STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Hwikwon Ham	Commissioner
Audrey C. Partridge	Commissioner
Joseph K. Sullivan	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF THE APPLICATION FOR A CERTIFICATE OF NEED FOR THE MANKATO – MISSISSIPPI RIVER TRANSMISSION PROJECT	DOCKET NO. E002/CN-22-532
	INITIAL COMMENTS

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy (Applicant or Xcel Energy) respectfully submits these Initial Comments pursuant to the Minnesota Public Utilities Commission's (Commission) January 10, 2025 Notice of Comment Period on the Merits of the Certificate of Need Application (Application) in the above-referenced docket. In these Initial Comments, Xcel Energy provides a discussion of the need for the proposed Mankato – Mississippi River 345 kilovolt (kV) Transmission Project (the Project) to support the Commission granting a Certificate of Need and an analysis of the two system alternatives that have been proposed.

The Project consists of a new, approximately 130-mile long 345 kV transmission line between the Wilmarth Substation in Mankato, Minnesota and the Mississippi River and a new, approximately 20-mile long 161 kV transmission line between the North Rochester Substation near Pine Island, Minnesota and an existing transmission line northeast of Rochester, Minnesota. The Project is needed to address thermal overloads and congestion issues on the existing 345 kV system across southern Minnesota toward Wisconsin and will provide transmission outlets for renewable energy in Minnesota, North Dakota, and South Dakota.

The Project was studied, reviewed, and approved as part of the Long-Range Transmission Planning (LRTP) Tranche 1 Portfolio by the Midcontinent Independent System Operator, Inc.'s (MISO) Board of Directors in July 2022 as part of its 2021

Transmission Expansion Plan (MTEP21) report.[1] The LRTP Tranche 1 Portfolio will provide significant benefits to the Midwest subregion of the MISO footprint by facilitating more reliable, safe, and affordable energy delivery. The Project, designated as a portion of LRTP4[2] in MTEP21, is a key part of the LRTP Tranche 1 Portfolio. The transmission system in southern Minnesota is the nexus between significant renewable resources in Minnesota and the Dakotas and the regional load center of the Twin Cities and load centers to the east in Wisconsin. The amount of renewable energy generation on the electric system is increasing as aging traditional generation resources retire and are replaced with renewable resources. This Project will provide additional transmission capacity that is needed to reliably deliver this renewable energy to customers. This Project will relieve overloads on existing transmission facilities and will reduce congestion on the transmission system, resulting in lower energy costs. This Project will also help make significant progress towards Minnesota's carbon emission reduction policy objectives.

As discussed further below, Xcel Energy has demonstrated through its Application, and other filings in this docket, that the Project meets all the requirements to obtain a Certificate of Need and we respectfully request that the Commission grant a Certificate of Need to the Project as proposed.

INITIAL COMMENTS

In its January 10, 2024 Notice of Comment Period on the Merits of the Certificate of Need Application, the Commission requested comments on the following topics: (1) Should the Commission grant a Certificate of Need for the Proposed Project; (2) If granted, what additional conditions or requirements, if any, should be included in the Certificate of Need; and (3) Are there other issues or concerns related to this matter? We address these three topics in turn below.

A. Should the Commission Grant a Certificate of Need for the Proposed Project?

Yes. As demonstrated in chapters 3 through 5 and Appendix G of the Application, the proposed Project satisfies the Certificate of Need statutory and rule requirements and

[1] *In the Matter of the Application of Xcel Energy for a Certificate of Need and Route Permit for the Mankato – Mississippi River 345 kV Transmission Line Project in Southeast Minnesota,* Docket No. E002/CN-22-532, APPLICATION FOR A CERTIFICATE OF NEED AND ROUTE PERMIT FOR THE MANKATO – MISSISSIPPI RIVER TRANSMISSION PROJECT (APPLICATION) at Appendix G-1 (April 2, 2024).

