

Staff Briefing Papers

Meeting Date: May 16, 2024

Agenda Item 3**

Company: Minnesota Transmission Owners


Docket No: E999/M-23-91

In the Matter of the 2023 Minnesota Biennial Transmission Projects Report

Issues:

- Should the Commission accept the 2023 Biennial Transmission Projects Report?

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 Relevant Documents	Date
Order Accepting Report (PUC Docket No: 21-111)	June 29, 2022
Compliance Filing (PUC Docket No: 21-111)	September 27, 2022
Compliance Filing (PUC Docket No: 21-111)	September 27, 2022
Information Requests	May 12, 2023
MTO Response to Information Requests	June 29, 2023
Minnesota Transmission Owners – Biennial Transmission Report	November 1, 2023
Notice of Comment Period	November 8, 2023

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The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

✓ Relevant Documents	Date
DOC DER – Comments on Completeness	November 15, 2023
Overland – Comments on Completeness	November 27, 2023
EDF Renewables – Comments	January 16, 2024
DOC DER – Reply Comments	January 16, 2024
Overland – Comments	January 16, 2024
Murray County Board of Commissioners – Comments	February 29, 2024
Overland – Reply Comments	March 1, 2024
Minnesota Transmission Owners – Reply Comments	March 1, 2024

ISSUES

- Should the Commission accept the 2023 Biennial Transmission Projects Report as complete?

BACKGROUND

I. Procedural History

On May 12, 2023, the Minnesota Public Utilities Commission (Commission) issued an Information Request.¹ The request included multiple questions and various topics including the current transmission system’s ability to reach the State’s 2040 carbon-free standard, and plans for upgrades, improvements and future investments, congestion problems in the current transmission system and the status of efforts under the MISO’s Long Range Transmission Planning (LRTP) and the MISO-Southwest Power Pool (SPP) Joint Targeted Interconnection Queue (JTIQ).

¹ Minnesota Public Utilities Commission. *Information Requests*, May 12,2023. Document ID: [20235-195809-02](#)

On June 29, 2023 the Minnesota Transmission Owners (MTO)² filed their responses to the Commission's Information Requests 1-9.

On November 1, 2023 the MTO filed the 2023 Biennial Transmission Projects Report (Report).

On November 8, 2023 the Commission issued a notice of comment period.

On November 15, 2023 the Minnesota Department of Commerce (Department) filed completeness comments recommending the Commission determine the Report to be complete and recommending the standard comment and reply process as the appropriate review process.

On November 27, 2023, Legalectric filed completeness comments regarding the Report and its contents.

On January 16, 2024, the Department filed initial comments on the overall report and recommended the Commission accept the report. The Department also recommended the Commission define inadequacy as any issue where the solution would require a certificate of need for future biennial reports.

On January 16, 2024, Legalectric filed initial comments regarding the report and its contents.

On January 16, 2024, EDF Renewables filed initial comments on the overall report and recommended that the Commission condition any approval of the Report by requiring the MTO's to provide a supplementary filing(s) on the congestion and curtailment issues in southwest Minnesota.

On February 28, 2024, Murray County filed initial comments on the overall report and recommended that the Commission condition any approval of the Report by requiring the MTO's to provide a supplementary filing(s) on the congestion and curtailment issues in southwest Minnesota.

On March 1, 2024, Legalectric filed reply comments.

² American Transmission Company, LLC; Central Minnesota Municipal Power Agency; Dairyland Power Cooperative; East River Electric Power Cooperative; Great River Energy; ITC Midwest LLC; Minnesota Power; Minnkota Power Cooperative; Missouri River Energy Services; Northern States Power Company; Otter Tail Power Company; Rochester Public Utilities; Southern Minnesota Municipal Power Agency

On March 1, 2024, MTO filed reply comments.

II. History of Transmission Projects Report

In 2001, the Minnesota Legislature enacted Minn. Stat. § 216B.2425, requiring all owners of electric transmission facilities within the state to file biennial reports on the state of their transmission systems. These reports, called biennial transmission projects reports, must identify:

- (a) any reasonably foreseeable future transmission inadequacies;
- (b) alternative means of addressing these inadequacies, and
- (c) the economic, environmental, and social issues associated with each alternative.

The biennial transmission planning statute requires transmission owners to report on the involvement of local government officials and other interested persons in identifying transmission inadequacies and analyzing alternative means of resolving them. It also requires transmission owners to report on the public input they have gathered on the transmission deficiencies identified.

In 2003, the Legislature amended the statute to require utilities to also report on what transmission infrastructure improvements are necessary to meet the renewable energy objectives set forth in Minn. Stat. § 216B.1691.

III. 2021 Minnesota Biennial Projects Report

The Commission's June 29, 2022 Order³ approved the 2021 Biennial Transmission Projects Report and included provisions that pertained to the 2023 filing. The provisions included:

- Authorizing the MTO to publicize future Biennial Transmission Projects Reports by posting a link to the report on the MTO website (www.minnelectrans.com) and posting directions for finding the Commission's website via e-Dockets, in lieu of mailing compact discs or jump drives with electronic copies.
- Encouraging the Department to collect information on mitigation costs in future proceedings requesting rate recovery of the costs of new energy facilities.
- The MTO must file a 2023 Report that meets the requirements of Minn. Stat. § 216B.2425, subd. 2, and includes the information that was required to be filed in the 2021 Report.

