COMBINED CERTIFICATE OF NEED AND ROUTE PERMIT APPLICATION FOR THE IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 kV TRANSMISSION LINE PROJECT

Minnesota Power
and
American Transmission Company, LLC

Docket Nos. E015/CN-25-111
and E015/TL-25-112

January 5, 2026

Prepared by:

merjent

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

LIST OF APPENDICES

1.1 INTRODUCTION

Minnesota Power and American Transmission Company, LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively, the "Applicants") submit this application to the Minnesota Public Utilities Commission ("Commission") for a Certificate of Need and Route Permit ("Application") to construct the Iron Range – St. Louis County – Arrowhead 345 kilovolt ("kV") Transmission Project (also the "Project" or "ISA Project"). The Project is needed to support the reliability of the regional transmission system, particularly in northern Minnesota and northwest Wisconsin, to provide additional transmission capacity and regional transfer capability to reliably integrate new renewable generation, meet growing electrical demand, and to strengthen the regional transmission grid. The Applicants propose a route that is located along, and in some cases replaces, existing high-voltage transmission lines for 92 percent of its length. By replacing existing high-voltage transmission line rights-of-way or locating the Project next to existing high-voltage transmission lines and other existing rights-of- way that will be widened, the Project can leverage existing corridors rather than creating new ones. As described in this Application, replacing and locating the Project along existing transmission line rights-of-way minimizes the potential impact of the Project within the Project Route. Based on this use of existing high-voltage transmission line rights-of-way, the Project is eligible for the Standard Review Process for the route permit. Minn. Stat. § 216I.07, subd. 2(5).

The Project consists of three primary segments:

1. Segment 1 – Approximately 32.7 miles of new single-circuit 345 kV line on double-circuit capable structures (three conductors and two shield wires), to be built along existing high-voltage transmission line rights-of-way owned by Minnesota Power from the Minnesota Power Iron Range 500 kV/345 kV/230 kV Substation in Itasca County ("Iron Range Substation") to north of the St. Louis River in St. Louis County.

2. Segment 2 – Replace approximately 33.3 miles of existing 230 kV line with new double-circuit 345 kV structures and 345 kV conductor (six conductors and two shield wires) from north of the St. Louis River in St. Louis County to Minnesota Power's St. Louis County 345 kV/230 kV Substation in Solway Township ("St. Louis County Substation"), utilizing and limiting the expansion of the existing high-voltage transmission line rights-of-way owned by Minnesota Power. Although both circuits will be designed for and capable of 345 kV operation, one circuit in this segment will be operated at 345 kV and the other circuit will be used for the existing line, which will continue to operate at 230 kV.

3. Segment 3 – Approximately 1.5 miles of new double-circuit 345 kV transmission line that is co-located for 50 percent of its length, jointly owned by Minnesota Power and ATC, from Minnesota Power's St. Louis County Substation in Solway Township to the ATC Arrowhead 345 kV/230 kV Substation in Hermantown ("ATC Arrowhead Substation"). In Segment 3, the Applicants are proposing to construct both circuits as part of the Project and operate both circuits at 345 kV.

The Project will also include the following improvements to the transmission system:

1. Modification of the Iron Range Substation to accommodate one additional 345 kV line entrance and associated high voltage equipment. Separate from the Project, an expansion of Minnesota Power's Iron Range Substation, including 500 kV/345 kV transformers and

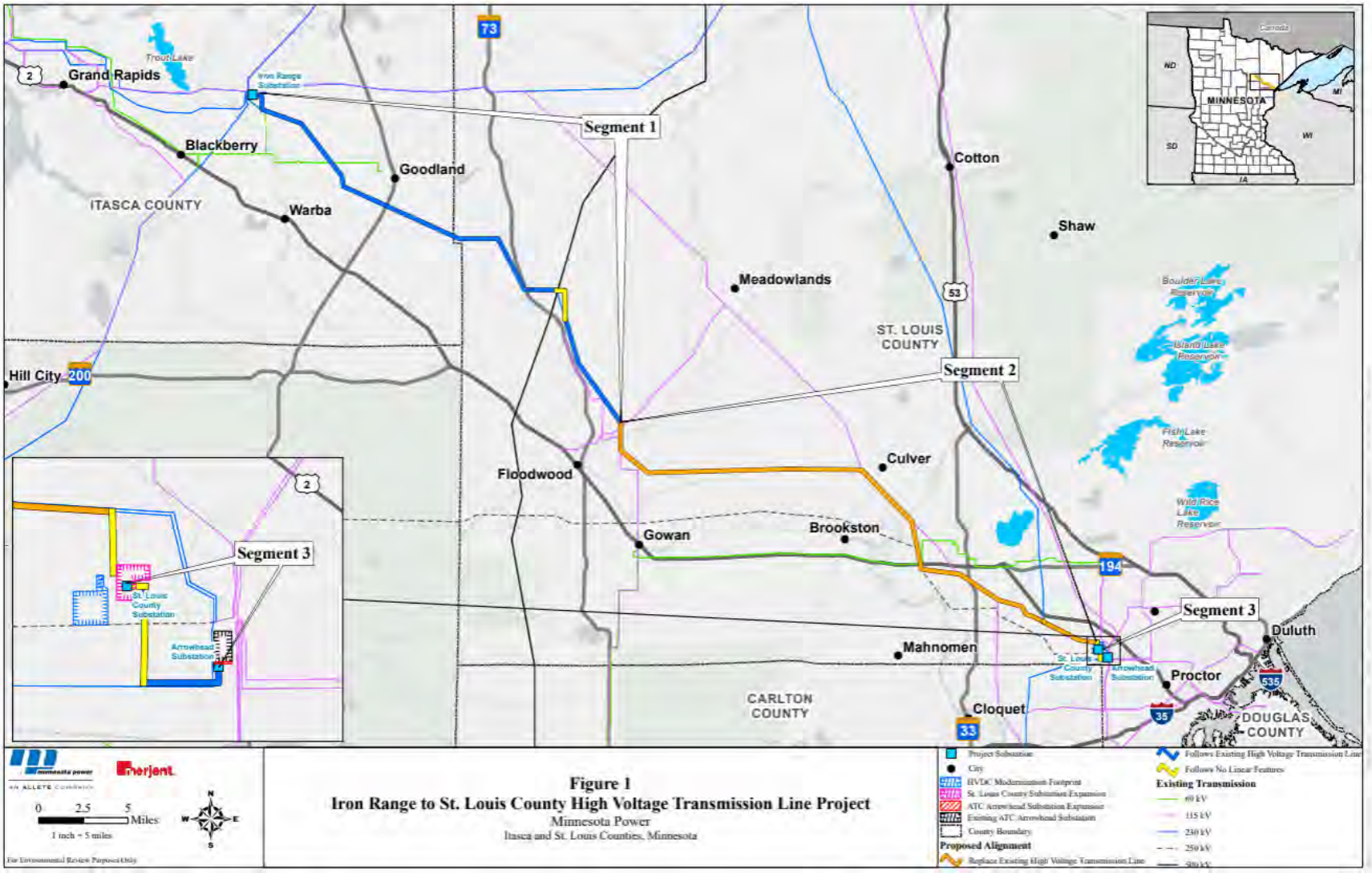
345 kV equipment, is currently under construction as part of the Northland Reliability Project (Docket Nos. E015,ET2/CN-22-416 and E015,ET2/TL-22-415) and will require further modification and equipment additions to accommodate the ISA Project. No expansion of the fence line is anticipated for the ISA Project.

2. Expansion of the St. Louis County Substation to accommodate three additional 345 kV line entrances and associated high voltage equipment for the Project and associated high voltage equipment. Separate from the Project, the St. Louis County Substation is currently under construction as part of the high-voltage, direct-current ("HVDC") Modernization Project Docket No. E015/TL-22-611) and will require an expansion to accommodate the ISA Project.

3. Expansion of the ATC Arrowhead Substation to accommodate two additional 345 kV line entrances and associated high voltage equipment.

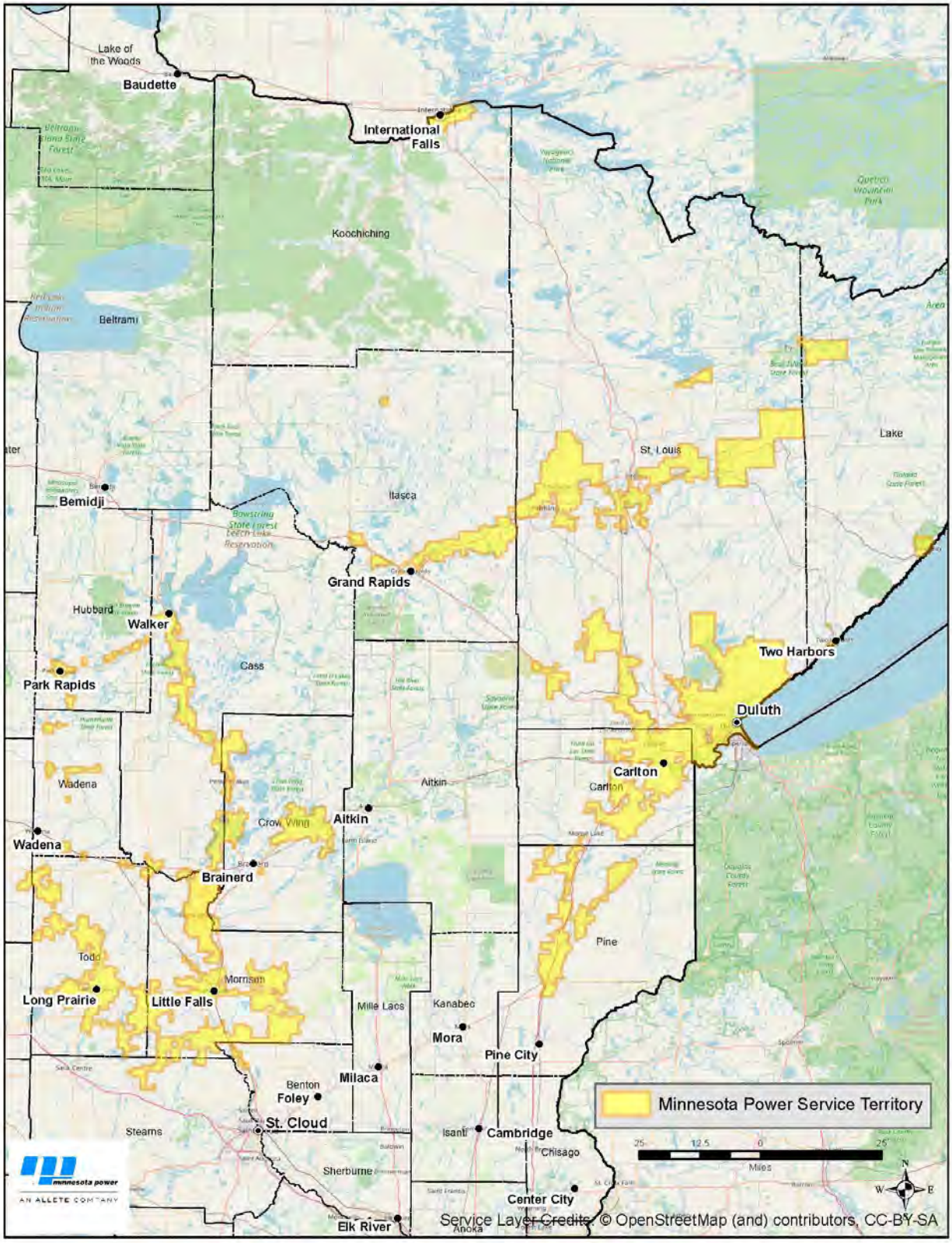
The Project is shown in Figure 1 (*see* Appendix G, Map 1).

Figure 1. ISA Project



Minnesota Power is an investor-owned public utility headquartered in Duluth, Minnesota. Minnesota Power supplies retail electric service to 150,000 retail customers, including some of the nation's largest industrial customer operations, and wholesale electric service to 14 municipalities in a 26,000-square-mile electric service territory located in northeastern Minnesota. Minnesota Power generates and delivers electric energy through a network of transmission and distribution lines and substations throughout northeastern Minnesota. Minnesota Power's transmission network is interconnected with the regional transmission grid to promote reliability and Minnesota Power is a member of the Midcontinent Independent System Operator, Inc. ("MISO") and the Midwest Reliability Organization ("MRO"). Minnesota Power provides electricity to customers in northern Minnesota. Minnesota Power's service area is shown in Figure 2 (*see* Appendix G, Map 2).

