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

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| 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 Current Transmission Line and an Associated Converter Station Providing an interconnection on the Maywood-Montgomery 345 kV Transmission Line | ) | Case No. EA-2014-0207 |

# INITIAL POST-HEARING BRIEF OF THE SHOW ME CONCERNED LANDOWNERS


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# INITIAL POST-HEARING BRIEF
# SHOW ME CONCERNED LANDOWNERS

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## INTRODUCTION

The Eastern Missouri Landowners Alliance DBA Show Me Concerned Landowners (Show Me) is a non-profit corporation in good standing organized under the laws of the State of Missouri and doing business under a duly registered fictitious name. Show Me is a group of concerned landowners who live on or near Grain Belt's proposed transmission line. Show Me currently consists of about four hundred and seven (407) members, primarily in the Eastern Missouri Counties of Monroe and Ralls, including one hundred (100) landowner members whose land is on the right-of-way of the proposed line, and are thus directly impacted by Grain Belt's plans. The remaining three hundred and seven (307) members are neighbors and other supporters, many of whom live beside or close to the proposed route and thus may also be adversely impacted. They are hard-working farmers and ranchers who use the land to make their living and take care of their families. Grain Belt Express Clean Line LLC's (Grain Belt Express) proposed route goes through some of the most rich and productive farm land in the country, not just Missouri. Show Me is not an anti-transmission line organization—in fact, many of the members already have electric transmission and distribution lines (as well as gas pipelines and telephone lines) running through their properties. Show Me opposes the Grain Belt Express project because the record in this case shows that the proposed Grain Belt Express transmission line is not necessary or convenient for the public service.

The applicant, Grain Belt Express, presents a high voltage Direct Current transmission line concept slickly packaged as pro-economic development, pro-jobs, pro-local tax revenue, and pro-renewable energy. Optimistically labeled a "Project," it is currently nothing more than a concept. The project itself is incompletely designed, funded, and studied. Its success depends on numerous highly speculative future developments and conditions.

Show Me's members are concerned about the damage to the some of the most productive farms and ranches in the country and interference with their operation, health, property values, visual pollution, and future limitations on land use. While Grain Belt Express has been very busy courting political officials, the evidence shows that landowners were on the very bottom of Grain Belt Express's list in terms of importance. Show Me believes that Grain Belt Express's lack of respect and concern for landowner issues would continue if Grain Belt Express were to receive a Certificate of Convenience and Necessity (CCN) from this Commission.

The risks and costs of proceeding with a speculative and indefinite project like this are real, significant, and of concern to Show Me. From a policy perspective, the Commission should not authorize private developers' use of eminent domain over a wide swath of land absent, at a minimum, certainty, proof, and commitment. Entertaining a speculative and premature application for a certificate is bad public policy. While Grain Belt Express may hope that this Commission's regulatory approval will help kindle financial and energy market interest in the concept, it has no customers signed up and no generators to produce or energy to deliver. The required interconnection studies from the RTOs (SPP, MISO and PJM) are years away from completion, and there is no guarantee that they will be favorable to Grain Belt Express. Grain Belt Express' application is not ready for prime time, and the commission should deny it without prejudice, giving Grain Belt Express the opportunity to come back and file again if or when they have their ducks in a row. At this point, Grain Belt Express does not even have any ducks to put in a row.

## CONTESTED ISSUES

**I.** ***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?***

A. Introduction

Show Me does not believe that the Grain Belt Express application for a CCN meets any of the criteria that this Commission has used to determine whether a CCN should be granted. Traditionally, the Commission has used the five Tartan[1] 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.

In this Initial Brief, Show Me will address only criteria number 1, 4, and 5, as well as other considerations for the Commission decision. Show Me reserves the right to address the remaining critera numbers 2 and 3 in its Reply Brief.

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

B. There is no need for the service

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).

*None of the Missouri Investor-Owned Utilities Need Wind from Grain Belt Express*

Grain Belt Express proposes to build and operate an approximately 750-mile, overhead, multi-terminal +600 kilovolt HVDC transmission line and associated facilities that will deliver up to 500 megawatts of wind-generated power from western Kansas into Missouri, and up to 3,500 MW to load and population centers in Illinois, Indiana and states farther east. (Application Of Grain Belt Express Clean Line LLC For A Certificate Of Convenience And Necessity, p. 3). Grain Belt Express asserts the high-voltage direct current transmission line from southwest Kansas to Indiana, and associated converter stations in Kansas, Missouri and Illinois are needed for meeting the requirements of the Missouri Renewable Energy Standard, and the renewable portfolio standards of the other states in the Midcontinent Independent System Operator, Inc. (MISO) and PJM Interconnection, LLC (PJM) regional transmission organization (RTO) footprints. (Berry Direct, Exhibit 118, p. 3, lines 17-21). Grain Belt Express expects that its customers will consist principally of (i) wind energy producers located in western Kansas at the western end of the Grain Belt Express Project, and (ii) wholesale buyers of electricity who seek to purchase electricity generated from renewable resources. These wholesale buyers are expected to be utilities that serve retail load and competitive retail electricity suppliers, brokers, and marketers. (Skelly Direct, Exhibit 100, p. 12, lines 10-15).

