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Issues:
Witness: Paul Glenden Justis, Jr.
Sponsoring Party: Show-Me Concerned Land Owners
Type of Exhibit: Rebuttal Testimony
Case No.: EA-2016-0358
Date Testimony Prepared: January 24, 2017

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 Current Transmission Line and an Associated Converter Station Providing an Interconnection on the Maywood-Montgomery 345 kV Transmission Line	)	Case No. EA-2016-0358

REBUTTAL TESTIMONY OF

PAUL GLENDEN JUSTIS, JR.

ON BEHALF OF THE

SHOW ME CONCERNED LANDOWNERS

JANUARY 24, 2017

Show Me Exhibit No. 400 NP
Date 3-24-17 Reporter AF
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I. INTRODUCTION & SUMMARY

Q. What is your name?

A. I am generally known by the name Glen Justis. My legal name is Paul Glenden Justis, Jr.

Q. On behalf of what party in this case are you testifying?

A. I am testifying on behalf of Show Me Concerned Landowners.

Q. What is your education and professional background?

A. I have a Bachelor of Science degree in nuclear engineering from the University of Missouri-Rolla (now called the Missouri University of Science & Technology) and a Master of Business Administration degree from Webster University in St. Louis. I have also completed executive education at the Wharton School at the University of Pennsylvania, and through the Association to Advance Collegiate Schools of Business (AACSB) Bridge Program. I have worked in industry and consulting roles connected with the electric utility industry since 1986. My industry experience includes a total of 17 years at Ameren (including Ameren's predecessor, Union Electric Company). My experience at Ameren included the following roles: Engineer-Nuclear Fuel, Engineer-Interconnection Arrangements, Engineer-Corporate Planning, Supervising Engineer-Corporate Planning, Senior Risk Management Specialist-Treasurers', and Director-Transmission Capital and Risk Management. I currently own and operate a private consulting firm, Acclaim Strategies, LLC (Acclaim Strategies). In addition to performing direct work for clients, Acclaim Strategies operates as an independent contractor to Experience on Demand, a Chesterfield, Missouri-based management consulting firm. My industry and consulting experience includes extensive work in power markets and contracting, energy risk management, and transmission project and capital management. During my career I have conducted consulting assignments across the United States and Canada, and have worked on economic and risk management issues connected with all major forms of electric utilities – investor-owned, cooperative, municipal, state, and federally-chartered

entities. I have served numerous financial institutions, power marketing entities, and project developers. I also serve as an adjunct professor at Webster University in St. Louis, teaching MBA-level courses relating to operations and project management. Additional details concerning my background are provided in my curriculum vitae provided in Schedule PGJ-02 of my testimony.

Q. What is the purpose of your testimony?

A. My rebuttal testimony addresses the direct testimony submitted on behalf of Grain Belt Express (GBX) Clean Line by Mr. David Berry. I have reviewed Mr. Berry's testimony and associated work papers and reference documents, and have performed my own independent analysis. I am responding primarily to Section IV of Mr. Berry's testimony. Mr. Berry's analysis of the "need" for the project has significant deficiencies, leading to erroneous conclusions regarding the overall merit of the GBX project and his justification for a Certificate of Convenience and Necessity (CCN). My testimony identifies and describes the deficiencies I have identified in Mr. Berry's testimony, analysis, and data. I provide a more accurate analysis and discussion of the economics of GBX as relating to Clean Line's requested CCN.

Q. What aspects of Mr. Berry's direct testimony are you addressing?

A. I am addressing Mr. Berry's direct testimony relating to i) the inadequate incorporation of significant cost components in his levelized cost of electricity analysis, ii) the incorrect implication that GBX is needed to deliver wind energy to Missourians, and iii) the misleading portrayal of Clean Line's transmission service agreement with the Missouri Joint Municipal Electric Utility Commission (MJMEUC) and Clean Line's "open solicitation" as demonstrating "need" for GBX.