Figure 2. Minnesota Power Service Territory

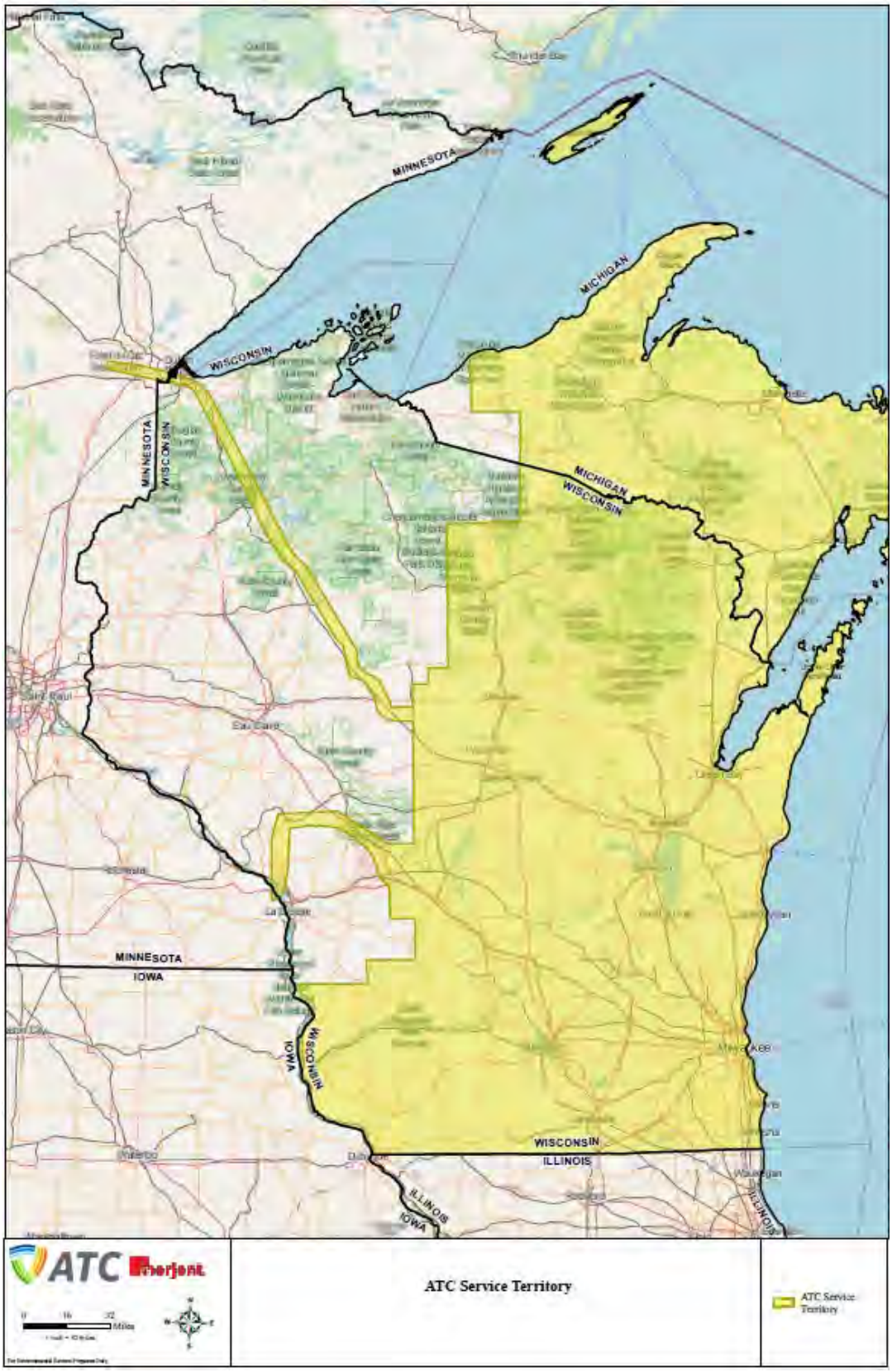


ATC[1] is a limited liability company created in accordance with Wisconsin state law over twenty years ago as a single-purpose, transmission-only company. That is, ATC does not, and cannot, provide retail electric power to end-use customers. ATC's purpose is to plan, construct, operate, and maintain the high-voltage electric transmission system in portions of Wisconsin, Michigan, Minnesota, and Illinois. The company owns, operates, and maintains over 10,000 miles of electric transmission lines and more than 580 electric substations across these states. ATC is a transmission-owning member of the MISO and transmission service is provided over the facilities owned and operated by ATC under the terms of the MISO's Open Access Transmission, Energy and Operating Reserve Markets Tariff ("MISO Tariff"), with ATC operating its transmission facilities in accordance with the direction of the MISO. A Map of ATC's operating area throughout Wisconsin, Michigan, Minnesota, and Illinois, is provided in Figure 3 (*see* Appendix G, Map 3).

In Minnesota, ATC is a Minnesota Transmission Owner ("TO") and owns the ATC Arrowhead Substation. ATC also owns two 230 kV circuit breakers and switches that are physically located in what is generally referred to as Minnesota Power's Arrowhead 230 kV/115 kV Substation ("Minnesota Power Arrowhead Substation"), which is located immediately adjacent to the ATC Arrowhead Substation, 12 miles of 345 kV line within Minnesota that connects to the ATC Arrowhead Substation and runs southeast into Wisconsin, as well as a short 230 kV overhead bus section that connects the ATC Arrowhead Substation to the Minnesota Power Arrowhead Substation.

[1] Minnesota Power owns eight percent of the outstanding shares of ATC. As such, Minnesota Power is an "affiliate" of ATC and certain filings must be made with the Commission and the Public Service Commission of Wisconsin when certain contractual arrangements are entered into between Minnesota Power and ATC. Minn. Stat. § 216B.48 and Wis. Stat. § 196.52. A contract meeting the statutory requirements in Minnesota or Wisconsin has not yet been executed between Minnesota Power and ATC. Once such a contract is executed, the requisite compliance filings will be made with the Commission and the Public Service Commission of Wisconsin. In Minnesota Power's Acquisition Docket (Docket No. E015/PA-24-198), the Commission ordered that if any "supplier" has more than five percent of its outstanding shares owned by BlackRock, Inc., Minnesota Power must list that supplier on its annual affiliated interest report. *In the Matter of the Petition of Minnesota Power for Acquisition of ALLETE by Canada Pension Plan Investment Board and Global Infrastructure Partners*, Docket No. E015/PA-24-198, ORDER APPROVING PETITION FOR ACQUISITION WITH CONDITIONS AND ESTABLISHING OTHER REQUIREMENTS at 21, (Dec. 10, 2025). For full transparency, while BlackRock, Inc. does not directly own any outstanding shares of ATC, BlackRock, Inc. does own outstanding shares of several publicly traded companies that have ownership interests in ATC. These include WEC Energy Group (9.10 percent BlackRock, Inc. ownership), Alliant Energy (9.10 percent BlackRock, Inc. ownership), and Madison Gas and Electric (16.2 percent BlackRock, Inc. ownership). While Minnesota Power does not consider ATC to be a "supplier" to Minnesota Power with respect to the partnership agreement for the Project, Minnesota Power will make the appropriate affiliated interest filings if the contractual agreement between the Project Owners is determined to fall under this requirement.

Figure 3. ATC Service Territory



1.2 PROJECT NEED AND PURPOSE

The Project, as part of the Long-Range Transmission Plan ("LRTP") Tranche 2.1 Portfolio approved by the MISO Board of Directors in December 2024 in its annual MISO Transmission Expansion Plan 2024 ("MTEP24") report, is needed to enhance grid reliability in the Upper Midwest as grid operating conditions become more variable, to increase grid efficiency and regional transfer capability as energy is transferred from where it is produced to where it is needed, and to meet the growing demand for reliable clean energy in the Upper Midwest. The Project was included in the 2025 Minnesota Biennial Transmission Projects Report[2] under Commission tracking number 2025-NE-N2 and was also reported in Minnesota Power's 2025-2039 Integrated Resource Plan ("IRP").[3] Additional information on the need for the ISA Project is provided in Chapter 3.

The Applicants considered several alternatives to the Project. These alternatives are discussed in Chapter 4 of this Application.

1.3 PROPOSED ROUTE

The Project makes extensive use of existing high-voltage transmission line rights-of-way. The proposed double-circuit capable 345 kV transmission line follows or replaces primarily existing 230 kV transmission line rights-of-way (Minnesota Power's existing Iron Range – Arrowhead 230 kV, "98 Line"), which existing rights-of-way may need to be widened as discussed in Chapter 2 and Chapter 5. The Proposed Route deviates from following existing rights-of-way near the crossing of Great River Energy's existing 500 kV high-voltage transmission line in Segment 1, when connecting to Minnesota Power's St. Louis County Substation in Segment 2, and for approximately half of Segment 3 between the St. Louis County Substation and the ATC Arrowhead Substation. In total, the Proposed Route is located along or replaces existing high-voltage transmission line rights-of-way for 92 percent of its length. The Proposed Route is shown in Figure 1. The term "Proposed Route" includes the route proposed for Segments 1 through 3 of the Project. A more detailed description of the Proposed Route is provided in Chapter 5.

1.4 PROJECT SCHEDULE AND COST

The Applicants anticipate starting Project construction no later than 2029 with an in-service date no later than 2032. The estimated cost for the ISA Project is between $444.1 million to $519.3 million (2024$). Additional details regarding the schedule and cost for the Project are provided in Section 2.4 and Section 2.5.

1.5 POTENTIAL ENVIRONMENTAL IMPACTS

The Applicants analyzed the potential environmental impacts from the Project. No significant unavoidable impacts are expected to result from construction of the Project. The Project's Proposed Route is located along or replaces existing rights-of-way for over 62 miles, or 92 percent, of the approximately 67.5-mile-long Project,[4] the potential environmental impacts from

[2] *In the Matter of the 2023 Minnesota Biennial Transmission Projects Report*, Docket No. E999/M-25-99, 2025 MINNESOTA BIENNIAL TRANSMISSION PROJECTS REPORT (Oct. 31, 2025).
[3] *In the Matter of the Application of Minnesota Power for Approval of 2025-2039 Integrated Resource Plan*, Docket No. E015/RP-25-127, APPLICATION at Appendix F, part 1 at 8, Part 7 (Mar. 3, 2025).
[4] While the Notice Plan Petition, Exemption Request, and certain pre-application notification letters referred to the Project being approximately 62 miles in length, that was before additional development and refinement of the Proposed Route was completed.

the Project are anticipated to be mostly limited to temporary construction impacts, with permanent impacts where new or expanded rights-of-way are needed, or where permanent access roads are needed.

The Certificate of Need rules require the preparation of an Environmental Report,[5] whereas the Route Permit statute for Standard Review requires preparation of an Environmental Assessment ("EA").[6] The commissioner of the Department of Commerce (the "Department")[7] may elect to prepare an EA (in lieu of preparing both an Environmental Report under the Certificate of Need rules and an EA under the Route Permit rules) for the Project that analyzes potential environmental impacts from the Project and meets all statutory and rule requirements of both the Environmental Report and the EA.[8] The EA included as part of this Application analyzes the potential human and environmental impacts of the proposed Project as required by the Standard Review statute and the information required by the Environmental Report rules. It also discusses ways to mitigate these impacts. Generally, potential impacts associated with the Project are anticipated to be temporary and/or minor.

The Applicants will develop a final alignment for the Project based on the permitted route to further avoid and minimize impacts on human and environmental resources to the greatest extent practicable, in compliance with federal, state, and local regulations and in coordination with applicable federal, state, and local agencies.

1.6 PUBLIC INPUT AND INVOLVEMENT

The Applicants used various methods to provide information and opportunities for discussion to the public; landowners; local, state, and federal agencies; and Tribal Nations. Methods included direct mailings, in-person open houses and meetings, virtual meetings, social media posts, a dedicated project email and hotline, and a project website. The website included an interactive mapping tool, project information, information about the permitting and easement processes, and opportunities to request a meeting, provide a comment, and be added to the project mailing list. Additional information on outreach activities undertaken prior to submittal of this Application is provided in Chapter 7.

The public and interested stakeholders will have the opportunity to review this Application and to submit comments to the Commission about the project. A copy of the application will be available on the Commission's docket website at https://www.edockets.state.mn.us/documents and on the Project website at https://isatransmissionproject.com. This Application will also be available for public review at the locations summarized in Table 1.

[5] Minn. R. 7849.1200.
[6] Minn. Stat. § 216I.07.
[7] This language is taken directly from the applicable rule.
[8] Minn. R. 7849.1900, Subp. 1.

Table 1. Application Locations

Coleraine Public Library 203 Cole Ave. Coleraine, MN 55722	**Cloquet Public Library** 320 14th St. Cloquet, MN 55720
Grand Rapids Area Library 140 NE 2nd St. Grand Rapids, MN 55744	**West Duluth Public Library** 5830 Grand Ave. Duluth, MN 55807

At least one public meeting will be held in the Project area by Commission staff after the Commission's acceptance of this Application as complete to explain the permitting process, present major issues, accept public comments, and respond to questions raised by the public.

After the public meeting, the Commission may identify alternative routes or potential impacts for additional review. At that time, the Commission would prepare an addendum to the EA. If an addendum is prepared, members of the public will be given an opportunity to review the addendum and submit comments on the EA and the Commission's addendum during a public hearing and associated comment period established by the Commission.

Persons interested in receiving notices and other announcements about the Project's Application can subscribe to the respective dockets as follows:

Subscribe to a Docket

Visit the Minnesota eDockets website at *www.edockets.state.mn.us* and click on "Sign In/Register" to create an account that will allow you to select dockets for subscription. Once registration is complete, click on "Subscriptions".

Click on "Create a Subscription"

In the "Docket #" field, type "25-111" to subscribe to the Certificate of Need docket.