[2] This Project is the Minnesota portion of LRTP4. The overall LRTP4 project involves the construction of a 345 kV transmission line from the existing Wilmarth Substation in Mankato, Minnesota to the existing Tremval Substation located in west central Wisconsin near the town of Blair. The Wisconsin portion of LRTP4 will be permitted in a separate proceeding before the Public Service Commission of Wisconsin (PSCW).

a Certificate of Need should be granted. The Project provides significant reliability, economic, and carbon reduction benefits, and positions the Company to bring new renewable generation resources online in the coming years. As part of its analysis in MTEP21, MISO concluded that the LRTP4 project addresses overload issues along several transmission lines and at several transformers by providing additional capacity to the currently constrained transmission system in southern Minnesota.[3] MISO found that LRTP4 relieves 39 transmission elements with excessive thermal loading when one transmission element is out of service (N-1 contingency) and relieves 96 transmission elements with excessive loading when one or more transmission elements are out of service (N-1-1 contingency).[4]

In addition to meeting system reliability needs, the LRTP4 project will also provide economic benefits to help offset its costs. Xcel Energy conducted additional economic analysis of LRTP4 and determined that it will provide up to $2.1 billion in economic savings across the MISO footprint over the first 20 years that the LRTP4 project is in service and up to $3.8 billion in economic savings across the MISO footprint over the first 40 years.[5] These economic savings will help offset the capital cost of the Project.

Xcel Energy also analyzed the carbon reduction benefits of the LRTP4 project. MISO's analysis demonstrated the implementation of the LRTP Tranche 1 Portfolio is estimated to reduce carbon emissions by 399 million metric tons over the first 20 years and 677 million metric tons over the first 40 years that the LRTP Tranche 1 Portfolio is in service.[6] Xcel Energy estimated that the LRTP4 project will reduce carbon emissions by 197.9 million metric tons over the first 20 years that the LRTP4 project is in service and by 295.5 million metric tons over the first 40 years that the LRTP4 project is in service.[7]

Both MISO and Xcel Energy have extensively studied this Project. These analyses demonstrate, as required by Minn. R. 7849.0120, subp. A, that "the probable result of denial [of the Application] 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." As a result, the Company requests that the Commission grant a Certificate of Need for the Project as proposed.

[3] APPLICATION at 67 (April 2, 2024).
[4] APPLICATION at 49 and 58-59 (April 2, 2024).
[5] *Id.*
[6] APPLICATION at 77 and Appendix G-1 at 79 (April 2, 2024) (MTEP21 Report Addendum).
[7] These values were calculated using the PROMOD MTEP 21 LRTP Reference Model. APPLICATION at 49 and 244-245 (April 2, 2024).

B. System Alternatives Analysis

Minnesota Rule 7849.0120, subp. B requires that the Commission determine "a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record." During the scoping process for the Environmental Impact Statement (EIS), two system alternatives where proposed for evaluation: (1) the 230 kV alternative; and (2) the Chester Junction Alternative. The 230 kV alternative would replace the proposed 345 kV transmission line for Segments 1-3 of the proposed Project with a lower voltage 230 kV line.[8] The Chester Junction Alternative involves the construction of a new substation at Chester Junction along Segment 3 to eliminate the need to construct the new 161 kV transmission line in Segment 4 of the proposed Project.[9] As discussed in the Company's August 28, 2024 scoping comments[10] and below, neither of these system alternatives is a more reasonable or prudent alternative to the proposed Project.

a. 230 kV Alternative

A lower voltage alternative, such as a 230 kV line, is not a more reasonable and prudent alternative to the proposed 345 kV line because it does not have sufficient capacity to meet the identified need, would require costly substation upgrades, and would have higher line losses as compared to the 345 kV line.

The primary purpose of this Project is to address existing overload and congestion issues on the existing transmission system in southern Minnesota. The existing transmission system is congested during periods of high renewable generation which results in higher energy prices for Minnesota customers. This is because lower cost renewable energy is unable to reach customers. Because of congestion on the transmission system, higher cost generation resources must be dispatched and renewable generation is curtailed. Given the lower capacity of a 230 kV transmission line, this lower voltage alternative would not have sufficient capacity to address the overload and congestion issues on the existing system and would not offer the capacity needed to support future renewable generation in southern Minnesota. As a result, installing the lower voltage 230 kV Alternative would require more transmission facilities to be constructed in the future to provide additional capacity to support this future generation.