As an initial legal matter, 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 393.130[2]; *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.

Electric power from wind is a renewable source of electricity. Therefore, the proposed Grain Belt transmission line meets a necessary condition as a potential resource for meeting Missouri's Renewable Energy Standard. However, for several reasons, there is not a need in Missouri for any wind power from the Grain Belt Express project.

First, none of the Missouri investor-owned electric utilities need any of the wind power from the Grain Belt Express project. 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. (Beck Rebuttal, Exhibit 201, p. 9, lines 10-15). 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). Furthermore, Ameren engaged Black & Veatch to conduct a supply-side

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

screening analysis of various power generation technologies in support of its IRP. (Exhibit 137, section 6.1.1, p. 2). 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). Based on that analysis, Ameren 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).

Ameren does not "need" wind power from the Grain Belt Express project, nor do any of the other investor-owned utilities in the state.

*The One Percent Rate Cap*

Another reason that Grain Belt Express cannot show a need for its facilities and services in Missouri is because it hasn't provided any studies required by the Missouri Renewable Energy Standard Law and this Commission's rules. The Missouri Renewable Energy Standard (RES), section 393.1025 et seq.,[3] as implemented by rule 4 CSR 240-20.100, requires each electric utility to generate or purchase electricity generated from renewable energy resources to meet no less than fifteen percent of its retail electric sales in each calendar year beginning in 2021. The

[3] All references are to the Missouri Revised Statutes (2000), as amended.

Missouri Renewable Energy Standard sets a rate impact limit on any renewable energy of not resulting in more than a one percent (1%) increase in retail rates. Section 393.1050.

This is important because in order to show its proposal meets the requirements of the Missouri RES law as a possible alternative for investor-owned utilities to satisfy the RES requirements, Grain Belt Express must show that the addition of the costs of Kansas wind + DC Transmission will not increase Missouri retail rates for Ameren Missouri customers by an average of more than one percent in any year. (Proctor Cross-Surrebuttal, Exhibit 401, p. 4, lines 10-13).

In 4 CSR 240-20.100(5)(B), the Missouri Commission promulgated a rule that sets out the test for meeting this RES. This test states that the utility shall compare two resource plans – with and without the renewable energy resource – and the resource plan with the renewable energy resource should not result in more than a one percent (1%) increase in retail rates over the retail rates from the resource plan that does not include the renewable energy source.

Grain Belt Express has not provided a study either done by itself or by any of Missouri's investor-owned electric utilities comparing the rate impact of its proposal to an alternative resource plan as required by the rule. Therefore, Grain Belt has not shown that its proposal will meet the requirements of the Missouri Commission's RES rule. Without such a study, Grain Belt Express cannot show a need for wind in Missouri from its project.

In his testimony, Show Me witness Dr. Michael Proctor points out that the Grain Belt project is also a candidate for meeting the need "for energy and capacity required from future load growth and the retirements of existing generation facilities." (Proctor Cross-Surrebuttal, Exhibit 401, p. 5, lines 5-6). **Similar to meeting the Missouri RES, meeting the need for energy and capacity is not only a question of need, but also a question of economic feasibility**. Dr. Proctor

concludes that it will be cheaper for Missouri utilities to buy wind from generators located in the MISO footprint than from Grain Belt Express. (Proctor Rebuttal, p. 36, lines 21-23; schedule MPS-2, pp. 2-3). This will be more fully discussed in the subsection addressing economic feasibility (subsection E.) below.

*The Grain Belt Express is Not Needed for Reliability of the Electric Grid*

A third reason that there is no need for the Grain Belt Express project is that it is just not needed for grid reliability. While Grain Belt Express claims that the project can produce ancillary reliability benefits, it did not submit the Project to the regional planning process, has not identified any deficiency or inadequacy which the Project addresses, and there is no evidence that the project is the best or least cost means of achieving any such benefit.

Grain Belt Express witness Robert Zavidil testified that "the injection of wind energy via the Project improves the reliability of the Missouri bulk electric system." (Zavidil Direct, Exhibit 109, p. 3, lines 1-3). However, under cross-examination, Mr. Zavadil admitted that Missouri's bulk electricity system was not unreliable, and he also admitted that Missouri load-serving entities were in no way violating any reliability standards, nor would they do so in the future. (Transcript, Volume 12, p. 702, lines 6-15). Making Missouri's bulk electricity system a Cadillac when a Chevrolet is perfectly reliable and adequate does not show a need for Grain Belt Express's project.