Q. Please summarize your testimony.

A. My testimony is organized as I mentioned above. In my testimony, I draw the following conclusions:

- The GBX project is not needed to provide transmission service within the state of Missouri. Other lower-cost alternatives exist. Existing and future wind energy delivery needs of utilities in western Missouri are being satisfied by the existing grid and by projects already under development in coordination with SPP. Existing and future wind energy delivery needs of utilities in eastern Missouri are being satisfied by the existing grid and by projects already under development in coordination with MISO.
- The GBX project is not the most economical option for delivering wind energy to Missouri. Utilizing the existing transmission grid is a lower-cost alternative to the GBX project. As documented in multiple studies[1], the so called "break-even distance" for proven HVDC technology is approximately 600-800 kilometers (372-496 miles). For HVDC projects with extra conversion terminals (such as GBX), the breakeven distance is longer. Missouri utilities can access high-quality wind resources at shorter distances through the existing transmission grid.
- I agree with Mr. Berry that a levelized cost of electricity (LCOE) analysis is a valuable and important method for comparing the cost of alternative electricity generation options, but it normally must be combined with other metrics, such as Levelized Avoided Cost of Electricity (LACE) to provide a more accurate picture of the relative economics of power supply alternatives. Also, it is essential to incorporate all relevant costs in the LCOE analysis on a consistent basis when comparing resource options.
- Mr. Berry has not properly incorporated the cost of supplemental capacity required to be able to compare the relative total cost of wind-based generation with conventional generation on equal footing within his LCOE analysis. Further, Mr. Berry uses other questionable input assumptions

[1] http://www.siemens.com/about/sustainability/pool/en/environmental-portfolio/products-solutions/power-transmission-distribution/hvdc_proven_technology.pdf; http://new.abb.com/systems/hvdc/why-hvdc/economic-and-environmental-advantages; High Voltage Direct Current (HVDC)Transmission Systems Technology Review Paper, Roberto Rudervall (ABB Power Systems-Sweden), J.P. Charpentier (World Bank-United States), Raghuveer Sharma (ABB power Systems-Sweden)

in his LCOE which, when combined with his omission of capacity costs, lead to erroneous results that suggest wind energy delivered into Missouri via GBX is less expensive than other alternatives.

- I have performed an independent analysis that indicates wind energy delivered via GBX is uneconomic and is significantly more expensive than other alternatives, such as combined cycle generation fueled with natural gas, when all relevant costs are properly incorporated.
- The contract between Clean Line and MJMEUC does not demonstrate a need for the project. This is because the contract is neither binding on Clean Line nor MJMEUC in an economically meaningful way.
- The responses to Clean Line's "solicitation of interest" demonstrate that there is no need for the project. The expressions are non-binding, and of the fifteen interested parties only one is a Missouri wholesale power supply entity.
- GBX is not necessary for Missouri utilities to satisfy either existing or likely future RES requirements.

II. NEED AND PUBLIC INTEREST

A. GBX IS NOT NEEDED TO DELIVER WIND ENERGY

Q. Is GBX Needed to Deliver Wind Energy to Missouri?

A. No, GBX is not needed to deliver wind energy to Missouri. Other alternatives exist. The alternatives depend on where the utility is located, both geographically and in terms of the regional transmission organization (RTO) it operates within. Existing and future wind energy delivery needs of utilities in western Missouri are being satisfied by the existing grid and by projects already under development in coordination with SPP[2]. Existing and future wind energy delivery needs of utilities in eastern Missouri are being satisfied by the existing grid and by projects already under

[2] 2016 SPP Transmission Expansion Plan Report and Project Listing

development in coordination with MISO[3]. Missouri utilities not belonging to SPP or MISO can also access wind energy through these and other transmission facilities. The three largest power suppliers in Missouri – Ameren, Great Plains, and Associated Electric, which cover all geographies in the state, currently purchase wind energy over the existing grid. Ameren and Great Plains include additional wind energy in their latest integrated resource plans (IRPs). These wind energy additions rely on a combination of existing transmission capacity as well as capacity additions associated with projects in MISO and SPP transmission plans. These plans reflect the best integrated solutions for meeting the needs of members of these RTO's, and are closely coordinated with transmission expansion plans of nearby utilities.