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[8] *In the Matter of the Application for a Certificate of Need for the Mankato – Mississippi River Transmission Project*, Docket Nos. E002/CN-22-532 and E002/TL-23-157, MINNESOTA DEPARTMENT OF COMMERCE'S ENVIRONMENTAL IMPACT STATEMENT SCOPING DECISION at 7 (Dec. 2, 2024).

[9] *Id.*

[10] *In the Matter of the Application for a Certificate of Need for the Mankato – Mississippi River Transmission Project*, Docket Nos. E002/CN-22-532 and E002/TL-23-157, APPLICANT'S RESPONSE TO ENVIRONMENTAL STATEMENT IMPACT SCOPING COMMENTS (August 28, 2024).

The 230 kV Alternative would also require costly substation upgrades. The majority of the transmission system in the Project area is at the 345 kV voltage level such that integrating a new line at the 345 kV voltage fits well into the existing system without requiring the need to construct additional substation facilities. In contrast, there is no existing 230 kV transmission in the Project area. As such, integrating a new 230 kV transmission line into this area would require costly substation upgrades to be completed at the Wilmarth and North Rochester substations. Based on MISO's MTEP24 cost estimation guide, the cost for the two 345/230 kV transformers required to construct the 230 kV Alternative is approximately $14.5 million.[11]

Another drawback of the lower voltage 230 kV Alternative is that lower voltage lines tend to have higher losses than higher voltage lines. This is because when the voltage of a line is lowered, the line rating must be increased to achieve similar levels of power transfer. To achieve a comparable line rating on a lower voltage line, larger conductor and thus larger structures, foundations, and associated hardware would also be required leading to higher costs.

Given these considerations, the 230 kV Alternative is not a more reasonable or prudent alternative to the proposed 345 kV transmission line.

b. Chester Junction Alternative

The Chester Junction Alternative is not a more reasonable and prudent alternative to the proposed 161 kV transmission line because it would remove any economic benefits of the Project for Xcel Energy and other Minnesota utilities, it would require rebuilding several 161 kV transmission lines, and will likely result in a delayed in-service date for the Project.

In the Application, Xcel Energy conducted an economic analyses using the PROMOD software to calculate the adjusted production cost (APC) savings benefit of the entire LRTP4 project under a number of future scenarios.[12] Xcel Energy determined that the APC savings benefit of the LRTP4 project to the MISO footprint is up to $2.1 billion over the first 20 years that the Project being in service.[13]

[11] MISO, "Transmission Cost Estimation Guide for MTEP24" at 25, (May 1, 2024) available at https://cdn.misoenergy.org/MISO%20Transmission%20Cost%20Estimation%20Guide%20for%20MTEP24337433.pdf.
[12] APPLICATION at 73-77 (April 2, 2024).
[13] APPLICATION at 49 (April 2, 2024).

Xcel Energy performed a similar economic analyses on the Chester Junction Alternative using two sets of MISO models. The first round of analysis was performed using MISO's MTEP21 Series 1A Future 2A model. This model assumes that all of the LRTP Tranche 1 Portfolio of projects are in-service but Xcel Energy modified this model to include either the LRTP4 project or the Chester Junction Alternative. This first round of analysis showed that the Chester Junction Alternative provided $130.59 million in economic benefits to the MISO footprint but provided *negative* $2.85 million in economic benefits to the Project partners (Xcel Energy, Southern Minnesota Municipal Power Agency (SMMPA), and Dairyland Power Cooperative (DPC)) for the first 20 years that the alternative is in service.

In December 2024, MISO's Board of Directors approved its LRTP Tranche 2.1 Portfolio of projects. The LRTP Tranche 2.1 includes a number of new transmission projects in southern Minnesota. The second round of analysis performed by Xcel Energy used a more recent set of MISO models that assumed that all of the Tranche 2.1 transmission projects are in service. This second round of analysis compared the economic benefits of the Chester Junction Alternative to the proposed LRTP4 project once these MISO Tranche 2.1 projects are constructed. Xcel Energy's economic analyses found that the Chester Junction Alternative provided $14.95 million less in APC savings benefits to MISO Local Resource Zone 1 as compared to the proposed LRTP4 project over the first 20-years that the alternative is in service. Similarly, the Chester Junction Alternative has $15.48 million less in APC savings benefits to the Project partners (Xcel Energy, Dairyland Power Cooperative, and SMMPA) as compared to the proposed LRTP4 project over the first 20 years that the alternative is in service.

