIS 26 at p. 40-41.

80. In May 2011, MISO provided an interconnection study that indicated the initial delivery point in St. Francois County was not economically feasible. (*Id.*, p. 7, line 20 to p. 8, line 2).
81. As a result of that study, the routing team identified Sullivan County, Indiana as a potential delivery point. (*Id.*, p. 8, lines 3-4).
82. This required the addition of northern Missouri to the study area. (*Id.*, p. 8, lines 6-8). Additional interconnection studies were requested from PJM and MISO. (*Id.*, p. 8, lines 5-11).
83. The next step was to meet with government agencies such as the United States Fish and Wildlife Service, Missouri Department of Conservation, Missouri Department of Natural Resources, as well as non-governmental organizations and associations like the Audubon Society, Missouri Prairie Foundation, Sierra Club and Ducks Unlimited. (*Id.*, p. 8, line 21 to p. 9, line 2).
84. Grain Belt Express then engaged the Nature Conservancy to provide guidance. (*Id.*, p. 9, line 7).
85. In addition, during this time Grain Belt Express met with local utilities and cooperatives, local civic groups, local economic development groups and chambers of commerce, county commissioners and other county officials, the Missouri Farm Bureau, Missouri Farmers Care, Missouri Soybean Association, Missouri Cattlemen's Association, Missouri Pork Producers Association, Missouri Association of Counties, Missouri Municipal League, Association of Missouri Electric Cooperatives, Missouri Energy Development Association, Missouri Chamber of Commerce and Industry, Associated

Industries of Missouri, the Missouri Association of Councils of Government, and Missouri legislators. (*Id.*, p. 9, lines 12-21).

86. At these meetings with these groups, Grain Belt Express discussed the economic benefits of the project, public outreach and the routing process. (*Id.*, p. 9, lines 21-22).

87. Next, Grain Belt Express conducted a series of introductory meetings with county commissioners and other local officials. (*Id.*, p. 10, lines 5-6).

88. In June 2011, in conjunction with its routing consultant, Louis Berger, Grain Belt Express began conducting a series of Community Leader Roundtables to gather input from local officials, economic development representatives and community leaders. (Lawlor Direct, Exhibit 101, p. 4, lines 1-2; Schedule MOL-1).

89. Grain Belt Express also obtained routing input from state and federal agencies, as well as public interest groups. (*Id.*, p. 4, lines 5-6).

90. From June 15, 2011 to December 12, 2012, Grain Belt Express conducted 24 Community Roundtable meetings in Missouri, 12 in southern Missouri, 12 in northern Missouri. (*Id.*, schedule MOL-1).

91. Information gleaned from these meetings with political and other community leaders led to a focus by Grain Belt Express on a route in northern Missouri. (*Id.*, p. 11, lines 18-22).

92. Next, Grain Belt Express showed the northern Missouri potential route network to state and local planners and elected officials, non-governmental organizations, other stakeholders, and federal and state regulatory agencies. (*Id.*, p. 12, lines 1-7).

93. These meetings further refined the potential route network into potential routes in northern Missouri. (*Id.*, p. 12, lines 9-10).

94. Public Open House Meetings to inform the public and landowners about the Grain Belt Express project began on July 15, 2013, **over three years** after Grain Belt Express began courting political and other community leaders. (*Id.*, schedule MOL-3)
95. From July 15, 2013 to December 4, 2013, Grain Belt Express held 13 Public Open House Meetings. (*Id.*, schedule MOL-3). More than 11,500 people were invited. (*Id.*, p. 12, line 20).
96. Only 1,288 attended, a paltry 11.2% participation rate. (*Id.*, schedule MOL-3).
97. Grain Belt filed this case on March 26, 2014. The company first provided “official notice” to affected landowners only after the filing of the Application in this case. (*Id.*, p. 18, lines 3-6).
98. Public participation in this case has been unprecedented. According to Staff Witness Natelle Dietrich, as of November 20, 2014, approximately 7,200 comments opposing the project had been filed in EFIS, and only 65 in support. (Dietrich, Exhibit 200, p. 3, lines 10-12; Transcript, Volume 17, p. 1643, line 19 to p. 1644, line 5).
99. In addition, 8 local public hearings were held in the counties where the Grain Belt Express wants to construct its transmission line. Approximately 287 people testified (an average of about 36 people per location), and the vast majority of those testifying were in opposition to the project. (Transcripts, Volumes 2 through 9).
100. Show Me Witness Kurt Kielisch is a licensed real estate appraiser. (Kielisch Rebuttal, Exhibit 402, p. 1, line 10).
101. His appraisal services focus on eminent domain, utility easements, avigation easements, rails-to-trails, valuation disputes, estates, stigmatized properties and impact studies. (*Id.*, p. 1, lines 19-21).

