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-2016-0358 |

# PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

Grain Belt Express Clean Line LLC ("Grain Belt Express" or "Company"), pursuant to the Missouri Public Service Commission's ("PSC" or "Commission") October 19, 2016 Order Setting Procedural Schedule and Other Procedural Requirements, files these Proposed Findings of Fact and Conclusions of Law.

## I. FINDINGS OF FACT

### A. Grain Belt Express and Clean Line Energy Partners

1. The Grain Belt Express Clean Line Project ("Project") is one of several high-voltage, direct current ("HVDC") transmission line projects under development by Clean Line Energy Partners LLC ("Clean Line"), which is the ultimate parent company of Grain Belt Express. See Ex. 115 at 19 (Lawlor Direct). The primary owners of Clean Line are National Grid USA ("National Grid"), ZAM Ventures, LP ("ZAM Ventures"), Clean Line Grid Holdings, LLC, a subsidiary of Bluescape Resources Company, LLC ("Bluescape"), Michael Zilkha, and Clean Line Investment LLC. See Ex. 100 at 9, 19-20 (Skelly Direct).

2. Grain Belt Express is a limited liability company organized under the laws of the State of Indiana. See Ex. 100 at 3 (Skelly Direct). Grain Belt Express is a privately-held electrical corporation. See Application of Grain Belt Express Clean Line LLC for a Certificate of Convenience and Necessity ("Application") at 2, 6.

3. Grain Belt Express is qualified to conduct business in the State of Missouri for the purpose of carrying on any lawful business purpose allowed under Missouri law, which includes constructing, owning, operating, managing, and maintaining electric transmission facilities. See Ex. 100 at 3 (Skelly Direct); Application at Ex. 1.

4. National Grid USA is a subsidiary of National Grid plc. See Ex. 100 at 19-20 (Skelly Direct). National Grid plc and its affiliates (collectively, "National Grid") are one of the largest investor-owned utility companies in the world and have extensive experience building, owning, and operating transmission networks in the United States and the United Kingdom. Id.

5. National Grid USA delivers electricity to approximately 3.4 million customers in Massachusetts, New York, and Rhode Island. Id. at 19. National Grid owns and operates approximately 8,600 miles of high voltage transmission facilities spanning upstate New York, Massachusetts, New Hampshire, Rhode Island and Vermont, including approximately 105 miles of underground cable and 521 substations. Id.

6. ZAM Ventures focuses on long-term investments in the energy sector and has made several investments in alternative energy companies. Id. at 20.

7. Bluescape's subsidiary Clean Line Grid Holdings, LLC focuses on long-term investments in the energy sector. See Ex. 100 at 9, 19-20 (Skelly Direct); Ex. 200 at 20 (Staff Report) (HC).

8. Michael Zilkha and his family have a proven track record of making successful and productive investments in the energy industry, including being the primary investor in Horizon Wind Energy LLC during its early growth. See Ex. 100 at 20 (Skelly Direct).

9. Clean Line Investment LLC is a vehicle for service providers and employees to invest in Clean Line, and is a small, minority shareholder in Clean Line. Id.

10. Clean Line and its subsidiaries are presently developing three other HVDC transmission projects and one alternating current ("AC") transmission project that will connect wind generation resources to other load and population centers: (1) Plains and Eastern Clean Line transmission project, an approximately 720-mile HVDC transmission line that will deliver up to 4,000 MW of electricity; (2) Centennial West Clean Line transmission project, an approximately 900-mile HVDC transmission line that will deliver up to 3,500 MW of electricity; (3) Rock Island Clean Line transmission project, an approximately 500-mile HVDC transmission line that will deliver up to 3,500 MW of electricity; (4) Western Spirit Clean Line transmission project, an approximately 140-mile AC transmission line that will deliver up to 1,000 MW of electricity. Id. at 20-21.

**B. The Project**

11. The Project is an approximately 780-mile, overhead, multi-terminal ±600 kilovolt ("kV") HVDC transmission line ("HVDC Line") and associated facilities that will collect over 4,000 megawatts ("MW") of low-cost, wind-generated power in western Kansas. See Ex. 100 at 3 (Skelly Direct); Ex. 108 at 4 & Sched. AWG-1 (Galli Direct). This western terminus of the Project will interconnect to the AC system of ITC Great Plains, which is located in Southwest Power Pool, Inc. ("SPP"), a regional transmission organization ("RTO") authorized by the Federal Energy Regulatory Commission ("FERC") to engage in regional planning and operate energy markets in Kansas and neighboring states. See Ex. 108 at 1, 5 & Sched. AWG-1 (Galli Direct).

12. The Project will have three converter stations. One converter station will be located in western Kansas, where new wind generating facilities will connect to the Project via AC lines. The two other converter stations in eastern Missouri and eastern Illinois, respectively, will deliver electricity to the AC grid through interconnections with transmission owners in the

systems of Midcontinent Independent System Operator, Inc. ("MISO") and PJM Interconnection, L.L.C. ("PJM"). See Ex. 108 at 5-6 (Galli Direct); Ex. 104 at 4-5 (Berry Direct); Application at 8-9. The Project will deliver 500 MW of power into Missouri and 3,500 MW into Illinois, Indiana, and states farther east. See Ex. 100 at 3 (Skelly Direct); Ex. 108 at 4, 7, 23, 27 (Galli Direct).

13. The Company proposes to construct in Missouri the approximately 206-mile portion of the HVDC Line on a route that crosses the Missouri River south of St. Joseph and continues across the state in an easterly direction to south of Hannibal in Ralls County, where the HVDC Line will cross the Mississippi River into Illinois. See Ex. 100 at 4 (Skelly Direct); Ex. 119 at 14 & Sched. JPG-2, Fig. 1 (Puckett Direct).

14. In its Application, the Company provided a list of all electric and telephone lines, railroad tracks, and underground facilities in Missouri that the Project will cross. See Application at Ex. 3; Addendum to Application (Oct. 27, 2016 ); Ex. 115 at 14 (Lawlor Direct); Ex. 119 at 115 (Puckett Direct).

15. The Company also proposes to construct a converter station and associated alternating current ("AC") interconnecting facilities in Ralls County. See Ex. 100 at 4 (Skelly Direct); Ex. 119 at 14 & Sched. JPG-2, Fig. 1 (Puckett Direct). This intermediate 500 MW converter station will be located in proximity to Ameren's Montgomery-Maywood 345 kV transmission line which will facilitate the interconnection to the energy market operated by MISO, an RTO recognized by FERC that oversees the electric grid in eastern Missouri and other midwestern and southern states. See Ex. 119 at 14 & Sched. JPG-2, Fig. 1 (Puckett Direct); Ex. 108 at 4, 6 (Galli Direct).

16. The intermediate converter station will have bi-directional functionality, allowing Missouri utilities the opportunity to sell up to 500 MW of excess power into the energy markets operated by PJM, an RTO recognized by FERC that oversees the grid in eastern Illinois, Indiana and states farther to the east. See Ex. 100 at 8 (Skelly Direct); Ex. 108 at 7 (Galli Direct). The Project's eastern 3500 MW converter station will deliver power into PJM. See Ex. 104 at 5 (Berry). The additional revenue from Missouri off-system sales can be used to reduce the cost of electricity for the end-use customers of the Missouri utilities who use the service. See Ex. 100 at 8 (Skelly Direct).

17. The Project will interconnect with the Ameren Missouri system in Ralls County along the Maywood-Montgomery 345 kV AC transmission line, which connects the Maywood 345 kV substation in Marion County with the Montgomery 345 kV substation in Montgomery County. See Ex. 108 at 4, 6 (Galli Direct). This connection will be made via a single 345 kV circuit line from the converter station to a new AC switching station tapping the Maywood-Montgomery transmission line. See Ex. 108 at 6 (Galli Direct).[1]

18. Interconnection studies are progressing at SPP, MISO and PJM, the three independent RTOs responsible for seeing that the Project is safely and reliably integrated into the electric grid. See Ex. 109 at 2-32 & Sched. AWG-7 (Galli Surrebuttal). See 18 C.F.R. § 35.34 (Regional Transmission Organizations).[2] SPP, MISO, and PJM each operate under FERC authority in separate geographical areas, with SPP in the western Midwest, MISO in the central

[1] The Missouri portion of the HVDC Line, the converter station in Ralls County, and the associated AC transmission and interconnection facilities are referred to herein as the "Missouri Facilities."

[2] The "required characteristics" of a FERC-approved RTO include "operational authority for all transmission facilities under its control" and "exclusive authority for maintaining the short-term reliability of the grid that it operates." 18 C.F.R. § 35.34(j)(3)-(4).

Midwest and portions of the South, and PJM in the eastern Midwest and mid-Atlantic region.[3] No transmission project can interconnect and operate without the approval of the relevant RTOs that are charged with ensuring the reliability of the transmission system. See Ex. 109 at 15 (Galli Surrebuttal); Ex. 112 at 1-2 (Kelly Surrebuttal). As a result, regulatory approvals and RTO studies can occur in parallel and need not occur sequentially. Tr. 501 (Galli). RTO interconnection agreements were not a pre-condition required by the Illinois, Indiana, and Kansas Commissions when they granted CCNs to Grain Belt Express. Tr. 501 (Galli).

19. Grain Belt Express will offer transmission service to load-serving entities and other wholesale transmission customers through an open-access transmission tariff that will be filed with and subject to the jurisdiction of FERC under the Federal Power Act. See Ex. 100 at 23-24 (Skelly Direct); Ex. 104 at 4-7 (Berry Direct). The Company will not provide service to end-use customers or provide retail service in Missouri, and, therefore, the Project will not be rate-regulated by the Commission. See Ex. 100 at 24 (Skelly Direct).

20. Thomas F. Shiflett, Executive Vice President of Quanta Services and a former president of PAR Electrical Contractors Inc. ("PAR Electric"), presented the detailed organizational structure that will be used to implement the Project's construction program, as well as a 140-page Construction Plan that describes the segments of the Project and their construction schedule. See Sched. TFS-3 & TFS-4, Ex. 121 (Shiflett Direct).

21. Grain Belt Express has entered into an HVDC transmission development agreement with PAR Electric, a subsidiary of Quanta Services, Inc., to provide support for the Project. See Ex. 121 at 1-5 (Shiflett Direct). PAR Electric (headquartered in Kansas City,

[3] Hughes v. Talen Energy Marketing, LLC, 578 U.S. __, 136 S. Ct. 1288, 1293 (2016); Southwest Power Pool, Inc. v. FERC, 736 F.3d 994, 995 (D.C. Cir. 2013); Revised Report and Order at 6-7, 10-14, In re Entergy Arkansas, Inc., No. EO-2013-0431 (Mo. P.S.C., Nov. 26, 2013).

Missouri) will serve as the engineering, procurement, and construction contractor for the Project. See Ex. 100 at 8 (Skelly Direct); Ex. 121 at 1-6 (Shiflett Direct).

### C. High-Voltage Direct Current Technology

22. The HVDC technology of the Project is the most cost-effective and efficient way to move large amounts of renewable energy over distances longer than 300 miles. See Ex. 108 at 7-8 (Galli Direct).

23. HVDC lines can transfer significantly more power with lower line losses over long distances than comparable AC lines. HVDC lines also complement AC networks without contributing to short-circuit current power or additional reactive power requirements. Id. at 8.

24. HVDC lines can dampen power oscillations in an AC grid through fast modulation of the AC-to-DC converter stations, and thus improve system stability. Id.

25. HVDC technology gives the operators complete control of energy flows, which makes HVDC particularly well-suited to managing the injection of variable wind generation. Id. at 9.

26. HVDC lines, unlike AC lines, will not become overloaded by unrelated outages, since the amount of power delivered is strictly limited by the DC converters at each end of the HVDC line, thereby reducing the likelihood that outages will propagate from one region to another. Id.

27. HVDC lines utilize narrower rights-of-way, shorter towers, and fewer conductors than comparable AC lines, thereby making more efficient use of transmission corridors, minimizing visual and land use impacts, and offering a transmission solution with a lower capital cost per mile. Id.

28. On an HVDC line there is virtually no congestion, making the Project attractive to customers. See Ex. 476 at 5-6 (Grotzinger Rebuttal); Ex. 477 at 4-5 (Grotzinger Surrebuttal).

29. No witness contested the assertions of Grain Belt Express that the Project's HVDC design will provide a congestion-free delivery source, in contrast to the AC interconnected grid which is frequently characterized by congestion that raises transmission costs. See Ex. 108 at 9-10 (Galli Direct); Ex. 109 at 17-18 (Galli surrebuttal); Ex. 104 at 34 (Berry Direct).

**D. The Missouri Route**

30. The proposed Missouri route was developed by the Grain Belt Express Routing Team, a multidisciplinary group of individuals from Clean Line and The Louis Berger Group. See Ex.115 at 11 (Lawlor Direct); Ex. 119 at 1 (Puckett Direct). This team developed and analyzed routes, performed extensive public outreach, coordinated with state and federal agencies, compared alternative routes, and participated in determining the proposed route of the Project. See Ex.115 at 4-9, 11 (Lawlor Direct); Ex. 119 at 2-3, 5-6 (Puckett Direct).

31. In determining this proposed route, the Routing Team engaged the public in community leader roundtables and open houses. See Ex. 119 at 6-7 (Puckett Direct).

32. The Routing Team held more than 24 roundtables, at which more than 250 community leaders from more than 40 counties, including county and municipal elected officials, local government planners, community and business leaders, economic development experts, local utilities and cooperatives, as well as federal and state agency officials, gathered in small working groups to provide information about each county they represent to the Routing Team. See Ex. 119 at 6-7 (Puckett Direct).

33. The Routing Team also held more than 13 open houses, at which more than 1,200 members of the general public and potentially affected landowners gathered to learn more about the Project and potential routes. See Ex. 119 at 7 (Puckett Direct). Attendees were encouraged

to submit written comments about their observations, recommendations, or concerns. See Ex. 115 at 12 (Lawlor Direct); Ex. 119 at 7 (Puckett Direct).

34. After the open houses, the Routing Team reviewed the public input, revised the Project's potential routes where necessary, and compiled a series of nine Alternative Routes for detailed analysis and comparison. See Ex. 119 at 7 (Puckett Direct).

35. The nine Alternative Routes were assessed on their potential impacts on natural resources (water resources, wildlife and habitats, special status species, and geology and soils), human uses (agricultural use, populated areas and community facilities, recreational and aesthetic resources, and cultural resources), and with respect to any noted engineering or construction challenges (transportation, existing utility corridors, other existing infrastructure, and the Mississippi River crossings). Id. at 8. The Routing Team then recommended a combination of two alternative routes as the proposed route for the Project, which met the overall goal of minimizing impacts on the natural, human, and historic resources along the route, while best utilizing existing linear rights-of-way ("ROW") and avoiding non-standard design requirements. Id.

36. In March 2014, the Routing Team prepared the Missouri Route Selection Study ("Route Selection Study"), which identified the proposed route for the Project. This Study resulted from extensive public outreach efforts and coordination with state and federal agencies. See Ex.115 at 11 (Lawlor Direct); Ex. 119 at 3-6 (Puckett Direct).