Click on "Create"

To subscribe to the Route Permit docket, repeat the steps to create a subscription for Docket No. 25-112.

Sign Up for the Project Mailing List

To receive notices about Project milestones and opportunities to participate via email or U.S. mail, contact consumer.puc@state.mn.us or 651-296-0406 with the docket number (see above), their name, mailing address, and email address.

1.7 CERTIFICATE OF NEED REQUIREMENTS

A Certificate of Need is required to be granted under Minn. Stat. § 216B.243 before a high-voltage transmission line of the voltage and lengths proposed for the Project is constructed. Prior to filing a Certificate of Need Application, the applicant must file with the Commission a Notice Plan

Petition.[9] The Applicants filed a Notice Plan Petition and an Exemption Request with the Commission on August 7, 2025. A copy of the Notice Plan Petition is provided in Appendix A.

The Commission has adopted rules for the consideration of applications for Certificates of Need at Minn. R. Ch. 7849. If an applicant for a Certificate of Need requests any exemption from any information requirement or proposes to provide substitute or alternative information, the applicant must file a Request for Exemption from Certain Certificate of Need Requirements.[10] The Applicants filed an Exemption Request with the Commission on August 7, 2025. A copy of the Exemption Request is provided in Appendix B.

The Commission approved the Notice Plan Petition and Exemption Request on November 18, 2025. A copy of the Commission's Order approving the Notice Plan and Exemption is provided in Appendix C. The Notice Plan was implemented in early December 2025.

This Application contains the information required under Minn. R. Ch. 7849, as modified by the Commission in its November 18, 2025 Order granting the Applicants' requests for exemptions.[11] A summary of the Certificate of Need requirements and granted exemptions, is provided in Chapter 11 with cross references indicating where the information required by Minnesota statute and rules can be found in this Application.

1.8 STATE ROUTING REQUIREMENTS

Minnesota Statute 216I, also known as the Energy Infrastructure Permitting Act, provides the Commission with siting and routing authority for large electric power facilities. Minn. Stat. § 216I.05, subd. 2, provides that "[a] person is prohibited from constructing a high-voltage transmission line without a route permit issued by the commission." A high-voltage transmission line ("HVTL") is defined by Minn. Stat. § 216I.02, subd. 8, as "a conductor of electric energy and associated facilities that is (1) designed for and capable of operation at a nominal voltage of 100 kilovolts or more, and (2) is greater than 1,500 feet in length." Because the Project consists of a 345 kV transmission line that is 63 miles long, a Route Permit from the Commission is required.

This Application is submitted under the Standard Review Process set forth in Minn. Stat. § 216I.07 subd 2(5). Projects may follow the Standard Review process if they are, among other things, "high-voltage transmission lines with a capacity in excess of 300 [kV], if at least 80 percent of the distance of the line in Minnesota, as proposed by the applicant, is located along existing high-voltage transmission line right-of-way." The Project is located along existing high-voltage transmission line rights-of-way for approximately 62.5 miles, or 92 percent, of its length and, thus, qualifies for Standard Review.

Minn. Stat. § 216I.05, subds. 3 and 4 set forth the information that must be included in a Route Permit Application. A Route Permit completeness checklist is provided in Chapter 12, with cross references indicating where the information required by Minnesota statutes and rules can be found in this Application.

Minn. Stat. § 216I.05, subd. 5 requires that an applicant provide notice to each local unit of government within which a route is proposed, Minnesota Tribal governments, and state technical

[9] *See* Minn. R. 7829.2550.
[10] *See* Minn. R. 7849.0200, Subp. 6.
[11] A copy of this order is available in Appendix C.

resource agencies at least 30 days prior to filing an Application. A copy of this correspondence is provided in Appendix D.

As required by Minn. Stat. § 216I.07, subd. 3, the Applicants prepared an EA, which is included in Appendix E of this Application. The EA contains information regarding the proposed project's human and environmental impacts, and addresses mitigating measures for identified impacts.

Minn. Stat. § 216I.05, subd. 6, requires that an applicant must provide a draft application to Commission staff for review. The Applicants provided a draft of this Application to the Commission Energy Infrastructure Permitting Staff ("EIP Staff") on October 31, 2025. The EIP Staff's review focused on the application's completeness and provided clarifications that might help the Commission's review of the application. The EIP Staff's review summary, provided to the Applicants on December 17, 2025, is provided in Appendix F.

Under the Standard Review Process, an applicant is not required to propose alternative routes but must discuss other routes that were considered and rejected by the applicant (Minn. Stat. § 216I.05, subd. 3). Further, an Environmental Impact Statement is not required under the Standard Review Process. Instead, an EA is incorporated into this Application (*see* Appendix E) as required by Minn. Stat. § 216I.07, subd. 3.

1.9 REQUEST FOR JOINT CERTIFICATE OF NEED AND ROUTE PERMIT PROCEEDING

Minn. Stat. § 216B.243, subd. 4 and Minn. R. 7849.1900, Subp. 4 permit the Commission to hold joint proceedings for the Certificate of Need and Route Permit in circumstances where a joint hearing is feasible, more efficient, and may further the public interest.

The Applicants respectfully request that the Commission order a joint regulatory review process for the Certificate of Need and Route Permit applications. A joint hearing is feasible and more efficient than two separate proceedings and will further the public interest by allowing both need and routing issues to be examined in a singular proceeding.

1.10 PERMITTEES

Minnesota Power and ATC are the requested permittees for the Iron Range to St. Louis County to Arrowhead Project. Phone and email addresses for the Project are:

Phone: 1-888-510-5303
Email: connect@ISATransmissionProject.com

Minnesota Power
Drew Janke
Environmental Compliance Specialist II
30 West Superior Street
Duluth, MN 55802
218-355-3569
djanke@minnesotapower.com

ATC
John Sagone
Manager, State Regulatory Affairs &
Associate General Counsel
PO Box 47
Waukesha, WI 53187-0047
262-832-8617
jsagone@atcllc.com

1.11 APPLICANTS' REQUEST

The Applicants respectfully request that the Commission grant a Certificate of Need and issue a Route Permit for the Project along the Proposed Route. The Commission has established criteria in Minn. R. 7849.0120 to apply in determining whether a Certificate of Need should be granted for a proposed high-voltage transmission line. An applicant for a Certificate of Need must show that the probable result of denying the request would be an adverse effect on the future adequacy and reliability of the system, there is not a more reasonable and prudent alternative or combination of alternatives to meet the Project needs, the proposed facility will provide benefits to society compatible with protecting the environment, and the project will comply with all applicable standards and regulations.

The Applicants have demonstrated in this Application that the Project meets all the requirements to obtain a Certificate of Need. The ISA Project will meet electrical transmission system needs by: enhancing grid reliability in the Upper Midwest as grid operating conditions become more variable, increasing grid efficiency and regional transfer capability as energy is transferred from where it is produced to where it is needed, and meeting the growing demand for reliable clean energy in the Upper Midwest.

This Application demonstrates that issuance of a Route Permit for construction of the proposed Project along the Proposed Route effectively considers and satisfactorily addresses factors as set forth in Minn. Stat. § 216I.05, subd. 11, and Minn. R. 7850.4100, as detailed in this Application, including the EA found in Appendix E. The Project will support the State's goals to conserve resources and to minimize environmental and human settlement impacts and land use conflicts by leveraging existing assets, replacing existing rights-of-way, using land over which the Applicants hold land rights in close proximity to existing transmission substations and transmission lines, and will ensure the State's electric energy security through the construction and modernization of efficient, cost-effective transmission infrastructure.

2.1 PROJECT DESCRIPTION

The Applicants propose to construct a new, approximately 66-mile-long, single-circuit 345 kV transmission line on double-circuit capable structures from Minnesota Power's Iron Range Substation in Itasca County, Minnesota to Minnesota Power's St. Louis County Substation in St. Louis County, Minnesota, and a new, approximately 1.5-mile long, double-circuit 345 kV transmission line from Minnesota Power's St. Louis County Substation to ATC's Arrowhead Substation in St. Louis County, Minnesota. The Project consists of three major segments shown in detail in Appendix G, Detailed Map.

1. Segment 1 – Construct approximately 32.7 miles of new single-circuit 345 kV line on double-circuit capable structures, to be built along existing high-voltage transmission line rights-of-way owned by Minnesota Power from the existing Minnesota Power Iron Range Substation and continuing to north of the St. Louis River in St. Louis County. The proposed transmission line will be co-located for 87 percent of its length with existing high-voltage transmission lines owned by Minnesota Power (Appendix G, Detailed Map).

2. Segment 2 – Replace approximately 33.3 miles of existing 230 kV line with new double-circuit 345 kV structures and conductor from north of the St. Louis River in St. Louis County to the existing St. Louis County Substation in Solway Township, utilizing and expanding the existing high-voltage transmission line rights-of-way owned by Minnesota Power. One circuit in this segment will be operated at 345 kV and the other circuit will continue to operate at 230 kV. The 230 kV circuit will operate on the 345 kV double-circuit structures and will use the new 345 kV conductor but will be operated at 230 kV. The 230 kV circuit will be upgraded to 345 kV at a future date when conditions warrant energizing at 345 kV (Appendix G, Detailed Map). The Applicants will obtain any approvals necessary for this change in operating voltage that are required at that time.

3. Segment 3 – Construct approximately 1.5 miles of new double-circuit 345 kV transmission line that is co-located for 50 percent of its length, jointly owned by Minnesota Power and ATC, from Minnesota Power's St. Louis County Substation in Solway Township to the existing ATC Arrowhead Substation in Hermantown (Appendix G, Detailed Map).

The Project will also involve the following improvements:

1. Modification of the Iron Range Substation to accommodate one additional 345 kV line entrance and associated high voltage equipment. An expansion of Minnesota Power's Iron Range Substation, including 500 kV/345 kV transformers and 345 kV equipment, is currently under construction as part of the Northland Reliability Project (Docket Nos. E015,ET2/CN-22-416 and E015,ET2/TL-22-415) and will require further modification and equipment additions to accommodate the ISA Project.

2. Expansion of the St. Louis County Substation to accommodate three additional 345 kV line entrances and associated high voltage equipment. The St. Louis County Substation is currently under construction as part of Minnesota Power's HVDC Modernization Project (Docket Nos. E015/CN-22-607 and E015/TL-22-611) and will require an expansion to accommodate the ISA Project.

3. Expansion of the existing ATC Arrowhead Substation to accommodate two additional 345 kV line entrances and associated high voltage equipment.

2.1.1 Proposed Route

The Proposed Route generally replaces or follows the existing Minnesota Power 230 kV 98 Line from the Iron Range Substation to the St. Louis County Substation. The Proposed Route then extends approximately one mile east of Minnesota Power's St. Louis County Substation to the ATC Arrowhead Substation.

In Segment 1 the Proposed Route heads south from the Iron Range Substation for approximately 0.84 mile adjacent to the Northland Reliability Project 345 kV transmission line right-of-way, before joining Minnesota Power's 98 Line right-of-way. The Proposed Route then follows Minnesota Power's 98 Line right-of-way for approximately 20.5 miles. The Proposed Route expands from west to east where it crosses Great River Energy's 500 kV transmission line, and the Project includes relocation of the existing 98 Line adjacent to the Project in this area. The Proposed Route then continues to follow the 98 Line right-of-way for approximately 6.5 miles to a point approximately 0.7 mile north of the St. Louis River.

In Segment 2, the Proposed Route primarily follows Minnesota Power's existing 98 Line and will include approximately 33.3 miles of new double-circuit 345 kV line generally built on the existing 98 Line right-of-way. The ISA Project will remove the existing 98 Line structures and replace it with the new double-circuit 345 kV line. One circuit will be operated at 345 kV and the other circuit will continue to be operated at 230 kV. Segment 2 extends from approximately 0.7 mile north of the St. Louis River until approximately 0.3 mile north of the St. Louis County Substation. At the beginning of Segment 2, the Proposed Route extends east until approximately 1.5 miles south of the river crossing. From this point, the Proposed Route continues southeast and east on the existing 98 Line right-of-way for approximately 13 miles where the existing 98 Line right-of-way joins with Minnesota Power's existing 115 kV Line ("9 Line") right-of-way. The new double-circuit 345 kV line then continues on the existing 98 Line right-of-way adjacent to the existing 9 Line right-of-way southeast for approximately 4 miles, leaves the shared right-of-way with 9 Line and continues south on the 98 Line right-of-way for 1.5 miles, where the existing 98 Line right-of-way joins Minnesota Power's existing HVDC Line right-of-way for approximately 1.2 miles. The Proposed Route then continues east on the existing 98 Line right-of-way for approximately 2.2 miles until it rejoins the existing shared 98 Line and 9 Line right-of-way. The Proposed Route follows the shared 98 Line and 9 Line right-of-way southeast for approximately 2.5 miles and then continues southeast for approximately three miles to the crossing of 98 Line and Minnesota Power's existing 230 kV Line ("90 Line"). At this point, the existing 90 Line crosses to the south side of the existing 98 Line and, in the current configuration, the two lines remain parallel to each other with the 90 Line on the south and the 98 Line on the north until they enter Minnesota Power's Arrowhead Substation. The Project would reconfigure the crossing and alignment at this location such that the Project's proposed double-circuit 345 kV line will take over the southern right-of-way, and the 90 Line will be reconfigured at the crossing location to connect to the existing 230 kV structures on the northern right-of-way. Other than at the crossing location, the existing 230 kV structures on the northern right-of-way will not be modified for the Project. The reconfigured lines will remain parallel to each other in the existing southeast-oriented shared 98 Line and 90 Line right-of-way for approximately 3.2 miles, to the point where the Project's Proposed Route turns south for approximately 0.3 mile where it will connect to Minnesota Power's St. Louis County Substation.