³ Minnesota Public Utilities Commission, docket number E999/21-111. *Order Accepting Report*, June 29, 2022. Document ID: [20226-186966-01](#)

A. Compliance Filing Requirements

In the Commission's June 22, 2022 Order, the Commission required the MTO to make compliance filings within 90 days. The requirements consisted of:

1. additional information as set forth in ordering paragraph 5(d) of the Commission's August 19, 2020, order, in Docket E-999/M-19-205, which required a filing that included "an assessment of whether MISO has been responsive to Minnesota's identified and likely transmission needs."
2. a schedule for implementing Ambient Adjusted Rating (AAR) and an analysis of viability of Dynamic Line Rating (DLR), transmission system optimization and reconfigurations and replacement of line rating limiter, including substation equipment. And to require MTO to discuss other available solutions considered, but not deployed.
3. information on 1) expected sustained HVTL or generation planned outages 2) whether those outages are anticipated to have new or incremental congestion; and 3) whether those outages are anticipated to contribute to sustained incremental congestion. The MTOs shall also include this information in future Biennial Transmission Projects Reports.

The MTO submitted timely compliance filings in accordance with the June 22 Order on September 27, 2022.⁴⁵ They are summarized respectively below:

1. The compliance filings described the Midcontinent Independent System Operator's (MISO) role as a planning authority for transmission projects. The August 2020 Compliance Filing also described MISO's Renewable Integration Impact Assessment (RIIA), Long-Range Transmission Plan (LRTP), and how local transmission projects are identified and developed and how larger projects are analyzed.
2. The compliance filings contained a summary of each MTO members' tentative and/or firm schedules to comply with FERC Order 881 (AAR).
3. The compliance filings included a Congestion Study conducted by the MTO. At a high-level, observations were:
 - i. Congestion is typically highest in times with high wind around the morning or evening peak load.
 - ii. The system intact operating state has baseline congestion.
 - iii. The operating state with planned outages increases congestion moderately.

⁴ Minnesota Transmission Owners, docket number E999/21-111. *Compliance Filing*, September 27, 2022. Document ID: [20229-189334-01](#)

⁵ Minnesota Transmission Owners, docket number E999/21-111. *Compliance Filing*, September 27, 2022. Document ID: [20229-189334-02](#)

- iv. Patterns in all the operating states show congestion between:
- Wind generation areas in southwest Minnesota and the Twin Cities metro-area of Minnesota and Wisconsin
 - Twin Cities and northern Minnesota
 - The Dakotas, far western Minnesota, and the rest of Minnesota

B. Information Requests

On May 12, 2023, Commission staff issued an Information Request to the MTOs requesting several pieces of information related to the transmission system, including its ability to meet the carbon free by 2040 standard; planned upgrades; impacts to environmental justice communities; efforts to alleviate congestion in southwest Minnesota and more broadly, including the use of non-transmission alternatives; and updates on various efforts at regional transmission organizations.⁶

On June 29, 2023 the MTOs provided their responses.⁷ Rather than restate the response, staff encourages Commissioners to read the filing itself. A summary of the first request is below, as it is pertinent to an ongoing docket defining renewable energy standards.

1. “Staff requests that the MTOs provide an assessment of the current transmission system in Minnesota and its ability to reach the carbon-free standard by 2040, as required by Minnesota Laws 2023, Chapter 7, section 10 recently passed by the Minnesota Legislature.”

Response Summary

The utilities required to submit information for the Biennial Transmission Projects Report differ from those mandated to comply with RES (Renewable Energy), SES (Solar Energy), and CFS (Carbon-Free Energy) regulations. The utilities required to submit to both the aforementioned regulations and the Biennial Transmission Projects Report meet the 25% RES requirement using existing transmission systems. The Commission is still seeking stakeholder input for RES and SES implementation guidance at this time. The commission will wait until the RES and SES implementation guidance is ordered before CFS guidance is released, therefore utilities are still planning for compliance with 2023 Minnesota Session Laws, and full gap analysis may not be completed in time for the November 1, 2023 Biennial Report deadline. “The base planning assumptions for Tranche 2 include Minnesota’s new CFS by 2040 legislative requirements.

⁶ Minnesota Public Utilities Commission. *Information Requests*, May 12, 2023. Document ID: [20235-195809-02](#)

⁷ Minnesota Transmission Owners. *Information Requests – Responses to MPUC IRS 1-9*, June 29, 2023. Document ID: [20236-197008-02](#)

MISO's current schedule anticipates Board of Directors approval for Tranche 2 projects in the first half of 2024." The MTO utilities are collaborating with MISO on Tranche 2 projects to align with Minnesota's carbon-free legislation by 2040.

Staff note: The implementation of changes to these standards are being investigated primarily in docket NO: 23-151. The commission is currently seeking comments on whether clarifications are necessary regarding what should be considered "carbon-free." Initial comments for the current comment period are due in June 2024. After this comment period, the Commission intends to take comments on how compliance should be reported and if utilities should report in advance on their efforts to be compliant come 2030.

IV. 2023 Biennial Transmission Project Report

The 2023 Biennial Transmission Projects Report (Report) was filed in accordance with Minn. Stat. § 216B.2425.⁸ The statute requires utilities that own or operate electric transmission facilities in Minnesota to file a report by November 1st of each odd numbered year on the status of the transmission system, including present and foreseeable inadequacies and potential solutions. The process is also intended as a method to inform the public of transmission issues in the state and to track the development of solutions.