37. Even after filing the proposed route in its 2014 certificate of convenience and necessity ("CCN") case,[4] the Company continued to engage landowners along the proposed route regarding the location of the route on their individual properties, resulting in minor revisions to the route. See Ex.115 at 7, 13-14 (Lawlor Direct); Ex. 119 at 10, 13 (Puckett

[4] Case No. EA-2014-0207 ("2014 Case").

Direct). Revisions based on such landowner feedback were included in the route shown to stakeholders during the Public Landowner Meetings held in June 2016. See Ex. 119 at 10 (Puckett Direct).

38. The Company has made 16 route adjustments since the filing of its 2014 Case. Tr. 313:16-24 (Lawlor); Ex. 119 at 11 and JPG-2 (Puckett Direct).

39. In 2016 the Routing Team created an addendum to the 2014 Route Selection Study ("Routing Study Addendum") that reflects the public and agency outreach that has occurred since the 2014 Case, as well as changes that were made and responses to landowner concerns. See Ex.115 at 11 (Lawlor Direct); Ex. 119 at 11-13 & Sched. JPG-2 (Puckett Direct).

40. In developing this Routing Study Addendum, the Routing Team held discussions with individual landowners along the proposed route and held public landowner meetings in each of the eight counties along the proposed route. See Ex. 119 at 13 (Puckett Direct). Attendees at these meetings were encouraged to submit written routing-specific comments. See Ex. 115 at 12 (Lawlor Direct); Ex. 119 at 13 (Puckett Direct). Although not required to do so, the Company provided notice of its Application with the Commission to every person or entity listed by the county tax collector as an owner of property located within the ROW of the proposed route. See Ex. 115 at 14 & Sched. MOL-6 (Lawlor Direct).

41. The ultimate proposed route integrates this input from the general public, local officials, and government agencies. See Ex. 119 at 15 (Puckett Direct). Accordingly, it minimizes the overall effect of the Missouri Facilities on the natural and human environment while avoiding unreasonable and circuitous routes, unreasonable costs, and special design requirements. Id.

**E. Other Regulatory Approvals**

42. The Kansas Corporation Commission ("KCC") granted Grain Belt Express public utility status on December 7, 2011 in Docket No. 11-GBEE-624-COC, and a siting permit on November 7, 2013 authorizing it to construct the 370-mile Kansas portion of the Project in Docket No. 13-GBEE-803-MIS. See Ex. 100 at 9 (Skelly Direct).

43. The Indiana Utility Regulatory Commission granted Grain Belt Express public utility status on May 22, 2013 in Cause No. 44264, authorizing the Company to construct and operate the Project in Indiana. See Ex. 100 at 9 (Skelly Direct).

44. The Illinois Commerce Commission ("ICC") issued Grain Belt Express a certificate of public convenience and necessity to construct, operate, and maintain its transmission line and to conduct transmission public utility business, along with a request for authorization to construct the line, on November 12, 2015 in Docket No. 15-0277. See Ex. 100 at 9 (Skelly Direct).

45. FERC conditionally authorized the Company to charge negotiated rates for transmission rights on the Project and granted waivers of certain requirements in Docket No. 14-409-000 on May 8, 2014. See Ex. 104 at 8-9 (Berry Direct).

**F. Missouri's Need for the Service**

46. On June 2, 2016, Grain Belt Express entered into a Transmission Service Agreement ("TSA") with the Missouri Joint Municipal Electric Utility Commission ("MJMEUC") to purchase up to 250 MW of capacity from the Project. See Ex. 100 at 5, 8, 13-14 (Skelly Direct); Ex. 115 at 2-3 & Sched. MOL-1 (Lawlor Direct); Ex. 104 at 3-4, 34 (Berry Direct).

47. The TSA between Grain Belt Express and MJMEUC, coupled with MJMEUC's power purchase agreement ("PPA") with Infinity Wind's Iron Star Wind Project, LLC, allows

MJMEUC to purchase 200 MW of transmission capacity from the Project's western Kansas converter station to its Missouri converter station. See Ex. 100 at 13-14 (Skelly Direct); Ex. 476-78 (Grotzinger Rebuttal).

48. The PPA between Infinity Wind and MJMEUC requires that MJMEUC provide written notice to Iron Star and designate its Buyer's Share which shall "not be less than 100 MW." See Sched. JG-4 at § 3.1, Ex. 476 (Grotzinger Rebuttal) (HC). MJMEUC has obtained commitment from the Missouri Public Energy Pool ("MoPEP") of 60 MW, plus contracts with the City of Kirkwood (25 MW) and the City of Hannibal (15 MW). Given the additional interest expressed by other Missouri municipalities, including the City of Columbia (35 MW), more than three dozen Missouri municipal utilities and their customers have committed to the Project and expressed their need for the services that Grain Belt Express will provide. See Ex. 476 at 6-7 (Grotzinger Rebuttal); Tr. 980-81, 995-96 (Kincheloe).

49. MJMEUC cannot currently meet the existing demand for retail renewable power from its MoPEP members, a group of 35 Missouri cities that MJMEUC supplies wholesale energy, capacity and ancillary services on a full-requirements basis. Tr. 1112-13 (Grotzinger); Ex. 475 at 2-4 (Kincheloe Rebuttal). The offers that MJMEUC has extended from its Kansas wind project to the MoPEP cities with high-load commercial and industrial customers are currently over-subscribed. Tr. 1112-13 (Grotzinger).

50. The Company also has a TSA for 50 MW from an Illinois load-serving entity called Realgy, which has agreed to buy 25 MW of transmission service for delivery to Missouri and 25 MW to PJM. Tr. 914, 965 (Berry).

51. The Company held the first phase of an open solicitation process from January to March 2015. See Ex. 104 at 24-25 (Berry Direct); Ex. 100 at 14 (Skelly Direct). Eleven

shippers have made 3,524 MW of requests for capacity to the Project's MISO delivery point in Missouri alone. Id. For the service offered from Kansas to the Illinois converter station in PJM, 17,301 MW of service was requested. See Ex. 104 at 25 (Berry Direct). In other words, the total capacity requested for both MISO and PJM delivery points of 20,825 MW is almost five times the total available capacity of the Project. Id. & Sched. DAB-3 (HC). The Company also opened a supplemental window for transmission service requests in February 2016. See Ex. 104 at 10 (Berry Direct). MJMEUC submitted two requests, one for 200 MW for transmission from Kansas to Missouri, and the other for 50 MW from Missouri to PJM. See Ex. 104 at 10 (Berry Direct).

52. Steve Chriss, Director of Energy and Strategy Analysis for Wal-Mart Stores, Inc., testified that there is demand for the renewable wind power that would be delivered into Missouri through the Grain Belt Express 500 MW converter station. See Ex. 900 at 5-6 (Chriss Rebuttal). Having established "aggressive and significant renewable energy goals, as well as a science-based target to reduce emissions in our operations by 18 percent by 2025 through the deployment of energy efficiency and consumption of renewable energy," Wal-Mart and other business customers with renewable energy and sustainability goals "provide demand for the proposed service." Id. at 3, 7-8.

53. The Missouri Industrial Energy Consumers, Missouri Retailers Association, and the Consumer Council of Missouri support the Project because it "provides an opportunity for consumers in Missouri to take advantage of low-cost and clean wind energy resources." See Ex. 800 at 2 (Dauphinais Rebuttal). Testifying on behalf of these organizations, James Dauphinais stated that "if other Missouri utilities followed the lead of MJMEUC, customers of those utilities may see benefits comparable to those that MJMEUC customers expect to receive." Id. at 5. Mr.

Dauphinais stated that he "would expect Ameren Missouri to carefully analyze the benefits of taking power from the Project and give it serious consideration." Id. If Ameren cannot meet its Renewable Energy Standard obligations under Section 393.1030[5] because its renewables are too expensive, Ameren will need to buy low-cost power from the Project which will allow it to meet its obligations without hitting the statutory cost cap and save money. Tr. 920-21, 934 (Berry Responses to Bench Questions).

54. No one rebutted the testimony provided by interveners that there is a clear demand for the services provided by the Project. See Ex. 675 at 11-24 (Michael Goggin Rebuttal on behalf of Wind on the Wires and The Wind Coalition); Ex. 725 at 2-3 (Ashok Gupta for the Natural Resources Defense Council).

55. Demand for the service being offered by Grain Belt Express will continue even though other transmission projects are being built in MISO and SPP. In addition to such projects being cost-allocated to ratepayers (unlike the Grain Belt Express Project which is participant funded), the AC grid is subject to major constraints because as transmission lines are built, wind generation continues to be installed. To the extent additional capacity is created, it will quickly be absorbed by the AC system as new wind generators are constructed, with prices continuing to go up and congestion returning. Tr. 932-33 (Berry). However, with a project like Grain Belt Express, MJMEUC and other customers will have a locked-in price from a wind generator and a locked-in price for transmission capacity rights on an HVDC line without exposure to congestion. Tr. 933 (Berry).

### G. The Economic Feasibility of the Project

56. Missouri ratepayers will bear no risks related to the construction of the Project. See Ex. 100 at 15, 31-32 (Skelly Direct); Ex. 112 at 4-5 (Kelly Direct). This is because Grain

[5] All statutory references are to the Missouri Revised Statues (2016), unless otherwise noted.

Belt Express will employ a participant-funded or "shipper pays" model under which the cost to construct the Project will *not* be borne by load-serving entities or their ratepayers through the RTO cost allocation processes of SPP, MISO, or PJM. See Ex. 100 at 17 (Skelly Direct); Ex. 104 at 3, 8 (Berry Direct).

57. Grain Belt Express estimates that the total cost of the Project will be approximately $2.35 billion,[6] with $525 million of this estimate attributable to the portion of the Project to be located in Missouri. See Ex. 100 at 19 (Skelly Direct). Grain Best Express will pay for the costs of the development, construction, and operation of the Project, and will recover these costs by selling transmission service to wind generators and load-serving entities that use the line. See Ex. 100 at 31-32 (Skelly Direct); Ex. 104 at 3, 8 (Berry Direct).

58. The first method for estimating benefits to MJMEUC customers is to compare the cost of the Grain Belt Express TSA and the Infinity Wind PPA to MJMEUC's existing contract with the Illinois Power Marketing Company. The analysis that MJMEUC conducted showed that purchasing 60 MW of wind power from the Project would produce annual savings to the MoPEP cities of about 34% over the existing Illinois contract, coupled with natural gas and other renewable resources. See Ex. 476 at 8 (Grotzinger Rebuttal). Mr. Grotzinger testified that this "translates to an approximately $4 per MWh reduction in wholesale costs, and annual savings to the MoPEP cities of approximately $10 million versus their current energy supply contract." Id.

59. The second method of estimating benefits to MJMEUC customers is to compare the cost of the Project's transmission service to the cost of using SPP and MISO transmission. MJMEUC estimates it will save its members between $9 and $11 million per year in transmission charges alone if it were to use the entire 200 MW of service to Missouri under the

[6] In addition, Grain Belt Express will fund network upgrades required to interconnect the Project to the electric transmission grid, estimated to be $550 million. Of this amount, $21 million is estimated for upgrade costs in Missouri. See Ex. 105 at 28 (Berry Surrebuttal); Ex. 109 at 9 & Sched. 9 (Galli Surrebuttal).

TSA. See Ex. 476 at 5 & Sched. JG-3 (Grotzinger Rebuttal); Tr. 999 Kincheloe); Tr. 1096-97 (Grotzinger). As Mr. Grotzinger explained, the opportunity with Grain Belt Express offers two tranches of 100 MW. Id. at 7; Sched. MOL-1, Ex. 115 (Lawlor Direct). The lower-priced 100 MW have already been contracted for by MoPEP, Kirkwood and Hannibal. See Ex. 476 at 6 (Grotzinger Rebuttal); Tr. 1005-06 (Grotzinger); Ex. 475 at 2-5 (Kincheloe Direct); Tr. 980-81 (Kincheloe); Ex. 479 (Kirkwood and Hannibal contracts attached). Mr. Grotzinger testified that even if only the first 100 MW of the TSA were used, MJMEUC would save about $6 million annually because it was more attractively priced than the second tranche. See Ex. 476 at 7.

60. A final method of estimating benefits to MJMEUC customers is to compare the cost of the Grain Belt Express TSA and the Infinity Wind PPA to MJMEUC's other options to procure renewable energy. Mr. Grotzinger performed this comparison for 135 MW of MISO wind power, covering the 100 MW already contracted for by MoPEP, Kirkwood, and Hannibal, as well as the 35 MW of wind power for which the Cities of Columbia and Centralia have expressed interest. Tr. 995-97 (Kincheloe). He estimated annual savings at $9-$24 million annually compared to MISO wind. Ex. 476 at 8 (Grotzinger Rebuttal). Comparing the cost of the Project with purchasing wind energy out of SPP using the existing AC system, the Project is expected to save MJMEUC's customers about $8 million annually if the total 200 MW of transmission service is used. See Ex. 476 at 7-8 (Grotzinger Rebuttal).

61. David Berry, the Chief Financial Officer of the Company, presented a levelized cost of energy ("LCOE") analysis that indicated the Project will deliver energy to Missouri at approximately $28/MWh, or $22/MWh when the cost of energy is adjusted for capacity value. See Ex. 104 at 29-30 (Berry Direct). When considered at the "first mover" rate offered to MJMEUC, these figures dropped to $17/MWh and $12/MWh, respectively. Id.

62. The price of Missouri wind, Missouri utility-scale solar generation, and combined-cycle gas generation were all more expensive. Id. at 28-30. Mr. Berry tested the results of this analysis using a range of assumptions for natural gas prices and the cost of carbon dioxide emissions (including a scenario of "no price" on such emissions), and the delivered cost of wind energy on the Project remained the least expensive. Id. at 30-31. The low cost to produce wind energy in western Kansas is the most significant factor in Mr. Berry's analysis, given that the lowest-priced 4000 MW of new generation averaged $20/MWh (2.0 cents/kWh) flat for 25 years. Id. at 24.

63. Additionally, Mr. Berry updated his LCOE analysis since the 2014 Case, based on recent technology and cost improvements in wind generation, updating the federal PTC to 80% of its full value, as well as other revised assumptions contained in Schedule DAB-5 to his direct testimony. Given improvements in wind generation technology, a capacity factor of 55% for western Kansas wind was used by all witnesses who evaluated the economics of the Project and was reasonable. See Ex. 104, Sched. DAB-5 at 1.[7] Mr. Berry's use of a 55% capacity factor was based upon actual wind data collected in western Kansas, confirmed by third-party verification, and is consistent with the deployment of larger turbines and other technological advances in the wind industry. See Tr. 1141, 1150-51, 1172-73 (Goggin); Response to MLA Data Requests to D. Berry DB.87 & DB.91, Att. A, Reply Brief of Grain Belt Express.

64. The LCOE analysis provided by Mr. Berry concluded that the Project was economically feasible. His findings were confirmed by Mr. Langley of Infinity Wind Power, an independent wind generator (Ex. 876 at 6-7, Langley Rebuttal); by Michael Goggin of the

[7] Opposing witnesses accepted the 55% capacity factor. See Ex. 300 at 17 (Jaskulski Rebuttal); Ex. 400 at 13 & Sched. PGJ-1 (no "correction" to capacity factor) (Justis Rebuttal).