Furthermore, even if Missouri's bulk electricity system needed more reliability, the Grain Belt Express project is not the best and most cost-effective way to achieve more reliability. Again, Mr. Zavadil testified under cross-examination:

> Q: You state that the quantitative results from the Grain Belt Express Project wind energy injection in Missouri would have the capacity benefit of a single medium-sized natural gas power plant, correct?
>
> A: Correct.

**Q: Now, focusing on capacity benefit, wouldn't it be cheaper and take less time to build a medium-size gas plant in Missouri to achieve the same capacity benefits as the Grain Belt Express project?**

**A: Most likely it would.**

(Transcript, Volume 12, p. 701, line 25 to p. 702, line 5) (Emphasis added).

Finally, Grain Belt Express elected not to submit to the MISO regional planning process for evaluation of need and effectiveness, even though it could have. (Gray Rebuttal, Exhibit 301, p.7, lines 2-12). The MISO regional planning process identifies high-voltage transmission projects that will provide value in excess of cost under a variety of future policy and economic conditions. These projects are designated as Multi Value Projects (MVPs). (*Id.*, p. 6, lines 12-15). The MISO Board of Directors approved a portfolio of 17 MVPs in the 2011 MISO Transmission Expansion Plan (MTEP), identified as needed to facilitate the development of wind energy. (*Id.*, p. 6, lines 20-21). Grain Belt Express's project has not been identified as needed through the MISO regional planning process. (*Id*., p. 6, lines 22-23 to p. 7, line 1).Since Grain Belt Express elected not to participate in the MISO regional planning process for evaluation of need and effectiveness, it cannot show that its project is needed in the MISO footprint. Further, all of the RTO interconnection studies have not been completed. (Lange Rebuttal, Exhibit 203, p. 14 line 10 to p. 15, line 2).

*MISO Has a Very Robust Transmission Planning Process, Has some of the Best Wind in the United States, and Has More Than Enough Wind to Supply MISO's Needs*

According to American Wind Energy Association witness Michael Goggin, MISO has a very robust transmission planning process: "MISO already has a very robust transmission planning process through the MTEP process and the RGOS process, Regional Generation Outlet Study." (Transcript, Volume 14, p. 942, lines 7-10). Mr. Goggin continues: "[Before FERC Order 1000] MISO already had processes in place that were quite effective at planning and building transmission." (Transcript, p. 942, line 24 to p. 943, line 1).

Mr. Goggin testified as a witness on behalf of Wind on the Wires (WOW) in the Illinois Commerce Commission, Case Docket Number 12-0598, regarding a MISO MVP project to be constructed in Illinois. In that case, Mr. Goggin testified:

> As indicated in the wind resource map in WOW Exhibits 11 and 1.2, Illinois and the parts of MISO to the west of Illinois have some of the best wind energy resources in the United States.

(Transcript, Volume 14, p. 962, line 23 to p. 963, line 1). Mr. Goggin further testified in that case:

> NREL's [National Renewable Energy Laboratory] data indicates that North Dakota, South Dakota, Minnesota, Missouri, and Iowa, combined, have a wind energy potential of 2,838,000 megawatts, around 34 percent of the total onshore potential in the lower 48 U.S. states, or enough to meet the current electricity needs of the U.S. at least two times over.

(Transcript, Volume 14, p. 963, lines 5-11).

Mr. Goggin went on to testify in that case about the robustness of MISO's transmission planning process:

> MISO worked with stakeholders in the RGOS process to identify zones where future wind development is likely to occur and would most cost-effectively occur. To identify the most cost-effective and wind resource mix, the RGOS analysis carefully balanced generation costs and transmission costs to arrive at the optimal mix of wind resources.

(Transcript, Volume 14, p. 963, lines 18-25). And:

> The goal of the RGOS analysis was to design transmission portfolios that would enable RPS [Renewable Energy Standard] mandates to be met at the lowest deliverable wholesale energy cost. The cost calculation combined with the expenses of the new transmission portfolios with the capital costs of the new renewable generation, balancing the trade offs of a lower transmission investment to deliver wind from lower wind availability areas, typically closer to larger load centers; against a larger transmission investment to deliver wind from higher wind availability areas, typically located further from load centers.

(Transcript, Volume 14, p. 964, lines 11-23).

Three conclusions can be drawn from the testimony of this wind energy expert: (1) MISO has a robust and effective transmission planning process to enable states in the MISO

footprint to meet their RPS mandates at the lowest deliverable energy cost; (2) the MISO footprint has some of the best wind energy resources in the United States; and (3) MISO has enough wind resources (2.838 million MW) to meet the current electricity needs of the entire United States at least two times over. Given all this, it is much more likely that MISO Wind can satisfy all the needs Missouri utilities for wind energy instead of the small amount of Kansas Wind (500 MW) that Grain Belt Express has to offer into MISO.