The 2023 Report is the twelfth report to be filed by the MTO. The main purpose of the biennial report is to identify and present near-term transmission inadequacies and to examine possible alternatives for addressing those inadequacies. The MTO has generally described an inadequacy as a situation where existing transmission facilities are unable, or soon to be unable, to consistently and reliably provide electric service in compliance with regulatory standards.

The transmission assets in the state are divided into six geographical regions or planning zones, a map of which is provided as page 30 of the 2023 Report. The 2023 Report identified 164 separate transmission inadequacies across the state, including 97 new ones identified in the 2023 Biennial Report.

Under Minn. Stat. § 216B.2425, subd. 3, a utility may seek certification of a project identified in the Biennial Report. According to subdivision 4, if the Commission certifies the project, a separate certificate of need under Minn. Stat. § 216B.243 would not be required. There are no certification requests included in this report.

⁸ Minnesota Transmission Owners. Report – *2023 Biennial Transmission Projects Report*, November 1, 2023. Document ID: [202311-200147-08](#)

C. Comments

1. Minnesota Department of Commerce, Division of Energy Resources (Department)

November 15, 2023 Comments

The Department filed initial comments on the report concluding that the 2023 report includes, or references to, the required information as found in the Midcontinent Independent System Operator (MISO) Transmission Expansion Plan. The 2023 report is therefore in compliance with Minnesota Rules 7848.1300 and the Minnesota Public Utilities Commission's (Commission) June 29, 2022 Order on the 2021 Biennial Transmission Projects Report.⁹

January 16, 2024 Comments

The Department filed comments on the report recommending the Commission accept the 2023 Report.¹⁰ The Department recommended for future biennial reports that the Commission define "inadequacy" as any issue where the solution would require a certificate of need (CN).

1. The Department noted that the Northwestern Wisconsin Electric Company (NWECC) did not submit a biennial transmission plan. This is consistent with previous Biennial Transmission Project Reports. NWECC's last communication with the Commission was in 2009, and the communication stated that it had no plans for the construction of transmission facilities in Minnesota in the reasonably foreseeable future. Given the limited nature of NWECC's Minnesota transmission system, the Department had no comments regarding NWECC.

2. Transmission Issues

The Department provided a summary of transmission needs identified in the report by transmission planning zone. They noted a couple of clarifications and potential errors:

- a. Midwest River energy Services' Alexandria Substation Expansion is listed separately but appears to be part of the Big Stone South – Alexandria – Big Oaks 345 kV project.

⁹ Department of Commerce, Division of Energy Resources. *Comments on Completeness*, November 15, 2023. Document ID: [202311-200517-01](#)

¹⁰ Department of Commerce, Division of Energy Resources. *Reply Comments*, January 16, 2024. Document ID: [20241-202220-01](#)

- b. It is not clear why Southern Minnesota Municipal Power Agency's Fairmont, MN Area Transmission Expansion project would require a CN since the project is described as involving 69 kV transmission lines with associated substations. The Department concluded that the listing is in error.
- c. DPC's J898 Interconnection at Beaver Creek project is listed in the report as not requiring a CN. However, the Department confirmed with MTO that it does require a CN since it involves a 161 kV line that crosses the state border.

3. Transmission for Renewables

The 2023 report provides a section on Minnesota's Renewable Energy Standard (RES) in compliance with Minn. Stat. § 216B.2425, subd. 7 which states that the Biennial Transmission Projects Report will address necessary transmission upgrades to support development of renewable energy resources required to meet upcoming RES milestones.

The RES Report is a joint effort separate from that of the MTO but has many of the same utilities. The RES Utilities cite a Department report that concluded that all utilities have satisfied their respective renewable and solar energy standards compliance requirements for 2021. The RES Utilities have sufficient capacity acquired to meet the Minnesota RES needs through 2035. Only 58 MW of additional renewable capacity is needed by 2030 and no RES Utility needs additional solar capacity through 2035. The Department agreed with the RES Utilities that significant transmission investment for the purposes of the RES is not required in the near future.

4. Distribution Report and Grid Modernization

The 2023 Report states that Xcel Energy (Xcel) is the only utility currently operating under a multiyear rate plan and therefore is the only utility required to file a grid modernization plan and a distribution study. Since the Biennial Distribution and Grid Modernization Reports are filed in separate dockets the Department did not address any comments in this docket. (citation)

5. Coordination With MISO

The August 19, 2020 Commission Order in Docket No. E999/M-19-205 mandates the Minnesota Transmission Owners (MTO) to engage with MISO to meet Minnesota's transmission needs and assess MISO's responsiveness. A subsequent Order on June 29, 2022, requires the MTO to submit additional information within 90 days regarding MISO's responsiveness. The Department concluded that the report aligns with the Commission's requirements for MISO coordination.

6. Reform Proposal

Minnesota Statutes § 216B.2425 and Minnesota Rules Chapter 7848 mandate a biennial report on transmission "inadequacies," but the Department indicated in their comments that it "lacks a clear definition of what constitutes an inadequacy." The Department argued that historically, a broad definition has been used, resulting in a lengthy report that makes it challenging to identify issues deserving the Commission's attention. Moreover, the costs of producing and analyzing this report outweigh the benefits. Additionally, information on inadequacies is available through MISO's MTEP process. To address these concerns, the Department proposed defining inadequacy "as any issue requiring a Certificate of Need", which in their comments they argue would reduce costs, allow more focus on projects relevant to the Commission, and improve the analysis process. This approach aims to guide the development of specific alternatives and shift focus to broader policy issues rather than detailed transmission planning. (citation)

Table 1 shows the current number of identified transmission inadequacies compared to the number of identified CN-required projects.

