

**STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION**

**In the Matter of the Application of Xcel
Energy and ITC Midwest for a Certificate
Of Need and a Route Permit for the
Huntley-Wilmarth 345 kV Transmission
Line Project**

**Docket No. ET-6675/CN-17-184
OAH Docket No. 82-2500-35157**

**INITIAL BRIEF

OF

CLEAN GRID ALLIANCE, FRESH ENERGY, AND

MINNESOTA CENTER FOR ENVIRONMENTAL ADVOCACY**

March 22, 2019

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Clean Grid Alliance, Fresh Energy, and Minnesota Center for Environmental Advocacy (“Clean Energy Organizations” or “CEO”) support Northern States Power Company’s (“Xcel Energy”) and ITC Midwest LLC’s (“ITC”; collectively “Applicants”) petition for a certificate of need (“CON”) under Minnesota Statutes section 216B.243 (2018) and Minnesota Rule Ch. 7849. Applicants are requesting approval of the Huntley-Wilmarth 345kV Transmission Project (the “Project”). CEO’s assessment of the Project and the renewable energy it will transmit is that it will provide Minnesota electricity consumers greater access to low-cost energy, including electricity from existing and new wind and solar resources, that the record does not contain evidence of a more reasonable or prudent alternative to the Project, and that the Project and the renewable energy it will transmit will protect and enhance environmental quality.¹

INTRODUCTION

The Project is a new transmission line that was identified by Midcontinent Independent System Operator² (“MISO”) as a Market Efficiency Project (“MEP”) needed to relieve congestion in the electric transmission system in the Minnesota-Iowa border area. The Project will efficiently and cost-effectively convey electricity from renewable energy resources to states within MISO’s footprint with the result of lowering wholesale energy costs. The Project will also improve the delivery of electricity from wind resources by reducing curtailment of wind generation and allowing the maximum amount of low-cost renewable generation to meet customer demands. Finally, the Project improves the robustness of the regional backbone electric transmission system by fostering

¹ CEO intervened in the Certificate of Need proceeding and did not intervene in ITC’s application for a route permit. As such, CEO will not be addressing issues regarding the alignment of the route or the design and construction aspects of the Project.

² MISO is a not-for-profit Regional Transmission Organization authorized and regulated by the Federal Energy Regulatory Commission. MISO is responsible for operational oversight and control, market operations, and planning of the transmission systems of its members: transmission owners from the Ohio-Indiana line to Montana in the West, to New Orleans in the South. Overall it is responsible for transmission in parts of fifteen states. See MISO Exh. 1, Direct Testimony of Zheng Zhou, Submitted on Behalf of Midcontinent Independent System Operator, Inc. (MISO), at 1:9-19 (Sept. 6, 2018).

the efficient delivery of energy and enabling the system to better withstand a wider range of future scenarios.

CEO supports the Project due to its ability to improve deliverability of both wind and solar resources that are currently in operation, in development and approved by the Minnesota Public Utilities Commission (“Commission”) and MISO, or that will be part of future development. As of the date of the filing of testimony in the case, 9,130 MW of additional wind generating capacity were under construction or in advanced development in Iowa, Minnesota, South Dakota and North Dakota. The Project improves delivery of that clean energy by alleviating transmission system congestion and reducing curtailment time. Those changes also increase the amount of low cost energy flowing to Minnesota electric customers. Moreover, the additional wind and solar energy provides environmental benefits through direct reductions in coal and natural gas use, and corresponding reductions in power plant air emissions, water use, and various environmental impacts associated with fossil fuel production and transportation.

ARGUMENT

I. Statutory Framework.

Minnesota Statutes define the criteria that the Commission must evaluate when an applicant requests a CON for a transmission line. Minn. Stat. § 216B.243, subd. 3. Some of these criteria are specific to proposed generation facilities (*see, e.g., Id.* at subd. 3(12)), and some are not relevant to this proceeding (*see, e.g., Id.* at subd. 3(4)). CEO will focus on the three criteria that it believes are most relevant to the Commission’s task in this proceeding. Specifically, CEO will address the region’s energy needs (*Id.* at subd. 3 (3)), and how the Project will enhance regional reliability, access, and deliverability of wind and solar energy and thereby lower costs for electric consumers in Minnesota (*Id.* at subd. 3 (9)). Additionally, CEO will address how the Project will protect and enhance environmental quality in Minnesota and the region (*Id.* at subd. 3(5)).