As a matter of fact, FERC decisions and orders require RTOs to construct transmission facilities in response to requests for transmission service. FERC Order No. 888 requires RTOs to construct transmission facilities in response to requests for transmission service within the RTO. FERC Order No. 2000 requires RTOs to plan for interregional transmission improvements. Grain Belt Express Clean Line confirmed this obligation in its application to FERC in Docket No. ER14-409, at page 13, where it states, "because potential customers can pursue alternative transmission service from incumbent transmission owners operating where the Project will be built at cost-of-service rates (capped at the incumbent utility's cost of expansion), customers will purchase transmission service from Applicant only to the extent that it is cost-effective to do so." Mr. Berry explained further the reasoning behind this representation in his response to Show Me's data request 2.1(a), stating:

> A potential customer of Grain Belt Express could also request transmission service from the applicable regional transmission organizations (RTOs) SPP, MISO, and PJM. The RTOs would coordinate with the incumbent transmission owners to determine the necessary

[3] MISO MTEP 2016

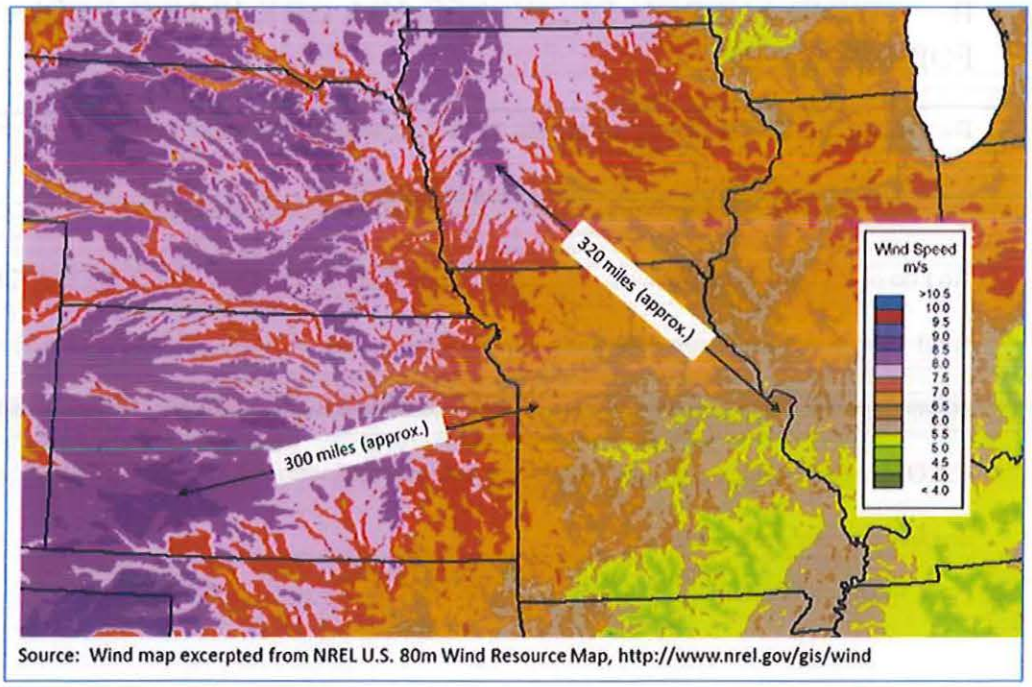
transmission infrastructure needed to grant the requested service. The incumbent transmission owners are obligated to expand their transmission network to accommodate any such transmission service request at the requestor's expense.

There is adequate transmission service through the existing RTO structure. There is no need for the duplicative service that GBX proposes.