Table 1
All Inadequacies vs CN-level Inadequacies

Zone	Number of Inadequacies	CNs Required
Northwest Zone	10	1
Northeast Zone	43	5
West Central Zone	28	5
Twin Cities Zone	48	0
Southwest Zone	18	1
Southeast Zone	17	0
TOTAL	164	12

March 1, 2024 MTO Reply to Department Comments

In their reply comments, MTO acknowledged the time-intensive nature of reviewing biennial transmission projects reports and supported efforts to streamline their scope.¹¹ MTO would support any efforts to narrow the scope of future reports. It assured stakeholders that issues no longer covered in the report will still undergo public review processes before the Commission.

¹¹ Minnesota Transmission Owners. *Reply Comments*, March 1, 2024. Document ID: [20243-204013-02](#)

Additionally, the MTO suggested reevaluating the relevance of other content in the report if the Commission adopts the Department's recommendation.

March 1, 2024 Legalectric Reply to Department Comments

Legalectric made several points addressing the Departments Comments:¹²

- There's a call for utilities to improve outreach efforts with assistance from the Commission.
- Concerns are raised about the reliance on MISO Transmission Expansion Plan (MTEP) reports.
- There is an absence of a cost-benefit analysis in MTEP reports and the tendency to reference them without addressing Minnesota's specific needs, as outlined in state statutes.
- The potential use of the Biennial Transmission Report as a substitute for the Certificate of Need review is questioned, especially in cases where projects like the MN Energy Connection are approved without a Certificate of Need.
- Concerns are raised about the credibility of demand projections by utilities like Xcel, with discrepancies in reported peak demand figures causing doubt about the accuracy of projections.

2. Legalectric

November 27, 2023 Comments

Legalectric's completeness comments emphasized several key points regarding the completeness of the 2023 Biennial Transmission Projects Report. Overall, the comments call for more transparency and justification for proposed transmission projects to ensure they serve the public interest rather than solely the interests of utilities.

1. **Reliance on MISO Transmission Planning:** Utilities base their need claims on MISO transmission planning, which is market-based rather than a demonstration of actual need.
2. **Need Assessment:** The comments questioned the need for additional transmission infrastructure considering the closure of coal plants and excess capacity, as well as the projected reduction in peak demand.
3. **Incomplete Analysis:** The Comments criticized the 2023 report for not addressing discrepancies in projected generation additions, reserve margins, and acceptable levels of reliability with the current proposed massive transmission build-out.

¹² Overland – Legalectric. *Reply Comments*, March 1, 2024. Document ID: [20243-204023-01](#)

4. Optical Ground Wire (OPGW) Replacement: The comments suggested that the 2023 report lacks information on the need for OPGW replacement and the revenue implications of such replacements.
5. Minnesota Energy Connection Project: The comments argued that there are conflicting statements regarding this project's purpose and its necessity, with concerns raised about its true intent and justification.
6. Xcel's Projects: These projects, including the MN Energy Connection and King Connection, are mentioned only as an afterthought in the report, with insufficient rationale provided for their inclusion.
7. Bulk Power Transfer Goals: The comments suggested that the goal of increasing the ability to transfer power across the system is mentioned but not thoroughly addressed in the report.

January 16, 2024 Department Reply Comments to Legalectric

On January 16, 2024 the Department replied to Legalectric's completeness comments.¹³ The comments state that Legalectric raised several concerns regarding the merits of the Petition rather than its completeness. The Department responded to these concerns as follows:

1. Market-based Planning: Legalectric questioned MISO's transmission planning, suggesting it relies on market-based criteria rather than demonstrating actual need. The Department acknowledges MISO's role in the report but clarifies that Minnesota's criteria supersede MISO's determinations. They also highlight that MISO's planning encompasses various project types beyond market considerations.
2. 2022 MISO Planning Resource Auction Results: Legalectric queried whether NERC's assessment considered Xcel's excess capacity when claiming a shortfall. The Department clarifies that the numbers refer to different planning years and that MISO did not experience a capacity shortfall in the relevant auction.
3. MISO's LRTP Need Discussion: Legalectric questioned the impact of transmission build-out on needed reserve margin and its relevance to MISO's Tranche 1 build-out. The Department suggests addressing this issue in the certificate of need proceedings, where impacts and need will be vetted.
4. Xcel's Minnesota Energy Connection Need Discussion: Legalectric raised questions about the need for Xcel's proposed Minnesota Energy Connection project, particularly regarding the "Big Oaks" substation. The Department recommends addressing these concerns in the ongoing certificate of need proceeding.

