

October 23, 2024

VIA E-FILING

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: In the Matter of the Investigation into Transmission-Curtailment
Matters, Drivers, and Potential Solutions to Limitations Resulting
from the Nobles County Substation
Docket No. E999/CI-24-316
INITIAL COMMENTS

Dear Mr. Seuffert:

Pursuant to the Minnesota Public Utilities Commission (or the "Commission") September 23, 2024 Notice of Comment Period in Docket No. E999/CI-24-316,¹ Minnesota Power (or the "Company") hereby electronically submits its Initial Comments to the Commission's request for information regarding transmission-curtailment matters, drivers, and potential solutions for limitations resulting from the Nobles substation to facilitate a clearer understanding of possible solutions for further consideration.

Please contact me at (218) 355-3297 or jkuklenski@mnpower.com with any questions regarding this filing.

Respectfully,



Jennifer Kuklenski
Regulatory Strategy and Policy Manager

JK:th
Attach.

¹ *In the Matter of the Investigation into Transmission-Curtailment Matters, Drivers, and Potential Solutions to Limitations Resulting from the Nobles County Substation.* (Docket No. E999/CI-24-316).

**STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION**

In the Matter of the Investigation into
Transmission-Curtailment Matters,
Drivers, and Potential Solutions to
Limitations Resulting from the Nobles
County Substation.

Docket No. E999/CI-24-316
INITIAL COMMENTS

I. INTRODUCTION

Minnesota Power (or the “Company”) hereby electronically submits its Initial Comments Filing in Docket No. E999/CI-24-316 in response to the Notice of Comment Period (“Notice”) issued by the Minnesota Public Utilities Commission (the “Commission” or “MPUC”) on September 23, 2024. As defined in the Notice, this docket is intended to directly examine congestion cost around the Nobles County Substation and associated wind farms to facilitate a clearer understanding of possible solutions for alleviating further congestion and negative impacts to Minnesota customers.

Minnesota Power appreciates the opportunity to comment on this matter. Although this congested region of Minnesota is not within the Company’s service territory or control area, Minnesota Power has a 250 MW Power Purchase Agreement (“PPA”) for the Nobles 2 Wind Facility (“Nobles 2”) in southwest Minnesota and has been negatively impacted by the congestion in the area of concern.¹ Minnesota Power has experienced elevated levels of congestion cost in that region, resulting in a higher cost to deliver the Nobles 2 energy to customers than anticipated when the Company entered the contract. Furthermore, as discussed in Minnesota Power’s Annual True-up Report filed in March 2023,² customers are paying a slightly higher dollar amount for Nobles 2 energy due to compensating for curtailment (i.e. paying for energy that couldn’t be delivered due to curtailments).

¹ In the Matter of Minnesota Power’s Petition for Approval of a 250 MW Nobles 2 Wind Power Purchase Agreement, Docket No. E-015/M-18-545.

² In the Matter of Minnesota Power’s Petition for Approval of the Annual Forecasted Rates for its Rider for Fuel and Purchased Energy Charge, Docket No. E015/AA-21-312 – Annual True-up Report.

In addition to experiencing increased costs related to congestion and curtailment at Nobles 2, and the general concerns about delivered cost of wind energy, Minnesota Power is also concerned about challenges experienced when seeking to locate or purchase projects in this part of the state due to congestion and curtailment issues in this area.

Minnesota Power is interested in reducing congestion costs for customers and submits its initial comments to the relevant topics open for comment. The Notice sought comments on six questions. The Company specifically addresses Question Nos. 1, 2, 3, and 4 below.

II. REPLY COMMENTS

What are the underlying causes of the stability, thermal, and congestion issues affecting the power grid in southwestern Minnesota, and how do these issues impact existing renewable energy projects as well as potential new projects in development or permitting?

Congestion in southwest Minnesota is caused by an insufficient number of outlets for wind energy, especially when wind energy generation is high or one or more of the existing outlets is out of service (for planned or unplanned reasons). The pace of building wind generation resources tends to be faster than the pace of building larger transmission infrastructure that would allow resource integration for serving load centers that are typically remote from the generation.

The area of the transmission system in southwest Minnesota comprised of installations between the Nobles substation and the Chanarambie substation has over 1000 MW of interconnected wind plants and there are additional wind projects for this area in the Midcontinent Independent System Operator (“MISO”) queue. Nobles 2 is located within the area defined by the Fenton/Nobles County/Chanarambie (“FENOCH”) Interface. This interface is managed by the MISO operating procedure known as the “Southwest Minnesota Wind Operating Guide” (or the “MISO Operating Guide”). In Minnesota

Power's review, the limits defined for the FENOCH Interface have not been modified since the MISO Operating Guide was originally published in 2016.

The power system is operated so that that any one credible contingency would not result in exceedance of acceptable operating criteria, such as exceedance of flows above the emergency rating of each transmission equipment. The processes for requesting review of the limiting factors outlined in the MISO Operating Guide is unclear. Specifically, increased transparency would be beneficial to better understand what can be done to increase or eliminate the stability limitations. The Company therefore supports the Commission's investigation into the process to see if improvements can be made.