American Wind Energy Association (Ex. 675 at 2-10, Goggin Rebuttal); and by Prescott Hartshorne of National Grid USA (Ex. 110 at 5, Hartshorne Direct).

65. The MJMEUC/Infinity contracts confirm the conclusions of the LCOE analysis. Tr. 917 (Berry). The LCOE analysis shows that Grain Belt Express "will likely to be able to replicate those benefits [from the MJMEUC TSA] on future deals" that are not priced at first-mover rates because "there would still be a lot of savings relative to all alternatives which means we'll likely get more contracts and there will be more savings for [utility] customers." Tr. 917-18 (Berry).

66. On behalf of MLA, Joseph Jaskulsky presented an informal analysis of the Grain Belt Express Project that ultimately required him to admit that MJMEUC's TSA with the Company and its PPA with Infinity Wind's Iron Star Project would save its customers "$3 million per year." See Ex. 307 at 2 (Jaskulski Surrebuttal).

67. Mr. Jaskulsky did not conduct either an LCOE analysis, a levelized avoided cost of energy analysis, or a loss of load expectation ("LOLE") analysis. Tr. 1468. He did not conduct a production cost model analysis using a tool like PROMOD that would have assessed the effect of the Grain Belt Express Project on wholesale energy costs. Tr. 1468.

68. Mr. Jaskulsky minimized the ability of wind farms that would connect to the Project to take advantage of the federal PTC because of possible delays. However, on cross-examination he admitted that IRS Notice 2016-31 provided guidance on the "continuity safe harbor" applicable to the tax credit for renewable electricity production. See Tr. 1469-73; Ex. 132, IRS Notice 2016-31.[8]

[8] The notice provides guidance regarding the credit for renewable electricity production under Section 45(a) of the Internal Revenue Code, 26 U.S.C. § 45.

69. Mr. Langley of Infinity Wind disputed Mr. Jaskulsky's interpretation of the rule as "a worst-case scenario," which wrongly assumed that no wind farms would be able to demonstrate continuous construction to qualify for receipt of 100% of the PTC. See Ex. 876 at 2 (Langley Surrebuttal). Mr. Jaskulsky also failed to consider the circumstance where a wind farm would be brought on-line prior to the end of 2020 and operated in the SPP market until the Grain Belt Express Project is operational. Id. at 3. Accord Ex. 676 (Goggin Surrebuttal) (rejecting Jaskulsky PTC analysis).

70. Another error in the Jaskulsky analysis is his statement that the Company "does not yet have interconnection agreements for any of the three places it will connect to the AC transmission system." See Ex. 300 at 16 (Jaskulsky Rebuttal). He failed to take note of the interconnection agreement that Grain Belt Express, SPP, and ITC Great Plains signed in October 2016, which was produced to all parties during discovery and noted by Dr. Galli in his surrebuttal testimony (Ex. 109 at 30).

71. Mr. Jaskulsky also changed his opinion on the value of the PTC in MJMEUC's agreement with Infinity Wind, admitting that any risk regarding the PTC would not be borne by MJMEUC or the ratepayers of the cities that it represents under the Iron Star contract. Tr. 1454-55, 1474-75.

72. Show Me witness P.G. Justis performed an LCOE analysis, in an attempt to rebut Mr. Berry's LCOE study in his direct testimony. See Ex. 400 at 10-15 & Sched. PJG-1 (Justis Rebuttal). However, Mr. Justis significantly altered his analysis with a seven-page "Summary of Corrections" (Ex. 420), and he admitted additional errors and omissions regarding congestion costs from alternative wind generation sources in northern Iowa, capital and operating costs for wind generators, and key tax issues.

73. Mr. Justis' analysis of the cost of wind energy inappropriately used an elevated capital cost of $1,877/kW in 2016 dollars, which he escalated to $2,177/kW to estimate the cost of wind generators. See Sched. PJG-1, Ex. 400 (Justis Rebuttal). A study of actual installation costs by Lawrence Berkeley National Laboratory indicated that the actual average installed project cost stood at approximately $1,690/kW in the interior region of the U.S., and that the trend is for such costs to decrease. Tr. 1594-96 (Justis); Sched. ML-2, Wind Technologies Market Report at 52-53, Ex. 876 at 3-4 (Langley Surrebuttal); Ex. 676 at 4-5 (Goggin Surrebuttal). A recent western Kansas 280 MW wind project developed by Westar Energy in collaboration with Infinity Wind was built with an even lower capital investment of approximately $1,554/kW. See Ex. 876 at 4 (Langley Surrebuttal).

74. Mr. Justis assumed operating and maintenance (O&M) costs of $44.92/kW in his analysis of the Project. Tr. 1599. However, based upon industry data reported by the EIA, O&M costs have dropped to $26/kW for projects constructed since 2010. See Sched. ML-2 at 5 & n.56, Ex. 876 (Langley Surrebuttal).

75. Although Mr. Justis has performed production cost modeling in the past, he did not perform any analysis in this case that would have shown the effect of the Project on wholesale prices. Tr. 1585-86 (Justis). Although he asserted that there "is adequate transmission service through the existing RTO structure," he performed no engineering or economic analysis that showed acquiring transmission service through MISO or SPP to deliver wind power to Missouri was more cost-effective than acquiring service through the Grain Belt Express Project. Tr. 1586-87; Ex. 136 (Response to Data Request 5). Similarly, he made no estimate of the cost to construct the necessary upgrades that he admitted would be required to provide transmission

service comparable to the Project. See Ex. 136, Response to Data Request PGJ-12 (b)-(d); Tr. 1588-90.

76. When he took the stand on March 24 and summarized the list of his "corrections," Mr. Justis admitted that he had made a $400 million error in estimating the cost of the Project's Missouri converter station. Tr. 1434. He agreed with Mr. Berry that the cost of that converter station would be $100 million, not the $500 million that he originally assumed. See Ex. 420 at 1 ("cost of smaller Missouri Converter Station should have been lower than larger converter stations …").

77. Mr. Justis stated that he was aware of the Kansas 10-year tax abatement statute relating to "electric transmission lines and appurtenances." Tr. 1603-06; K.S.A.79-259 and 66-128 (Ex. 137). Upon examining the language of the statute and his workpapers, he confirmed that Mr. Berry was correct that he should have assumed that no Kansas property taxes would be owed during the first ten years, but admitted that he failed to do so in his LCOE analysis. Tr. 1604-07. Compounding this mistake, Mr. Justis failed to apply the correct property tax rates for each of the states where the Project will be located (Kansas, Missouri, Illinois and Indiana). Tr. 1607.

78. The most dubious cost input to the Justis LCOE model is his "capacity adder" penalty of 80.5%, i.e., for every 100 MW of wind generation brought into eastern Missouri, 80.5 MW of gas generation must be required to support that addition. Tr. 1524-27. At the evidentiary hearing, Mr. Justis agreed that if his arbitrary adder of 80.5% was not added to the cost of the Grain Belt Express Project, it would reduce the cost of the Project under his own analysis from $93.77/MWh to $62.60. Tr. 1537-39; Ex. 420 at 1 (Summary of Corrections to Justis Rebuttal).

As Mr. Berry pointed out in his surrebuttal, when the capacity adder is removed from the Justis analysis, Grain Belt Express is the lowest cost option. See Ex. 105 at 6-8 (Berry Surrebuttal).

79. Mr. Justis conceded on cross-examination that the MISO system currently has available capacity of over 6,000 MW to support new wind generation without the necessity of any load-serving entity having to factor in an 80% penalty for every megawatt of wind generation that it procures. Tr. 1548-49; Ex. 877, p. 8 (MISO 2016-17 Planning Resource Option Results showing 6,041 MW of additional capacity available). Indeed, there is no evidence in this case that any load-serving entity or wind generator in MISO or PJM has installed even one simple-cycle gas generator as a dedicated "backup" to new wind generation. See Ex. 5 at 7 (Berry Surrebuttal).

80. Mr. Justis claimed in his surrebuttal testimony that MJMEUC could purchase wind more cheaply from elsewhere in MISO than through the Grain Belt Express Project. He relied on a comparison of (1) the cost of MJMEUC purchasing power from Infinity Wind and delivering it via the Project to (2) the PPA price for the Crystal Lake Wind Project (located in Hancock and Winnebago Counties in Iowa on the Minnesota border [Tr. 1607-08]) from which the City of Columbia purchases power. See Ex. 405 at 10 & Sched. PGJ-3 (Justis Surrebuttal). However, during cross-examination, Mr. Justis conceded that the opportunity that MJMEUC has through its TSA with Grain Belt Express and its PPA with Infinity Wind was actually less expensive. He admitted that he did not consider any congestion costs to bring power from Crystal Lake to Columbia. Tr. 1562-63. When those costs were included, the total cost of delivered energy from Crystal Lake to Columbia was far more expensive than the MJMEUC arrangement with Grain Belt Express and Infinity Wind. Tr. 1574-76 (HC).

81. Congestion costs are an appropriate consideration in evaluating the economic feasibility of and need for transmission service, given that severe transmission congestion inhibits the delivery of low-cost wind generation from western Kansas and other parts of western SPP to Missouri by imposing congestion costs that in many cases exceed the price of wind energy. See Ex. 675 at 29 & n.56, citing SPP's 2015 State of the Market Report (Aug. 2016) (Goggin Rebuttal).

82. Although the Commission has routinely allowed witnesses to correct minor errors in their pre-filed testimony or to update statements in light of more current events, the seven pages of corrections in Exhibit 420 (including three elaborate tables) presented by Mr. Justis from the witness stand on March 24, in light of Mr. Berry's surrebuttal testimony filed on February 21, are extraordinary. Even with the brief amount of time that Grain Belt Express, MJMEUC and other parties had to review Exhibit 420, it is apparent that the analysis provided by Mr. Justis is seriously flawed in many respects.

83. In response to Staff's concerns regarding RTO interconnection studies, Dr. Galli explained how these studies are progressing at SPP, MISO, and PJM, the three independent RTOs responsible for seeing that the Project is safely and reliably integrated into the electric grid. See Ex. 109 at 2-32 (Galli Surrebuttal). He testified that the level of study conducted by the Company indicates that no further significant transmission upgrades are likely. Tr. 502-03 (Galli). The Company currently estimates the total cost of upgrades to be $550 million, of which $21 million will be upgrades occurring in Missouri. See Ex. 105 at 28 (Berry Surrebuttal); Ex. 109 at 9 & Sched. AWG-9 (Galli Surrebuttal). Of the 12 interconnection studies that need to be completed, all but two are either completed or in their final stages. See Ex. 109 at 14, 24-27 & Sched. AWG-7 (Galli Surrebuttal). Engineering firms retained by Grain Belt Express have

performed technical analyses that have confirmed the required upgrades to construct the Project. Id. at 3, 10-11, 23-26.

84. Regarding Staff's concerns related to the Mark Twain transmission project of Ameren Transmission Co. of Illinois ("Mark Twain"), Mark Twain has been modeled in every transmission expansion plan and generation interconnection study performed by MISO, Associated Electric Cooperative, SPP, and the Southwestern Power Administration since it was approved by the MISO board of directors in 2012. See Ex. 109 at 16 (Galli Surrebuttal). All transmission and generation projects under development in MISO are premised on Mark Twain being built. Id. at 16-17. Should Mark Twain not proceed, MISO must identify and implement other projects to address any future reliability issues, and continue to operate the grid in a reliable manner. Id. at 17.

**H. Financial Resources**

85. Grain Belt Express has sufficient financial resources to provide the services proposed by the Project as a result of the funding provided by Clean Lean and its principal investors, National Grid, Bluescape, and ZAM Ventures. See Ex. 100 at 19-20 (Skelly Direct); Ex. 110 at 6 (Hartshorne Direct).

86. To date, National Grid has invested $55.7 million in the development of the Clean Line projects, including the Grain Belt Express Project. See Ex. 110 at 6 (Hartshorne Direct); Tr. 408. Based on National Grid's analysis of Clean Line's model of providing wind energy over HVDC transmission lines on a participant-funded basis, National Grid has continued to support Clean Line and the Grain Belt Express Project because the projects "are, in National Grid's view, viable, economically attractive transmission investments." Id. at 5.

87. Clean Line's other major investors are Bluescape's subsidiary Clean Grid Holdings, LLC and ZAM Ventures, LP's subsidiary Clean Line Investor Corp., both of which

focus on long-term investments in the energy sector. See Ex. 100 at 9, 19-20 (Skelly Direct); Ex. 200 at 20 (Staff Report) (HC). Each of these investors has made substantial investments in Clean Line Energy Partners LLC. See Ex. 200 at 20 (Staff Report) (HC).

88. The Company will rely on specific revenue contracts with shippers or transmission service customers in order to support the financing of the Grain Belt Express Project. Project finance is a proven financing model commonly used for electric generation projects, natural gas pipelines, and electric transmission projects. See Ex. 104 at 15-21 (Berry Direct).

89. Staff concluded that the Company "is financially capable to be granted a CCN." See Ex. 200 at 21 (Staff Report). No party challenged this proposition.

90. Staff's Utility Regulatory Manager of Financial Analysis David Murray concluded that that Grain Belt Express "has the financial capability to construct the Project based on its plan to use project financing" once the Project is approved and "it receives subscriptions for a significant amount of capacity." See Ex. 200 at 19 (Staff Report) (HC). In this regard, the Company has agreed to Staff's conditions that it will not begin to install transmission facilities on easement property until it has demonstrated through a Commission filing that it has obtained commitments for funds that are equal to or greater than the total Project cost, and that the contracted transmission service revenue is sufficient to service the debt financing of the Project, taking into account any planned refinancing of debt. See Ex. 206, § I(d).

## I. Operational Qualifications

91. The management of Grain Belt Express and its investors both have substantial experience in project finance and know how to develop the Project to meet the requirements of the capital markets. See Ex. 104 at 12-14 (Berry Direct).

92. Clean Line President Michael Skelly leads an experienced team of senior executives with transmission and wind development experience. At Horizon Wind Energy, he oversaw the development of over 2,600 MW of wind generation projects. See Ex. 100 at 1-2 & Sched. MPS-2 (Skelly Direct). During his tenure at Horizon, that company developed and completed more than a dozen wind energy projects, with a portfolio of more than 10,000 MW in over a dozen states. Id. at 1.

93. Dr. Wayne Galli serves as Executive Vice President of Transmission and Technical Services for Clean Line. A professional engineer, Dr. Galli served as Director of Transmission Development for NextEra Energy Resources where he focused on the development of high-voltage direct current transmission lines in Texas. Before that, he was Supervisor of Operations Engineering at SPP, where he was responsible for the real-time and short-term engineering support of SPP's grid operations. See Ex. 108 at 2-3 (Galli Direct).

94. Other senior members of management include David Berry, Chief Financial Officer and Executive Vice President, and Jayshree Desai, Executive Vice President and Chief Operating Officer, who both served in senior positions at Horizon Wind Energy. See Ex. 100, Sched. MPS-2 at 1-2 (Skelly Direct); Ex. 104 at 1-2 (Berry Direct).