¹³ Department of Commerce, Division of Energy Resources. *Reply Comments*, January 16, 2024. Document ID: [20241-202220-01](#)

January 16, 2024 Comments

Overall, Legalectric's initial comments underscore the further need for transparency, rigorous evaluation of need, and consideration of alternative energy sources in transmission planning processes.¹⁴ Key points are as follows:

1. **Reliance on MISO Transmission Planning:** The comments argued that references to MISO "approval" should be removed from the report, as it represents marketing plans rather than a demonstration of need.
2. **Purpose of the Biennial Transmission Plan:** The comments stressed the need for a big-picture focus regarding transmission planning to guide Commission decisions effectively.
3. **Certificate of Need Criteria:** The comments urged the Commission to distinguish between actual need and corporate desires, as well as to stop accepting utility "need" statements without demonstration.
4. **Need Requirements and Exemptions:** The comments criticized current need requirements and exemptions, emphasizing the importance of accurate long-term energy demand forecasts and consideration of alternative energy sources.
5. **Legislative Recommendations:** The comments suggested introducing legislation to mandate the inclusion of solar energy in new industrial projects to offset electrical demand.
6. **Critique of Specific Projects:** The comments scrutinized the "Minnesota Energy Connection" project proposed by Xcel, highlighting concerns about its economic motivation and segmentation.

The comments underscore that: "The NERC LTRA shows that looking at existing and projected generation there's adequate generation to go around, and that means it's a matter of siting, not a reason for new transmission" and highlights NERC LTRA graphs on pg. 7.

March 1, 2024 MTO Reply Comments to Legalectric Completeness and Initial Comments

The MTO acknowledged Legalectric's input on the Biennial Transmission Report and their involvement in the docket, but notes that some of the comments are not directly related to the report's content.¹⁵ The MTO responded to the concerns regarding reliance on MISO transmission planning, stating that while MISO's planning is considered, it does not serve as approval in Minnesota, where projects must meet specific criteria. The MTO disagreed with disregarding MISO material in the report. Regarding questions about the need for LRTP and Minnesota Energy Connection projects, the MTO suggested the appropriate place to address these issues are in the ongoing certificate of need (CN) proceedings, as the CN process

¹⁴ Overland – Legalectric. *Comments*, January 16, 2024. Document ID: [20241-202195-01](#)

¹⁵ Minnesota Transmission Owners. *Reply Comments*, March 1, 2024. Document ID: [20243-204013-02](#)

effectively determines such issues. The MTO also clarified that the completeness of the report regarding optical ground wire (OPGW) improvements and emphasized that concerns related to this should be addressed in the Commission's specific permitting processes.

3. EDF Renewables

January 16, 2024 Comments

In their comments, EDF Renewables (EDFR) supported Grid North Partners' proposal for nineteen transmission upgrade projects aimed at enhancing reliability and easing congestion in Minnesota, costing around \$130 million.¹⁶ They state that these projects, which includes the Morris to Grant County to East Fergus Falls project, promises to alleviate congestion costs and curtailments for EDFR's wind assets.

The table below shows curtailment levels experienced by EDFR projects in Minnesota over the last several years:

Table 2

PROJECT	2019	2020	2021	2022	2023
FENTON	3%	24%	43%	42%	48%
RED PINE	1%	0%	7%	15%	18%
STONERAY	2%	1%	8%	2%	15%
WAPSIPINICON	0%	0%	5%	4%	19%

Table 1. Percent of potential generation output curtailed and unable to serve load each year, mainly due to grid limitations restricting export of power

In their comments, EDFR stated that the Report fails to address the significant congestion and curtailment issues affecting wind resources in southwest Minnesota, particularly around the Nobles County Substation. The area's wind project's face increasing curtailments due to grid congestion and stability constraints. EDFR suggested that constructing a new 345kv outlet could resolve these stability concerns. Without such upgrades, additional generation in the area risks exacerbating instability issues.

EDFR explained the stability interfaces and provides a table showing % of hours each interface was binding: "The main driver of higher curtailment levels in 2023 for EDFR's Stoneray and Fenton projects has been a stability-limited interface in Southwestern Minnesota called FENOCH. This constraint is governed by a confidentially protected Standing Operating Guide, so EDFR does not have the details around exact reasons for those stability issues. However, based

¹⁶ EDF Renewables. *Comments*, January 16, 2024. Document ID: [20241-202223-01](#)

on market and powerflow data, it is certain that this stability constraint is activated under specific grid outage conditions when less grid capacity is available to export the generation in this pocket. There appear to be nearly 1,100 MW of wind generators behind this interface and their exports are limited significantly under specific grid outage conditions, resulting in high levels of curtailment. There are two other stability-limited interfaces called BRIGEN and CHBGEN in this area as well that we believe are operated similarly”.

Table 3

YEAR	FENOCH	BRIGEN	CHBGEN
2021	1%	0%	0%
2022	1%	2%	0%
2023	11%	3%	4%

Table 2. Percent of hours each stability-based constraint in Southwestern Minnesota was binding and limiting wind generator output; Source: MISO market data

EDFR recommended the following:

That the PUC condition any approval of the Report by requiring the MTO to provide a supplementary filing in this docket describing:

- The extent that projects described or proposed in the Report will improve historic or future congestion and curtailment in southwest Minnesota.
- The root causes of the stability, thermal or other issues present in southwestern Minnesota with emphasis on those impacting currently installed wind capacity.
- MISO regional studies, local TO studies characterizing this issue and describe any potential solutions to these stability issues.
- EDFR also recommended requiring the MTO to include a plan to resolve the stability issues present in southwest Minnesota in the supplemental filing. The plan should include a timeline for study work needed, local or MISO approval processes, a description of new transmission facilities required to resolve these issues, the estimated capital costs, and potential Commercial Operations Date (COD).

Alternately, EDFR suggested that the PUC could open a Commission-Initiated docket to develop a record on transmission curtailment matters, drivers, and potential solutions.