What regional and local transmission studies on reliability and economic market congestion have been completed? What current studies are being conducted by MISO and/or the Minnesota Transmission Owners (MTO) and/or others to assess the congestion and curtailment issues affecting the grid in southwestern Minnesota, specifically in Nobles County, and what potential solutions are being proposed for these limitations?

Minnesota Power has been taking an "all of the above" approach to mitigating cost impacts of this congestion area to customers by optimizing financial transmission rights ("FTRs"), transmission assets, and working with other Minnesota utilities and MISO to identify transmission related projects that reduce congestion costs.

Minnesota Power also utilized a unique contract with NewGrid, Inc. ("NewGrid"), a consulting firm that provides services to identify system congestion events that impact Minnesota Power's supply portfolio. NewGrid provides congestion monitoring and mitigation services in MISO and other jurisdictions for several MISO members and has demonstrated expertise in topology optimization and reconfiguration analysis. NewGrid has had success working with other utilities on mitigating congestion and the Company believes there is value in the work NewGrid is performing for all customers in Minnesota.

Short-term reconfiguration studies were conducted based on a number of situations, including planned transmission outages and observed high levels of system congestion. The Company has worked with NewGrid on evaluating opportunities to reduce congestion costs for Nobles 2 using transmission reconfigurations, in partnership with EDF Renewables. NewGrid specifically analyzed a critical outage scenario around the Nobles County substation: the outage of the 345 kV line Split Rock – Nobles Co, which took place between January 8, 2024 and February 29, 2024. For this extended outage scenario, NewGrid developed a reconfiguration solution that would significantly reduce congestion and curtailments in the area.

The reconfiguration changes the critical contingency for this outage scenario, such that if the critical contingency was to happen, one or more wind facilities would be automatically disconnected and there would be less flow on the remaining transmission outlets from this area. By reducing the post-contingency outlet flow, all issues, including stability, thermal, and voltage are mitigated. These reconfigurations would be readily implementable by opening certain existing circuit breakers. The only requirement prior to implementation is the validation of the reconfiguration performance by the transmission operator. The reconfiguration would provide significantly less wind curtailments in the area and congestion would be reduced for this outage scenario.

Additionally in 2023, Grid North Partners, a transmission owners group, worked to identify nineteen transmission projects that could relieve historical and projected congestion across Minnesota and eastern South Dakota. The analysis identified projects in southwest Minnesota, although none of them addressed the congestion specific to the area of concern around the Nobles County Substation. The 60-mile Brookings County 345kV 2nd circuit in Lincoln and Lyon County are the closest facilities included, but do not target the constraints impacting the Nobles County Substation/FENOCH area.

During the most recent MISO quarterly meeting held by the Commission in September 2024,³ Grid North Partners announced their intention to begin the next iteration of this congestion study and work to identify projects that provide benefits by the first part of 2025. This work will also satisfy the Minnesota legislative requirement to perform a biennial congestion study. Based on the study requirements for identifying congestion, this area will likely be targeted for evaluation of mitigation solutions.

What is the timeline for completing the studies referenced in question 3? What funding source(s) have been identified for completing these studies?

As mentioned in the Company's response to the questions above, Grid North Partners will be identifying projects in the first part of 2025 for its regional congestion study work. The more unique work conducted on outage analysis with NewGrid requires additional coordination and near-term contracting. The typical study timeline for an outage analysis to reduce congestion is comprised of several elements, including the identification of a planned transmission outage, the initial study work showing the expected level of congestion, and the initial study work showing an alternative configuration with expected lower levels of congestion. These phases of work typically are completed in three to four days. The next phase of submitting the requested system configuration to the transmission owner tends to have a longer timeframe. Since the length of a planned outage can be shorter than the expected timeframe of completing all phases of the study, the current approach is not workable. Ultimately, Minnesota Power is interested in a more collaborative approach to completing near term study work needed to evaluate system impacts and potential congestion mitigation options.

³ Reference the September 27, 2024 Midcontinent Independent System Operator, Inc. (MISO) Quarterly Update Meeting Notice available here: [MISO Quarterly Update 2024.09.27.pdf](#).

III. CONCLUSION

Minnesota Power appreciates the opportunity to respond to the topics open for comment in this matter and engage in the discussion through this proceeding. As stated above, Minnesota Power customers have experienced rate impacts due to congestion in the area of concern in southwest Minnesota. Congestion is a broad topic area that is being investigated throughout the region with the advanced transmission planning underway and the Company looks forward to being involved in future discussions around these issues.

Dated: October 23, 2024

Respectfully submitted,

A handwritten signature in cursive script, reading "Jennifer Kuklenski".

Jennifer Kuklenski
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STATE OF MINNESOTA)
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AFFIDAVIT OF SERVICE VIA
ELECTRONIC FILING

Tiana Heger of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 23rd day of October, 2024, she served Minnesota Power's Initial Comments in **Docket No. E999/CI-24-316** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on E-Docket's Official Service List for this Docket were served as requested.



Tiana Heger