95. The operations of Grain Belt Express are supported by National Grid, which has made and continues to make available to the Company and Clean Line its engineering, procurement, safety, construction, and project management skills and resources. See Ex. 110 at 9 (Hartshorne Direct). National Grid is one of the most experienced transmission companies in the world, operating both direct current and alternating current high-voltage projects in the United States and Europe. Id. at 3-5. It is the second largest developer and owner of HVDC projects in the world, with two projects in operation in the United Kingdom connecting to

continental Europe, and approximately five in various stages of development. Tr. 724 (Hartshorne).

96. National Grid's construction team has provided support to Clean Line on construction management issues, and advised Clean Line on plans for compliance with North American Electric Reliability Corporation ("NERC") reliability standards. See Ex. 110 at 7 (Hartshorne Direct). Mr. Hartshorne testified at the evidentiary hearing that National Grid continues to view Grain Belt Express as a "good project" that has "made substantial progress since the last regulatory submission in Missouri, and we're inspired to follow it." See Tr. 724.

97. Since the 2014 Case, Grain Belt Express has entered into an HVDC transmission development agreement with PAR Electric, a subsidiary of Quanta Services, Inc., to provide support for the Project. See Ex. 121 at 1-5 (Shiflett Direct). Mr. Shiflett testified that this agreement commits each party to moving forward with a formal engineering, procurement and construction ("EPC") contract to provide permitting, construction planning, and procurement efforts to build the Grain Belt Express Project. Id. at 5. Headquartered in Kansas City, PAR Electric is the largest outside electrical contracting company in North America, with extensive experience in constructing transmission lines. Id. at 5-7 & Sched. TFS-2.

98. Mr. Shiflett presented the detailed organizational structure that will be used to implement the Project's construction program, as well as a 140-page Construction Plan that describes the segments of the Project and their construction schedule. See Sched. TFS-3 & TFS-4, Ex. 121 (Shiflett Direct). He also testified that Grain Belt Express now has in place an operations and maintenance plan for the Project, including a detailed emergency restoration plan that will be revised and expanded as the Project unfolds. See Ex. 121 at 14-16 & Sched. TFS-5 (Shiflett Direct).

99. Mr. Shiflett stated that third-party equipment suppliers would not execute contracts to provide services for the Project until final engineering is completed and regulatory approval is received. See Ex. 122 at 3 (Shiflett Surrebuttal). Staff witness Shawn Lange confirmed this, stating that Staff is not aware of a transmission project that has executed contracts for spare parts or other restoration equipment prior to achieving final engineering and design, and receiving its CCN. Tr. 1328 (Lange). Finally, Mr. Shiflett advised that inventories and storage locations for spare parts and other restoration materials would be established after final engineering and regulatory approval. See Ex. 122 at 4 (Shiflett Surrebuttal). Grain Belt Express has agreed in its conditions with Staff that the Company will provide to the Commission a final Emergency Restoration Plan prior to the commercial operations date for the Project. See Ex. 206, § IV.

100. In response to the engineering and safety issues raised by Staff, the Company has agreed that it will provide all necessary studies and reports, consistent with established industry standards and best practices, to ensure that all concerns are addressed as the Project progresses. See Ex. 206, § II(2), III (Staff-Company Agreement on Conditions, appended as Att. A). Staff's issues regarding the RTO interconnection processes and short-circuit ratios are reflected in these conditions. See Conditions Agreed to by Company and Staff, Ex. 206, § II(1); Tr. 1329-32 (Lange). Similarly, the studies, reports and testing conditions recommended by Staff have been agreed to by Grain Belt Express. See Ex. 206, § III(3)-(4).

101. No party has raised any specific concerns about Grain Belt Express and Clean Line's ability to construct, own, operate, control, manage, and maintain the Missouri Facilities.

102. Grain Belt Express is qualified to provide the service it is offering. Staff agreed, stating that it "is not questioning the qualifications of the staff that Grain Belt has in place to date." See Ex. 200 at 18 (Staff Report).

**J. The Project is in the Public Interest**

103. As summarized in the rebuttal testimony of Allan Spell, the Economic and Workforce Research Manager at the Missouri Economic Research and Information Center ("MERIC"), a research arm of the Missouri Department of Economic Development, "the construction phase of the Project is expected to support 1,527 total jobs over three years, create $246 million in personal income, $476 million in GDP, and $9.6 million in state general revenue for the state of Missouri" and "$249 million in Missouri-specific manufacturing and profession service contracting spending …." See Ex. 526 at 3 (Spell Rebuttal).

104. Among the companies that Grain Belt Express has committed to work with are Missouri businesses such as PAR Electric (Kansas City), which will construct the Project; ABB Inc. (St. Louis), which will manufacture transformers; Hubbell Power Systems (Centralia) which will manufacture the insulator cores and conductor hardware; and General Cable Industries (Sedalia) which will manufacture the steel core for the line's conductor. See Ex. 115 at 15-17 (Lawlor Direct); Ex. 121 at 5-6 (Shiflett Direct).

105. Mr. Spell's economic forecast is the product of the Regional Economic Models, Inc. Policy Insight ("REMI") model, which "is used by government agencies on the national, state, and local level, as well as by private consulting firms, utilities, and universities." See Ex. 526 at 4 & Sched. AES-1 (REMI Model Equations) (Spell Rebuttal).

106. Richard Tregnago, the Randolph County Assessor, estimates that in the first year of its operation, the Project will bring in more than $720,000 in tax revenue to Randolph County alone. See Ex. 123 at 4 (Tregnago Direct). Mr. Tregnago testified to the importance of such

revenue to his county, stating: "I've had school superintendents call to inform me of a new home immediately after it is constructed to ensure that we are assessing it, and they are getting the benefit. Every penny matters to these school districts." Ex. 124 at 8 (Tregnago Surrebuttal).

107. Over all Missouri counties traversed by the Project, Grain Belt Express will pay approximately $7.2 million in the first year of operation. See Ex. 115 at Sched. MOL-7 at 4 (Lawlor Direct).

108. Furthermore, because of the Company's industry-leading Easement Agreement, it is estimated that $14.97 million in easement payments will be made in the first year of Project operation. See Ex. 115, Sched. MOL-7 at 2. Additionally, in the Project's first year, 91 jobs, $17.9 million worth of personal income, and $9.1 million in gross domestic product will be created. See Ex. 115 at Sched. MOL-7 at 3 (Lawlor Direct).

109. Such economic projections are forecasts, and it is impossible to predict the exact amount of property tax that will be generated. See Ex. 116 at 116 (Lawlor Surrebuttal). Intervenor opposition to the Project does not dispute that property tax revenue will be generated from the Project, or offer any evidence to the contrary. Instead, Intervenors merely assert that the exact amount is unknown. See Ex. 300 at 32 (Lowenstein Rebuttal).

110. J. Neil Copeland of GDS Associates prepared a production cost analysis using PROMOD IV software that indicated the Project will lower both adjusted production costs and demand costs. See Ex. 106 at 4-5 (Copeland Direct). His analysis concluded that the Project would lower production costs in Missouri by $40 million in its first year of operation under a "business as usual" scenario, with additional savings projected under the "high growth," "generation shift," and "public policy" scenarios. Id. at 7-8, 10-12 & Sched. JNC-2. It will also lower sulfur dioxide, nitrous oxide, and carbon dioxide emissions in the Eastern Interconnection.

Id. at 4 & Sched. JNC-2 at 4. These scenarios were developed and approved by MISO in its 2015 MISO Transmission Expansion Plan, and are not based on the Clean Power Plan whose current status is uncertain. Id. at 12 (Copeland Direct).

111. The studies that Mr. Copeland carried out reflected input received from Staff members who recommended that he consider the effect of wind variability on the analysis, and include updated information on the status of certain Ameren power plans, among other items. Id. 14-15 (noting five Staff recommendations) (Copeland Direct); Tr. 1306 (Kliethermes). Mr. Copeland's analysis made other changes to the production cost model data presented in the 2014 Case, including the MJMEUC transmission contract with Grain Belt Express. See Ex. 106 at 16-17 (Copeland Direct).

112. After reviewing the Staff Report, Mr. Copeland confirmed in surrebuttal that his study had taken off-system sales into account, and stressed that the benefits provided by the Missouri 500 MW converter station would have a greater positive impact than a renewable resource located elsewhere in the Eastern Interconnection because it will deliver wind power directly to Missouri. See Ex. 107 at 2-4 (Copeland Surrebuttal). Responding to other issues noted in the Staff Report, he confirmed that his analysis did assess changes in emissions from the provision of ancillary services necessary to support increases in wind generation, and concluded that the effect of wind variability on such emissions "is very minor compared to the much larger effect of adding pollution-free wind energy to the generation portfolio." Id. at 5. He also testified that his analysis did consider the "basis differential" between the Project's Missouri converter station and the Missouri Load Hub. Id. at 4-5. Mr. Copeland concluded that the basis differential between the converter station and the load hub actually decreases with the Project and "therefore lowers the cost to serve Missouri load." Id. at 6.

113. To assess the reliability benefits of the Project, the Company retained Edward C. Pfeiffer of Quanta Technology, LLC to conduct a LOLE study. Mr. Pfeiffer's initial LOLE study analyzed Missouri with and without the capacity of the Grain Belt Express Project by evaluating the availability of generation to meet load during a given year. See Ex. 117 at 3-5 (Pfeiffer Direct). Noting that LOLE studies have been conducted for decades to determine proper capacity reserve levels, he concluded that the Project would have a "substantial and favorable effect on the reliability of electric service in Missouri." Id. at 5.

114. In response to comments in the Staff Report (Ex. 200), Mr. Pfeiffer updated his LOLE study to include a broader range of resources that serve load in Missouri but are located in adjoining states. See Ex. 118 at 2-4 (Pfeiffer Surrebuttal). Although he observed that his study was not intended to justify the Project as necessary to meet the resource adequacy metrics of specific utilities or any RTO (id. at 4), he updated his LOLE study and modified his assumptions based on Staff's comments. See Ex. 118 at 9-11 (Pfeiffer Surrebuttal). Based on these additional factors, he confirmed his finding that the Project continues to have "a substantial and favorable effect" on the reliability of electric service in Missouri. Id. at 11-12.

115. The routing guidelines and methodology used by Grain Belt Express ensured the least intrusive and most efficient route for the Project. Company witness James G. Puckett, an environmental scientist and experienced planner from Louis Berger Group, Inc., was a key member of the Routing Team that prepared the 2014 Missouri Route Selection Study and its 2016 Addendum. See Ex. 119 at 1-3 & Sched. JGP-1 (Puckett Direct). The routing process "involved iterative phases of information gathering, outreach, route development and route review and revision." See Ex. 119, Sched. JGP-1 at 12 (Puckett Direct). This effort produced multiple possible routes which were compared and analyzed with respect to their impact on

natural resources, human uses and environment, and engineering and construction challenges. Id. at 13-14. The final route was a combination of several alternative routes which, when combined, represented the least impactful and technically most efficient route. Id. From a routing perspective, cost was not considered in the siting of the Project. Tr. 577 (Puckett).

116. After the 2014 Case, Grain Belt Express had many constructive conversations with landowners. These included two rounds of both one-on-one meetings and public landowner meetings. See Ex. 119, Sched. JGP-2 at 13 (Puckett Direct). Grain Belt Express hosted eight Public Landowner Meetings in the affected counties in June of 2016. Id. at 9. The Company also coordinated with multiple state and federal agencies, such as the Missouri Department of Natural Resources, the Missouri Department of Conservation, and the State Historic Preservation Office. Id. at 12.

117. The Company's community outreach and engagement with landowners resulted in the refinement of the Proposed Route in which specific impacts to individual parcels were identified at a finer scale. Id. at 18. These conversations with landowners led to 16 new changes to the route, all of which are described in detail in the 2016 Routing Study Addendum. See Ex. 119, Sched. JGP-2 at 15-36 (Puckett Direct).

118. These 2016 route adjustments illustrate the Company's ability to work with landowners. Grain Belt Express moved the route 1,600 feet from Intervenors Christina and Matthew Reichert's Sycamore Valley Farms Bed and Breakfast, located in Chariton County, which was an issue in the 2014 CCN Case.[9] A route adjustment was made in Buchanan County at the request of a landowner, allowing structures to be placed at the edge of productive agricultural ground.[10] Similarly, in Carroll County route adjustments were made to shift the line

[9] Sched. JGP-2 at 29-30, Ex. 119 (Puckett Direct).
[10] Id. at 28.

from cultivated land to pasture land.[11] In total, the re-routing process reduced the number of residences within 500 feet of the Project, affected fewer churches and cemeteries within 1,000 feet, crossed fewer parcels, and reduced the number of archaeological sites within 1,000 feet of the Project from 49 to 41. See Ex. 119, Sched. JGP-2 at 37-39 (Puckett Direct).

119. The Missouri Landowner Protocol ("Protocol") incorporates three documents: (1) a Code of Conduct for Employees, Right-of-way Agents and Subcontractor Employees, (2) an Easement Agreement, and (3) the Missouri Agricultural Mitigation Impact Protocol. See Ex. 131 & Sched. DKL-1 to DLK-4 (Lanz Direct). The Protocol was developed by Grain Belt Express based "on hundreds, if not thousands, of conversations with landowners and other stakeholders over the last several years." Tr. 430-31 (Lanz).

120. This engagement with stakeholders is reflected in Staff's testimony that 53% of the thousands of public comments submitted to the Commission expressed support for the Project. See Tr. 1393-94 (Schallenberg). Out of approximately 11,800 comments, over 6,200 favored the Project. See Staff Ex. 207. Accordingly, a majority of the public comments registered on its Electronic Filing and Information System expressed support for the Project.

121. The testimony of Wayne Wilcox, a Missouri Century Farm owner and a Randolph County Commissioner, reflects this support. He stated that county commissioners look to see if project developers "treat the residents fairly" and that "[w]e have not had any issue whatsoever with the folks at Grain Belt Express." See Ex. 125 at 3 (Wilcox Direct); Ex. 126. Mr. Tregnago found that the Company's representatives "knew the answers to my questions" and provided "regular updates … keeping me apprised of the Project's progress." See Ex. 124 at 2 (Tregnago Surrebuttal).

[11] Id. at 27.

122. The Company's Easement Agreement contains an industry-leading compensation package offered to landowners. See Tr. 440 (Lanz). The Company offers (a) 110% of the average fee value for the right-of-way to ensure market value is reached,[12] (b) at landowners' option, a 2% annual escalating structure payments or a one-time structure payment for each structure,[13] and (c) agriculture impact payments.[14] No evidence was produced to suggest that any other transmission company operating in Missouri has offered similar or equal financial terms to those offered by the Company's Easement Agreement. Indeed, the evidence was that these payments will compensate landowners at levels superior to most utilities. Tr. 440-41 (Lanz in response to questions from Chairman Hall). Grain Belt Express agreed to incorporate the terms and obligations of the Missouri Landowner Protocol in its easement agreements with landowners. See Tr. 411-13 (Lanz); Ex. 114 at 5 (Lanz Surrebuttal). The Company further agreed that it would follow the Protocol as a condition to the CCN. Tr. 158 (Skelly).