Q. Is GBX the most economical option for delivering wind energy to Missourians?

A. No, GBX is not the most economical wind energy delivery option for Missouri. Lower-cost alternatives exist. The "breakeven" distance for HVDC transmission varies by project, but is generally considered to be in the range of 600-800 kilometers (372-496 miles)[4]. For HVDC projects with extra conversion terminals (such as GBX), the breakeven distance is longer. Missouri utilities can access high-quality wind resources at shorter distances, thus making conventional AC transmission preferable. As seen in the wind resource graphic in Figure 1 on Page 9 (similar information is referenced in Mr. Berry's testimony), the new Kansas wind farm locations that would presumably transmit power over GBX are in SPP's footprint and approximately 300 miles from the Kansas City area in western Missouri. As seen in Figure 2, similar but slightly lower velocity wind resources within the MISO footprint can be found in Iowa, approximately 320 miles from the St. Louis area in eastern Missouri. Conventional AC-based transmission from the existing grid, plus grid additions already planned by SPP and MISO are the most economical method of delivering wind energy to Missouri. GBX only makes economic sense for the transmission of wind energy ***past*** Missouri for the benefit of eastern states.

[4] http://new.abb.com/systems/hvdc/why-hvdc/economic-and-environmental-advantages



Source: Wind map excerpted from NREL U.S. 80m Wind Resource Map, http://www.nrel.gov/gis/wind

Figure 1 – Wind Speed Map

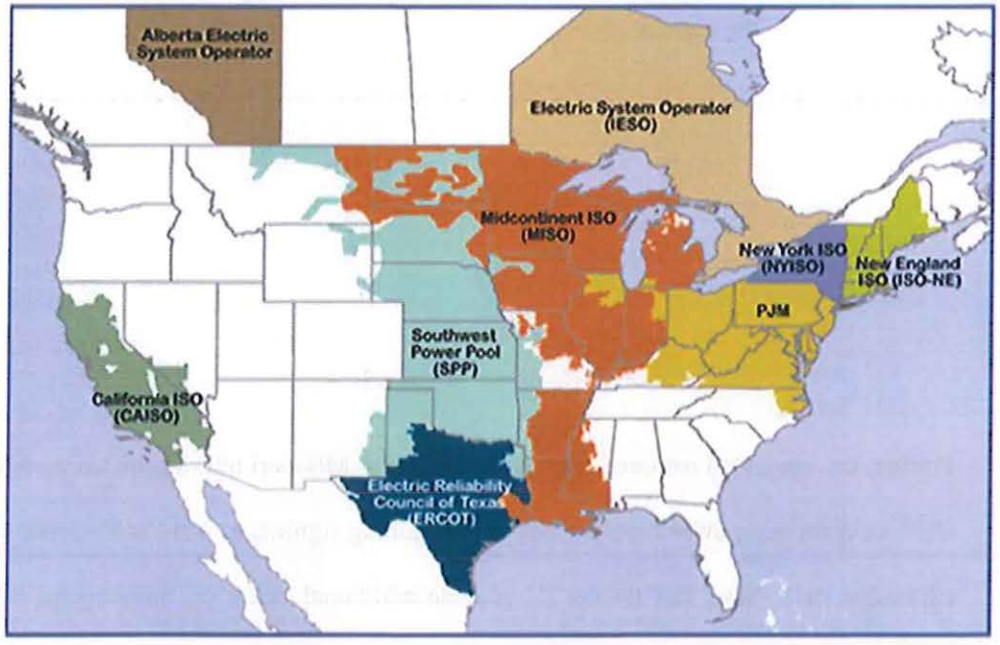


Figure 2 – RTO Map

B. WIND ENERGY DELIVERED VIA GBX IS NOT ECONOMICAL FOR MISSOURI

Q: Do you agree with Mr. Berry's conclusion that Kansas-based wind energy delivered via GBX is the lowest-cost energy supply option for Missouri?