*Grain Belt Express Cannot Guarantee that Missouri Will Receive Any of the 500 MW it Proposes to Drop in Missouri*

According to Grain Belt Express, its project will offer any customer participating in MISO and PJM access to wind energy. (Berry Direct, Exhibit 118, p. 4, lines 6-8). (Emphasis added). It follows that utilities in Missouri, if they wanted to buy wind energy from the Grain Belt Express project, would have to compete with other potential buyers from other states in the MISO footprint. Currently, 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. (Transcript, Volume 12, p. 417, lines 6-22). Grain Belt Express plans to negotiate with all interested customers, who will then submit a detailed bid for transmission service to the Company, and long-term transmission service will be awarded to those bids scoring highest based on the Company's ranking criteria. (Berry Direct, Exhibit 118, p. 8, lines 10-17). Given that other parts of MISO have higher energy prices than Missouri, It is much more likely if any entity in MISO will be buying power from the Grain Belt Express Project, it will be in another part of MISO that is not Missouri.

C. The Applicant's proposal is not economically feasible

*Economic Viability*

As noted in subsection B. above, need and economic viability are closely linked. Economic viability for meeting the Missouri RES is not a lowering of Missouri retail rates.

Show Me witness Dr. Proctor illustrates this with an example that shows a renewable energy resource that costs more than an a combined cycle alternative can still meet the Missouri Commission's rule for a 1% limit on rate impact. (Proctor Cross-Surrebuttal, Exhibit 401, pp. 6-7).

Economic viability 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).

While Grain Belt claims that economic feasibility for the Grain Belt Project can be determined using Levelized Cost of Energy (LCOE) calculations that show the project is the least-cost alternative, levelized cost analysis alone is not sufficient. Dr. Proctor points out that 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). 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.*) Dr. Proctor points out that 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). 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). Grain Belt Express's 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). (Transcript, Volume 14, p. 1081, lines 21-24). Grain Belt's evidence is not sufficient to meet the standards required to show economic feasibility.

*Grain Belt Express's evidence on the LCOE is not based on a reasonable set of assumptions to show that its project is least cost*

i. Assumptions for Kansas Wind Generation

The important question for this Commission to consider is whether Grain Belt's evidence on the LCOE is based on a reasonable set of assumptions to show that its project is the least cost. The evidence shows that the Grain Belt Express project is not the least cost alternative for Missouri utilities.

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).

1. Capital Cost of the Wind Turbine

Dr. Proctor used $1,760/kW based the DOE 2012 Wind Technologies Market Report. (Proctor Rebuttal, Exhibit 400, p. 8, lines 11-12). 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).

2. O&M Cost 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. 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).

3. 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). That 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).

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) future improvements in wind turbine technology; and (3) professional judgment. (Transcript, Volume 15, p. 1257, line 6, to p. 1258, line 8). This, even though Mr. Berry admits that his survey of potential suppliers averages only 52%. (Berry Surrebuttal, Exhibit 120, p. 29, lines 10-12).

This evidence is highly suspect. First, the wind producers that responded to the RFI want to participate in the Grain Belt project and have a pecuniary interest in seeing that the Grain Belt Express receives all of the necessary regulatory approvals, because they want to sell wind to Grain Belt Express or to wholesale buyers who are Grain Belt Express customers. Second, as Grain Belt Express witness Mr. Berry admitted in cross-examination, Grain Belt Express did not do any independent testing or verification to validate the results from the RFI:

> Q: But you didn't go back to the wind developers and ask them for their sources and then do an audit of their numbers?
>
> A: No, I did not.

(Transcript, Volume 15, p. 1240, lines 14-17).

The Commission must determine whether to base the estimate of capacity factor for Kansas Wind on proven performance, or on hoped for performance. There is no credible or reliable performance data in the record to support the expectation of a 55% capacity factor. There are only self-serving statements by witnesses who stand to gain if this project is built, which Grain Belt Express blindly accepted without performing any independent verification or studies. Conversely, Dr. Proctor relied on verifiable, independent studies that are routinely relied on in the utility and energy industries. Dr. Proctor's capacity factor of 50% is more reliable and credible.

Even though the differences in capital costs are very small, it is surprising to find that Mr. Berry's estimated levelized capital cost of $38.57/MWh based on a 55% capacity factor (Proctor Rebuttal, Exhibit 400, p. 8, line 22) is actually higher than Dr. Proctor's estimate of $34.63/MWh based on a 50% capacity factor. (*Id.* at p. 8, line 14). This should be a strong indication to the Commission that there is something wrong with Mr. Berry's calculations of LCOE.