In Segment 3, the St. Louis County Substation will be connected to ATC's existing Arrowhead Substation with approximately 1.5 miles of double-circuit 345 kV line. From the east side of Minnesota Power's St. Louis County Substation, the Proposed Route continues east for approximately 0.1 mile, then south for approximately 0.5 mile to the north side of Minnesota Power's existing 230 kV Arrowhead – Bear Creek Line ("81 Line"), where it turns east and parallels the 81 Line right-of-way for approximately 0.4 mile. The Proposed Route then turns north for approximately 0.1 mile into the south side of ATC's Arrowhead Substation.

2.1.2 Route Width

The route width is the area in which the Commission authorizes a permittee to place the proposed transmission line facilities. The right-of-way, on the other hand, is the specific area that is required for the final easement for the transmission line. By requesting a route width that is wider than the planned right-of-way, Applicants will have some flexibility to make alignment adjustments during final design to work with landowners, avoid sensitive natural resources, and to manage construction constraints as practical.

In general, where the Proposed Route follows or replaces an existing high-voltage transmission line, the Applicants are requesting a route width of 500 feet on either side of existing transmission line alignment for a minimum total width of 1,000 feet.

Where the Proposed Route encounters constraints, the Applicants are requesting additional route width. The greater route width is requested to allow for flexibility to minimize impacts on resources and to work with landowners. These areas are shown in Appendix G, Detailed Map, and include the following:

- South of Country Road 444 – the Applicants request a route width of up to 0.34 miles to allow for flexibility to avoid a structure identified by a landowner in Sections 12 and 13 of Township 54, Range 23 in Itasca County (*see* Page 2 in Appendix G, Detailed Map).

- East/southeast of the Iron Range Substation – the Applicants request a route width of up to 0.75 mile to allow for flexibility in entering and exiting the substation in Sections 19, 20, 29, and 30 of Township 55, Range 23 in Itasca County (*see* Page 1 in Appendix G, Detailed Map).

- Great River Energy's 500 kV high-voltage transmission line – the Applicants request a route width of up to 1 mile to allow for flexibility in crossing Great River Energy's 500 kV line and to allow for a realignment of 98 Line, resulting in a single location where the Project and 98 Line will cross the 500 kV line adjacent to each other and nearly perpendicular to the 500 kV line. As part of the realignment of this 500 kV crossing and to enhance the resiliency of the grid (*see* Section 3.5.2), Minnesota Power will also work with Great River Energy to install more robust structures in the 500 kV line. Additional information can be found in Section 3.5.3 (*see* Pages 5 and 6 in Appendix G, Detailed Map).

- St. Louis River Crossing – the Applicants request a route width of up to 1.25 miles to allow for flexibility in crossing the St. Louis River. The St. Louis River is a Public Water and State Water Trail, with land subject to Land and Water Conservation Fund ("LAWCON") management on the southeast side of the river crossing. Two existing high-voltage transmission lines cross the river in this area, and several farm and residential buildings exist within the crossing area (*see* Page 8 in Appendix G. Detailed Map).

- Common corridor of 9 Line and 98 Line – the Applicants request a route width of up to 0.4 mile for a distance of approximately 4 miles where the 9 Line and 98 Line are adjacent to each other to allow for flexibility navigating constraints in this existing common corridor, based on final design (*see* Pages 12 and 13 in Appendix G, Detailed Map).

- Common corridor of 98 Line and Minnesota Power's HVDC Line – the Applicants request a route width of up to 0.7 mile where 98 Line and the HVDC Line are adjacent to each other to allow for flexibility navigating constraints in this existing common corridor (*see* Pag3 13 in Appendix G, Detailed Map).

- HVDC Line to Sandberg Road – the Applicants request a route width of up to 0.4 mile from where the Proposed Route leaves the common corridor with the HVDC Line until it crosses Sandberg Road to allow for flexibility navigating constraints in a corridor that includes multiple high-voltage transmission lines in adjacent rights-of-way (98 Line, 9 Line, 90 Line) and an increasing number of human occupied dwellings adjacent to the existing rights-of-way (*see* Pages 13 – 16 in Appendix G, Detailed Map).

- St. Louis County Substation and Arrowhead Substation – the Applicants request a route width of up to 1.2 miles to ensure a sufficient area is available to connect into the St. Louis County Substation and to connect the St. Louis County Substation to ATC's Arrowhead Substation while coordinating with existing and planned transmission lines, substations, and the final location of the HVDC Modernization Project's new converter station (which is being designed and constructed as part of Docket Nos. E015/CN-22-607 and E015/TL-22-611; *see* Page 16 in Appendix G, Detailed map).

2.1.3 Transmission Line Right-of-Way

The Project's right-of-way is the physical area that is needed to construct, operate, and maintain the transmission line. The Project requires a 150-foot-wide right-of-way (75 feet on each side of the alignment). However, to the extent practicable, the new single-circuit 345 kV transmission line on double-circuit capable structures with existing high-voltage transmission lines thereby facilitating the partial sharing of right-of- way (up to 30 feet) and lessening the amount of new right-of-way required from landowners for the Project. The Project will need 150-foot right-of-way in addition to the already-established high-voltage transmission line rights-of-way, which is generally 130 feet. These rights-of-way can have some overlap, up to 30 feet depending on the area, for a minimum of 250 feet of right-of-way. Segment 1 will be co-located for 87 percent of its length.

Segment 2 is intended to primarily follow the alignment of the existing 98 Line high-voltage transmission line, using and expanding the existing right-of-way, except as discussed in Section 2.1.1. To do this, the Project will remove an existing, single-circuit 230 kV line, replacing it with a new double-circuit 345 kV transmission line in the existing corridor. One circuit in this segment will be operated at 345 kV and the other circuit will continue to be operated at 230 kV as part of 98 Line until conditions warrant operation at 345 kV. The existing right-of-way in Segment 2 will need to be expanded by at least 20 feet to accommodate the necessary 150-foot right-of-way for the larger transmission line for the Proposed Project.

Segment 3 will require a 150-foot-wide right-of-way for the double-circuit 345 kV transmission line and be co-located with existing high-voltage transmission lines for approximately half its length. In Segment 3, the Applicants are proposing to construct both circuits as part of the Project and operate both circuits at 345 kV.

The Applicants' representatives will work directly with individual landowners to acquire the necessary easements and other land rights for the construction, operation, and maintenance of the Project once the final route is approved and the alignment is determined (*see* Chapter 6). The Applicants currently have the land rights within the Proposed Route that are necessary for the work proposed at the Iron Range Substation, the St. Louis County Substation, and the ATC Arrowhead Substation for the Project.

2.1.4 Transmission Structures and Conductor Design

At this time, it is anticipated that the double-circuit (or double-circuit capable), 345 kV structures will generally be tubular steel, self-weathering, monopole structures. Example images of these structures are provided in Figure 4.

Figure 4. Double-Circuit 345 kV Image

The benefits to this structure design include a reduced footprint due to the monopole, reduced right-of-way needs by vertically orienting the two circuits to reduce conductor blowout compared to horizontal construction, and enhanced extreme weather resiliency. Appendix H includes preliminary technical drawings and the dimensions of typical tangent transmission structures. In

some cases, other structure designs, including lattice, tubular H-frame, or tubular lattice, may be preferable and more economical due to geotechnical or other constraints specific to particular areas of the route. Example alternative structure designs are also provided in Appendix H. Detailed structure design and tower types will be finalized after determination of the final route. For Segment 1 where the Project is proposed to be single-circuit construction on double-circuit capable structures, four of the six structure arms would be constructed to accommodate two fiber communication paths on the highest positions of the structure.

As further described in Section 2.1.1, there may be locations along the Proposed Route where the existing transmission lines will need to be realigned, relocated, or reconfigured. The structure types to be used at these locations include, but are not limited to, typical wood or steel and typical monopole or H-frame structure types. The structure designs will be driven by an effort to minimize impacts to landowners to the extent practicable.

At this time, the Applicants anticipate using a double-bundled twisted pair aluminum conductor steel reinforced ("ACSR") conductor type. The 345 kV transmission line conductor must be capable of carrying 3,000 amperes ("amps") per the MISO project definition. The size of the conductor will be selected to meet or exceed the emergency capacity needed for the Project during detailed design studies. The anticipated conductors for the high voltage transmission lines affected by the realignment sections will likely be a typical ACSR conductor type to match the properties of the line.

As the Applicants continue to evaluate the conductors for the Project, the specific conductors that will be used remain subject to change. For the purposes of audible noise, electric field, and magnetic field calculations, the Applicants assumed a double-bundled 795 ACSR conductor configuration, which is a typical conductor size based on conductors used on similar projects in the region.

Table 2 summarizes the key specifications of the expected, proposed transmission structures.

Table 2. Typical Structure Design Summary

Line Type	Structure Type	Structure Material	Right-of-Way Width (feet)	Structure Height (feet)	Foundation Type	Foundation Diameter (feet)	Average Structure Span (feet)
Single Circuit 345 kV (Double-Circuit Capable)	Monopole*	Steel	150	120-180	Reinforced Concrete Pier	7-10	800-1,000
Double-Circuit 345 kV	Monopole*	Steel	150	120-180	Reinforced Concrete Pier	7-10	800-1,000
Single-Circuit 230 kV	H-Frame	Wood	130	65-90	Direct Embed**	NA	700-900

Note: The values in the table above are typical values expected for the majority of tangent structures based on similar facilities. Actual values may vary.

* Alternative structure types may be considered based on route-specific technical considerations. These structures may include lattice towers, tubular H-frame, or tubular lattice towers instead of monopoles.

** Certain specialty or deadend structures may be necessary. These structures may be concrete pier foundations instead of direct embed.

2.1.5 Associated Facilities

2.1.5.1 Iron Range Substation

The Minnesota Power Iron Range Substation will be modified entirely within the fenced area of the 345 kV substation yard to facilitate interconnection of the Project at its northern endpoint. No additional site grading or fence line expansion is required, and only equipment additions are needed to accommodate the Project. The 345 kV bus will be modified to incorporate two additional 345 kV circuit breakers in an additional breaker row of the breaker-and-a-half configuration. The additional 345 kV breaker row will accommodate the new single-circuit 345 kV transmission line and be planned to accommodate an additional future 345 kV transmission line. A figure depicting the Iron Range Substation is provided in Appendix G, Detailed Map, Page 1. No changes to the Iron Range Substation fence line are anticipated for the Project.

2.1.5.2 St. Louis County Substation

The Minnesota Power St. Louis County Substation will be expanded to the south by approximately four acres entirely on fee-owned property to facilitate interconnection of the Project. The 345 kV bus will be modified to incorporate eight additional 345 kV circuit breakers in an expanded breaker-and-a-half configuration. The three partial 345 kV breaker rows will accommodate the new 345 kV transmission line to the Iron Range Substation and the new double-circuited 345 kV transmission lines to the ATC Arrowhead Substation. The remaining two breakers will complete the partial breaker row established at the time of initial construction. Each new breaker row will be planned to accommodate an additional future 345 kV transmission line. A figure depicting the St. Louis County Substation Area is provided in Appendix G, Detailed Map, Page 16.

2.1.5.3 Arrowhead Substation

The ATC Arrowhead Substation will be modified and expanded by approximately 0.7 acres on fee-owned property to facilitate interconnection of the Project at its southernmost endpoint. While modifications are anticipated to take place primarily within the existing fenced area of the ATC Arrowhead Substation, the southern wall will need to be relocated approximately 60 feet south to accommodate the additional 345 kV transmission line entrances for the Project. The 345 kV bus will be modified to incorporate four additional 345 kV circuit breakers in the breaker-and-a-half configuration, including an additional 345 kV breaker row. The expanded breaker-and-a-half configuration will accommodate the new double-circuited 345 kV transmission lines and be planned to accommodate one additional future 345 kV transmission line in the open position of the additional 345 kV breaker row. The Project will require retirement of the existing 230 kV phase shifting transformer and modification of the 230 kV bus. A figure depicting the ATC Arrowhead Substation Area with the proposed expansion area is provided in Appendix G, Detailed Map, Page 16.

2.2 DESIGN OPTIONS TO ACCOMMODATE FUTURE EXPANSION

The Project is designed to meet current and projected future needs of the local and regional transmission network. In Segment 1, the Applicants are proposing to construct a single-circuit 345 kV line on double-circuit capable structures, consistent with the MISO project definition. Only one of the two circuits will be installed in Segment 1 as part of the Project, with the second circuit to be added to the structures and energized at a later date when conditions warrant. Maintaining the Project separate and distinct from the existing 230 kV line in Segment 1 provides future optionality for adding the second 345 kV circuit in the future while continuing to operate the

existing 230 kV transmission line on separate structures. At this time, Minnesota Power is only planning to install conductors for the initial single-circuit 345 kV line in Segment 1. While installation of the second set of conductors at the time of initial construction has been proposed to minimize disruptions to landowners, leverage engineering, project management, and construction efficiencies, and/or improve electrical performance in similar projects in the past, Minnesota Power is not proposing to install the second circuit conductors in Segment 1 as part of the Project due to cost constraints.