After the Commission evaluates all of the criteria required by Minnesota’s CON statute, Minnesota rules require that the Commission grant a CON upon making four determinations; namely, the Commission must determine that:

- A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant’s customers, or to the people of Minnesota and neighboring states[;]
...
- B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record[;]
...
- C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health[; and]
...
- D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.³

CEO asserts that the record before the Commission compels these four determinations, and Minnesota law, in turn, compels that the Commission grant the CON.

II. Applicants’ Proposed Project Meets Minnesota’s Standard for Granting a Certificate of Need.

A. The Project will Enhance the Reliability, Access, and Deliverability of the Energy Supply in Minnesota.

Minnesota law directs the Commission to consider, “with respect to high-voltage transmission lines, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota.”⁴ Given the need for renewable energy in Minnesota, coupled with the fact that the Project has the potential to lower electricity costs for Minnesota ratepayers, CEO argues that

³ Minn. R. 7849.0120.

⁴ Minn. Stat. § 216B.243 subd. 3(9).

consideration of this criterion supports approving Applicants' CON application.

1. Regional energy needs.

The Project improves the overall efficiency of the transmission grid for most of MISO Zone 1 (Minnesota, Iowa, North Dakota, and South Dakota). The Project provides a high degree of congestion relief under multiple futures. That congestion relief lowers the overall cost of electricity for Minnesota ratepayers, and ensures continued development of low-cost, clean, renewable energy resources.

The primary demonstration of need for the project is MISO's Market Congestion Planning Study (MCPS) of 2016.⁵ MISO identified its top congested transmission locations and evaluated whether a transmission project could resolve congestion such that it provided production cost savings that would be 25% more than the cost of the project.⁶ In the MCPS conducted in 2016, MISO identified a significant amount of congestion on a 161kV line from Huntley to Blue Earth, Minnesota.⁷ MISO analyzed five potential solutions, under numerous future scenarios and sensitivities.⁸ Of the five potential solutions, the Project had the highest benefit to cost ratios, and fully relieved the congested area in question.⁹ The Project will provide \$1.87 worth of benefit for every \$1 spent.¹⁰

The Project provides greater benefit to electric customers as more wind and solar energy resources are built. A lot of wind and solar energy resources are looking to build in Minnesota and Iowa.¹¹ It is significant that the Project's benefit to cost ratio increases as more wind resources are

⁵ MISO Exh. 1, Direct Testimony of Zheng Zhou, Submitted on Behalf of Midcontinent Independent System Operator, Inc. (MISO), at 9 and Schedule 1 (Sept. 6, 2018).

⁶ *Id.*, DTTY Zhou Sched. 1 at 19 (identified with page # 99).

⁷ *Id.*, DTTY Zhou at 17 and Sched. 1 at 20-21 (identified with page #s 100-101).

⁸ *Id.*, DTTY Zhou at 23-24 and Sched. 1 at 21-22 (identified with page #s 101-103).

⁹ *Id.*, DTTY Zhou at 19-20, 25, and Sched. 1 at 21-22 (identified with page #s 101-103); CEOs Exh. 1, CEO, Direct Testimony of Michael Goggin, Submitted on behalf of CEO, at 12-13 (Sept. 6, 2018);

¹⁰ CEOs Exh. 1, DTTY Goggin at 13 (Sept. 6, 2018).

¹¹ Over 6,000 MW of wind were in some phase of development in Minnesota and Iowa in September 2018. *Id.*, DTTY Goggin at 15.

built. Knowing that this area has a large number of wind and solar projects seeking to interconnect to the MISO grid, MISO performed a sensitivity that evaluated how the line would perform if more wind was added than what was accounted for in the five MTEP16 futures. The result was that the benefit to cost ratio increased with additional wind to between \$2.28 and \$3 of benefit for every \$1 spent on the project.¹²

2. Reducing congestion and curtailment can lower the cost of electricity and renewable energy for Minnesota consumers.

The congestion relief the Project provides will lower the overall cost of electricity production, lower the overall cost of electricity for customers, reduce the amount of time low cost wind and solar resources are curtailed, and reduce overall interconnection upgrade costs. All of these contribute to lower cost of electricity for Minnesota customers and encourage continued growth of low cost wind and solar resources in MISO Zone 1.