123. The Company presented credible evidence that transmission lines cause minimal or no impact on property values. See Sched. RJR-1 at 9, Ex. 120 (Roddewig Surrebuttal). The most relevant study of the effect of a transmission line on farmland property values was conducted in Christian County, Illinois. Based on a comparison of median sale prices of property on the transmission line's right-of-way corridor with property not on the right-of-way, "prices on a transmission line corridor in Christian County are selling at only a small discount of perhaps no more than a negative -2.0% per acre." Id. at 15, ¶ 21.

124. If Grain Belt Express cannot come to an agreement on compensation with a landowner, the Company will offer binding arbitration to the landowner. See Ex. 113 at 11-12

[12] Ex.113 at 6 (Lanz Direct).
[13] Id. at 7.
[14] See Ex. 113 at 6-9 & Sched. DKL-3 (Missouri Landowner Compensation Factsheet); Ex.130 (structure payments); Ex. 131 (damage calculation sheet).

(Lanz Direct). Binding arbitration is typically a simpler, more cost effective, and less time consuming means of resolving financial compensation issues than eminent domain proceedings. Id. at 12.

125. Confirmation of the industry-leading status of the Company's Easement Agreement and its Missouri Landowner Protocol came from Donald Shaw, a witness for Show Me. Mr. Shaw served as CEO and General Manager for Central Electric Power Cooperative ("Central") from 1993 to 2015. See Ex. 402 at 3 (Shaw Rebuttal). On cross-examination, Mr. Shaw conceded that during his time at Central (a) there was no written landowner policy or protocol provided to landowners, (b) no code of conduct guiding employees or land-agents in their interaction with landowners, (c) no agricultural impact protocol, and (d) the compensation offered by Central was inferior to what Grain Belt Express is offering under its Easement Agreement. Tr. 1180-83 (Shaw).

126. Central offered one-time payments of 70% to 110% of the value of the property, with no payments for structures and no option for periodic payments that escalate over time. Tr. 1181-82 (Shaw). By contrast, the Company offers a uniform payment of 110% of the average fee value of the land, plus a structure payment with a 2% escalator provision and damage payments without any cap on the amount or time for claiming them. See Ex. 113 at 6-9 & Sched. DLK-3 (Lanz Direct).

127. The evidence shows that the Company's proposed route significantly limits the Project's impact to agricultural operations. See Ex. 119 at 28 & Sched. JGP-2 (Puckett Direct); Tr. 565-66 (Puckett). As explained by Dr. James Arndt, an eminent soil scientist with Merjent Inc., the overall effect of the Project on agriculture will be limited. He estimates that out of the 206 miles that the Grain Belt Express Project will traverse in Missouri, at most a total of nine

acres of land will be taken out of agricultural production as a result of the Project. See Ex. 101 at 14. The Company's industry-leading compensation package is meant to make a landowner, at a minimum, whole for any economic loss that occurs as a result of the construction and operation of the Project. See Tr. 440 (Lanz).

128. Dr. Arndt further testified that much of the land traversed by the Project is not suited for center pivot irrigation, which is the primary agricultural concern when constructing transmission projects because of the fixed infrastructure design of such systems. Id. at 15. Further, the proposed route for the Project does not affect any existing center-pivot irrigation systems. See Ex. 102 at 17 (Arndt Surrebuttal). This was not disputed by any party.

129. The evidence also shows that while there may be issues to resolve between agricultural operations and transmission development, these industries can co-exist. "With your largest equipment, you'll have to make a few additional maneuvers or passes, press a few buttons, or activate few levers. With the smaller implements, sprayers, tillage equipment and such, you usually can just drive around the structures. It's just not that big a deal, I do it all the time, and so do hundreds of other farms all across the country." See Ex. 126 at 3 (Wilcox Direct).

130. Based on feedback from Missouri agricultural producers, Grain Belt Express created a comprehensive Missouri Agricultural Impact Mitigation Protocol ("Missouri Ag Protocol"). See Sched. JLA-2, Ex. 101 (Arndt Direct). The Missouri Ag Protocol provides a detailed plan for mitigating or eliminating specific agricultural concerns and impacts during the construction phase of the Project even though the State of Missouri does not provide guidelines or requirements regarding agricultural impact protocols, as is the case in other states. Id. at 7. Grain Belt Express developed the Missouri Ag Protocol to provide landowner protections for a

multitude of issues during the construction of transmission lines, such as soil compaction, erosion, organic farms, drainage tiles, and the clearing of trees and brush. Id. at 2.

131. Grain Belt Express will retain an Agricultural Inspector with a professional background in production agriculture, soil and water conservation, and general farm operations and practices. Id. at 11. The sole responsibility of the Agricultural Inspector will be to ensure compliance with the Missouri Ag Protocol. The Agricultural Inspector will have the authority to stop all construction activities to ensure compliance with the Missouri Ag Protocol. See Ex. 101 at Sched. JLA-2 at 10 (Arndt Direct). All affected landowners will be given the phone number and contact information for the Agricultural Inspector. Id., Sched. JLA-2 at 6.

132. Grain Belt Express has agreed to establish the first decommissioning fund of a transmission line in the United States. Ex. 113 at 12-13 (Lanz Direct). In the highly unlikely event that the Project is retired from service, this decommissioning fund would pay for (a) the dismantling, demolishing and removal of all equipment, facilities and structures; (b) terminating all easement agreements in real property records; (c) securing, maintaining and disposing of debris from the Project facilities; and (d) performing any activities needed to comply with applicable laws, contractual obligations or other prudent actions necessary to retire the Project facilities and to restore any landowner property. See Ex. 113 at Sched. DKL-1 at 7 (Lanz Direct).

133. When Dr. William H. Bailey, a distinguished scientist on the health effects of electric and magnetic fields ("EMF"), was asked whether the Project would "pose any known risk to human health," he stated: "My conclusion, made to a reasonable degree of scientific certainty, is no." See Ex. 103 at 24 (Bailey Direct). This finding stands unchallenged in the evidence.

134. Citing some of the same studies relied upon by Dr. Bailey, including reports published by the World Health Organization and the International Agency on Cancer Research, Staff concluded that "concerns about the impact of EMF on health" did not support the rejection of the Application. See Ex. 200, Staff Report at 46-47.

## II. CONCLUSIONS OF LAW

### A. Grain Belt Express is a Public Utility and May Be Granted a CCN

1. Grain Belt Express is a privately-held electrical corporation and a public utility in Missouri. See Application at 2, 6. Grain Belt Express will not offer retail electric service in Missouri because the service it proposes to provide is interstate transmission service through an open access transmission tariff that will be regulated by FERC, consistent with its Order Conditionally Authorizing Proposal and Granting Waivers in Grain Belt Express Clean Line LLC., No. ER 14-409-000 (May 8, 2014). See Ex. 100 at 23-24 (Skelly Direct); Ex. 104 at 4-5 (Berry Direct).

2. The term "public utility," defined in Section 386.020(43), includes electrical corporations under Section 386.020(15). An "electrical corporation" includes every corporation owning, operating, controlling, or managing any "electric plant." Electric plant is defined in Section 386.020(14) as "all real estate, fixtures and personal property operated, controlled, owned, used or to be used for or in connection with or to facilitate the generation, transmission, distribution, sale or furnishing of electricity for light, heat or power …."

3. Under Section 393.170.1, an electrical corporation must obtain a CCN from the Commission before it can begin construction of an electric plant, which includes both transmission and distribution systems, as well as generating facilities.[15] Grain Belt Express is a

[15] See § 386.020(14).

public utility properly seeking this Commission's permission to construct electric plant in Missouri.

**B. Section 393.170.1 is the Governing Statute**

4. The Commission has the power to authorize the construction of "electric plant" in Missouri that is "necessary or convenient for the public service."[16] Pursuant to Section 393.170, the Commission may grant an applicant a "line" CCN under subsection 1 or an "area" CCN under subsection 2.[17]

5. The Commission's regulations contain separate and distinct requirements for "line" applications and for "area" applications.[18]

6. Grain Belt Express applied to this Commission for a line CCN under Section 393.170.1.[19]

7. The distinction between a Section 393.170.1 "line" certificate and a 393.170.2 "area" certificate has been long recognized by this Commission and Missouri Courts:

> The permission and approval that may be granted pursuant to section 393.170 is of two types: The PSC may grant CCNs for the construction of power plants, as described in subsection 1, or for the exercise of rights and privileges under a franchise, as described in subsection 2. Traditionally, the PSC has exercised this authority by granting two different types of CCN, roughly corresponding to the permission and approval required under the first two subsections of section 393.170. Permission to build transmission lines or production facilities is generally granted in the form of a "line certificate." A line certificate thus functions as PSC approval for the construction described in subsection 1 of section 393.170. Permission to exercise a franchise by serving customers is

[16] § 393.170.3.
[17] See StopAquila.org v. Aquila, Inc., 180 S.W.3d 24, 32-34 (Mo. App. W.D. 2005); State ex rel. Harline v. PSC, 343 S.W.2d 177, 182-85 (Mo. App. W.D. 1960).
[18] See 4 CSR 240.3-105(1)(B) ("setting forth filing requirements "[i]f the application is for electrical transmission lines, gas transmission lines or electrical production facilities . . .") and 4 CSR 240.3-105(1)(A) ("setting forth filing requirements "[i]f the application is for a service area . . .").
[19] See Application at 1 ("Grain Belt Express Clean Line LLC … pursuant to Section 393.170.1, 4 CSR 240-2.060 and 4 CSR 240-3.105(1)(B), submits this Application … for a certificate of convenience and necessity ...").

generally granted in the form of an "area certificate." Area certificates thus provide approval of the sort contemplated in subsection 2 of section 393.170.[20]

8. Missouri courts reject the notion that the requirements for subsection 1 "line" certificates and subsection 2 "area" certificates are interchangeable.[21]

9. A subsection 1 "line" certificate "carries no obligation to serve the public generally along the path of the line."[22] Instead, it requires the Commission's "permission and approval" to construct "electric plant."[23]

10. A subsection 2 "area" certificate is a granting of permission to exercise a franchise by serving customers. It "typically has been the principal vehicle for saturating a geographically defined area with retail electric service."[24] In other words, the granting of a CCN under subsection 2 serves as the grant of a territorial authority by which a utility is authorized to extend its services and is obligated to provide such services in that area.[25] A utility seeking a subsection 2 "area" certificate is seeking authority to "exercise rights or privileges under a franchise by providing public utility services."[26] Subsection 2 therefore requires municipal "authority" for "an established company to serve a territory by means of an existing plant."[27]

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[20] State ex rel. Cass Cnty. v. PSC, 259 S.W.3d 544, 548-49 (Mo. App. W.D. 2008) (citing the different application requirements in 4 CSR 240-3.105(1)(A) and (B)). See also StopAquila.org, 180 S.W.3d at 33 (observing that Section 393.170 is "divided into three distinct sub-sections."); State ex rel. Union Elec. Co. v. PSC, 770 S.W.2d 283, 285 (Mo. App. W.D. 1989) ("Two types of certificate authority are contemplated in Missouri statutes. Section 393.170.1, RSMo 1986 sets out the requirement for authority to construct electrical plants. This is commonly referred to as a line certificate . . . . Subsection 2 sets out the requirement for authority to serve a territory which is known as an area certificate."); Harline, 343 S.W.2d at 185 ("Certificate 'authority' is of two kinds and emanates from two classified sources.").

[21] Union Elec., 770 S.W.2d at 285.

[22] Id.

[23] Harline, 343 S.W.2d at 185.

[24] Union Elec. Co., 770 S.W.2d at 285.

[25] Id.

[26] Cass Cnty., 259 S.W.3d at 548.

[27] StopAquila.org, 180 S.W.3d at 33, citing Harline, 343 S.W.2d at 185.

Missouri courts reject the argument that subsection 2 deals with the construction of a transmission line.[28]

11. Grain Belt Express explicitly made its Application pursuant to Section 393.170.1 (for a "line" certificate), 4 CSR 240-2.060 (setting forth the general requirements for all applications to the Commission), and 4 CSR 240-3.105(1)(B) (setting forth the specific requirements for applications for transmission lines and facilities, in addition to the general application requirements of 4 CSR 240-2.060(1)).[29] Because Grain Belt Express is seeking authorization to begin construction of a transmission line and related facilities in Missouri such that it may provide wholesale transmission service, and not retail electric service, Section 393.170.1 is the relevant statute.

### C. Section 393.170.1 Does Not Require Any Municipal Consent Prior to Issuance of a CCN

12. No provision of Section 393.170.1 or 4 CSR 240.3-105(1)(B) requires that the applicant for a line certificate furnish to the Commission proof of the Section 229.100 "assent" of any "county commission" – or any other governmental body – to erect poles for the suspension of power wires through, on, under, or across the public roads or highways of that county.

13. The necessity of municipal franchise only applies to the grant of an "area" CCN under 393.170.2.[30] A utility seeking permission to construct a transmission line, which will not provide retail electric service to customers of a particular area, is not exercising any right or privilege under a franchise to serve that particular area.

[28] Harline, 343 S.W.2d at 183 ("We do not read the statute with that understanding").
[29] See Application at 1 ("Grain Belt Express Clean Line LLC … pursuant to Section 393.170.1, 4 CSR 240-2.060 and 4 CSR 240-3.105(1)(B), submits this Application … for a certificate of convenience and necessity ...").
[30] See StopAquila.org, 180 S.W.3d at 32-34; Harline, 343 S.W.2d at 182-85.

14. The PSC has traditionally granted "line" certificates without evidence of the receipt of county, municipal, or any other assents, consents, or franchises.[31] It may, pursuant to Section 393.170.3, condition a "line" CCN upon a utility obtaining such assents in the future.[32]

**D. Necessary or Convenient Legal Standard**

15. The CCN Application must be granted if the proposed infrastructure is "necessary or convenient for the public service."[33] Missouri appellate courts have held that necessity does not require that the improvement be "essential" or "absolutely indispensable."[34]

16. If the project "is of sufficient importance to warrant the expense of making it, it is a public necessity."[35] Moreover, if the granting of the authorization provides a "genuine and reasonable public interest in promptness and economy of service," then the public "convenience or necessity" is served.[36] Future needs must be part of a comprehensive evaluation of the public convenience or necessity.[37]

17. The Commission has stated that it will apply five criteria in CCN cases to determine whether the proposed service is necessary or convenient for the public service, commonly referred to as the Tartan factors: (1) There must be a need for the service the applicant proposes to provide; (2) The applicant's proposal must be economically feasible; (3) The applicant must have the financial ability to provide the service; (4) The applicant must be qualified to provide the proposed service; and (5) The proposed service must be in the public

[31] See In re Transource Missouri, Report and Order, Case No. EA-2013-0098 (Aug. 7, 2013); In re IES Utilities, Inc. and ITC Midwest LLC, Order Granting Certificate of Convenience and Necessity, Granting Variances from Certain Commission Rules, and Authorizing Sale of Assets, Case No. EO-2007-0485 (Aug. 30, 2007).
[32] See Transource Missouri, LLC, Report and Order at 35, No. EA-2013-0098 (Aug. 7, 2013).
[33] See Section 393.170.3. See also 4 CSR 240-3.105(1)(E).
[34] State ex rel. Intercon Gas, Inc. v. PSC, 848 S.W.2d 593, 597 (Mo. App. W.D. 1993).
[35] State ex rel. Missouri, Kan. & Okla. Coach Lines, Inc. v. PSC, 179 S.W.2d 132, 136 (Mo. App. K.C. 1944).
[36] State ex rel. Twehous Excavating Co. v. PSC, 617 S.W.2d 104, 106 (Mo. App. W.D. 1981).
[37] United for Missouri v. PSC, 2016 WL 7650615 at *4 (Mo. App. W.D., Dec. 20, 2016); State ex rel. Gulf Transport Co. v. PSC, 658 S.W.2d 448, 458 (Mo. App. W.D. 1983); Ringo v. PSC, 132 S.W.2d 1080, 1082 (Mo. App. K.C. 1939).

interest.[38] The Project meets each of these standards and is, therefore, necessary or convenient for the public service.