4. 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). 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.

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). 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).

While Mr. Berry would like to convince the Commission that Kansas Wind's accredited capacity can be determined by a simple calculation that assumes proportionality of wind speeds during the summer peak hours to average annual wind speeds (Berry Direct, Exhibit 118, Schedule DAB-3, p. 1), there is no evidence to support this analysis. In his Surrebuttal testimony, 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). 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. Mr. Berry also 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). Mr. Zavadil's calculated 33% should be given no weight as it a far above any accredited capacity that has been calculated by MISO.

While in his surrebuttal Mr. Berry criticizes Dr. Proctor's use of historical data, this is exactly what he says he did in his calculation. The difference between Dr. Proctor and Mr. Berry is the reliance on actual historical data as opposed to a calculation using historical data based on a calculation by Mr. Berry that depends on an unsubstantiated assumption about the relationship

between accredited capacities and average annual wind speeds, as well as a hoped for capacity factor. As with capacity factor, accredited capacity should be based on actual performance, not on hoped for improvements or unsubstantiated estimates.

5. Revenue Credits from the Sale of Capacity vs. Added Cost for Low Accredited Capacity for Wind.

Dr. Proctor adds the cost of a combustion turbine to make up for the lower accredited capacity for wind. (Proctor Rebuttal, Exhibit 400, p. 16, lines 15-23). Mr. Berry values the lower accredited capacity for wind at the cost of a combustion turbine. (Berry Surrebuttal, Exhibit 120, p. 23, lines 15-17). While both approaches are intended to take into account the differences in capacity between wind and other non-renewable resources, the assumptions are quite different.

Dr. Proctor's approach assumes that the capacity of the wind resource will be purchased or owned by the utility that has a need for both capacity and energy. (Proctor Rebuttal, Exhibit 400, p. 16, lines 5-9 and Cross-Surrebuttal, Exhibit 401, p. 5, lines 5-6). On the contrary, Mr. Berry's approach assumes that the capacity from the wind can be sold to provide revenues to the producer and that the wind capacity can be sold in a capacity market at a price equal to the cost of a combustion turbine. (Berry Surrebuttal, Exhibit 120, p. 23, lines 16-17). In his Surrebuttal testimony, Mr. Berry calls these capacity credits an "avoided cost," but in his calculations he treats them as a source of revenue. (*Id.*).

While Mr. Berry believes the two approaches will give the same results in determining the comparative costs of alternative resources, he misses the key issue of being able to comply with the Missouri Commission's rule for meeting the 1% rate impact limit for renewable resources, or being able to show that a resource is needed to meet the energy and capacity requirements of the utility. Moreover, if the sale of capacity is included in a resource plan, its price is determined in

capacity markets, not by the "avoided" cost of a combustion turbine. Irrespective of whether or not capacity sales are included in the resource plan, the utility has a level of capacity it is required to meet and when comparing two or more resource portfolios, they both must have sufficient capacity to meet that need.

While Dr. Proctor's and Mr. Berry's calculation use the same capital cost for the combustion turbine, Mr. Berry inflates the capital cost of the combustion turbine to 2019, but did not inflate the cost of the capital costs for wind in the same manner. (Proctor Rebuttal, Exhibit 400, p. 15, lines 19-22). Dr. Proctor also includes the fixed O&M costs without an escalation rate, while Mr. Berry uses a 2.5% inflation rate as an escalation rate for these O&M costs. (*Id.*; Berry Surrebuttal, Exhibit 120, p. 43, line 11).The difference between escalation rates and inflation rates is discussed in a subsequent section.

6. Revenue Credits from Federal Production Tax Credits

Dr. Proctor and Mr. Berry apply an inflation rate to the 2013 ending production tax credit of $23/MWh and then calculate the levelized value of the production tax credit that historically has been granted over the first 10 years of operation. (Proctor Rebuttal, Exhibit 400, p. 14, lines 9-23). The major difference between the two calculations is Mr. Berry's use of a 2.5% inflation factor, while Dr. Proctor's used Energy Information Agency (EIA) inflation factor of 1.55% to 2019 and 1.65% for the next 10 years (*Id.*).

Dr. Proctor estimates a levelized production tax credit of $16.51/MWh (Proctor Rebuttal, Exhibit 400, p. 14, lines 20-21), while Mr. Berry's estimate is $27.49/MWh (*Id.*, p. 14, lines 14-15). Mr. Berry applied the inflation rate as if the federal law would grant wind farms an inflation factor of 2.5% per year to the production tax credit. (Id., p. 14, lines 15-17). **More than for any**

**other calculation, this calculation shows the significant impact on levelized numbers (costs as well as credits) from Mr. Berry's application of a very high inflation rate.**

Clearly, a future rate of inflation is a forecast. 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.