MTO’s March 1, 2024 Reply Comments to EDFR

The MTO responded to EDFR’s comments and provided insight into current congestion studies.¹⁷ The MTO collaborates with MISO on transmission planning and congestion issues, including a recent congestion study. MISO's ongoing market congestion awareness led to a 2023 study examining system congestion. Currently, MISO explores three scope options for congestion identification, which is expected to conclude in Q3 2024. Additionally, EDFR's concerns about southwestern Minnesota's stability issues are acknowledged, with ongoing studies by Xcel and the Electric Power Research Institute. The MISO Tranche 2 LRTP Process aims to increase outlet capacity from the Buffalo Ridge area, with final approval expected in late 2024. The MTO disagreed with EDFR’s recommendation, arguing that current efforts are sufficient, and there is no need for further proceedings or supplemental information. The MTO provided an attachment to their comments that summarizes study assumptions and processes from BPM-015 (Business Practice Manual: Generation Interconnection) that may have an impact on system congestion:

Table 4

Table 0-1 Dispatch per Fuel Type for Study and Higher Queued Generators (without a GIA)

Fuel Type under Study and Higher Queued	Summer Peak Dispatched as % of Interconnection Service	Shoulder Peak Dispatched as % of Interconnection Service
Combined Cycle	100%	50%
Combustion Turbine	100%	0%
Diesel Engines	100%	0%
Hydro	100%	100%
Nuclear	100%	100%
Storage ⁹	100% ¹⁰	- 100%, 0% ^{9,10}
Steam – Coal	100%	100%
Oil	100%	0%
Waste Heat	100%	100%
Wind	15.6% ¹¹	100%
Solar	100%	0% ¹²
Hybrid Facility ¹³ (Any combination of the above fuel types except Battery which can be assumed up to 100% dispatchable in both Summer Peak and Shoulder Peak)	Battery up to 100% Last Fuel Dispatched Other Fuels based on above dispatch assumptions of each fuel type with any adjustment based on requested interconnection Service¹⁴	Battery Up to 100% Last Fuel Dispatched Other Fuels based on above dispatch assumptions of each fuel type with any adjustment based on requested interconnection Service¹⁵

¹⁷ Minnesota Transmission Owners. *Reply Comments*, March 1, 2024. Document ID: 20243-204013-02

Legalelectric March 1, 2024 Reply Comments to EDFR

Legalelectric replied to EDFR's comments and agreed with EDFR's recommendations.¹⁸ Legalelectric also recommended the following:

1. Transmission owners update their filing with any missing information.
2. Additionally, the Commission should mandate Xcel to include its "MN Energy Connection" in the transmission plan.
3. Xcel should provide sufficient details on its integration into the Southwest region and Minnesota's transmission system.
4. While the line loss and need for series compensation have been acknowledged, Xcel must provide a thorough explanation for investing in a transmission line of this magnitude without proper studies.

The comments also argue that Xcel Energy is not consistent with its statements on demand and cites data from the company's 2023 10-K and their most recent IRP filing in pages 5-8.

4. Murray County Board of Commissioners

February 29, 2024 Comments

Murray County expressed concern about the Report's failure to acknowledge the declining tax revenue due to increased energy production curtailment.¹⁹ They cited data from EDFR's comments: Fenton Wind Farm experienced an increase in curtailment of 42% in 2019 to 48% in 2023, and Stoneray Wind Farm from 2% in 2019 to 15% in 2023. Despite claims by utilities like Xcel to address curtailment in Southwest Minnesota, the county questions the efficacy of these efforts, as evidenced by the persistent increase in curtailment rates. The County Board of Commissioners shared the same recommendations as EDFR. They also provided a table detailing the financial impact of levies and wind production taxes from 2019 to 2023 and a prediction of 2024:

¹⁸ Overland – Legalelectric. *Reply Comments*, March 1, 2024. Document ID: [20243-204023-01](#)

¹⁹ Murray County Board of Commissioners. *Comments*, February 29, 2024. Document ID: [20242-203906-01](#)

Table 5

MURRAY COUNTY AND MURRAY COUNTY TOWNSHIPS FINANCIAL IMPACT TABLE							
		2019	2020	2021	2022	2023	2024
Murray County	Wind Production Tax	\$ 988,890	\$ 919,825	\$ 1,019,153	\$ 667,532	\$ 644,365	
	Levy	\$ 7,424,478	\$ 7,838,245	\$ 7,990,107	\$ 8,309,623	\$ 8,655,308	\$ 9,001,407
	WPT as % of Levy	13%	12%	13%	8%	7%	0%
Cameron Twp	Wind Production Tax	\$ 60,689	\$ 56,804	\$ 54,519	\$ 44,552	\$ 44,509	
	Levy	\$ 38,204	\$ 38,204	\$ 38,240	\$ 38,240	\$ 38,240	\$ 48,000
	WPT as % of Levy	159%	149%	143%	117%	116%	0%
Chanarambie Twp	Wind Production Tax	\$ 45,319	\$ 49,542	\$ 56,456	\$ 53,169	\$ 28,838	
	Levy	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 15,000
	WPT as % of Levy	453%	495%	565%	532%	288%	0%
Fenton Twp	Wind Production Tax	\$ 63,350	\$ 55,283	\$ 65,367	\$ 30,389	\$ 38,948	
	Levy	\$ 36,000	\$ 36,000	\$ 36,000	\$ 36,000	\$ 36,000	\$ 36,000
	WPT as % of Levy	176%	154%	182%	84%	108%	0%
Moulton Twp	Wind Production Tax	\$ 71,294	\$ 62,320	\$ 73,295	\$ 34,894	\$ 44,687	
	Levy	\$ 37,175	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000
	WPT as % of Levy	192%	208%	244%	116%	149%	0%

NOTE: 2024 Wind Production Tax Amounts are based on 2023 wind production, which are not currently available.