In Segment 2, the Applicants are proposing to remove the existing 98 Line structures and construct a double-circuit 345 kV line in its place, with one circuit to be operated at 345 kV and the other circuit to be installed and operated initially at 230 kV as part of 98 Line. The second circuit initially operating at 230 kV will be designed for future operation at 345 kV when conditions warrant. Installing the second circuit conductors on the new double-circuit 345 kV transmission line in Segment 2 enables Minnesota Power to meet the MISO project definition of constructing a single-circuit 345 kV line on double-circuit capable structures while minimizing human and environmental impacts of the Project by utilizing the second circuit position to enable the Project to be constructed almost entirely on existing right-of-way.

The estimated cost impact of installing the second circuit conductors in Segment 2, as proposed in the Application, compared to not installing the second circuit conductors is approximately a nine percent increase to the initial cost of construction. This is based on a direct comparison of indicative construction costs for 345 kV single-circuit on double-circuit capable construction (with only one circuit installed, including three conductors and two shield wires) versus 345 kV double-circuit construction (with conductors for both circuits installed initially, including six conductors and two shield wires). The comparison does not include costs associated with additional human and environmental impacts or routing considerations that would result from having to route the Project along, instead of within, the existing 98 Line right-of-way.[12] The comparison also does not include the long-term additional cost of re-mobilization to install the second circuit at a later date for the single-circuit on double-circuit capable construction type, which is less efficient compared to installing the second set of conductors at the time of initial construction. When the long-term inefficiencies are also taken into consideration, installing the second circuit conductors at the time of initial construction is anticipated to result in net long-term cost savings of approximately eight percent compared to initial single-circuit on double-circuit capable construction followed by addition of the second circuit ten years later.

In Segment 3, the Applicants are proposing to construct both circuits as part of the Project and operate both circuits at 345 kV, consistent with the MISO project definition. For Segment 1 and Segment 2, the Applicants would need to obtain a Certificate of Need prior to energizing the second circuit at 345 kV and may require an amendment to the Route Permit, depending on conditions at that time.

Options to accommodate future expansion will be incorporated into the design of Project substations, as described in Section 2.1.5. Space will be reserved at the Iron Range Substation, the St. Louis County Substation, and the ATC Arrowhead Substation to accommodate future 345 kV interconnections, including the second 345 kV circuit described above, as necessary for future development of the regional transmission backbone. These future expansion options will require additional modifications and site development that are outside the scope of the Project.

[12] Constructing Segment 2 as single-circuit on double-circuit capable structures would preclude the use of the majority of the 98 Line right-of-way for siting of the Project.

2.3 PROPOSED OWNERSHIP

Minnesota Power and ATC will both own portions of the Project. Specifically, Minnesota Power and ATC will jointly own the double-circuit 345 kV transmission line between the St. Louis County Substation and the ATC Arrowhead Substation. ATC currently owns and will continue to own the ATC Arrowhead Substation. Minnesota Power will own the remainder of the Project.

2.4 PROJECT COSTS

2.4.1 Construction Costs

The estimated cost to construct the Project is approximately $444.1 million to $519.3 million (2024$). The original scoping cost estimate used by MISO for review of the Project as part of the LRTP Tranche 2.1 Portfolio and the cost basis upon which it was approved by the MISO Board of Directors in December 2024 is $370.1 million (2024$).[13] The Applicants have further developed the Project from the original MISO concept and have developed an updated cost range including mid- and high-end estimates based on the route and scope of the Project presented in this Application and incorporating the best-available cost estimate information at the time of filing.

The cost estimate is broken down by the individual Project Components in Table 3. All costs are presented in 202 dollars and include permitting, engineering, project management, materials, land rights and right-of-way, and construction costs. If the Commission selects a route other than the Proposed Route, incorporates additional modifications to the existing transmission system to reduce the impacts of the Project, or imposes non-standard construction conditions, the Project cost estimates may change. These cost estimates assume that the Applicants will pay prevailing wages for applicable positions for the construction of the Project.

Table 3. Current Project Cost Estimates

Project Component	Mid ($ Millions) (2024$)	High ($ Millions) (2024$)
Iron Range – St Louis County 345 kV Single-Circuit on Double-Circuit Capable Structures*	$370.0	$425.5
St. Louis County – Arrowhead 345 kV Double-Circuit	$12.0	$13.8
Iron Range Substation Expansion	$7.2	$9.4
St. Louis County Substation Expansion	$31.4	$40.9
ATC Arrowhead Substation Expansion[14]	$16.3	$21.3
Existing 230 kV Line Modifications	$4.2	$4.9
Existing 500 kV Line Crossing Modifications	$3.0	$3.5
Project Cost Totals	**$444.1**	**$519.3**

* Including stringing the second circuit and operating initially at 230 kV in Segment 2.

[13] Cost based on the MISO Appendix A Facilities List for LRTP Project #21, including only the facilities located in Minnesota. MISO LRTP Project #21 includes an additional $58 million (2024$) of underlying system upgrade facilities on the Superior Water Light and Power transmission system in Wisconsin that are not part of the Project.

[14] Costs for decommissioning existing equipment at the Arrowhead Substation were included in this estimate. Upon approval of the Project, if there is any off-setting salvage value of the equipment, those amounts will be included in final costs.

2.4.2 Operation and Maintenance Costs

Operations and maintenance ("O&M") costs for the Project consist of two components: the new transmission lines and the substation expansions. Relevant O&M considerations for both of these components are described below.

Once constructed, O&M costs associated with the new transmission lines will be initially driven by controlling regrowth vegetation within the right-of-way. The Applicants anticipate a post-construction annual maintenance cost of approximately $7,500 per mile for the Project. The majority of this cost is related to vegetation management. The Applicants also perform other general maintenance on their transmission facilities, such as conducting regular right-of-way patrols and repairing aged or worn equipment or facilities. The specific O&M costs for an individual transmission line vary based on the location of the line, the number of trees located along the right-of-way, the age and condition of the line, the voltage of the line, and other factors.

Over the life of the new substation facilities, inspections will be performed regularly to maintain equipment and make necessary repairs. Transformers, circuit breakers, batteries, protective relays and other equipment need to be serviced periodically in accordance with the manufacturer's recommendation. Routine compliance inspections will be performed and the sites must also be kept free of vegetation and drainage maintained. The Applicants' substation maintenance costs typically range from $50,000-$100,000 annually.

2.4.3 Effect on Rates

The Commission's rules require an applicant to provide the annual revenue requirements to recover the costs of a proposed project.[15] Applicants requested an exemption from this rule requirement for ATC. Instead, ATC committed to provide data in the form of the estimated Multi-Value Project ("MVP") revenue requirement and cost allocation calculations showing costs that will be allocated to Minnesota utilities for the Project. This information is provided in Section 2.4.3.1.

2.4.3.1 MISO Cost Allocation

MISO is an independent, not-for-profit Regional Transmission Organization that is responsible for coordination and developing regional planning of high-voltage transmission lines across 15 states and Manitoba. MISO undertakes comprehensive planning of high-voltage transmission lines and identifies projects necessary to cost-effectively maintain or improve regional reliability through reports it refers to as "Portfolios." For projects included in these Portfolios, MISO also establishes the methods by which costs will be recovered across the region.

The Project is part of the MISO LRTP Tranche 2.1 Portfolio, which has been determined by MISO to meet the criteria for being designated an MVP according to the MISO Tariff. Therefore, the Project, along with all other projects in the LRTP Tranche 2.1 Portfolio, qualifies for regional cost allocation. MISO has determined that the LRTP Tranche 2.1 Portfolio will be allocated to transmission customers in the MISO Midwest Subregion,[16] where the portfolio is located and provides proximate benefits. The allocation of the Project's costs to transmission customers is

[15] Minn. R. 7849.0260(C)(6).

[16] The MISO Midwest Subregion includes MISO transmission customers in Minnesota, Montana, North Dakota, South Dakota, Iowa, Wisconsin, Missouri, Illinois, Indiana, Michigan, and Kentucky. MISO South Subregion transmission customers are excluded in the allocation and recovery of Project costs.

governed by Schedule 26- A, MVP Usage Rate, in MISO's Tariff. The annual revenue requirement for the Project is determined pursuant to the formula rate in Attachment MM-MVP Charge in the MISO Tariff. Withdrawing TOs[17] in the MISO Midwest Subregion pay the annual revenue requirement through Schedule 26-A charges assessed based on actual monthly energy consumption by customers. Minnesota customers' allocated share of the annual revenue requirement is determined by the percent of total MISO energy used by Minnesota utilities, which has historically been estimated at approximately 15 to 20 percent.

Table 4 summarizes the estimated cost allocation for the Project to each local balancing authority area ("LBA") in the MISO Midwest Subregion.

Table 4. Estimated Cost Allocations based on Attachment MM of the MISO Tariff[18]

LBA	Cost Allocation Zone	LBA Allocation		LBA	Cost Allocation Zone	LBA Allocation
ALTE	2	2.8%		MDU	1	0.9%
ALTW	3	3.8%		MEC	3	6.7%
AMIL	4	8.6%		MGE	2	0.7%
AMMO	5	7.1%		MIUP	2	0.6%
BREC	6	1.4%		MP	1	2.3%
CIN	6	7.6%		MPW	3	0.2%
CONS	7	9.3%		NIPS	6	3.6%
CWLD	5	0.3%		NSP	1	9.3%
CWLP	4	0.3%		OTP	1	3.3%
DECO	7	9.8%		SIGE	6	1.1%
DPC	1	1.3%		SIPC	4	0.3%
GLH	4	0.0%		SMP	1	0.3%
GRE	1	2.9%		UPPC	2	0.2%
HE	6	0.7%		WEC	2	5.9%
HMPL	6	0.1%		WPS	2	2.7%
IPL	6	2.7%		Exports and Wheel-Throughs	N/A	3.0%

[17] As defined in the MISO Tariff.
[18] MISO, *MTEP 24 Appendix A-4. Multi-Value Project (MVP) Schedule 26-A Indicative Annual MVP Usage Rate for LRTP Tranche 2.1* (updated Dec. 2024). LRTP Tranche 2.1 Appendix A-4 Schedule 26A Indicative.xlsx. Available at https://www.misoenergy.org/planning/long-range-transmission-planning/.

ATC's customers serve load in multiple LBAs: WEC, MIUP, ALTE, WPS, MGE, and UPPC. None of these LBAs are geographically located in Minnesota. Minnesota Power has load solely in the MP LBA, but other utilities, like Great River Energy, also have load in the MP LBA. To calculate costs allocated to Minnesota Power, the MP LBA allocation is multiplied by Minnesota Power's individual load ratio share of energy withdrawals in the MP LBA.

Minnesota Power's allocated cost will be approximately 2.0 percent using allocations from Table 4 and load ratio share based on August 2025 MISO zonal rates and determinants file[19] as shown in Table 5.

Table 5. Share of Allocated Costs – Minnesota Power

Pricing Zone	Project LBA Allocation	Load Ratio Share per LBA	MP Share of LBA Allocation
MP	2.3%	86.5%	2.0%

The four major Minnesota utility LBAs (MP, NSP, GRE, and OTP) will collectively be allocated approximately 18 percent of the total costs for the Project with the rest of the costs being allocated to load in the remaining MISO Midwest Subregion.

2.4.3.2 Rate Impacts – Minnesota Power Customers

Table 6 summarizes Minnesota Power's potential, estimated Minnesota jurisdictional revenue requirements and rate impacts by customer class for the first expected in-service year beginning December 1, 2032. The estimated impacts are provided using the indicated capital cost ranges. The total revenue requirements were estimated using the post-acquisition approved return on equity of 9.65 percent. The revenue requirements incorporate property tax based on the range in capital cost and reflect current assumptions for Minnesota property tax treatment. The gross revenue requirements are offset by the expected estimated net MISO Schedule 26A revenue and expenses for the project. The net Minnesota jurisdictional and class requirements were derived by multiplying the total Minnesota Power customer revenue requirements by Minnesota Power's current CC-TRAN (D-02) Transmission Demand jurisdictional and class allocators reflecting the outcomes of the Company's recently completed rate case. Minn. R. 7849.0260(C)(5) and Minn. R. 7849.0270, Subp. 2(E) require a Certificate of Need Application to include information on the potential retail rate and revenue requirement impacts of the Project. Minnesota Power will determine a cost recovery method at the appropriate time for this Project. Regardless of the cost recovery method, Minnesota Power's retail customers will receive the system reliability, expanded capacity, and reduced congestion benefits associated with the MISO LRTP Tranche 2.1 Portfolio and the projects will still be subject to MISO cost allocation.