A: No I do not. I have performed my own independent analysis and have concluded that Kansas-based wind energy delivered into Missouri via GBX, inclusive of necessary supplemental capacity to augment reliability, is approximately **% more expensive in terms of levelized cost of energy (LCOE) than advanced combined-cycle generation fueled with natural gas. The LCOE results from my analysis are shown below:

Figure 3

Further, the integrated resource plans (IRPs) of major Missouri utilities, including Ameren's latest IRP[5], confirm that power supply portfolios containing significant wind energy resources are more expensive than those that do not. I provide additional detail on this conclusion later in my testimony.

[5] Ameren Missouri Integrated Resource Plan, 2014

Q. What is LCOE analysis?

A. Levelized cost of electricity (LCOE) analysis is a commonly-used method of comparing the relative total cost of electricity generation alternatives that may have differing economic lives, operating characteristics, and/or cost characteristics. LCOE is used throughout the electric power industry as a preliminary screening tool in integrated resource planning, and is also used extensively by authoritative research organizations such as the U.S. Energy Information Administration (EIA)[6].

Q. What is LACE analysis?

A. Levelized Avoided Cost of Energy (LACE) is a supplemental form of analysis that looks beyond LCOE to consider the cost of energy that a given electricity generation alternative would displace. LACE is important because it considers how a given resource fits into a portfolio of resources, which is essential in integrated resource planning. It is more appropriate to determine preferred resource options by examining the difference between their LCOE and LACE values rather than considering LCOE in isolation[7].

Q. Has Mr. Berry appropriately incorporated all of the relevant costs in comparing the cost of wind energy with other sources of energy available to Missouri utilities?

A.: No. In his LCOE, Mr. Berry has not properly incorporated the cost of supplemental capacity required to be able to compare the relative total cost of wind-based generation with conventional generation on an equivalent basis.

Q. Why is the cost of supplemental capacity important?

[6] Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2016, U.S. Energy Information Administration, August 2016

[7] Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2016, U.S. Energy Information Administration, August 2016 (page 2)

A. In Missouri and many other states, utilities are obligated to operate in accordance with regional resource adequacy rules[8]. The effect of these rules is that utilities must carefully consider not only the direct cost of energy supply, but also the cost of capacity (the ability to deliver energy on-demand) from each resource option. For long-term planning purposes, utilities in both MISO and SPP must be able to demonstrate a total level of dependable "on-demand" capacity that exceeds expected firm load at time of peak by a prescribed amount. This amount of "capacity cushion" is referred to as "planning reserves." In MISO, the planning reserve requirement is 14.8%[9], and in SPP it is 12%[10]. However, in both regions, wind energy is only given partial credit because it is not a dispatchable "on-demand" resource at time of peak demand. Wind resources operate at relatively low levels during peak summer conditions when the heat index is high and winds are low. For example, wind only receives a 15.6% average capacity credit in MISO for purposes of counting towards fulfillment of planning reserves[11]. Thus, for a utility to compare 1 MW of wind as a resource on an equal footing with conventional dispatchable generation, the utility must include an additional 0.844 MW of capacity costs. SPP and other RTOs operate in similar fashion. The cost of supplemental capacity to augment non-dispatchable resources such as wind generation is commonly based on the total fixed cost of simple-cycle natural gas-fired combustion turbine (CT) generation, as it has the lowest fixed costs of on-demand generation.