18. In the Tartan case, the Commission described each of the above elements, including that the service must promote the public interest, stating:

> 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.[39]

19. In a decision approving the CCN application of Ameren for the Callaway-Franks 345-kV transmission line, the Commission described the public in regard to the "public interest" requirement in the following terms:

> Who are "the public"? Concerned Citizens argues that the Commission should not consider the benefits it admits exist for AmerenUE, Associated, or Associated's customers. Concerned Citizens would have the Commission consider only the interests of the affected landowners. However, this argument is contrary to the case law.
>
> In the *Missouri Pacific Freight Transport Company* case, the Court stated that the 'rights of an individual with respect to issuance of a certificate are subservient to the rights of the public …' And, in a case affirming the Commission's grant of a certificate of convenience and necessity to a water utility, the Court in *Public Water Supply District No. 8* stated, 'the ultimate interest is that interest of the public as a whole … and not the potential hardship to individuals ….'
>
> The Commission is also aided by zoning and eminent domain cases where the issue of public interest is often addressed. An examination of those cases in Missouri finds that the determination of public interest is a balancing test between public and private interests. And further, '[n]o one factor is dispositive in balancing public versus private interests. Each case stands on its own facts and circumstances.'
>
> Section 386.610, RSMo, which applies to the Commission's general regulatory power over electric corporations, supports this balancing test approach ....

[38] In re Tartan Energy Co., Report and Order, Case No. GA-94-127, 1994 WL 762882 at 3 (1994).
[39] Id. at 10.

> The Commission must, therefore, balance all the relevant factors, both the benefits and detriments, and determine whether the public benefits of the project outweigh the individual detriments. It is not within the authority of this Commission to determine the monetary value or just compensation for such detriments other than to determine if the costs of the project outweigh the benefits provided by it.[40]

20. Accordingly, "the rights of an individual with respect to issuance of a certificate are subservient to the rights of the public."[41] Neither does the effect upon other common carriers outweigh a public necessity, as "an adverse effect upon them yields to a public need for the service."[42]

21. As these cases make clear, the Commission must balance both the benefits and the detriments of the Project[43] so as to ensure that there is no overall detriment to the public.[44] In other words, the term "in the public interest" "can reasonably mean no more than 'not detrimental to the public.'"[45] Consequently, the Commission may not withhold its granting of the authority sought where the benefits of the Project outweigh the individual detriments.[46]

22. The Missouri Facilities are necessary or convenient for the public service. Granting Grain Belt Express a CCN so that it may construct the Missouri portion of the Project "is of sufficient importance to warrant the expense of making it"[47] and it meets the five Tartan criteria set forth above. Accordingly, the public "convenience or necessity" is served.[48]

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[40] In re Union Electric Co., Report and Order, Case No. EO-2002-351, 2003 WL 22017276 at *15 (2003).
[41] State ex rel. Mo. Pac. Freight Transp. Co. v. PSC, 288 S.W.2d 679, 682 (Mo. App. K.C.), aff'd sub nom. State ex rel. Mo. Pac. Freight Transp. Co. v. PSC, 295 S.W.2d 128 (Mo. 1956).
[42] Twehous, 617 S.W.2d at 106.
[43] In re Union Electric Co., 2003 WL 22017276 at *15.
[44] State ex rel. City of St. Louis v. PSC, 73 S.W.2d 393, 400 (Mo. en banc 1934).
[45] City of St. Louis, 73 S.W.2d at 400.
[46] Id. See State ex rel. Fee Fee Trunk Sewer, Inc. v. Litz, 596 S.W.2d 466, 468 (Mo. App. E.D. 1980).
[47] State ex rel. Mo., Kan. & Okla. Coach Lines, Inc. v. PSC, 179 S.W.2d 132, 136 (Mo. App. K.C. 1944).
[48] State ex rel. Mo., Kan. & Okla. Coach Lines, 179 S.W.2d at 136; Twehous, 617 S.W.2d at 106.

**E. There is a Need for the Service**

23. The TSA between Grain Belt Express and MJMEUC, coupled with MJMEUC's PPA with Infinity Wind's Iron Star Wind Project, demonstrates a clear need for the service that the Company will provide. See Ex. 100 at 13-14 (Skelly Direct); Ex. 476-78 (Grotzinger Rebuttal). The TSA allows MJMEUC to purchase 200 MW of transmission capacity from the Project's western Kansas converter station to its Missouri converter station. See Ex. 100 at 13-14 (Skelly Direct).

24. MJMEUC and its customers have committed to purchase at least 100 MW of wind power utilizing transmission service purchased from Grain Belt Express.

25. MoPEP has committed to buy 60 MW. See Ex. 476 at 6 (Grotzinger Rebuttal). MoPEP is a group of 35 Missouri cities for which MJMEUC provides full requirements for wholesale energy, capacity, and ancillary services. See Ex. 477 at 2 (Grotzinger Surrebuttal); Ex. 475 at 4 (Kincheloe Rebuttal). The 35 municipal members of MoPEP are in all parts of Missouri, from Rock Port and Lamar in the west to Palmyra and Monroe City in the northeast, as well as to Jackson in the southeast and Thayer on the Arkansas border. See Sched. DK-1, Ex. 475 (Kincheloe Rebuttal).

26. The Cities of Kirkwood and Hannibal together committed to purchase an additional 40 MW. See Tr. 980-81 (Kincheloe); Ex. 479 (Kirkwood and Hannibal contracts).

27. In addition to the firm commitments by MoPEP, Kirkwood, and Hannibal, the Cities of Columbia and Centralia are interested in purchasing 35 MW of renewable power through the TSA with Grain Belt Express, and are proceeding with their own approval processes. Tr. 995-97 (Kincheloe).

28. MJMEUC President Duncan Kincheloe expects that the full 200 MW provided by the TSA with Grain Belt Express will be subscribed by MJMEUC members. Id.

29. The need for MJMEUC and its customers to obtain a new source of electricity is clear. MoPEP currently buys 100 MW of energy and capacity under a contract with Illinois Power Marketing, an affiliate of Dynegy, Inc., which had bought coal plants in Illinois formerly owned by Ameren Corporation. See Ex. 475 at 4 (Kincheloe Rebuttal). Because this contract expires in 2021, MJMEUC must replace that energy and capacity with more affordable energy. Id. MJMEUC concluded that the TSA with Grain Belt Express and the PPA with Infinity Wind "will form the cornerstone of the resource mix to replace" that contract. Id.

30. MJMEUC's Chief Operating Officer John Grotzinger confirmed that Columbia and the MoPEP cities have expressed a desire to purchase more renewable energy, and that a recent offering for renewable energy by MJMEUC to MoPEP "was fully subscribed, with additional demand unmet." See Ex. 476 at 9-10 (Grotzinger Direct). He also noted the need to provide renewable energy to industrial retail customers of MJMEUC's cities who have placed "renewable energy goals in their corporate procurement policies." Id. at 10. Given that the offers MJMEUC has extended from its Kansas wind project to the MoPEP cities with high-load commercial and industrial customers are currently over-subscribed, MJMEUC cannot currently meet the existing demand for retail renewable power. Tr. 1112-13 (Grotzinger).

31. Equally clear are the benefits to MJMEUC's customers. Numerous witnesses presented estimates of the savings to MJMEUC's customers. Although the exact estimate of savings varies somewhat depending on the calculation method used, as cited in detail in Section I(G) above, the record in this case makes it indisputable that substantial savings exist for MJMEUC customers.

32. When the value from the TSA is coupled with the favorable pricing in the Infinity Wind PPA, MJMEUC expects that the final all-in price for the wind energy delivered over the

Project will be under $23/MWh. See Ex. 477 at 4 (Grotzinger Surrebuttal). If the Project is built, MJMEUC's obligation to buy power from the Iron Star Wind Project is clear. Id. The PPA between Iron Star and MJMEUC requires that MJMEUC provide written notice to Iron Star and designate its Buyer's Share which shall "not be less than 100 MW." See Sched. JG-4, Ex. 476 at Sec. 3.1 (Grotzinger Rebuttal) (HC). In light of the MoPEP commitment of 60 MW, plus the City of Kirkwood (25 MW) and the City of Hannibal (15 MW), that minimum quantity has already been met.

33. Importantly, all of the estimates of benefits discussed above cover only a single year. The Grain Belt Express Project will operate for many decades and can continue to provide benefits for this entire time period. The total benefits will be a large multiple of the annual savings. Tr. 1002 (Kincheloe: Projected savings to MoPEP of $10-11 million is only an annual figure, not total); Tr. 1112 (Grotzinger: Additional benefits include emissions savings and ability to fulfill commercial and industrial demand for renewable energy).

34. Moreover, the estimates of benefits described above are only with respect to the 200 MW portion of the Project's transmission service to Missouri, which has been purchased by MJMEUC. Since the Project delivers a total of 500 MW to Missouri, it will provide benefits far beyond those provided to MJMEUC and its customers. Mr. Copeland of GDS Associates estimated that the Project in its entirety would lower annual adjusted production costs in Missouri by $40 million during its first year of operation under a "business as usual" assumption scenario, with additional savings projected in other scenarios. See Ex. 106 at 10-12 (Copeland Direct) & Sched. JNC-2. Mr. Copeland's analysis is further discussed below in Section II(I)(ii).

35. Beyond the MJMEUC contract, Grain Belt Express also has a TSA for 50 MW from an Illinois load-serving entity called Realgy, which has agreed to purchase 25 MW of the Project's transmission service to Missouri and 25 MW to PJM. Tr. 914, 965 (Berry).

36. Steve Chriss, Director of Energy and Strategy Analysis for Wal-mart Stores, Inc., testified that there is demand for the renewable wind power that would be delivered into Missouri through the Grain Belt Express 500 MW converter station. See Ex. 900 at 5-6 (Chriss Rebuttal). The Missouri Industrial Energy Consumers, Missouri Retailers Association, and the Consumer Council of Missouri support the Project because it "provides an opportunity for consumers in Missouri to take advantage of low-cost and clean wind energy resources." See Ex. 800 at 2 (Dauphinais Rebuttal).

37. Mr. Berry confirmed that the overall approximate price that MJMEUC will pay for buying western Kansas wind energy on the Project is about $20/MWh. Tr. 929. By contrast, the cost of MISO wind is in the low 2.0 ¢/kWh (or $20.00/MWh) range, but with a 1.0-1.2¢/kWh ($10.00-12.00/MWh) congestion cost, which brings the total delivered cost of MISO Wind into the low-to-mid 3.0 ¢/kWh range ($30+/MWh). Tr. 931-32.

38. Finally, the need for the Project has been demonstrated by the responses to the various open solicitations that Grain Belt Express conducted in 2015 and in early 2016. Regarding the 500 MW Kansas-to-Missouri service, ten wind generators and one load-serving entity submitted transmission service requests of 3,524 MW, more than six times the available service offered by the Company. See Ex. 104-24-25 (Berry Direct). For the service offered from Kansas to the Illinois converter station in PJM, 17,301 MW of service were requested. Id. at 25. Thus, the total capacity requested for both MISO and PJM delivery points at 20,825 MW was almost five times the total available capacity of the Project. Id. & Sched. DAB-3 (HC).

39. Based upon the totality of the evidence, there is clearly a need for the Grain Belt Express Project. The first Tartan factor has been met.

**F. The Project is Economically Feasible**

40. Because it will link untapped, low-cost wind resources in western Kansas with the demand for renewable energy in Missouri and other states, the Project is economically feasible. This is particularly true given that the Company and its investors bear all risk associated with recovering the costs of the Project, which is the specific test the Commission applied in the Tartan case to determine that the project under review was economically feasible.[49] Using the ordinary meaning of the word, the concept of feasibility simply means "capable of being done" or "achievable."[50]

41. Moreover, the cost of the Project will not be recovered from Missouri ratepayers through either SPP or MISO regional cost allocation tariffs. See Ex. 100 at 15 (Skelly Direct).

42. Former New Mexico and FERC Commissioner Suedeen G. Kelly testified that the Commission can and should evaluate the Project's economic feasibility in light of its participant-funded business model. Under the participant-funded business model, Grain Belt Express will recover its costs only from those wholesale transmission customers who choose to purchase its service. See Ex. 111 at 4-5 (Kelly Direct). There are at least four other participant-funded transmission line projects currently in operation today. Id. at 10. Because the Project is funded and paid for by private investors, and not recovered through cost-of-service rates, it is not necessary for the Commission to determine whether the Project's service is an improvement that justifies its cost. Id. at 3. Finally, Ms. Kelly noted that any concerns regarding the

[49] In re Tartan Energy Co., Report and Order, Case No. GA-94-127, 1994 WL 762882 at 10 (1994) (finding that Tartan's proposal "represents a viable project" as "Tartan bears most of the risk if it has underestimated the economic feasibility of its project").

[50] American Textile Mfrs. Inst., Inc. v. Donovan, 452 U.S. 490, 508 (1981) (citing the plain meaning of the word "feasible" in rejecting imputation of a higher standard). See also Occ. Safety & Health L. § 4:28 (2013 ed.).

interconnection of the Project are the responsibility of the relevant RTOs who, overseen by FERC together with NERC, will preserve the reliability of the bulk electric system. Id. at 2 (Kelly Surrebuttal).

43. RTOs are responsible for assuring that those portions of the electric grid subject to their authority are being operated in an efficient and reliable manner, with particular responsibility for maintaining short-term reliability. See Regional Transmission Organizations, 18 C.F.R. § 35.34(a), (j)(3)-(4). Pursuant to the 2005 Energy Policy Act amendments to the Federal Power Act, RTOs are explicitly obligated to comply with FERC-approved reliability standards, as promulgated by NERC and as subject to applicable FERC rules, orders and tariffs.[51]

44. This interconnection process has continued to advance since the 2014 Case. The additional technical studies conducted by SPP, MISO, and PJM provide "sufficient detail to support [the Project's] cost estimates with a reasonable level of certainty." See Ex. 109 at 3 (Galli Surrebuttal). Based on a January 2017 study prepared by Ameren Missouri, the necessary MISO upgrades were estimated at $21 million. See Ex. 109 at 9 & Sched. AWG-9 (Galli Surrebuttal). This more advanced study considered additional contingencies, including NERC category C events noted by Staff, and "provides more certainty regarding the impacts from [the] interconnection of the Project's Missouri HVDC Converter Station." Id. at 10. Dr. Wayne Galli also described the process that MISO is conducting to enable the interconnection of HVDC projects generally. Id. at 13-15.