Transmission congestion occurs when there is insufficient transmission capacity to deliver low-cost electricity sources to customers. This increases electricity production costs and consumer costs.

Transmission system congestion affects the price of all electricity purchased and sold in the wholesale market. Congestion causes a lower locational marginal price (LMP) on the generating plant side of the transmission constraint and higher LMPs on the customer side of the constraint, as MISO directs more generation to operate to meet the demand.¹³ The additional generation is usually more costly, thus increasing the LMPs.

Curtailment occurs when the output of operating wind projects exceeds the transmission capacity that is locally available to deliver that energy to customers. When this occurs, the renewable generator receives a market signal or grid operator instruction to reduce their output to

¹² CEOs Exh. 1, CEO, Direct Testimony of Michael Goggin, Submitted on behalf of CEO, at 13-14 (Sept. 6, 2018).

¹³ *Id.*, DTTY Goggin at 5.

the level that can be carried on the transmission system. Wind turbines can rapidly reduce their output on command by pitching their blades out of the wind, while solar plants also have output controllers that respond quickly.¹⁴

High levels of congestion and curtailment tend to impede development of the lowest cost resources – wind and solar. The risk of significant or prolonged periods of congestion or curtailment reduces the value of a wind or solar resource to customers, makes lenders less likely to invest in a wind or solar resource, and makes customers less willing to sign power purchase agreements.¹⁵ Congestion and curtailment risk will inhibit wind and solar development in an area, and cause renewable resource developers to build resources in areas that have more transmission capacity. Typically this results in a lower quality of wind resource, and projects with lower quality resources require higher prices to recoup their cost.¹⁶ Those higher prices are then passed along to customers.

The congestion reduction this Project offers will enable low cost wind and solar resources to be built in the Minnesota, Iowa, South Dakota and North Dakota area. CEO's Schedule 1.1 is a map prepared by National Renewable Energy Laboratory ("NREL") that shows the quality of wind resources across the country.¹⁷ The purple and red areas of the map show the high quality wind resources located in Southwestern Minnesota, northwestern Iowa, North Dakota, and South Dakota. These areas are known for having some of the highest quality wind resources in the nation,¹⁸ and is the reason why so many wind resources are being developed in this area of MISO. The Project will help increase Minnesota's and the Midwest's use of these resources by relieving congestion and reducing curtailment in these high quality wind resource areas.

Since 2009 wind energy prices have fallen 67% and solar energy prices have fallen 86%.¹⁹

¹⁴ CEOs Exh. 1, CEO, Direct Testimony of Michael Goggin, Submitted on behalf of CEO, at 4 (Sept. 6, 2018).

¹⁵ *Id.*, DTTY Goggin, at 8.

¹⁶ *Id.*, DTTY Goggin, at 10.

¹⁷ *Id.*, DTTY Goggin, at 10.

¹⁸ *Id.*, DTTY Goggin, at 10.

¹⁹ *Id.*, DTTY Goggin, at 19.

Numerous energy analysts agree that this trend will continue in this area of MISO where wind resources are some of the best in the country.²⁰ As was noted in the Project application, “134 interconnection requests amounting to over 21,000 MW are conditioned on, but not necessarily dependent on, the Huntley-Wilmarth Project.”²¹ The Project will help these and future resources be developed in and near Minnesota, and those resources will contribute to keeping Minnesota customer’s electric rates low.