For the average residential customer, the rate impact for the first twelve months following in-service would range from approximately $0.81 to $0.94 per month. If compared to the estimated average current 2025 residential rate reflecting the outcomes of the recently completed rate case, this would represent an increase of approximately 0.75 to 0.88 percent. For Large Power customers, the estimated rate impact for the first twelve months following in-service would range from approximately 0.098¢ to 0.114¢ per kilowatt-hour ("kWh") of energy. If compared to the estimated average current 2025 Large Power rate reflecting the outcomes of the recently completed rate case, this would represent an increase of approximately 1.05 to 1.22 percent.

[19] MISO Transmission Settlements and Pricing (misoenergy.org). Available at https://www.misoenergy.org/markets-and-operations/settlements/ts-pricing/.

These estimates would also be impacted by any future changes in Minnesota Power's authorized rate of return and the CC-TRAN (D-02) Transmission Demand jurisdictional and class allocators. In addition, the net MISO Schedule 26-A revenue and expense allocations for the project will differ as Attachment MM inputs change from MISO's indicative values to actual values and as variations occur between the Company's actual load relative to that of other members in the MISO Midwest Subregion.

Table 6. Estimated Retail Rate Impact for Minnesota Power Customers

For the twelve months ending	6/30/32	6/30/32
	Mid-Range	**Upper-Range**
MN Jurisdictional Revenue Requirements	$8,162,373	$9,516,859
Rate Class Impacts[1/]		
Residential		
Average Current Rate (¢/kWh)	15.573	15.573
Increase (¢/kWh)	0.117	0.137
Increase (%)	0.75%	0.88%
Average Impact ($/month)	$0.81	$0.94
General Service		
Average Current Rate (¢/kWh)	15.481	15.481
Increase (¢/kWh)	0.117	0.137
Increase (%)	0.76%	0.88%
Average Impact ($/month)	$3.00	$3.50
Large Light & Power		
Average Current Rate (¢/kWh)	11.996	11.996
Increase (¢/kWh)	0.117	0.137
Increase (%)	0.98%	1.14%
Average Impact ($/month)	$273	$319
Large Power		
Average Current Rate (¢/kWh)	9.311	9.311
Increase (demand + energy combined) (¢/kWh)	0.098	0.114
Increase (%)	1.05%	1.22%
Average Impact ($/month)	$48,680	$56,628
Lighting		
Average Rate (¢/kWh)	46.057	46.057
Increase (¢/kWh)	0.117	0.137
Increase (%)	0.25%	0.30%
Average Impact ($/month)	$0.15	$0.18

[1] Average current rates are 2024 Final General Base Rates without riders per the 2024 Commission Order in Docket No. E015/GR-23-155 adjusted to include current rider rates. Current rider rates include the Transmission Cost Recovery Rider rates, Renewable Resources Rider rates, Solar Renewable rates, Conservation Program Adjustment rates, the Fuel and Purchased Energy Adjustment with True-Up, the Capacity Revenue and Expense Adjustment, and the Solar Energy Adjustment. The increase (¢/kWh) shown above is the increase associated with Minnesota Power's ownership of the Project.

2.5 PROJECT SCHEDULE

The anticipated permitting and construction schedule for the Project is provided in Table 7. This schedule is based on information known as of the date of the filing of the Application and may be subject to change.

Table 7. Project Schedule

Activity	Actual or Estimated Date
Combined Certificate of Need and Route Permit Application filed	January 2026
Scoping meeting	February 2026
Addendum to EA issued, if applicable	May 2026
Public hearing and comment period	June 2026
Commission meeting	July 2026
Written order issued	July – October 2026[20]
Land Acquisition Begins	Early 2027
Construction Begins	Late 2027
In-Service	By 2032[21]

[20] "The commission must make a final decision on an application within 60 days of the date the public comment period following completion of the public hearing closes, or the date the report is filed, whichever is later. A final decision on the request for a site or route permit under this section must be made within six months of the date the commission determines the application is complete. The commission may extend the time limit under this subdivision for up to three months for just cause or upon agreement with the applicant." Minn. Stat. § 216I.07.

[21] The Project is estimated to be placed in service between 2030 and 2032.

3.1 CHAPTER OVERVIEW

The Project is part of a portfolio of regional transmission projects approved by MISO, the region's grid operator, in December 2024. The projects in that portfolio work together to provide broad regional benefits over a large part of the MISO footprint, including Minnesota. In addition to being beneficial as a part of a larger regional portfolio, the Project also provides local benefits within Minnesota and Wisconsin.

The Project enhances the reliability of the regional transmission system, increases regional transfer and local load-serving capacity, and enables delivery of diverse generation resources that will support local customers. As the way energy is produced and used evolves, the operation of the grid becomes more dynamic and variable, causing more unpredictability in the way the electric system operates from day to day. Proactively planning the transmission grid, including constructing new transmission lines like the Project, enables an orderly and timely transmission expansion plan during a time of rapid industry change, ensuring the grid continues to operate reliably for the upcoming decades. This type of proactive regional planning is demonstrated in the analysis performed by MISO during the development of the LRTP Tranche 2.1 Portfolio, which is focused on understanding long-term regional needs and identifying a portfolio of regional transmission projects to meet those needs. The projects in this portfolio all work together to form a regional transmission superhighway, of which the Project is a part. This regional superhighway increases the grid's capacity to deliver energy from where it is produced to where it is needed, relieves transmission congestion that increases the cost of energy, and enables cost-effective regional energy transfers that support economical grid operations. The Project will also have local benefits by supporting local area electricity needs, enhancing grid resiliency, and providing greater flexibility to reliably deliver diverse generation resources.

The General Background section (*see* Section 3.2) provides a review of power system basics and fundamental concepts that are necessary to understand the need for the Project, including voltage stability. The Coordinated Transmission Development and MISO LRTP section (*see* Section 3.3) provides background on MISO's role coordinating the planning of the interstate (regional) transmission grid, the reliability implications of the Midwest's changing generation fleet and electricity demand, and the purpose and process for the MISO LRTP study, followed by discussion of MISO's analysis and justification of the LRTP Tranche 2.1 Portfolio. The LRTP Tranche 2.1 Portfolio was approved by the MISO Board of Directors in December 2024. The Regional Reliability and Transfer Capability section (*see* Section 3.4) provides background on the regional transfer interfaces enhanced by the Project, including detailed discussion of the limiting voltage stability and transmission line overload constraints. This section will also address the Applicant's request that the Commission remove the Environmental Quality Board ("EQB") 800 MVA limit on the Arrowhead 345 kV Substation which was included in the 2001 Arrowhead – Weston 345 kV proceedings (the "800 MVA Limit"). The Meeting Customer Needs and Enhancing Resiliency section (*see* Section 3.5) provides an overview of the Project's beneficial impacts on local stakeholders, expected economic benefits in the energy market, resiliency and transmission source reliability, and future flexibility and electrification. The remaining sections in Chapter 3 address specific Certificate of Need requirements including load forecast, losses, and impact of delay.

3.2 GENERAL BACKGROUND

The electric grid is a set of interconnected wires connecting places where energy is generated to where it is used. Over time, the grid has become smarter, more dynamic, and increasingly interconnected due to rising reliability expectations and advancements in technology, along with additional energy resources.

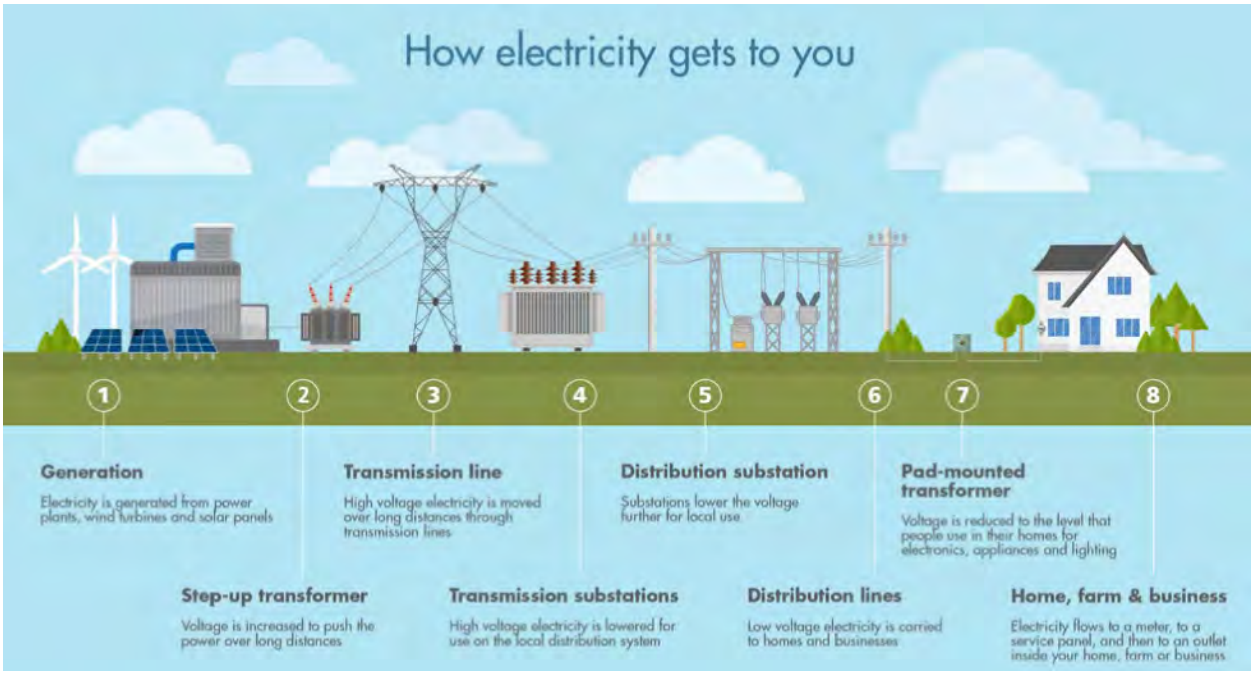
Electricity is produced at generating stations using a variety of sources or fuels, including solar, wind, hydro, biomass, biofuels, natural gas, coal, and nuclear. Unlike other consumables, where excess product can be easily and economically stored for future use, electricity must largely be generated simultaneously with its consumption, so generators connected to the system must instantaneously adjust their electric output to respond to changes in customer demand. While energy storage technologies, including battery energy storage, are advancing, there is not currently a commercially viable large-scale energy storage alternative that could meet the needs of the Project.[22]

Electricity from these generators, located at power plants, is pushed along high-voltage transmission lines often at voltages in excess of 100,000 volts ("V") (*e.g.*, 115 kV, 230 kV, 345 kV, 500 kV, 765 kV). Voltage on transmission lines is higher than what is ultimately used by the consumer because transmitting electricity over long distances at higher voltages reduces electrical losses on the system. This means that more of the energy that is generated reaches the ultimate customer. Once the electricity reaches the community in which it will be used, the electricity is "stepped down" to lower, more usable levels at a substation. Then, the electricity is sent along smaller distribution lines to be delivered to neighborhoods and businesses.

A diagram showing the transfer of electricity from generator to consumer is shown below in Figure 5.

[22] *See* Section 4.2 for discussion of the Applicants' consideration of Generation and Non-Wires Alternatives to the Project, including energy storage.

Figure 5. How Electricity Gets to Consumers[23]



3.2.1 Transmission System Overview

The electric transmission system in the United States is composed of an interconnected network of generating plants, high-voltage transmission lines, and distribution facilities. Electricity uses all available paths as it flows from generation to consumer. Since electricity from all sources is commingled in the transmission system, it is impossible to track the specific journey of electric power generated by a particular power plant as it is transmitted to an end user.

The bulk electric transmission system is comprised of high-voltage transmission lines, which can carry electricity long distances and deliver power to distribution systems to meet customer needs in specific locations, and bulk transformers at 100 kV and above. Transmission lines are made up of conductors, which complete a three-phase circuit and are usually accompanied by a shield wire on top that provides protection from lightning strikes. The shield wire can also include fiber optic cable ("OPGW") which provides a communication path between substations for transmission line protection equipment. These conductors are groups of wires, usually made from aluminum, and are most commonly held up by poles or towers (commonly referred to as transmission structures) that are made from wood or steel. Transmission lines carry electricity from the generation source to the area where the power is needed. The rate at which electric charge moves through a wire is called current and is measured in amps. The force that moves the electricity through the wire is called voltage. Voltage is measured in V or kV. One kV equals 1,000 V. The wire carrying the current resists its movement. This resistance is measured in a unit called Ohms. Aluminum wires conduct electricity with relatively little resistance.

Substations are a part of the electric generation, transmission, and distribution system and contain high-voltage electric equipment to monitor, regulate, and distribute electricity. Substations allow

[23] Great River Energy, *How Electricity Gets to You* (October 19, 2022). Available at https://greatriverenergy.com/cooperatives-articles/how-electricity-gets-to-you/. Last accessed December 2025. Used with Permission.

multiple transmission lines to be connected with one another, and allow power to be transformed from a higher transmission voltage to a lower voltage for distribution, typically below 69 kV. Substation property dimensions depend on the size of the project and anticipated future needs and can vary based on the physical characteristics of the site, such as shape, elevation, above and below ground geographical characteristics, as well as proximity of the site to transmission lines. Substation sites need to be large enough to accommodate both the fenced area and the required surrounding areas, including storm water ponds, grading, parking and access roads, and the transmission line rights-of-way that will enter and exit the substation. The configuration of a substation may change over time to accommodate future load growth or electric system needs.