5. Minnesota Transmission Owners

Staff provides a summary of the MTOs’ requests, in addition to their direct replies in the relevant sections of the briefing paper.²⁰

The MTOs’ requested the Commission take action and issue an order regarding the Biennial Report that includes the following:

1. Find that the Biennial Report meets the requirements of Minn. Stat. § 216B.2425 and accept the report.
2. Find that since no party has requested certification for any of the projects listed in the reports, it is unnecessary to certify, certify as modified, or deny certification of any projects.
3. Grant an extension to the variance to Minnesota Rules part 7848.0900 that relieves the utilities of the obligation to hold public meetings in each transmission planning zone. And further, determine that the MTO shall not be required to hold a webinar on the Biennial Report. (The variance has been granted for the last several biennial transmission projects reports.)
4. Direct the Transmission Owners to include content similar to the 2023 Biennial Report in the 2025 report, subject to any modifications outlined during the Commission agenda meeting.

²⁰ Minnesota Transmission Owners. *Reply Comments*, March 1, 2024. Document ID: 20243-204013-02

5. Find that for future reports, the MTO may provide a link to the report on the MTO website, www.minnelectrans.com, as well as directions to access the report via eDockets, in lieu of mailing CDs or jump drives with electronic copies of the report or the required notice lists.

STAFF ANALYSIS

Staff appreciates the MTO efforts to put together the 2023 Report. Overall, the MTO provided information similar to previous years in their filing, however, with the known and on-going issues facing the regional transmission system (Long-Range Transmission Planning needs, interconnection queues, and seams issues) and energy markets and prices (congestion), the Commission may want to consider using this forum to seek additional information from the MTO in a shorter timeframe than the next two-year cycle. However, many discussions are underway in other contexts, so it could be duplicative to use this proceeding to discuss these issues.

Below, staff evaluates the requirements of the Biennial Transmission Plan and previous year ordering points.

V. Compliance with the 2021 Order Points

Order Point 8

In the Commission's June 29, 2022 Order, MTO was ordered to include the information required to be filed in the 2021 Report in their 2023 Report as well as the following:²¹

- 1) Expected sustained HVTL or generation planned outages;
- 2) Whether those outages are anticipated to have new or incremental congestion; and
- 3) Whether those outages are anticipated to contribute to sustained incremental congestion.

In the 2023 report, Chapter 9²² entitled "Outages and Congestion" comprises of sections 9.2 which addresses the actions and efforts taken to alleviate congestion, 9.3 which refers to The Congestion Study (attached as Appendix B in the 2023 Report), and 9.4 which highlights that, "While LRTP Tranche 1 encompasses 18 new transmission projects and more than 2,000 miles of transmission lines, the expected in-service dates are not until the 2028-2030 timeframe.

²¹ Minnesota Public Utilities Commission, docket number E999/21-111. *Order Accepting Report*, June 29, 2022. Document ID: [20226-186966-01](#)

²² Minnesota Transmission Owners. Report – *2023 Biennial Transmission Projects Report*, Ch. 9. November 1, 2023. Document ID: [202311-200147-08](#)

Because the availability of these resources is years away, there is the potential for continued congestion issues.”

Staff believes the information that the MTO submitted adequately meets what the Commission ordered.

Short-term Transmission Solutions

In addition to the long-range planning efforts that are going on at various organizations, the Commission may be interested in getting more information about short-term solutions to increase the robustness of the transmission system. More information about other non-wire alternatives that may be deployed or utilized may include:

- 1) dynamic line ratings,
- 2) transmission system optimization and reconfigurations,
- 3) adjusting transmission conductor limitations to increase line ratings,
- 4) increasing substation limiter sizes,
- 5) and other grid enhancing technologies that could be used.

These transmission capacity solutions, and a discussion about our current use of those options would be useful in understanding how our utilities are considering other alternative short-term options and solutions alleviating grid issues that are affecting generator and county revenues in Minnesota.

Line Outages

Additionally, further information about projected line and generation outages expected to occur over the next year (or another reasonable timeframe). Transmission outages can increase congestion on the transmission grid, again, affecting generator revenues, MISO pass-through charges to our utilities, and ultimately, county tax revenue. This information would be useful to be informed of, especially as increased transmission build-out – likely collocated in some areas in the next few years, may increase line outages and targeted congestion. Moving forward the Commission may wish to require utilities to submit this information on an ongoing basis, potentially with annual updates. The first compliance filing could be filed in this docket 23-91 within 90 days, and for future updates to include it in the Biennial Transmission Report.

Public Participation

In the June 29 Order Accepting the 2021 Biennial Transmission Projects Report the Commission extended the variance it had previously granted to Minn. Rules, part 7849.0900, to eliminate

the obligation to hold the public meetings described therein.²³ Similar to the June 29 Order, staff recommends the Commission extend this rule variance for the 2025 Biennial Transmission Projects Report to not require public meetings or to require the MTO to hold a webinar as an alternative to the public meetings.