45. The PJM October 2014 System Impact Study is being "re-tooled" in light of confirmation that its modeling was appropriate, with an updated study expected to be released this spring. Id. at 22-24. PJM costs continue to be estimated at $500 million, with potential

[51] See 16 U.S.C. § 824*o* ("Electric Reliability").

positive developments from other projects that should strengthen the grid at the point of interconnection. Id. at 24-27. Regarding the SPP interconnection process, Grain Belt Express signed an interconnection agreement with SPP and ITC Great Plains on October 17, 2017, with no further upgrades in that region being anticipated. Id. at 30-31. Based on the progress made to date on these matters, Dr. Galli advised the Commission it was likely that "there won't be significant additional transmission upgrades." Tr. 502.

46. Beyond the fact that the Project's developers have assumed the risk of failure, the results of the open solicitation process, as well as the MJMEUC/Infinity contracts, provide additional strong evidence that the Project is economically feasible and financially viable. Id. at 30-32; Ex. 112 at 4-5 (Kelly Surrebuttal).

47. Mr. Berry explained that while the MJMEUC/Infinity contracts demonstrate the economic feasibility of the Project compared to MISO wind (Tr. 929-933), it was the 3500 MW of energy to be sold into PJM that "demonstrates the financial viability of the project" overall. Tr. 937-38. PJM operates the largest wholesale energy market in the world with 71 million customers (Tr. 938), where power prices are generally $10.00/MWh higher than prices that would be paid for the 500 MW sold into the MISO market in Missouri. Tr. 915.

48. Mr. Berry also noted there was a "very strong corporate demand" for renewable energy in PJM where the Project's participant-funded model permits the Company to "build a project at a price that people are willing to pay" and to operate it under "market conditions in PJM" where users will "pay a higher price." Tr. 915-16. He additionally observed that when Grain Belt Express conducted its open solicitation, it offered a price that was higher than both the MJMEUC "first-mover" price and the normal Missouri rate, and that it received bids that

were 6½ times the capacity available on the Project, "a solid indication" of economic feasibility. Tr. 941.

49. The economics of generating low-cost wind energy in western Kansas for export to Missouri and farther east are attractive, as prices continue to decline. Mr. Berry testified that a contract executed in 2015 set the price of energy from one western Kansas provider at $19.15/MWh.[52] The cost of wind power from western Kansas has continued to drop, as evidenced by the pricing in MJMEUC's PPA with Infinity Wind of $16.50 per MWh. See Sched. JG-4 at 3, Ex. 476 (Grotzinger Rebuttal). Infinity Wind's Mr. Langley confirmed that the Project contributes to Infinity's ability to provide a lower-cost option of Kansas wind power to Missouri and states farther east. See Ex. 876 at 6-7 (Langley Rebuttal). He explained that because DC technology reduces the amount of line losses that are experienced, the Grain Belt Express Project will allow more of the energy generated in western Kansas to reach end-use consumers in Missouri. Id. at 7.

50. Kansas has some of the highest wind speeds in the country, routinely reaching between 8.5 and 9.0 meters per second with an 80-meter wind turbine. See Ex. 104 at 25-26 (Berry Direct). Wind speeds in western Kansas are substantially higher than Missouri, Illinois, Indiana, and even Iowa. Id. & Sched. DAB-4 (NREL Wind Map). Because wind power varies proportionally to wind velocity by the third power, a Kansas wind site with an average of 8.8 meters/second produces ***double*** the power of a site in Missouri with a 7.0 meter/second average. Id. at 26.

51. The State of Kansas offers two tax incentives (a 10-year property tax abatement and a sales tax exemption) that allow western Kansas wind generators to produce energy at a lower cost. Id. at 27. Moreover, the construction costs of wind farms in Kansas tend to be

[52] Berry Direct at 23, Ex. 104 (Cedar Bluff Wind Farm).

among the lowest in the country, reaching $1,554/kW in one recent project. Id. at 27; Ex. 876 at 4 (Langley Surrebuttal). This compares with average costs in other regions of the country of $2,290/kW. See Ex. 104 at 27 (Berry Direct). Finally, the availability of the federal production tax credit ("PTC") supports the economics of wind generation. See Ex. 675 at 10 (Goggin Rebuttal).

52. All of these facts show that the Project presents a compelling business case which, on the basis of its economics, is likely to attract transmission service customers in addition to MJMEUC and Realgy. Wind generators in western Kansas or load-serving entities in Missouri will be able to pay the Project's transmission charge and still deliver energy to Missouri at a competitive price. See Ex. 104 at 31 (Berry Direct). The attractive business proposition of the Project and the resulting benefits to Missouri electric users were further quantified by the LCOE analysis Grain Belt Express presented in this case. None of the criticisms offered by witnesses opposing the Application successfully detract from the Project's economic feasibility.

**G. Grain Belt Express Has the Proper Financial Resources**

53. Grain Belt Express has sufficient financial resources to provide the services proposed by the Project as a result of the funding provided by Clean Lean and its principal investors, National Grid, Bluescape, and ZAM Ventures. See Ex. 100 at 19-20 (Skelly Direct); Ex. 110 at 6 (Hartshorne Direct). Staff concluded that the Company "is financially capable to be granted a CCN." See Ex. 200 at 21 (Staff Report). No party challenged this proposition.

54. The Company will rely on specific revenue contracts with shippers or transmission service customers in order to support the financing of the Grain Belt Express Project. Project finance is a proven financing model commonly used for electric generation projects, natural gas pipelines, and electric transmission projects. See Ex. 104 at 15-21 (Berry Direct). The management of Grain Belt Express and its investors both have substantial

experience in project finance and know how to develop the Project to meet the requirements of the capital markets. Id. at 12-14.

55. To date, National Grid has invested $55.7 million in the development of the Clean Line projects, including the Grain Belt Express Project. See Ex. 110 at 6 (Hartshorne Direct); Tr. 408. Based on National Grid's analysis of Clean Line's model of providing wind energy over HVDC transmission lines on a participant-funded basis, National Grid has continued to support Clean Line and the Grain Belt Express Project because the projects "are, in National Grid's view, viable, economically attractive transmission investments." Id. at 5.

56. Clean Line's other major investors are Bluescape's subsidiary Clean Grid Holdings, LLC and ZAM Ventures, LP's subsidiary Clean Line Investor Corp., both of which focus on long-term investments in the energy sector. See Ex. 100 at 9, 19-20 (Skelly Direct); Ex. 200 at 20 (Staff Report) (HC). Each of these investors have made substantial investments in Clean Line energy Partners LLC. See Ex. 200 at 20 (Staff Report) (HC).

57. Given the financial backing of the Project, the viability and historical success of the project finance model, the experience of Clean Line and its investors' management, and particularly the commitment by National Grid, Bluescape, and ZAM Ventures to support the transmission projects proposed by Clean Line, Grain Belt Express clearly has the financial ability to provide the proposed transmission service.

### H. Grain Belt Express is Qualified to Provide the Service

58. Grain Belt Express is qualified to provide the service it is offering. The management team of the Company has extensive experience developing, constructing, and operating a variety of transmission and other energy infrastructure projects. See Ex. 110 at 8 (Hartshorne Direct).

59. Staff agreed, stating that it "is not questioning the qualifications of the staff that Grain Belt has in place to date." See Ex. 200 at 18 (Staff Report).

60. The operations of Grain Belt Express are supported by National Grid, which has extensive experience building, owning, and operating large HVDC electric transmission facilities in the United States, United Kingdom, and Europe. See Ex. 110 at 3-4 (Hartshorne Direct). National Grid has made and continues to make available to the Company and Clean Line its engineering, procurement, safety, construction, and project management skills and resources. Id. at 6-7, 9 (Hartshorne Direct).

61. Grain Belt Express has entered into an HVDC transmission development agreement with PAR Electric to provide support for the Project. See Ex. 121 at 1-5 (Shiflett Direct). Mr. Shiflett presented the detailed organizational structure that will be used to implement the Project's construction program, as well as a 140-page Construction Plan that describes the segments of the Project and their construction schedule. See Sched. TFS-3 & TFS-4, Ex. 121 (Shiflett Direct). He also testified that Grain Belt Express now has in place an operations and maintenance plan for the Project, including a detailed emergency restoration plan that will be revised and expanded as the Project unfolds. See Ex. 121 at 14-16 & Sched. TFS-5 (Shiflett Direct).

62. No party has raised any specific concerns about Grain Belt Express and Clean Line's ability to construct, own, operate, control, manage, and maintain the Missouri Facilities.

63. Because the Grain Belt Express management team and the outside firms supporting the Project have extensive experience developing, constructing, and operating a variety of transmission and other energy infrastructure projects, the Company is qualified to provide the service it is offering.

## I. The Project is in the Public Interest

64. In the Tartan case, the Commission found that the public interest factor "is in essence a conclusory finding as there is no specific definition of what constitutes the public interest."[53] The Commission concluded that "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."[54] The Company has shown not only that there is a demonstrated need for the service, that the Project is economically feasible, that it can successfully finance the Project, and that it is qualified to provide the service, but also that the Project provides a variety of benefits that are in the public interest without creating any substantial detriments.

### i. The Project is Economically Beneficial to Missouri

65. The evidence presented in this case overwhelmingly shows that the Project will result in substantial economic growth and development in Missouri and increased tax revenues for Missouri communities.

66. Mr. Spell of the Missouri Department of Economic Development's witness testified that "the construction phase of the Project is expected to support 1,527 total jobs over three years, create $246 million in personal income, $476 million in GDP, and $9.6 million in state general revenue for the state of Missouri" and "$249 million in Missouri-specific manufacturing and profession service contracting spending …." See Ex. 526 at 3 (Spell Rebuttal).

[53] In re Tartan Energy Company, L.C., Report and Order, Case No. GA-94-127, 1994 WL 762882 at 10 (1994).
[54] Id.

67. Mr. Tregnago estimates that in the first year of its operation, the Project will bring in more than $720,000 in tax revenue to Randolph County alone. See Ex. 123 at 4 (Tregnago Direct).

68. Over all Missouri counties traversed by the Project, Grain Belt Express will pay approximately $7.2 million in the first year of operation. See Ex. 115 at Sched. MOL-7 at 4 (Lawlor Direct). Intervenor opposition to the Project does not dispute that property tax revenue will be generated from the Project.

69. The magnitude of the Project undoubtedly will create large economic benefits for Missouri in general, and specifically for the local economies of the affected Missouri counties. There was simply no evidence offered to the contrary.

**ii. The Project Will Lower Production Costs and Improve Reliability**

70. The record shows that the Project will lower energy production costs and provide additional reliability benefits to Missouri.

71. Mr. Copeland of GDS Associates prepared a production cost analysis using PROMOD IV software that indicated the Project will lower both adjusted production costs and demand costs. See Ex. 106 at 4-5 (Copeland Direct). His analysis concluded that the Project would lower production costs in Missouri by $40 million during its first year of operation under a "business as usual" scenario, with additional savings projected under the "high growth," "generation shift," and "public policy" scenarios. Id. at 10-12 & Sched. JNC-2. These scenarios were developed and approved by MISO in its 2015 MISO Transmission Expansion Plan, and are not based on the Clean Power Plan whose current status is uncertain. Id. at 12 (Copeland Direct). The Project will also reduce sulfur dioxide, nitrous oxide, and carbon dioxide emissions in the Eastern Interconnection. See Ex. 106 at 4 (Copeland Direct).

72. After reviewing the Staff Report, Mr. Copeland confirmed in surrebuttal that his study had taken off-system sales into account, and stressed that the benefits provided by the Missouri 500 MW converter station would have a greater positive impact than a renewable resource located elsewhere in the Eastern Interconnection because it will deliver wind power directly to Missouri. See Ex. 107 at 2-4 (Copeland Surrebuttal). Responding to other issues noted in the Staff Report, he confirmed that his analysis did assess changes in emissions from the provision of ancillary services necessary to support increases in wind generation, and concluded that the effect of wind variability on such emissions "is very minor compared to the much larger effect of adding pollution-free wind energy to the generation portfolio." Id. at 5. He also testified that his analysis did consider the "basis differential" between the Project's Missouri converter station and the Missouri Load Hub. Id. at 4-5. Mr. Copeland concluded that the basis differential between the converter station and the load hub actually decreases with the Project and "therefore lowers the cost to serve Missouri load." Id. at 6.

73. To assess the reliability benefits of the Project, the Company retained Edward C. Pfeiffer of Quanta Technology, LLC to conduct a LOLE study. Mr. Pfeiffer's initial LOLE study analyzed Missouri with and without the capacity of the Grain Belt Express Project by evaluating the availability of generation to meet load during a given year. See Ex. 117 at 3-5 (Pfeiffer Direct). Noting that LOLE studies have been conducted for decades to determine proper capacity reserve levels, he concluded that the Project would have a "substantial and favorable effect on the reliability of electric service in Missouri." Id. at 5.

74. In response to comments in the Staff Report (Ex. 200), Mr. Pfeiffer updated his LOLE study to include a broader range of resources that serve load in Missouri but are located in adjoining states. See Ex. 118 at 2-4 (Pfeiffer Surrebuttal). Although he observed that his study

was not intended to justify the Project as necessary to meet the resource adequacy metrics of specific utilities or any RTO (id. at 4), he updated his LOLE study and modified his assumptions based on Staff's comments. See Ex. 118 at 9-11 (Pfeiffer Surrebuttal). Based on these additional factors, he confirmed his finding that the Project continues to have "a substantial and favorable effect" on the reliability of electric service in Missouri. Id. at 11-12.

### iii. Landowner Interests and the Broader Public Interest in Low-Cost Renewable Energy Are Compatible

75. In a decision approving the CCN application of Ameren for the Callaway-Franks transmission line, the Commission found that the "public interest" is broadly defined. The Commission found that "the ultimate interest is that interest of the public as a whole … and not the potential hardship to individuals …."[55] This is consistent with the historic practice of the Commission, confirmed by Missouri appellate courts, that holds the overall interests of the general public as supreme when making a public interest determination.[56]

76. The record here demonstrates that the balance of interests favors approval of the Project and its Missouri Facilities, which are not detrimental and are indeed highly beneficial to the public.[57]

#### a. The Routing Process

77. The routing guidelines and methodology used by Grain Belt Express ensured the least intrusive and most efficient route for the Project. Company witness James G. Puckett, an environmental scientist and experienced planner from Louis Berger Group, Inc., was a key member of the Routing Team that prepared the 2014 Missouri Route Selection Study and its

[55] In re Union Electric Co., Report and Order, Case No. EO-2002-351, 2003 WL 22017276 at *15 (2003).
[56] In re Sho-Me Power Corp., Report and Order, Case No. EO-93-259, 1993 WL 719871 (1993); State ex rel. Mo. Pac. Freight Transp. Co. v. PSC, 288 S.W.2d 679, 682 (Mo. App. K.C.) aff'd sub nom. State ex rel. Mo. Pac. Freight Transp. Co. v. PSC, 295 S.W.2d 128 (Mo. 1956).
[57] See City of St. Louis, 73 S.W.2d at 400; Fee Fee Trunk Sewer, 596 S.W.2d at 468.