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). This inflation rate is clearly used by a federal energy agency in its forecasts of energy. The evidence shows that Dr. Proctor's approach is more credible.

7. Application of Production Tax Credits (PTCs) for Kansas Wind

Dr. Proctor does not include PTCs for Kansas Wind because PTCs for wind ended for wind farms whose construction had started before December 31, 2013. (Proctor Surrebuttal, Exhibit 401, p. 15, lines 4-16). Mr. Berry contends that Kansas Wind delivered by Grain Belt Express will be competitive without the PTC. He does argue that since Congress has a history of renewing the PTC it should be included as a scenario. (Berry, Surrebuttal, Exhibit 120, p. 44, lines 3-15). Dr. Proctor states that the inclusion of the PTC should be viewed by the Missouri Commission as an alternative future characterized as "Aggressive Changes" rather than a future that includes "Likely Changes." (Proctor Surrebuttal, Exhibit 401, p. 24, line 8 to p. 25, line 2).

Given the speculation surrounding whether the PTC will be renewed by Congress, in its evaluation of economic feasibility, the Missouri Commission should make its determination based on "Aggressive Changes."

8. Conclusions for Kansas Wind

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.

**B. Assumptions for Grain Belt Express Transmission Costs**

Dr. Proctor and Mr. Berry disagree on whether there will be cost overruns in constructing the project. Mr. Berry doesn't believe that there will be any and doesn't take them into account in his calculations. According to Dr. Proctor's experience, overruns are probable, even likely, and should be taken into account.

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).

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).

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 interconnection costs. (Galli surrebuttal, Exhibit 113, schedule AWG-10, p. 9)[4] 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).

**C. Assumptions for Combined Cycle Generation**

In addition to capital cost and O&M expenses, the assumptions for combined cycle generation include property taxes, fuel expense and potential CO2 cost.

1. Capital Costs

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.

2. Escalation Rates vs. Inflation Rates

[4] 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.

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). 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). 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).

The issue here is if there is no forecast in the escalation rate for O&M expenses, is it proper to apply an assumed inflation rate in order to arbitrarily construct an escalation rate? If so, then which inflation rate should be used? Cost escalation for expense should not be based on the analyst's choice of inflation rate. Since EIA provided no forecast of cost escalation, Dr. Proctor chose either not to inflate their cost estimate, or in the alternative to apply EIA's estimated inflation rate.

3. Property Tax

Dr. Proctor and Mr. Berry used the same property taxes in their levelized cost calculations.

4. Fuel Expense

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. 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.) 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.

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). This inflation rate is clearly used by a federal energy agency in its forecasts of energy. The evidence shows that Dr. Proctor's approach is more credible.

5. Potential $CO^2$ Cost

While $CO^2$ 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 $CO^2$ of $12.60/MWh. (Proctor Rebuttal, Exhibit 400, p. 21, line 9). Mr. Berry and Dr. Proctor started with the same forecast for $CO^2$ cost, but Mr. Berry added an inflation rate to the escalation rate already included in the forecast. (*Id*., p. 21, lines 5-7).

Mr. Berry states that Dr. Proctor failed to properly convert the $CO^2$ forecast to nominal dollars. (Berry Surrebuttal, Exhibit 120, p. 45, lines 13-14). This assumes that the forecast was in real dollars, but there is no evidence on the record to support that assumption.

**D. Assumptions for Alternative Missouri Wind Generation**

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).

**E. Assumptions for Alternative MISO Wind Generation**

It is important to note that 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)

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 request. (Exhibit 126, p. 7). These property taxes vary by the capacity factors for MISO Wind, as higher capacity factors result in less capacity needed to deliver the same amount of energy. These property taxes should be added to MISO Wind levelized cost estimates presented in Dr. Proctor's Rebuttal testimony.

1.a. Capacity Factors for MISO Wind

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. p. 28, table at line 8). The key question is why go up to a 50% capacity factor for MISO wind?

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.

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 make 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.

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, it is uncertain as to why Mr. Berry made no such comparisons for the Dakotas and southwestern Minnesota, like Dr. Proctor did.

It is also important to note that if a 55% capacity factor is claimed for western Kansas Wind, a proper comparison to MISO Wind by Mr. Berry should have included a 55% capacity factor for MISO Wind. His comparisons did not include a 55% capacity factor for MISO Wind, but did include that capacity factor for Kansas Wind.

1.b Impact of Capacity Factor on Levelized Costs for MISO Wind

The table on page 27 of Dr. Proctor's Rebuttal testimony shows that 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). Otherwise the levelized costs per MWh decrease with capacity factor because these are fixed costs which vary with the capacity of the wind farm. With the energy being the same, a higher capacity factor results in a lower fixed cost.

2. Transmission Costs for MISO Wind

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). 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).