3. The Project will increase competition and system resilience.

The Project will increase wholesale electricity market competition and provide Minnesota consumers with resilience against reliability and economic risks. Transmission infrastructure is a powerful tool for increasing competition in wholesale power markets and reducing the potential for generators to harm consumers by exercising market power. Just as consumers who have access to one local retailer and lack high quality roads to easily access stores in other regions would be at the mercy of the prices charged by that retailer, a weak grid makes it possible for generation owners in constrained sections of the grid to exert market power and charge excessive prices. In any market, the more supply options that are available to an area, the less likely it is that any one of those suppliers will be in a position to exert market power. An ERCOT²² Board member observed, “One thing in favor of strengthening transmission ... is that it’s pro market. It allows a larger set of generators to compete in a more robust marketplace.”²³

Transmission also facilitates the integration of low cost renewable energy by allowing greater aggregation of diverse renewable resources across a larger footprint. This results in a steadier output from those resources, reducing operating reserve needs and allowing a greater

²⁰ CEOs Exh. 1, DTTY Goggin, at 19-20.

²¹ *Id.*, DTTY Goggin, at 9:13-15.

²² Electric Reliability Council of Texas (ERCOT).

²³ CEOs Exh. 1, DTTY Goggin, at 24-25.

dependable contribution to meet the system's peak demand needs.²⁴

When extreme events, of any type, affect supply or demand on the grid, transmission capacity protects consumers and fosters reliability by enabling more electricity to be delivered to regions that are experiencing a shortage. As the New York grid operator noted in recent comments to FERC, "These interconnections support and bolster reliability and resilience by creating a larger and more diverse resource pool available to meet needs and address unexpected and/or disruptive events throughout an interconnected region."²⁵

Over its multi-decade lifetime, transmission also protects consumers against the many types of uncertainty that affect the power system. Transmission allows greater flexibility in shifting from one form of generation to another as fuel prices fluctuate, power plant capacity is added and retired, and electricity demand changes.²⁶

A recent analysis performed for the state of Minnesota found that "the increased spending on transmission and sub-transmission (along with implicit distribution costs) was strongly outweighed by the decreased generation costs."²⁷ Specifically, expanded transmission connections to other states saved Minnesota consumers \$86 million annually in a case without a limit on carbon. Those savings rose to \$1.25 billion and \$2.8 billion annually in cases in which Minnesota decarbonized.²⁸ The Great Plains Institute also recently analyzed future scenarios with very high levels of renewable generation, and concluded that "[e]fficient transmission expansion can also better integrate increases in renewable generation and avoid curtailments."²⁹

Using transmission to integrate large amounts of wind resources can provide customer savings. Several analyses by Charles River Associates International ("CRA"), quantified the

²⁴ CEOs Exh. 1, DTTY Goggin, at 25.

²⁵ *Id.*, DTTY Goggin, at 25.

²⁶ *Id.*, DTTY Goggin, at 25.

²⁷ *Id.*, DTTY Goggin, at 26, *citing* "Minnesota's Smarter Grid" (July 2018).

²⁸ *Id. citing* "Minnesota's Smarter Grid" at 18.

²⁹ *Id.*, DTTY Goggin, at 26-27.

various benefits provided by transmission. CRA's analysis of the proposed Green Power Express, which would connect 17 GW of wind to the grid in the MISO region, found that the transmission plan would yield benefits of \$4.4 to \$6.5 billion per year for the region (in 2008 dollars), well above the annualized cost of the transmission, estimated to be between \$1.2 billion and \$1.44 billion.³⁰

Another study looked at an investment in a high-voltage transmission overlay to access wind resources in the Southwest Power Pool. It concluded the transmission investment would provide economic benefits of around \$2 billion per year for the region, more than four times the \$400-500 million annual cost of the transmission investment. Of these benefits, \$900 million would be in the form of direct consumer savings on their electric bills, with \$100 million of these savings coming from the significantly higher efficiency of high-voltage transmission, which would reduce electricity losses by 1,600 gigawatt hours each year. The remainder would stem from reduced congestion on the grid allowing customers to obtain access to cheaper power.³¹

While these studies do not directly analyze the Huntley-Wilmarth Project they support the concept that reducing congestion and enabling larger amounts of wind and solar resources to integrate into the system can provide cost savings to customers by increasing competition, system diversity and resilience.