Q. Does Mr. Berry properly address the issue of "capacity value" in his analysis?

A. No he does not. Mr. Berry acknowledges in his testimony that the relative cost of supply options must be adjusted to reflect the difference in capacity value[12]. However, he does not make the adjustment correctly. His approach of giving each type of generation a "capacity credit"[13] does

[8] Issues Statement on Facilitating Resource Adequacy in the MISO Region, MISO Staff, March 2015
[9] http://www.misomtep.org/long-term-resource-assessment
[10] "SPP board votes to lower planning reserve margins", SPP.org, April 26 2016
[11] MISO Planning Year 2016-2017 Wind Capacity Credit, 12/18/2015
[12] Berry direct testimony, page 29 line 6
[13] Berry direct testimony, Schedule DAB-05

not properly reflect the way in which a regulated utility having an obligation to serve would view the costs. Rather than a relative credit for each generation option, the appropriate method is, as previously referenced, to add extra cost to wind generation to reflect the level of supplemental capacity that would be needed. The incorporation of capacity cost can greatly impact LCOE results. Further, the LCOE impact, as with other costs, is inversely driven by the capacity factor of the generating unit. The result is that the impact on LCOE is magnified for wind generation due to its lower capacity factor compared to conventional generation. Thus, treating capacity as a "credit" distorts (artificially lowers) the cost of wind versus dispatchable generation.

Q. Are all of Mr. Berry's other analysis input assumptions reasonable?

A. No. Several of his inputs are questionable in general, inconsistent, and/or outdated. In total, his analysis input assumptions, combined with the capacity cost issue, produce an artificially low estimate of the cost of Kansas-based wind delivered via GBX. I provide a detailed summary of the input assumption issues and the capacity value issue, along with their individual and combined effects, as Schedule PGJ-01.

Q. When these inputs are corrected, what are the results?

A. As indicted in Schedule PGJ-01, results from Mr. Berry's model, when method and input corrections are made, indicate that Kansas-based wind energy delivered into Missouri via GBX plus necessary supplemental capacity would cost approximately $********/MWh on a levelized basis. The more economical option (advanced combined cycle generation fueled with natural gas) is approximately $******** on a levelized cost basis in this model.

Q: What method did you use to arrive at these values?

A: After agreeing to assist Show Me Concerned Landowners with the case (but before receiving any information from the case via data requests), I prepared my own independent LCOE analysis. After receiving and reviewing the model and work papers from Mr. Berry through data requests, I

adjusted global inputs (those inputs impacting all alternatives uniformly, such as cost of capital, inflation rate, etc.) in my model to match those of Mr. Berry. I then compared results and discovered significant differences between the results from my analysis versus his. After identifying the main generation-specific methodology and input differences, I then substituted the correct methods and input values described in Schedule PGJ-01 into a copy of Mr. Berry's model. As seen in Figure 4 below, the results of his model, after the inputs were adjusted and the cost of supplemental capacity included, were very close to the results from my independent model using the same global and generation-specific inputs. Interestingly, Iowa-based wind energy, which is just slightly more expensive than Kansas-based wind energy delivered by GBX, was not included in Mr. Berry's analysis. Delivery of Iowa-based wind energy is already accommodated by the existing grid.

* * * * * * * *

Figure 4

Q. How does consideration of LACE impact relative economics?

A. According to a recent U.S. Energy Information Administration report[14],

[14] Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2016, U.S. Energy Information Administration, August 2016, p. 2.

> Since projected utilization rates, the existing resource mix, and capacity values can all vary dramatically across regions where new generation capacity may be needed, the direct comparison of LCOE across technologies is often problematic and can be misleading as a method to assess the economic competitiveness of various generation alternatives. Conceptually, a better assessment of economic competitiveness can be gained through consideration of avoided cost, a measure of what it would cost the grid to generate the electricity that is otherwise displaced by a new generation project, as well as its levelized cost. Avoided cost, which provides a proxy measure for the annual economic value of a candidate project, may be summed over its financial life and converted to a level annualized value that is divided by average annual output of the project to develop its "levelized" avoided cost of electricity (LACE). The LACE value may then be compared with the LCOE value for the candidate project to provide an indication of whether or not the project's value exceeds its cost. If multiple technologies are available to meet load, comparisons of each project's LACE to its LCOE may be used to determine which project provides the best net economic value. Estimating avoided costs is more complex than estimating levelized costs because it requires information about how the system would have operated without the option under evaluation. In this discussion, the calculation of avoided costs is based on the marginal value of energy and capacity that would result from adding a unit of a given technology to the system as it exists or is projected to exist at a specified future date and represents the potential value available to the project owner from the project's contribution to satisfying both energy and capacity requirements.