2.a. MISO Wind As an Energy Only Resource

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. 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).

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). Dr. Proctor's analysis shows that with probabilities close to 100%, the differences in costs between MISO Wind and the GBX 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).

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). This calculation is subject to two errors. First, Mr. Berry must either make his calculation, not to Ameren load, but to the Grain Belt Express converter station located in Missouri, or he must subtract the congestion costs from the convertor station to his estimated congestion costs.

Second, Mr. Berry does not have the hourly generation at each of his locations needed to make a proper calculation of congestion costs. (*Id*.) While he believes his estimate may be lower than one made with the correct data, there is no evidence in the record to support his belief.

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). This means the probability of this congestion cost actually occurring is comparable to the red shaded area for the 45% capacity factor column, which is 100% minus the percent in the green area of 99.76% and is therefore around one fourth of one percent. Moreover, Mr. Berry's calculations of congestion costs are flawed in their calculations and appear to be much too high.

2.b. Costs for Firm Transmission

Dr. Proctor states that 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). 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). Dr. Proctor states: "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).

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). 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. Dr. Proctor finds that $450,000/MW is approximately 74% of the cost of the DC transmission line. (*Id.*, page 35, lines 7-10). 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).

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).

**C. Overall Conclusions**

While Mr. Berry attempts to "correct" Dr. Proctor's levelized cost analysis in his surrebuttal testimony, the only corrections that need to be made are: 1) the addition of EIA's inflation rate to the combined cycle O&M costs ($1.06/MWh); and 2) the addition of property taxes for MISO wind ($2.64/MWh for 45% and $2.37/MWh for 50% capacity factors). (Proctor Rebuttal, Exhibit 400, p. 23, line 4 and Exhibit 126, p. 7, response to question 11.)

The table on page 23 of Dr. Proctor's Rebuttal shows the levelized cost of the combined cycle alternative to be $85.97. Adding $1.06/MWh raises this cost to $87.03/MWh compared to the levelized cost of $92.26/MWh for the Grain Belt Express project. (Proctor Rebuttal, Exhibit 400, p. 23, table at line 13).

The addition of property tax to the table on page 28, line 8 of Dr. Proctor's Rebuttal Testimony (Exhibit 400) would reduce the levelized cost difference between the Grain Belt Express project and MISO wind to: $10.07/MWh for 45% and $16.45/MWh for 50% capacity factors. The addition of property tax to the table on page 35, line 16 of Dr. Proctor's Rebuttal Testimony (Exhibit 400) would increase the levelized cost to $87.19/MWh for 45% and $79.62/MWh for 50% capacity factors compared to $92.26/MWh for the Grain Belt Express project.

The importance of levelized cost analysis is that it shows: **Based on reasonable assumptions, the Grain Belt Express project is not the least-cost generation alternative for meeting Ameren Missouri's future needs for either energy and capacity or renewable energy. Therefore, it is highly unlikely to meet the Missouri Commission's rule for rate impact from renewable energy.** Grain Belt Express cannot show that its project is needed or economically feasible.

D. The service does not promote the public interest

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.[5] As set out above, Grain Belt Express has not met at least two of the first four Tartan criteria, and thus cannot show that its project promotes the public interest.

Furthermore, Grain Belt Express has not shown that the project is good for Missouri, in part because its "public outreach" was flawed and numerous disadvantages to landowners and other constituents have been shown and not adequately addressed. The evidence shows that in Grain Belt Express's opinion, landowners are the least important stakeholder.

*Grain Belt Express's Courting of Political and Business Leaders*

From the beginning, Grain Belt Express sought first and foremost to curry favor with political, community and business leaders. In May 2010, Grain Belt Express began identifying the resource area where the wind generation for the project would be located, and the proposed

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

point of delivery for the project (St. Francois County, Missouri). (Lawlor Direct, Exhibit 101, p. 7, lines 11-13). As a result, a broad study area was identified, including 52 counties in southern Kansas and southern Missouri. (*Id*., p. 7, lines 17-20). In May 2011, MISO provided an interconnection study that indicated the intitial delivery point in St. Francois County was not economically feasible. (*Id*., p. 7, line 20 to p. 8, line 2. As a result, the routing team identified Sullivan County, Indiana as a potential delivery point. (*Id.*, p. 8, lines 3-4). 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).

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). Grain Belt Express then engaged the Nature Conservancy to provide guidance. (*Id*., p. 9, line 7). 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). 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). Next,

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

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

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

*Three Years After it Began its "Outreach", Grain Belt Express*

*Finally reaches out to Landowners*

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) 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). Only 1,288 attended, a paltry 11.2% participation rate. (*Id.*, schedule MOL-3). 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).