3.2.2 Transmission System Planning and Design

Electricity is a critical service and thus the transmission grid is planned to stay reliable, resilient, and affordable. Reliability in the most basic sense means "keeping the lights on" 24 hours a day, 365 days a year. To accomplish that task, the transmission system is designed to transport energy from where it is produced to where it's needed, during not only normal operating conditions (*e.g.*, a typical day) but also during more challenging times when the demand for electricity is highest, such as the hottest summer day when air-conditioners are running or conversely the coldest winter day when electric heating is at its maximum, or when regional energy production is dominated by intermittent resources far from major load centers. In addition, the transmission system is designed to withstand the outage of a single generator, transmission line, transformer, or other transmission system element without major disruption to the overall power supply. Reliability is measured and assessed to federal standards which are set by the North American Electric Reliability Corporation ("NERC").[24]

While the transmission grid remains extremely reliable, in recent years, extreme weather, wildfires, and sabotage have had an increasing impact on the power grid across the United States. Minnesota is subject to weather events involving high winds, tornadoes, snow and ice, extreme cold, among other things, as well as some of the highest wildfire risk areas[25] in the eastern half of the continental United States. Identifying ways to harden the transmission system in Minnesota is important to MISO and the State of Minnesota. Therefore, owners and operators of the transmission grid, including the Applicants, are seeking new ways to increase the resilience of the transmission grid to better prevent, withstand, and recover from low probability but high impact events. Resilience efforts include the use of stronger transmission structures, new conductors which minimize icing, enhanced security measures, and other physical and non-physical improvements.

As a critical service, it's also important that electricity remains cost effective. Due to the magnitude of the investment costs associated with the infrastructure needed to generate and transport electricity, an intensive planning process is undertaken to ensure that any needed addition to the power grid is the best option. The best option not only considers the up-front cost of the project (lower is better) but also the value provided (more is better). "Value provided" includes the ability to save money on monthly bills by having access to more cost-effective generators (also known as "reducing system congestion"), lower public or environmental impacts, carbon reduction, and/or better flexibility to meet potential future power needs. Like any decision, each of these factors is weighed to develop the optimal solution.

[24] More information about NERC is available at https://www.nerc.com/Pages/default.aspx.
[25] Federal Emergency Management Agency, Resilience Analysis and Planning Tool. Available at https://experience.arcgis.com/experience/0a317e8998534c30a9b2d3861c814d42/.

3.2.3 System Stability Background

Stability is a key reliability attribute of the power grid. Without a stable system, otherwise isolated events may lead to unpredictable and potentially widespread and catastrophic impacts, up to and including blackouts. A stable system operates normally under all reasonably expected conditions and is able to quickly return to a normal state if there is a disturbance on the system. Unanticipated disturbances on the system may be caused by many things, such as a lightning strike on a transmission line, a transmission line structure failing, or a generator tripping offline because of a problem. Minimum federal reliability standards require that the transmission grid be designed to withstand the loss of any single element without disruption. Utilities like the Applicants also typically evaluate the impacts of events involving multiple system elements and planned maintenance outages to prevent or minimize disruptions. As the clean energy transition changes where, how, and what kind of energy is produced and transmitted to customers, the stability of the grid must continually be assessed to ensure that the power grid remains reliable.

There are several aspects to stability that must be considered when planning the power grid, including voltage stability and transient stability. Voltage stability refers to the ability of the system to recover from an event and rapidly restore voltage within the normal operating range. A voltage collapse is an event that occurs when the voltage in some part of the system cannot recover following an event, resulting in extremely low voltages and possibly causing damage to electrical devices and blackouts. Historically, centralized fossil-fueled baseload generating stations have provided voltage support to the power system to maintain acceptable operating voltages and prevent voltage collapses. As the power system transitions away from these types of resources, new solutions are becoming necessary to ensure that system voltages remain robust, predictable, and stable under all reasonably foreseeable conditions.

Transient stability refers to the short-term response of the grid during the first few seconds after a disturbance (the transient period). Typical areas of interest in the transient period are voltage and frequency response. Transient stability performance is typically measured by how severe the impact is immediately after the disturbance and how quickly the system recovers from the disturbance. If the system fails to recover to normal operating voltage or frequency, it has become unstable and transmission system elements are likely to begin tripping offline to try to stabilize the system by isolating the problem. Depending on how widespread the impacts are, this can lead to blackouts.

3.3 COORDINATED TRANSMISSION DEVELOPMENT AND MISO LRTP

The Project is part of a coordinated long-term transmission development plan benefiting much of the MISO region. This section describes background and historical precedents for the present MISO LRTP Tranche 2.1 Portfolio; the long-range goals and policies supported by a coordinated build-out of the transmission system; the scope and purpose of MISO LRTP Tranche 2.1, which includes the Project; and the justification and benefits of the Project as a part of the MISO LRTP Tranche 2.1 Portfolio.

3.3.1 MISO Background

MISO is an independent not-for-profit Regional Transmission Organization (“RTO”) which operates the transmission system and energy market in parts of 15 states and the Canadian province of Manitoba. Figure 6 provides a map of MISO’s footprint. The Federal Energy Regulatory Commission (“FERC”) approved MISO as the first RTO on December 20, 2001. Since that time, MISO has overseen comprehensive annual planning processes involving broad

stakeholder engagement. As a federally registered planning authority and RTO, MISO is responsible for planning and operating the transmission system within its footprint in a reliable manner. MISO also provides operational oversight and control, market operations, and oversees planning of the transmission systems of its member TOs. MISO has 55 member-TOs, including Minnesota Power and ATC, with more than 77,000 miles of transmission lines under its functional control.[26] MISO members also include 168 non-TOs, such as independent power producers and exempt wholesale generators, municipals, cooperatives, transmission-dependent electric utilities, and power marketers and brokers.

Figure 6. MISO Reliability Footprint

3.3.2 Regional Transmission Planning

The Applicants, along with all other MISO members, are obligated to develop, propose, and construct transmission facilities that satisfy all regulatory, policy, and mandatory reliability requirements. All of these rules and requirements work together to require that Minnesota's electric transmission system is planned, constructed, operated, and maintained in a way that will allow it to operate reliably and in coordination with other States, interconnected transmission systems throughout the Upper Midwest, and the entire Eastern Interconnection. The Application should be reviewed in light of these regulatory requirements.

What sets the Project and the broader MISO LRTP Tranche 2.1 Portfolio apart is the proactive long-term view to ensure a reliable grid for the upcoming decades during a time of rapid transformation in the way electricity is generated and used. The MISO LRTP effort, discussed in further detail below, is an “inflection point” in the timeline of the regional grid, similar to the long-

[26] “Fact Sheet, September 2025,” MISO. Available at https://www.misoenergy.org/about/media-center/corporate-fact-sheet/.

term view that resulted in the large regional interconnections in the 1970s and the Arrowhead-Weston project and CapX2020 (short for “Capacity Expansion Needed by 2020”) development in the 2000s. In the same way that the reliability of today’s regional grid is built upon these foundational components established in years past, the regional transmission planning efforts supporting the need for the Project and the broader MISO LRTP portfolio will establish the foundational reliability components for the grid of the future. While utilities must continue to develop facilities that meet the immediate needs of customers as well as facilitate annual changes and generation and demand, each can be met more reliably and cost-effectively in the long-term with the Project and the MISO LRTP portfolio in place. The Project will benefit the overall system and Minnesota customers and businesses for years and decades to come.

3.3.3 MISO Transmission Expansion Plan Process

MISO has a responsibility, established by FERC, to study the transmission system within its footprint, including planning necessary transmission projects to provide for efficient, reliable, and non-discriminatory transmission service. MISO’s transmission planning process, known as the MISO Transmission Expansion Plan (“MTEP”) process, takes place annually in 18-month overlapping cycles of model building, stakeholder input, reliability analysis, economic analysis, and resource assessments. The results are documented within the annual MTEP report. In developing the MTEP, MISO adheres to the planning principles outlined in FERC Order Nos. 890 and 1000, and is aligned with the planning principles of FERC Order No. 1920. These FERC Orders require an open and transparent regional transmission planning process and include the requirement to plan for public policy objectives and for coordinated inter-regional planning and cost allocation. Each cycle, MISO undergoes a rigorous, open, and transparent stakeholder process that offers numerous opportunities for advice and input from a diverse stakeholder community, which includes end-use customers, regulatory authorities, environmental advocates, independent power producers, TOs, and others.

The MTEP process is a “top-down, bottom-up” process which simultaneously considers both local needs as identified by local utilities (bottom-up) and regional needs as identified by MISO (top-down) to identify the optimal plan to meet all the MISO region’s reliability needs. Each year as part of the MTEP process, the bottom-up planning process assesses transmission system needs based on changes in demand and generation plans, age and asset renewal, and other factors. Should these changing factors result in the grid no longer meeting national reliability standards or policy, TOs, in coordination with MISO and working through its stakeholder process, will identify mitigation to ensure the system stays reliable and in compliance. At the same time, MISO’s top-down planning process examines regional transmission needs over the long-term planning horizon.

The first MTEP report was released in 2003. Since then, there have been over 20 annual MTEP cycles. In the last three MTEP cycles (2022-2024), MISO approved approximately 1,500 transmission projects. Most projects are smaller-scale and incremental in nature – many being replacements of older transmission lines and substations for age and condition purposes. In response to fundamental shifts in electricity usage and production, MISO has also identified three regional transmission portfolios through its top-down planning process, consisting of higher-voltage transmission projects which, when combined, span the Midwest Subregion of MISO: the MVP Portfolio, MISO LRTP Tranche 1 Portfolio, and MISO LRTP Tranche 2.1 Portfolio.

3.3.4 Multi-Value Projects and CapX2020

In the 2000s, Minnesota's transmission grid was at a point where incremental improvements were exhausted, and a step-change was needed to meet the reliability needs of the time. In 2004, CapX2020, now known as Grid North Partners, formed to develop a long-term vision for the Upper Midwest power grid to maintain system reliability in the most cost-effective manner with these transformational changes. CapX2020 identified the need for, and ultimately developed, an approximately 800-mile 345 kV network across Minnesota, North Dakota, and South Dakota. CapX2020's vision was optimized for the entire Midwest via MISO's first regional transmission portfolio, the 2011 MVP Portfolio, which consisted of 17 projects, primarily 345 kV, totaling approximately 2,200 miles across nine Midwest states.[27] All CapX2020 lines were constructed and in-service as of 2017. All the 2011 MVP projects were constructed and in-service as of 2024.

To optimally meet immediate needs with longer-term goals in mind, at the recommendation of the Department[28] and approval of the Commission,[29] the 345 kV CapX2020 projects originally proposed as single-circuit 345 kV transmission lines were built using double-circuit capable structures. Today, the second circuit has been added or is in the process of being added to nearly all the original CapX2020 projects, which has doubled the transmission capacity of each corridor with minimal physical impacts and significantly less costs than would be required for a new stand-alone option.

The scope of the Project in this Application similarly includes the implementation of a single-circuit 345 kV transmission line on double-circuit capable structures to provide long-term transmission capacity value in the proposed new transmission corridor. The Applicants' proposed configuration for the Project further improves upon this approach by proactively installing the second circuit conductors in Segment 2 at the time of initial construction, enabling greater utilization of existing right-of-way by the Project and reducing human and environmental impacts and cost associated with re-mobilization at a later date.