When you compare the relative LACE values of generation alternatives, you see that the difference between the LACE and LCOE value of combined cycle generation is larger than for wind energy. According to the EIA report referenced immediately above, the delta (difference) between LACE and LCOE for advanced combined cycle generation is $5.60/MWh, and the value for wind is $1.50/MWh. Note that, for this metric, a higher value is better and indicates more favorable economics. The value for wind is lower, in part, because wind energy displaces lower cost (and hence, lower value) energy than does combined cycle generation. In part, this is because the wind tends to blow more during non-peak hours than peak hours, combined with the fact that wind is non-dispatchable. This worsens the relative economics of wind versus conventional generation sources.

Q. How do the economics of wind energy compare based on Missouri utility IRPs?

A. It depends on the specific assumptions of each utility, but using Ameren as an example, even though wind energy is described as "competitive" in their most recent full IRP (2014), their lowest-cost plan has wind resources limited to RES compliance, and their highest-cost plan contains 100%

renewables, mostly wind[15]. Further, Ameren indicates that their compliance level of wind energy is limited by the 1% rate increase cap[16]. Mr. Berry also mentions this in his direct testimony[17]. Thus, wind energy increases total costs (and rates) compared to conventional generation. If this were not the case, then the addition of more wind energy into Ameren's portfolio would cause rates to go down, not up.

Q. What other risks exist that call into question the economics of GBX?

A. In addition to general business risks, I question the sustainability of the "1st mover" and "normal" prices Clean Line has suggested it would charge for service on GBX. Ultimately, Clean Line must generate sufficient revenue to cover its costs plus a market-driven profit for investors. If discounts are offered to early adopters, even though this may stimulate the project moving forward, this does not necessarily mean additional customers will sign-up later at prices that are above the average price needed to meet total revenue requirements. Further, the construction cost Clean Line claims (approximately $2.9 billion in total[18]) is unrealistically low. Other studies conducted by highly-qualified firms indicate that the cost for an HVDC line similar to GBX, plus converter stations and interconnection facilities, would be closer to $3.6 billion in 2014 dollars[19]. Significant risk exists that Clean Line will be unable to fully subscribe GBX, and it subsequently becomes a stranded investment. Finally, the base natural gas price forecast assumed in Mr. Berry's model (I have used the same prices for consistency in my model), are noticeably higher than recent market-traded futures prices. Transactions on futures markets are commonly considered to be the best indicator of risk-adjusted future prices. Due to continued domestic production from shale, current natural

[15] Ameren Missouri Integrated Resource Plan 2014, Section 9, page 18
[16] Ameren Missouri Integrated Resource Plan 2014, Section 9, pages 6-7
[17] Berry direct testimony, page 38 line 1
[18] Clean Line GBX CCN application, page 7
[19] CAPITAL COSTS FOR TRANSMISSION AND SUBSTATIONS - Updated Recommendations for WECC Transmission Expansion Planning, B&V PROJECT NO. 181374, PREPARED FOR Western Electricity Coordinating Council, FEBRUARY 2014

gas prices may be the "new normal" for the foreseeable future. Such an environment would make natural gas-fired generation even more attractive than wind energy.

C. MJMEUC CONTRACT AND OPEN SEASON EXPRESSIONS OF INTEREST DO NOT DEMONSTRATE NEED

Q. Do you agree with Mr. Berry that Clean Line's contract with MJMEUC demonstrates need for the project?

A. No, I do not. **********

****

Q. Is the contract valuable for MJMEUC?

A. Yes, it is. ********

****

Q. Has MJMEUC made any payments to Clean Line for this option?

A. I have not seen any evidence of this in the testimony associated with this case.

Q. **?

A. **********

****

Q: Do you agree with Mr. Berry that the interest expressed via Clean Line's "open solicitation" demonstrates need for the project?