Staff notes that the criteria for granting a rule variance are set out in Minnesota Rule 7829.3200 which specifies three criteria:

1. enforcement of the rule would impose an excessive burden upon the applicant or others affected by the rule;
2. granting the variance would not adversely affect the public interest; and
3. granting the variance would not conflict with standards imposed by law.

Staff believes that the criteria are met as follows:

1. enforcement of the rule would require Transmission Owners to divert the time and attention of several engineers and other experts to participate in meetings that have traditionally, not been well attended;
2. given the consistent lack of interest in transmission planning, granting the variance does not conflict with the public interest; and
3. staff is unaware of any standards imposed by law that would conflict with the variance.

Mitigation Cost Information in Future Rate Requests

Staff notes that the Commission has considered the issue of mitigation costs in future certificate of need proposals since the Order accepting the 2013 Report.²⁴ The Commission has agreed with the Department's comments that mitigation-cost information is useful in evaluating the costs of such mitigation measures, but the Commission did not require the transmission owners to include this information in future Biennial Transmission Projects Reports. Therefore, in accordance with the 2013 and subsequent Orders, staff recommends that the Commission make a similar finding in the Order on the 2023 Report.

²³ Minnesota Public Utilities Commission, docket number E999/21-111. *Order Accepting Report*, June 29, 2022. Document ID: [20226-186966-01](#)

²⁴ Minnesota Public Utilities Commission. *Information Requests*, May 12, 2023. Document ID: [20235-195809-02](#)

Congestion Study

Staff notes that multiple parties requested additional information on the curtailment and congestion issues in southwest Minnesota. Two options were presented: require MTO to provide a supplementary filing in docket 23-91 or open a new Commission-initiated docket to develop a record outside the Biennial Transmission Report process.

The May 12, 2023 PUC Information Requests include requests on congestion problems and mitigation, and congestion alleviation actions in southwest Minnesota. Issuing the same Information Requests on an ongoing basis could provide insight into congestion concerns brought up in comments, especially those concerns focused on the southwest area of Minnesota. It could also be required that the MTOs file this information separately in this docket. The first compliance filing could be filed in this docket 23-91 within 90 days, and for future updates to include it in the Biennial Transmission Report.

Definition of “Inadequacy”

The Department suggested defining "inadequacy" for purposes of biennial transmission reporting as any issue requiring a certificate of need (CN).²⁵ By doing so, the number of identified inadequacies would significantly decrease, making the materials for review by the Department, stakeholders, and the Commission more focused. Staff does not have comments on the merits of this proposal however modifying the definition of a statutory rule may require legislative action, which would need to occur outside the Biennial Transmission Report docket process.

²⁵ Department of Commerce, Division of Energy Resources. *Reply Comments*, January 16, 2024.
Document ID: [20241-202220-01](#)

DECISION OPTIONS

2023 Biennial Transmission Projects Report

1. Accept the 2023 Biennial Transmission Projects Report. (MTO and Department)
2. Reject the 2023 Biennial Transmission Projects Report.

Biennial Transmission Report Publicization

3. Allow the MTO to publicize future Biennial Transmission Project Reports by posting a link to the report on the MTO website (www.minnelectrans.com) and directions for finding the Commission's website via eDockets, in lieu of mailing compact discs or jump drives with electronic copies. (MTO)

Mitigation Measures Report Requirements

4. Encourage the Department to collect information on mitigation costs in future rate requests to recover the costs of new energy facilities. (Staff)

Certification of Projects

5. Find that since no party has requested certification for any of the projects listed in the reports, it is unnecessary to certify, certify as modified, or deny certification of any projects. (MTO)

Definition of Inadequacy

6. Clarify that, for purposes of future Biennial Transmission Projects Reports, "inadequacies" are limited to issues for which the solution would require a certificate of need. (Staff modification of Department)

Regarding the 2025 Biennial Transmission Projects Report

7. Extend the variance to the public participation requirements of Minnesota Rules, part 7848.0900, and forego any requirements to convene a webinar presentation on the 2025 report. (MTO)
8. Require the MTO to file a 2025 Report that meets the requirements of Minn. Stat. § 216B.2425, subd. 2, and contains content similar to the 2023 Report. (MTO)

Additional Information Requests

9. Require the MTO to submit additional, specific information in a compliance filing related to the curtailment problems and solutions present in southwest Minnesota, including: (EDFR, Murray County)
 - a. The extent that projects described or proposed in the Report will improve historic or future congestion and curtailment in southwest Minnesota.
 - b. The root causes of the stability, thermal or other issues present in southwestern Minnesota with emphasis on those impacting currently installed wind capacity.
 - c. MISO regional studies, local TO studies characterizing this issue and describe any potential solutions to these stability issues.
 - d. A plan to resolve the stability issues present in southwest Minnesota, including a timeline for study work needed, local or MISO approval processes, description of new transmission facilities required to resolve these issues, estimated capital costs and potential Commercial Operations Date.

Or

10. Open a Commission initiated docket to develop a record on transmission curtailment matters, drivers, and potential solutions. (EDFR, Murray County)

Or

11. Require the MTO to provide updates to its responses to PUC Information Requests on May 12, 2023 and on an ongoing basis. The first set of responses will be submitted as a compliance filing in docket number 23-91 in 90 days, and future responses as supplemental information in future biennial transmission reports. (Staff)

Staff Recommendation: 1, 3, 4, 5, 7, 8, 11