2016 Addendum. See Ex. 119 at 1-3 & Sched. JGP-1 (Puckett Direct). The routing process "involved iterative phases of information gathering, outreach, route development and route review and revision." See Ex. 119, Sched. JGP-1 at 12 (Puckett Direct). The final route was a combination of several alternative routes which, when combined, represented the least impactful and technically most efficient route. Id.

78. The routing process is an important indicator of the Company's continued commitment to work with landowners and other stakeholders to minimize the environmental impact of the Project. The Company's community outreach and engagement with landowners, as detailed above, resulted in the refinement of the Proposed Route in which specific impacts to individual parcels were identified at a finer scale. Id. at 18. These conversations with landowners led to 16 variations to the route since 2014, all of which are described in detail in the 2016 Routing Study Addendum. See Ex. 119, Sched. JGP-2 at 15-36 (Puckett Direct).

79. The Company welcomed the opportunity to find solutions to specific concerns and issues raised by landowners. The routing process demonstrates that Grain Belt Express has not simply given lip-service to working with landowners, but has and will continue to work to minimize any negative impacts of the Project on landowners, including on agricultural operations.

**b. Missouri Landowner Protocol**

80. The Protocol incorporates three documents: (1) a Code of Conduct for Employees, Right-of-way Agents and Subcontractor Employees, (2) an Easement Agreement, and (3) the Missouri Agricultural Mitigation Impact Protocol. See Ex. 131 & Sched. DKL-1 to DLK-4 (Lanz Direct). It was developed by Grain Belt Express based "on hundreds, if not

thousands, of conversations with landowners and other stakeholders over the last several years." Tr. 430-31 (Lanz).

81. This engagement with stakeholders is reflected in Staff's testimony that 53% of the thousands of public comments submitted to the Commission expressed support for the Project. See Tr. 1393-94 (Schallenberg). The testimony of Wayne Wilcox, a Missouri Century Farm owner and a Randolph County Commissioner, reflects this support. He stated that county commissioners look to see if project developers "treat the residents fairly" and that "[w]e have not had any issue whatsoever with the folks at Grain Belt Express." See Ex. 125 at 3 (Wilcox Direct); Ex. 126. Mr. Tregnago, the Randolph County Assessor, found that the Company's representatives "knew the answers to my questions" and provided "regular updates … keeping me apprised of the Project's progress." See Ex. 124 at 2 (Tregnago Surrebuttal).

**c. The Easement Agreement**

82. As described above, the Company's Easement Agreement contains an industry-leading compensation package offered to landowners. See Tr. 440 (Lanz).

83. The Company presented credible evidence that transmission lines cause minimal or no impact on property values. See Sched. RJR-1 at 9, Ex. 120 (Roddewig Surrebuttal). The most relevant study of the effect of a transmission line on farmland property values was conducted in Christian County, Illinois. Based on a comparison of median sale prices of property on the transmission line's right-of-way corridor with property not on the right-of-way, "prices on a transmission line corridor in Christian County are selling at only a small discount of perhaps no more than a negative -2.0% per acre." Id. at 15, ¶ 21.

### d. Agricultural Impacts

84. The evidence shows that the Company's proposed route significantly limits the Project's impact to agricultural operations. See Ex. 119 at 28 & Sched. JGP-2 (Puckett Direct); Tr. 565-66 (Puckett). As explained by Dr. James Arndt, an eminent soil scientist with Merjent Inc., the overall effect of the Project on agriculture will be limited. He estimates that out of the 206 miles that the Grain Belt Express Project will traverse in Missouri, at most a total of nine acres of land will be taken out of agricultural production as a result of the Project. See Ex. 101 at 14.

85. Dr. Arndt further testified that much of the land traversed by the Project is not suited for center pivot irrigation, which is the primary agricultural concern when constructing transmission projects because of the fixed infrastructure design of such systems. Id. at 15. Further, the proposed route for the Project does not affect any existing center-pivot irrigation systems. See Ex. 102 at 17 (Arndt Surrebuttal). This was not disputed by any party.

86. Further, the Missouri Ag Protocol provides landowner protections for a multitude of issues during the construction of transmission lines, such as soil compaction, erosion, organic farms, drainage tiles, and the clearing of trees and brush. See Sched. JLA-2, Ex. 101 (Arndt Direct).

87. The Agricultural Inspector will have the authority to stop all construction activities to ensure compliance with the Missouri Ag Protocol. See Ex. 101 at Sched. JLA-2 at 10 (Arndt Direct). All affected landowners will be given the phone number and contact information for the Agricultural Inspector. Id., Sched. JLA-2 at 6.

### e. Decommissioning Fund

88. Grain Belt Express has agreed to establish the first decommissioning fund of a transmission line in the United States. Ex. 113 at 12-13 (Lanz Direct). In the highly unlikely event that the Project is retired from service, this decommissioning fund would pay for (a) the dismantling, demolishing and removal of all equipment, facilities and structures; (b) terminating all easement agreements in real property records; (c) securing, maintaining and disposing of debris from the Project facilities; and (d) performing any activities needed to comply with applicable laws, contractual obligations or other prudent actions necessary to retire the Project facilities and to restore any landowner property. See Ex. 113 at Sched. DKL-1 at 7 (Lanz Direct).

### f. Health Effects of Electro-Magnetic Fields

89. Citing some of the same studies relied upon by Dr. Bailey, including reports published by the World Health Organization and the International Agency on Cancer Research, Staff concluded that "concerns about the impact of EMF on health" did not support the rejection of the Application. See Ex. 200, Staff Report at 46-47. Dr. Bailey's finding that the Project would pose no known risk to human health stands unchallenged in the evidence. See Ex. 103 at 24 (Bailey Direct).

90. Looking at the broad interests of the general public and Grain Belt Express' commitments to avoid or mitigate landowner impacts, the benefits of the Project and its Missouri portion in particular far outweigh any alleged detriments.[58]

[58] In re Union Electric Co., Report and Order, Case No. EO-2002-351, 2003 WL 22017276 at *15 (2003).

## III. CONDITIONS

### A. Conditions Agreed to by Staff and Grain Belt Express

1. Staff and the Company agreed to seven categories of conditions, which are set forth in Exhibit 206. Under Section 393.170.3, the Commission has the power to "impose such condition or conditions as it may deem reasonable and necessary" to serve the public interest.

2. The conditions agreed to by Staff and Grain Belt Express in Exhibit 206 are accepted as follows:

i. The Company will not install transmission facilities on easement property until it obtains commitments for funds in an amount equal to or greater than the total cost to build the entire Project. The four subsections to this condition recommended by Staff witness David Murray also are accepted. See Staff Report, Ex. 200 at 19-21, 63-64; Ex. 206, § I.

ii. The Company will provide Staff with completed RTO interconnection agreements and any associated studies. If any studies raise new issues, the Company will provide its plan to address those issues. The Company also will provide the Commission with completed documentation to comply with the relevant NERC standards, the National Electric Safety Code, the Overhead Power Safety Act, and any other applicable Missouri state law for a project of this scope and size. Such documentation shall be provided to the Commission prior to the commercial operational date of the Project. See Staff Report, Ex. 200 at 67; Ex. 206, § II.

iii. The conditions that will confirm that the Company is using commercially reasonable efforts to identify existing underground utility plans, and to coordinate with the owners of such facilities, are accepted. These conditions

also relate to steps that Grain Belt Express will take before commencing commercial operation of the Project regarding the technical operation of the line, including building the entire line with dedicated metallic return conductors and complying with other safety standards. Finally, these conditions require the Company to perform various engineering studies to be conducted by qualified persons, and to make these studies available to Staff and affected facility owners. The Company will also file annual updates regarding the need for any additional studies and other measures. See Staff Report, Ex. 200 at 64-66; Ex. 206, § III.

iv. The Company will provide a copy of its final emergency restoration plan to the Commission prior to commercial operation of the Project. See Staff Report, Ex. 200 at 66; Ex. 206, § IV.

v. The 14 specific standards relating to the construction of the Project and the clearing of vegetation are accepted. These conditions were based upon recommendations in the Staff Report, as modified by subsequent agreements by the Company and Staff. See Staff Report, Ex. 200 at 67-68; Ex. 206, § V.

vi. The six conditions with regard to a variety of future maintenance and repair practices, as well as right-of-way maintenance after construction is completed, are accepted. The Company will notify all landowners in writing of its Transmission Vegetation Management Policy, and to meet with landowners regarding the use of herbicides. See Staff Report, Ex. 200 at 68-69; Ex. 206, § VI.

vii. The seven conditions regarding ROW acquisition and how interactions with landowners will occur are accepted. The CCN issued in this case is limited to the construction of the line in the location specified in the Application and as represented to landowners on aerial photographs provided to them by the Company. "Application" in this context incorporates the Company's pre-filed testimony, including the Direct Testimony of James G. Puckett (Ex. 119), which attached the 2014 Routing Study and its June 2016 Addendum (Schedules 1-2).

viii. If a written agreement is obtained from the landowner or the Company obtains a variance from the Commission for a particular property, the CCN will conform to such agreement or variance. Minor deviations to the location of the line not exceeding 500 feet will be permitted as a result of surveying, final engineering and design, and landowner consultation, so long as the line and required easements stay within the property boundaries of that landowner and do not involve a new landowner. See Staff Report, Ex. 200 at 43, 69; Ex. 206, § VII. Such minor deviations may be necessary to move the line in order to address safety issues, cultural sites, or environmental or other conditions that may be encountered in the final siting of the line. See Tr. 923-24 (Berry).

**B. Grain Belt Express - Rockies Express Pipeline Conditions**

3. The conditions Grain belt Express agreed to in response to data requests served by Rockies Express Pipeline LLC, reflected in Exhibit 205 (several of which reflect the agreements with Staff in Section III ("Nearby Utility Facilities") of Exhibit 206), are accepted.

### C. Incorporating the Landowner Protocol into ROW Easements

4. In addition to the foregoing conditions, Grain Belt Express will incorporate the terms and obligations of the Missouri Landowner Protocol in the easement agreements with landowners. See Tr. 411-13 (Lanz); Ex. 114 at 5 (Lanz Surrebuttal). The Company further will would follow the Protocol as a condition to the CCN. Tr. 158 (Skelly).

### D. Staff Conditions Not Agreed to by the Company

5. The additional conditions Staff proposed that Grain Belt Express did not agree to are not accepted. Those conditions are: (1) that the Company not seek RTO cost allocation for any portion of the Project under any circumstances and not to present such a request to the Commission in a future proceeding (see Staff Report, Ex. 200 at 30-31); (2) that the Company submit a modified plan to address congestion issues should the Mark Twain Project not proceed as planned (see Staff Report, Ex. 200 at 7); (3) that if any of the conditions that Staff and the Company have agreed to can be satisfied either before the Company acquires involuntary easements or starts construction of the Project, Grain Belt Express will satisfy the condition before the earlier of these two events (see Staff Report, Ex. 200 at 26-27); and (4) that the Company's offer to establish a decommissioning fund for the Project begin when it commences commercial operation, similar to that of a nuclear generating plant (see Staff Report, Ex. 200 at 44-45).

### E. Commission Question Regarding Conditioning the CCN on the Operational Readiness of the Missouri Converter Station

6. Under Section 393.170.1, a CCN is required for an "electrical corporation … [to] begin construction of … electric plant …." Under Section 386.020(14) "electric plant" includes

assets like the Missouri converter station and the transmission line itself.[59] Therefore, a CCN, even with conditions, must be issued so that the Grain Belt Express Project can be constructed.

7. Conditioning the CCN on the Company's constructing the proposed Missouri converter station to be capable of the actual delivery of 500 MW of wind power to the converter station is consistent with the Section II(1) of the Conditions that Staff and the Company agreed to regarding pre-operational compliance with NERC standards and other safety requirements in Ex. 206, as well as with the general concept of new plant fulfilling in-service criteria. This also is consistent with Section III(2)-(3) of Ex. 206 regarding certain demonstrations that must be made with regard to nearby utility facilities prior to the Project commencing operations.

8. Accordingly, the Commission conditions the CCN on the Company constructing the proposed Missouri converter station to be capable of the actual delivery of 500 MW of wind power to the converter station.

9. Granting a CCN to the Company with the appropriate conditions discussed above will assure that the Project proceeds in a manner that allows the Commission, Staff, and other parties to monitor its progress, as well as to assure that the Project is planned, constructed, and operated in the public interest.

## IV. WAIVERS

1. Pursuant to 4 CSR 240-2.060(4)(B), the Commission may waive a rule for good cause. "Good cause means a good faith request for reasonable relief."[60] The Company

[59] Section 386.020(14) defines "electric plant" to include "all real estate, fixtures and personal property operated, controlled, owned, used or to be used for or in connection with or to facilitate the … transmission …. of electricity … and any conduits, ducts or other devices, materials, apparatus or property for containing, holding or carrying conductors used or to be used for the transmission of electricity …."

[60] In re Application of Transource Missouri, LLC for a Certificate of Convenience and Necessity, Case No. EA-2013-0098, Report and Order at 9 (Aug. 7, 2013), citing American Family Ins. v. Hilden, 936 S.W.2d 207, 210 (Mo. App. W.D. 1996).

requested that the Commission waive the reporting requirements of 4 CSR 240-3.145, 4 CSR 240-3.165, 4 CSR 240-3.175, and 3.190(1), (2) and (3)(A)-(D).

2. Staff stated that the "Commission should find that there is good cause to relieve Grain Belt from the filing and reporting requirements" as requested.[61] We agree with Staff that "these requirements are intended for ratemaking, but this Commission will have no jurisdiction over Grain Belt's rates because it will have no retail customers," and, therefore, waiver of the requirements is appropriate as they "would impose a burden on Grain Belt with little commensurate benefit." Id.

3. Grain Belt Express agreed in Paragraph 76 of the Application to file with the Commission its annual report that is filed at the Federal Energy Regulatory Commission, which complies with 4 CSR 240-3.165. Because the Missouri Facilities will not provide retail service to end-use customers and will not be rate-regulated by the Commission, good cause exists to waive these requirements, and no public utility will be affected by their waiver. See Application at ¶ 78.

4. Accordingly, Grain Belt Express has demonstrated the necessary good cause for the Commission to waive the reporting requirements of 4 CSR 240-3.145, 4 CSR 240-3.175, and 3.190(1), (2) and (3)(A)-(D). The Commission waives these requirements in issuing the CCN in this case.

[61] See Staff Brief at 28.

By /s/ Karl Zobrist

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ATTORNEYS FOR GRAIN BELT EXPRESS CLEAN LINE LLC

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing was served upon all parties of record by email or U.S. mail, postage prepaid, this 25th day of April 2017.

/s/ Karl Zobrist
Attorney for Grain Belt Express Clean Line LLC