This lengthy narrative of Grain Belt Express's outreach activities to political and community leaders and organizations spanned over three years (May 2010-July 2013). Outreach to landowners and the public lasted just 8 months (July 2013-March 2014). Landowners on the route were not even officially notified until after Grain Belt Express had filed this case. Show Me submits that this is not really "outreach" at all, just a cursory attempt to convince the Commission that landowners were involved in the process, when in fact the landowners had little to no meaningful chance to provide input on the route selection.

*The Public Strikes Back*

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). 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).

*Show Me's Witnesses on Impacts to Land and Property Values*

Show Me presented two witnesses who testified to the negative impacts the line would have on the land, farming and ranching operations, and land values.

Show Me Witness Kurt Kielisch is a licensed real estate appraiser. (Kielisch Rebuttal, Exhibit 402, p. 1, line 10. 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). He testified that perception (what a buyer believes) drives the value of land. (*Id.*, p 4, lines 4-6). As an example, he 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).

With regard to high voltage transmission lines (HVTLs), Mr. Kielisch 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).

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).

Irrigation systems can be negatively impacted by HVTLs. (*Id*., p. 8, line 21 to p. 9, line 2.) His 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). 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). Potential shock problems cause farmers to use extra caution. (*Id*. page 13, lines 3-10). 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).

Mr. Kielish has conducted several studies, all of which have shown decreases in property values. 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.

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).

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).

Soil compaction from transmission line construction and maintenance can negatively affect crop yields if not properly mitigated. (*Id*., page 5, lines 13-17). 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). 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). 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). 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). 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). Mr. Kruse also expresses concerns about storm recovery. 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).

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). 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).

The concerns outlined by Mr. Kielish and Mr. Kruse are only heightened when looking at Grain Belt Express's history of putting the landowner last since it came to Missouri in 2010. Show Me believes that this Commission must protect landowners from harm.

G. The Applicant does not have the County approvals required by statute

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).

According to the statute, it is a condition precedent that before the Commission can issue a CCN, the applicant must show that it has received the required consent of the proper local authorities.

This Grain Belt Express cannot do. 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). Therefore, it is Show Me's position that Grain Belt Express has not met a condition precedent for the Commission to issue a CCN.

## II. *If the Commission grants the CCN, what conditions, if any, shoud the Commission impose?*

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 area 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.

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). These recommendations serve to emphasize how woefully insufficient Grain Belt Express' Application truly is. Show Me does not believe that the Commission should grant a CCN to Grain Belt Express because such approval is premature given the current uncertain posture of the project.

If, however, the Commission does grant a CCN, Show Me believes that numerous conditions should be imposed, including staff's recommendations. Show Me understands that Grain Belt Express and Staff have agreed on some of the recommendations but not all. Presumably, staff's Initial Post-Hearing Brief will have an updated list of recommended conditions. Show me would

support all those recommended conditions, especially the ones pertaining to landowner rights, restoration of land, and limiting the use of eminent domain.

Regarding eminent domain, Show Me's position is that the Commission should issue a CCN prohibiting Grain Belt Express from exercising eminent domain for the project. Although section 393.170 and the Harline case give the Commission much discretion in fashioning reasonable conditions and limitations, Chairman Kenney during his questioning of the undersigned counsel at opening statements raised a point about whether the eminent domain statute could be overridden by Commission action. In an abundance of caution, Show Me would ask that if the Commission were to prohibit the use of eminent domain, it place a clause in the condition that if a court subsequently rules that the Commission has no authority to prohibit eminent domain, then the entire certificate is void.

**III.** ***If the Commission grants the CCN, should the Commission exempt Grain Belt Express from complying with the reporting requirements of Commission rules 4 CSR 240-3.145, 4 CSR 240-3.165, 4 CSR 240-3.175, and 3.190(1), (2) and (3)(A)-(D)?***

At this point, Show me takes no position on this issue. However, Show Me reserves the right to take a position in its Reply Brief.

**CONCLUSION**

The evidence is clear: The Commission should not certify a proposed transmission facility that is speculative and premature. The Commission should therefore deny Grain Belt Express's request for a CCN without prejudice to Grain Belt Express's ability to resubmit its application at a future date if it can prove that it meets the appropriate criteria. If the Commission chooses to grant the CCN, then the Commission should issue a CCN prohibiting

Grain Belt Express from exercising eminent domain for the project and incorporating (with the savings clause described above) all of staff's other recommended conditions, or in the alternative, issue a CCN incorporating all of Staff's conditions as submitted, with no changes, especially the conditions pertaining to landowners and limiting the use of eminent domain, until the recommended conditions are fully met.

WHEREFORE, Show Me respectfully offers this Initial Post-Hearing Brief and prays that the Commission conform its decision in this case to the arguments contained herein.

Respectfully submitted,

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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 8th day of December, 2014.

Terry M. Jarrett