B. The Project Benefits or Enhances Environmental Quality.

Of paramount importance to CEO is the requirement that the Commission consider the "benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region."³² This Project was designed to reduce transmission system congestion and curtailment in Minnesota and Iowa. MISO's analysis

³⁰ CEOs Exh. 1, DTTY Goggin, at 26-27.

³¹ *Id.*, DTTY Goggin, at 27.

³² Minn. Stat. § 216B.243 subd. 3(5).

found that the Project's benefit to cost ratio increases as the amount of wind resources are added.³³ Accordingly, by increasing the amount of wind and solar energy, the Project has the potential to lower harmful pollutants in Minnesota and the region.³⁴

Using larger amounts of wind energy results in direct reductions in coal and natural gas use, and corresponding reductions in power plant air emissions, water use, and various environmental impacts associated with producing and transporting those fuels. Air emissions associated with fossil fuel production and consumption include the greenhouse gases carbon dioxide ("CO₂") and methane, particulate matter, sulfur dioxide ("SO₂"), nitrogen oxide ("NO_x"), mercury and other hazardous air pollutants. The adverse environmental and health impacts of these hazardous pollutants will be incrementally alleviated as Minnesota is able to move to additional sources of renewable energy—which will be directly facilitated by this Project.

Applicants' witness Benjamin Abing calculated the emission savings directly associated with the construction of the Project consistent with the PSC Order Updating Environmental Cost Values³⁵. The benefit above the Project's revenue requirement (Net Benefit) for the life of the Project ranges between \$367 million and \$770 million.³⁶

CEO witness Michael Goggin used the U.S. EPA's Avoided Emissions and Generation Tool (AVERT) to calculate the avoided emissions associated with adding 16,308 megawatt-hours of additional wind energy to MISO, which is the amount of wind curtailed in the absence of the Project.³⁷ AVERT uses empirical power system data and a statistical algorithm to identify which of a region's power plants will have their output displaced by the addition of wind energy. AVERT calculated annual SO₂ reductions of 31,480 pounds, annual NO_x emissions savings of 21,220

³³ CEOs Exh. 1, DTTY Goggin, at 13-14.

³⁴ *Id.*, DTTY Goggin, at 27-28.

³⁵ Docket No. E999/CI-14-642 (Jan. 2018)

³⁶ XC Exh. 18, Xcel Energy&ITCMidwest, Direct Testimony of Benjamin T. Abing on behalf of Applicants, at 6 (Sept. 6, 2018).

³⁷ CEOs Exh. 1, DTTY Goggin, at 29.

pounds, and annual CO₂ emissions reductions of 15,280 short tons.³⁸

Based on this data, it is clear the Project protects or enhances environmental quality in Minnesota and the region by facilitating new wind resources that would offset and thereby reduce harmful pollutants emitted from coal and natural gas plants.

CONCLUSION

Minnesota Statute section 216B.243 identifies the criteria that the Commission must consider when reviewing an application for a CON. CEO has highlighted several of these criteria in this brief, and respectfully recommends that the Commission make the findings in Rule 7849.0120 and grant Applicants' CON. Specifically, because the Huntley-Wilmarth Project will lower the overall cost of electricity production for Minnesota by reducing congestion and curtailment, improving the resilience of the electric transmission system, and potentially improving the diversity of the state's generation portfolio, improving wholesale competition, and fostering future development of wind and solar resources beneficial to Minnesota, the Applicants have shown that a denial of their application would have an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the people of Minnesota and neighboring states.³⁹ Additionally, the testimony submitted to the Commission shows the Project will lower the costs of electricity for Minnesota ratepayers while dramatically reducing emissions of both criteria pollutants and greenhouse gases. Finally, there is nothing in the record that demonstrates that the Project will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and governments.⁴⁰

³⁸ CEOs Exh. 1, DTTY Goggin, at 29.

³⁹ See Minn. R. 7849.0120 (A).

⁴⁰ *Id.*(D).

Based on these findings, CEO respectfully requests that the Commission grant ITC's CON.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that this **Initial Brief of Clean Grid Alliance, Fresh Energy, and Minnesota Center for Environmental Advocacy** was electronically served upon all parties to this case on March 22, 2019.

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