102. Perception (what a buyer believes) drives the value of land. (*Id.*, p 4, lines 4-6).
As an example, Mr. Kielisch discusses a haunted house. A home cannot be scientifically proven to be haunted, but there are several homes throughout the country that are “stigmatized” because people believe they are haunted, resulting in diminished selling prices for those homes. (*Id.*, p. 4, lines 5-8).
103. With regard to high voltage transmission lines (HVTLs), Mr. Kielisch’s studies show an overwhelming number of printed articles that were negative toward HTVLS with regard to health, view shed, electromagnetic field (EMF) concerns and their impact on agricultural land uses. (*Id.*, p. 5, lines 1-3).
104. EMFs are a special concern to health. A publication by CIGNA, entitled Heart Problems Living With a Pacemaker (2012), warned that pacemakers are affected negatively by strong electrical fields and put HTVLS on the “stay away” list. (*Id.*, p. 7, line 19 to p. 8, line 2).
105. Irrigation systems can be negatively impacted by HVTLs. (*Id.*, p. 8, line 21 to p. 9, line 2.) Analysis using USDA records of property value between irrigated and non-irrigated showed a 21% reduction in property values (*Id.* page 9, lines 2-3).
106. HTVLS also negatively impact the use of aerial spraying. (*Id.*, p. 10, line 3 to p. 11, line 2.) GPS systems are also negatively impacted by HTVLS. (*Id.*, page 11, lines 4-22).
107. Potential shock problems cause farmers to use extra caution. (*Id.* page 13, lines 3-10).
108. Soil compaction as a result of construction and maintenance of a HVTL is a concern for farmers. (*Id.*, p 14, line 17 to p. 15, line 6).

109. Several studies show decreases in property values due to HVTL. For example one study on the impact of an HVTL on agricultural land in Segwick County, Kansas, indicated a loss of value of approximately 23%. (*Id.*, p. 22, line 7). Another study on the impact of an HTVL on agricultural land in Butler County, Kansas, showed a loss of value from 9 to 44%. (*Id.*, p. 23, lines 1-3). Another study on the impact of an HTVL on agricultural land in Marathon County, Wisconsin, indicated a loss of value from 15 to 34%. (*Id.*, p. 24, lines 3-8).
110. Show Me witness Charles Kruse is a fourth generation Missouri farmer. (Kruse Rebuttal, Exhibit 403, p. 1, line 7). He is also a former president of the Missouri Farm Bureau. (*Id.*, p. 1, lines 17-19).
111. Mr. Kruse testifies from his experience as a farmer. He addresses the following negative impacts: compaction of soil, irrigation equipment interference, difficulty in aerial applications to crops and pastures, possible GPS interference, problems maneuvering large farm equipment around towers, precision farming problems, concerns about storm recovery, and eminent domain. (*Id.*, p. 2, lines 14-18).
112. Soil compaction from transmission line construction and maintenance can negatively affect crop yields if not properly mitigated. (*Id.*, page 5, lines 13-17).
113. The structures being proposed by Grain Belt Express will make it impossible to use center pivot irrigation around the structures, reducing the potential for this land and reducing land values significantly. (*Id.*, p. 8, line 20 to p. 9, line 5).
114. Grain Belt Express's structures will negatively impact aerial applications, and some parts of the land simply will not be treated, adversely impacting the potential profit for these fields. (*Id.*, p. 9, lines 14-21).

115. There is a possibility that Grain Belt's structures could interfere with GPS farming systems, which is becoming more and more important for both row-crop and pasture land. (*Id.*, p. 10, line 1 to p. 11, line 17).
116. Farming equipment is getting larger, and maneuvering this large farm machinery can be a nightmare for farmers, causing them to take more time, which leads to lower productivity and lower revenues. (*Id.*, p. 13, line 20 to p. 14, line 8).
117. A transmission line like the Grain Belt Express could make it more difficult to practice precision farming, leading to uneven application of fertilizer. (*Id.*, p. 14, line 11 to p. 15, line 2).
118. If a severe storm topples some of the Grain Belt Express structures, agriculture would experience substantial damage, including the immediate loss of crops and livestock, and moving heavy repair equipment over wet grounds will cause even more problems with damage to crops and pastures, severe rutting and soil compaction. (*Id.*, p. 15, lines 6-14).
119. Mr. Kruse believes that mitigation, remediation and payments to landowners can work, but only to a certain extent. In his experience as a farmer, in practice such compensation can never be completely adequate, and the project will have a permanent negative impact on farming and ranching operations in Missouri. (*Id.*, p. 15, lines 19-24).
120. Mr. Kruse also testifies that in his opinion, Grain Belt Express should not be granted eminent domain because the possible minimal benefit of the project is vastly outweighed by the negative impacts on the citizens of Missouri. (*Id.*, p. 16, lines 5-16).

CONCLUSIONS OF LAW ON THE PUBLIC INTEREST

121. Grain Belt Express failed to show it met the *Tartan* criteria of need and economic feasibility. Therefore, it has failed to show that the project is in the public interest.
122. Grain Belt Express did not involve landowners until late in its routing process, denying landowners a meaningful opportunity to participate in the process. In contrast, Grain Belt from an early stage courted political officials, business and community leaders and gave them much more opportunities for input.
123. According to the sworn testimony taken at the local public hearings, the Missouri public is against this project.
124. When Grain Belt Express' interests are balanced against the Missouri public and Missouri landowner interests, the public interest weighs against Grain Belt Express.