A. No, I do not. **********

****

D. GBX IS NOT NEEDED FOR MISSOURI POWER SUPPLY

Q: Is GBX necessary for satisfying the future power needs of Missouri?

A: No, GBX is not needed. The transmission plans of SPP and MISO, which are designed to ensure sufficient transmission for reliable service, do not incorporate GBX or similar facilities[20]. In fact, GBX itself does not provide any substantive transmission system or supply reliability benefit to Missouri. By virtue of the project being a direct current (DC) line, it is asynchronous in nature and does not instantaneously integrate with or provide direct support for Missouri's transmission grid. Rather, it operates primarily as a straight-through "faucet" for the purpose of bypassing Missouri to reach more lucrative eastern states. The Missouri converter station[21] is akin to a power plant being placed in that location that can be turned on or off. Operation of the converter station will have to be coordinated with MISO to ensure grid stability. Interestingly, Mr. Berry states in his direct testimony that functional control of the line will be transferred to PJM[22]. This raises further questions on how operation of the converter station will be managed. Of additional note, the IRP's of major Missouri utilities, including Ameren, do not reference any planned transmission investments or transmission service purchases similar to GBX. Instead, they properly rely upon regional transmission development coordinated by MISO and SPP.

Q: Is GBX necessary to allow Missouri electric utilities to comply with Missouri's Renewable Energy Standard?

A: No, GBX is not needed. Missouri utilities subject to the RES requirement can fulfill the requirement without GBX. Mr. Berry affirms this in his testimony in terms of the fact that renewable energy

[20] MISO MTEP16 and SPP Integrated Transmission Plan, 2016
[21] Berry direct testimony page 5
[22] Berry direct testimony page 11, lines 16-17

credits (REC's) can be used by utilities without regard to location of the generation[23]. In other words, utilities and utility customers can procure RECs without having to directly deliver renewable energy to load. Also, SPP and MISO[24] have already incorporated consideration of renewable energy delivery needs in their long-term transmission plans. HVDC transmission facilities similar in scale to GBX are not included in these plans. Further, extensive references to the "Clean Power Plan" (CPP) exist in Mr. Berry's testimony as the primary driver for growth of wind energy requirements. As the Commission is aware, the CPP has been stayed by the federal courts. It is my view, given the outcome of the 2016 presidential election, both the probability of promulgation of the CPP and the establishment of a nation-wide carbon tax are remote. This raises significant doubts regarding further expansion of wind generation in the near-term as well as the overall economic viability of GBX.

E. CONCLUSION

Q: What is your conclusion regarding the application for a CCN?

A: The Commission should deny Clean Line's request for a CCN. The project is not needed for the public service in the state of Missouri. Even if additional transmission is needed in Missouri and the immediately-adjacent states to support wind energy, lower-cost alternatives to GBX exist that provide better regional grid support. If Clean Line desires to develop a competing service to the existing transmission grid, it should not do so under the authority of a CCN. Clean Line should be required to negotiate with whatever private parties are necessary to obtain the land and other resources needed to pursue the project. Economic benefit to Missourians as a whole can be maximized if the Commission allows Clean Line to continue the private development of GBX, but not with the aid of a CCN. The project would then only proceed based on its true economic merit,

[23] Berry direct testimony page 39
[24] MISO MTEP16 and SPP Integrated Transmission Plan 2016

and Missouri Landowners would receive compensation for purchase or use of their land via competitive forces that maximize total economic value.

Q: Does this conclude your rebuttal testimony?

A: Yes, it does.

III. APPENDIX

Schedule PGJ-01	Method and Input Corrections to Berry Model
Schedule PGJ-02	Glen Justis Curriculum Vitae