In both rounds of analysis, the economic benefits of the Chester Junction Alternative are reduced or negative as compared to the proposed LRTP4 project because adding the Chester Junction Substation along the 345 kV line causes additional power from the 345 kV line to flow onto the 161 kV system that is at capacity, resulting in additional system congestion. System congestion increases costs for electricity consumers because it prevents delivery of the lowest-cost generation to where it is needed, forcing the system to rely on higher-cost generation sources, ultimately resulting in higher energy costs and lower economic benefits.

In addition to reduced economic benefits, the Chester Junction Alternative would also require rebuilding at least three existing 161 kV transmission lines. As previously stated, the primary purpose of the Project is to address existing and future reliability issues on the transmission system in southern Minnesota. Under current system conditions, renewable generation from southern Minnesota flows north along the 345 kV system through the North Rochester Substation and then continues either north to the Twin

Cities load center or east to Wisconsin. If the Chester Junction Alternative is constructed, certain contingencies will result in overloads of facilities in the current 20-year MISO model. Specifically, loss of the Byron – North Rochester 345 kV transmission line forces power onto lower-capacity 161 kV equipment. The addition of the Chester Junction Substation creates a new, lower-impedance path, that when paired with a second outage, causes existing 161 kV lines to overload. To address these overloads, three 161 kV lines would need to be rebuilt to a higher capacity if the Chester Junction Alternative is selected: (1) Crosstown – Cascade 161 kV transmission line; (2) Crosstown – Silver Lake 161 kV transmission line; and (3) Cascade to Bamber 161 kV transmission line. The cost to upgrade these three 161 kV transmission lines is approximately $17.4 million.

Finally, the Chester Junction Alternative would also likely result in a delay in the Project's in-service date due to the time required to procure the necessary land and equipment to construct this alternative. The proposed Project is scheduled to start construction in 2026/2027 and be placed in service in 2030. Construction of the Chester Junction Alternative will require acquisition of an approximately 40-acre parcel west of U.S. Highway 63 to construct a new substation. At this time, Xcel Energy has not identified any potential sites for this new substation. This new substation would require a new 161/345 kV transformer, eight circuit breakers, as well as additional standard substation equipment. Procuring the equipment for the Chester Junction Alternative may pose schedule challenges as circuit breakers currently require a 2.5-year lead time and transformers have a four-year lead time. This means that the earliest that Xcel Energy could obtain the necessary transformer for the Chester Junction Alternative is 2030. This would delay the in-service date for the Project by at least a year. Xcel Energy notes that this one-year delay in the in-service date is based on current timelines to procure transformers but this delay could be longer depending on the state of the supply chain at the time this equipment is ordered.

Given these considerations, the Chester Junction Alternative is not a more reasonable or prudent alternative to the proposed 161 kV transmission line.

C. If granted, what additional conditions or requirements, if any, should be included in the Certificate of Need?

To the extent the Commission seeks to impose a cost control condition similar to other recent transmission projects, Xcel Energy requests that the Commission approve a

condition similar to the one ordered by the Commission in *In the Matter of the Application for a Certificate of Need for the Big Stone South – Alexandria – Big Oaks Transmission Project*[14]:

> Xcel Energy shall provide an updated cost estimate for the Project that reflect the Commission's decision within 60 days of this order. Xcel Energy bears the burden of proof in any future regulatory proceeding related to the recovery of any costs above this updated cost estimate.

CONCLUSION

The Mankato – Mississippi 345 kV Transmission Project is vitally needed to address thermal and voltage reliability issues on the transmission system in southern Minnesota. The Project will also provide economic and carbon reduction benefits. Xcel Energy respectfully requests that the Commission approve the Application on its merits and grant a Certificate of Need for the Project.

Dated: March 28, 2025

Northern States Power Company

[14] *In the Matter of the Application for a Certificate of Need for the Big Stone South – Alexandria – Big Oaks Transmission Project*, Docket Nos. E002, E017, ET2, E015, ET10/CN-22-538, ORDER GRANTING CERTIFICATE OF NEED AND ISSUING ROUTE PERMIT at Order Point 5 (Oct. 30, 2024).