FINDINGS OF FACT ON OTHER CONSIDERATIONS

125. Section 393.170 governs the granting of CCNs. Section 393.170.2 provides:
- No such corporation shall exercise any right or privilege under any franchise hereafter granted, or under any franchise heretofore granted but not heretofore actually exercised, or the exercise of which shall have been suspended for more than one year, without first having obtained the permission and approval of the commission. Before such certificate shall be issued a certified copy of the charter of such corporation shall be filed in the office of the commission, together with a verified statement of the president and secretary of the corporation, showing that it has received the required consent of the proper municipal authorities. (emphasis added).
126. While Grain Belt Express did originally obtain consent from all the counties, since that time five of the counties—Clinton, Chariton, Caldwell, Ralls, and Monroe—have rescinded their consents. (Lowenstein Rebuttal, Exhibit 306, schedule LDL-4; Dietrich Rebuttal, Exhibit 200, p. 4, lines 10-12).

127. Grain Belt admits that it does not have all of the necessary county approvals.
(Grain Belt Express Initial Brief, p. 53).

CONCLUSIONS OF LAW ON OTHER CONSIDERATIONS

128. Grain Belt Express does not have all of the required county approvals as required by section 393.170. Therefore, at this time Grain Belt Express is not entitled to receive a CCN.

2. *If the Commission grants the CCN, what conditions, if any, should the Commission impose?*

FINDINGS OF FACT REGARDING CONDITIONS
(FOR USE IN THE ALTERNATIVE IF THE COMMISSION DECIDES TO APPROVE THE APPLICATION)

129. The Commission may impose restrictions, conditions, and limitations on the exercise of a CCN, and require continuing supervision by the Commission. Section 393.170 provides the statutory framework for the Commission to consider whether to grant a CCN:

1. No gas corporation, electrical corporation, water corporation or sewer corporation shall begin construction of a gas plant, electric plant, water system or sewer system without first having obtained the permission and approval of the commission.
2. No such corporation shall exercise any right or privilege under any franchise hereafter granted, or under any franchise heretofore granted but not heretofore actually exercised, or the exercise of which shall have been suspended for more than one year, without first having obtained the permission and approval of the commission. Before such certificate shall be issued a certified copy of the charter of such corporation shall be filed in the office of the commission, together with a verified statement of the president and secretary of the corporation, showing that it has received the required consent of the proper municipal authorities.
3. The commission shall have the power to grant the permission and approval herein specified whenever it shall after due hearing determine that such

construction or such exercise of the right, privilege or franchise is necessary or convenient for the public service. **The commission may by its order impose such condition or conditions as it may deem reasonable and necessary.** Unless exercised within a period of two years from the grant thereof, authority conferred by such certificate of convenience and necessity issued by the commission shall be null and void.

(Emphasis added). *See also State ex rel. Harline v. Public Service Commission*, 343 S.W.2d 177, 182 (Mo. App. W.D. 1960). In that case, the Commission granted a CCN containing “restrictions, conditions and limitations imposed upon the exercise of the certificate, and recites a continuing supervision by the Commission.” *Id.* at 183. The Court affirmed the Circuit Court’s affirmation of the Commission’s order granting the CCN. *Id.* at 185. The statute and relevant case law are clear that the Commission may impose any conditions, limitations, or restrictions on a CCN that it deems reasonable and necessary, as well as retain continuing supervision.

130. Grain Belt Express’ application is incomplete and it has not met the filing requirements to receive a CCN. (Beck Rebuttal, Exhibit 201, p. 4, lines 19-22).
131. Commission Staff, in its testimony, recommends about 29 conditions, many with multiple subparts, that the Commission should impose if it grants a CCN. (Beck Rebuttal, Exhibit 201, p. 16, line 19 to p. 22, line 34).
132. In its initial Brief, staff provides an updated list of 23 conditions it recommends the Commission impose if the Commission were to grant a CCN in this case. (Staff Initial Brief, pp. 4-12).

CONCLUSIONS OF LAW REGARDING CONDITIONS

133. Grain Belt’s application is incomplete. The Commission deems it reasonable and necessary to place all of the conditions on the CCN and require Grain Belt Express to comply with all of the conditions recommended by staff.

134. Grain Belt Express has not shown that it will treat landowners fairly. Therefore, the Staff conditions relating to Construction and Clearing, Maintenance and Repair, Right of Way Acquisition, Restoration of Affected Land, and Eminent Domain are especially appropriate in this case.

CONCLUSION

WHEREFORE, Show Me respectfully offers these Proposed Findings of Fact and Conclusions of Law and prays that the Commission conform its decision in this case to the facts and conclusions contained herein.

Respectfully submitted,

HEALY & HEALY,
ATTORNEYS AT LAW, LLC



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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed, emailed or hand-delivered to all parties on the official service list for this case on this 23th day of December, 2014.



Terry M. Jarrett