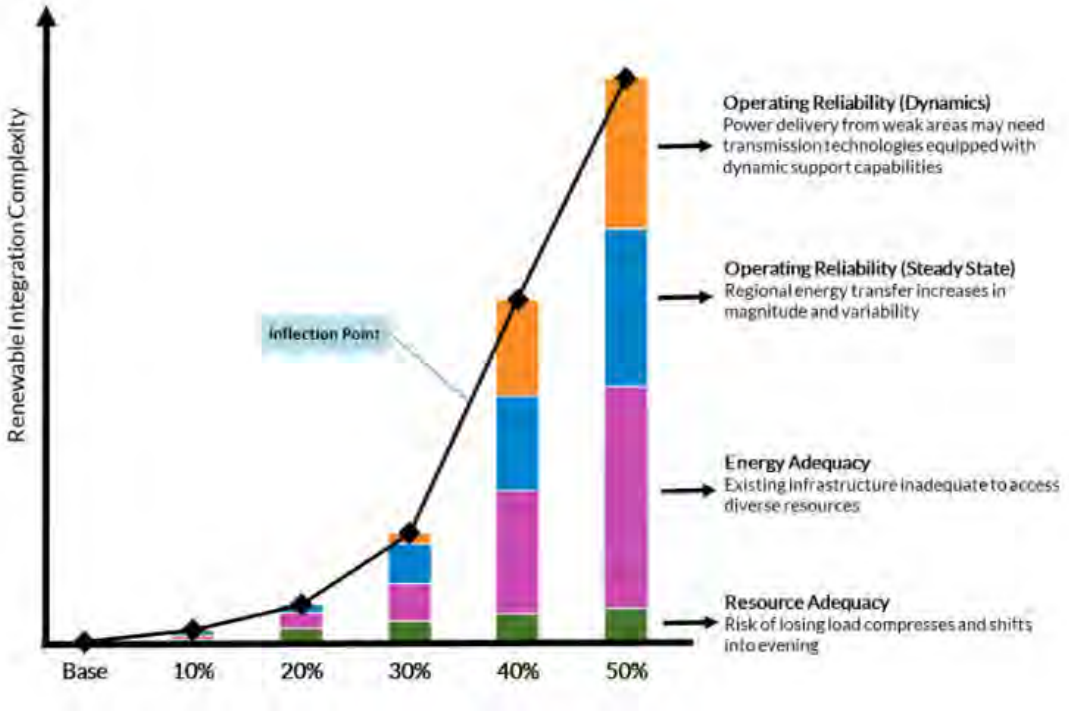
3.3.5 MISO LRTP and the Reliability Imperative

In response to a fundamental shift in the generation mix towards more renewable (*i.e.*, wind, solar, hydro) generation sources, MISO released a study in 2021 called the Renewable Integration Impact Assessment ("RIIA") to understand the implications of an increase in renewable generation entering the system, or "renewable penetrations." The RIIA found that up to 30 percent renewable penetration is manageable with incremental transmission; however, managing the system beyond 30 percent of system-wide renewable penetrations will require transformational change in planning, markets, and operations, as shown in Figure 7. Within the next 20 years, Minnesota's

[27] MISO, *Regionally Cost Allocated Project Reporting Analysis. 2011 MVP Portfolio Analysis Report* (August 2025). Available at https://cdn.misoenergy.org/MVP%20Dashboard117055.pdf.
[28] *In the Matter of the Application for Certificates of Need for Three 345 kV Transmission Line Projects with Associated System Connections*, Docket No. ET2, E002, *et al.*/CN-06-115, Surrebuttal Testimony of Dr. Steve Rakow on Behalf of the Minnesota Office of Energy Security at page 21 (July 3, 2008). Available at https://www.edockets.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId=%7b3330DBFF-01B4-407D-B195-30774E30DD2A%7d&documentTitle=5320643.
[29] *In the Matter of the Application of Great River Energy, Northern States Power Company (d/b/a Xcel Energy) and Others for Certificates of Need for the CapX 345-kV Transmission Projects*, Docket No. ET-2, E-002, *et al.*/CN-06-1115, ORDER GRANTING CERTIFICATES OF NEED WITH CONDITIONS at page 43 (May 22, 2009). https://www.edockets.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId=%7b54C51FAE-B774-4EED-A93C-CAF6ECC5EB52%7d&documentTitle=20095-37752-01.

generation mix is expected to be primarily renewable, and MISO is expected to be 83 percent renewable.[30]

Figure 7. Reliability Implications of Increasing Renewable Penetrations[31]



In 2024, the MISO system achieved a 19 percent renewable penetration level MISO-wide, and many areas of MISO are experiencing periods of more than 40 percent of their energy from renewables.[32] While incremental transmission expansion has been, and continues to be, developed, the increased stress to efficiently maintain reliability is evident in the increased congestion levels and more frequent use of MISO emergency operating procedures.

Recognizing that transformational changes in the way electricity is produced and used require proactive planning and significant changes to the transmission grid to maintain reliability, MISO developed the Reliability Imperative in 2020.[33] The Reliability Imperative is a shared responsibility of electricity providers (like the Applicants), states, and MISO to address the urgent and complex challenges facing the electric grid in the MISO region. MISO's response to the Reliability Imperative consists of a host of initiatives grouped into four categories: Market Redefinition, Transmission Evolution, System Enhancements, and Operations of the future.

[30] MISO, *MISO Futures Report, Series 1A* (November 1, 2023), 77. Available at https://cdn.misoenergy.org/Series1A_Futures_Report630735.pdf.
[31] MISO, *MISO's Renewable Integration Impact Assessment (RIIA)* (February 2021). Available at https://cdn.misoenergy.org/RIIA%20Summary%20Report520051.pdf?_t_id=HAcY9Glq5QpaFZ2DUyt_JA%3d%3d&_t_uuid=Ls_331WCSMiJH1i_VSQ81w&_t_q=riia&_t_tags=language%3aen%2csiteid%3a11c11b3a-39b8-4096-a233-c7daca09d9bf%2candquerymatch&_t_hit.id=Optics_Models_Find_RemoteHostedContentItem/520051&_t_hit.pos=3.
[32] "Fact Sheet, September 2025," MISO. Available at https://www.misoenergy.org/meet-miso/media-center/corporate-fact-sheet/.
[33] Additional information on MISO's Reliability Imperative is available at https://www.misoenergy.org/meet-miso/MISO_Strategy/reliability-imperative/.

As part of the Reliability Imperative's Transmission Evolution initiative, the MISO LRTP effort is a multi-year multi-phase study to identify a regional transmission network projects necessary to ensure the transmission system is reliable, economic, and compliant in the future based on state and utility policy goals, projected conditions, and industry trends. The objective of MISO's LRTP is to address needs and issues not easily addressed within the more near-term focus of the annual MTEP cycle, producing an orderly and timely transmission expansion plan that provides benefits in excess of costs and value that is consistent with MISO's Tariff criteria.[34]

MISO evaluates the projects in the LRTP in accordance with MISO's federally approved Tariff. For any project to be deemed needed under MISO's Tariff, it must meet defined criteria, which may vary depending on the type of project. The transmission projects resulting from the LRTP effort meet the MISO Tariff criteria for being MVP projects. For a project to be deemed needed as an MVP by MISO it must address three primary areas of value:

- **Reliability** – address transmission issues to maintain national reliability standards;
- **Economic** – provide multiple types of economic value across multiple pricing zones with a benefit-to-cost ratio of 1.0 or higher; or
- **Policy** – support the reliable and economic delivery of energy in support of documented energy policy mandates or laws.

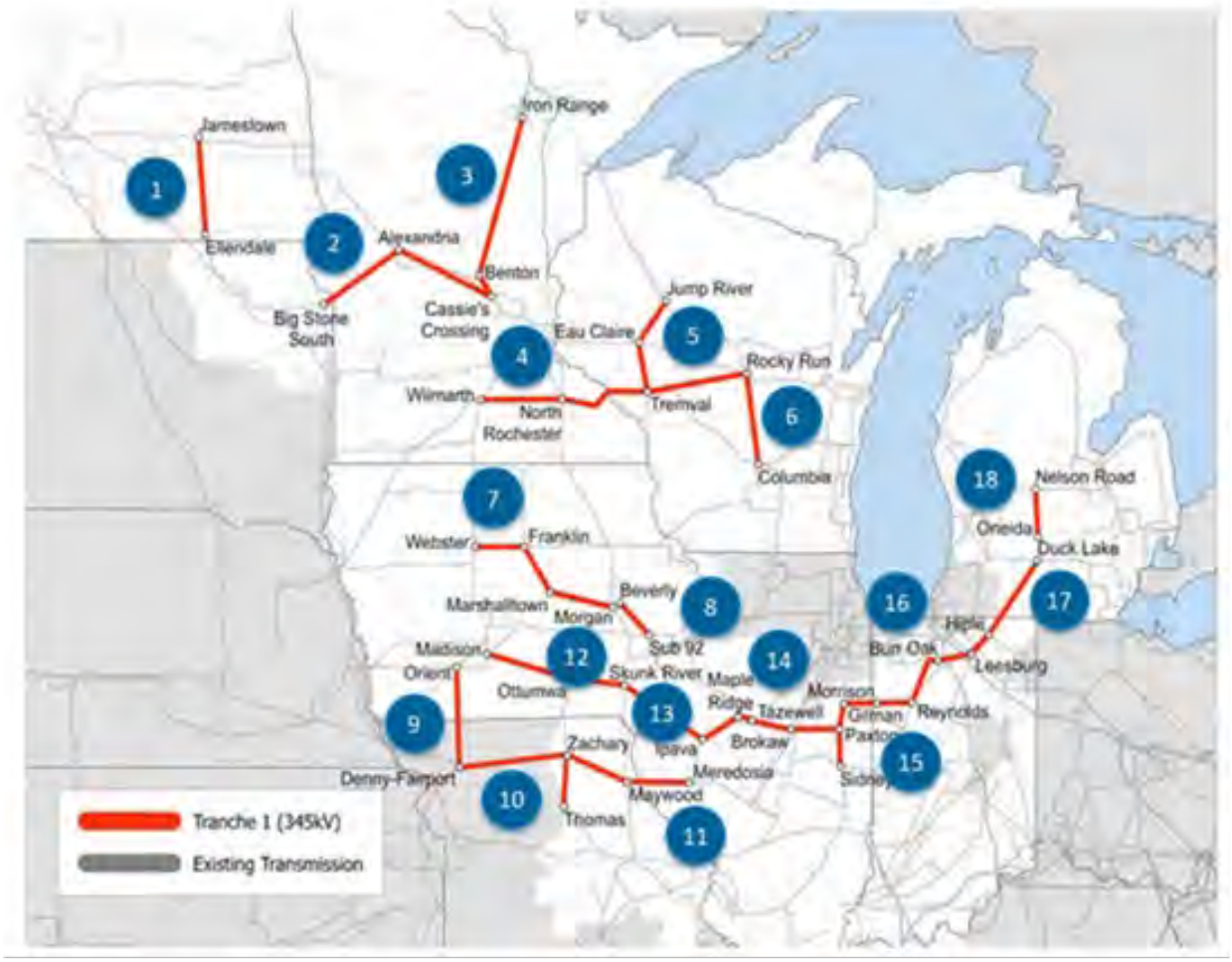
In addition to meeting the above criteria, MVP transmission projects must be developed as part of a portfolio of complementary projects. As MVP portfolios, LRTP Tranche 1 and Tranche 2.1 are eligible for cost allocation under the MISO Tariff. MISO cost allocation is discussed further in Section 2.4.3.1.

3.3.6 LRTP Tranche 1

In July 2022, MISO approved the first phase, or "tranche," of the LRTP. The MISO LRTP Tranche 1 Portfolio consists of 18 transmission projects totaling approximately 2,000 miles of new and upgraded transmission lines, to enhance connectivity, and help maintain adequate reliability for the Midwest by 2030 and beyond. Figure 8 shows the projects in the MISO LRTP Tranche 1 Portfolio.

[34] MISO, *MTEP24 Transmission Portfolio Report, Chapter 2: Regional/Long Range Transmission Planning* (Dec. 2024), 3. Available at https://www.misoenergy.org/planning/transmission-planning/mtep/#nt=%2Fmtepstudytypenew%3AMTEP%20Reports&t=10&p=0&s=FileName&sd=desc/

Figure 8. MISO LRTP Tranche 1 Portfolio



MISO LRTP Tranche 1 includes three 345 kV projects in Minnesota:

- the Big Stone South to Alexandria to Big Oaks Transmission Projects;[35]
- the Northland Reliability Project;[36] and
- the Mankato to Mississippi River Project.[37]

MISO LRTP Tranche 1 was intentionally designed as a first step to address immediate reliability needs driven a changing resource fleet mix and to increase primarily intra-state, but also inter-state, transfers to meet NERC standards. More specifically, the MISO LRTP Tranche 1 Portfolio:

- Addresses reliability violations as defined by NERC at over 300 different sites across the Midwest. In addition, the portfolio increases transfer capability across the MISO Midwest

[35] LRTP Project #2, Commission Docket Numbers CN/22-538, TL-23-159, and TL-23-160.
[36] LRTP Project #3, Commission Docket Numbers CN-416 and TL-22-415.
[37] LRTP Project #4, Commission Docket Numbers CN-22-532 and TL-23-157.

subregion to allow reliability to be maintained for all hours under varying dispatch patterns driven by differences in weather conditions.

- Provides $23.2 billion in net economic savings over the first 20 years of the LRTP Tranche 1 Portfolio's service, which results in a benefit-to-cost ratio of at least 2.6. This amount increases to $52.2 billion in net economic savings over 40 years, resulting in a benefit-to-cost ratio of 3.8.[38]

- Supports the reliable interconnection of approximately 43,431 megawatts ("MW") in new, primarily renewable, generation capacity across the MISO Midwest subregion, 8,339 MW of which is in Minnesota and the surrounding region.

The MISO LRTP Tranche 1 Portfolio also was designed to bolster the existing 345 kV network, meet long-term needs identified in MISO's least transformative Futures scenario (Future 1), and provide an incremental expansion that would position the grid for future LRTP tranches.

3.3.7 LRTP Tranche 2.1

MISO always envisioned the LRTP as a multi-phase process due to the magnitude and complexity of the needs and the resources involved in analyzing and justifying a large regional transmission overlay. Since MISO developed LRTP Tranche 1, the rate of transformation and the magnitude of changes occurring in the industry have only increased. Shortly after finalizing LRTP Tranche 1, MISO kicked off an exercise to begin refreshing key assumptions in anticipation of continuing its evaluation of long-term transmission needs under the Reliability Imperative. The refreshed "Futures" formed the underlying set of assumptions for the evaluation and development of the second phase of the LRTP, Tranche 2, which would continue to focus on the MISO Midwest region.

Transmission grid expansions are long-term decisions, and long-term forecasts of the future generation mix and energy usage are necessary to plan the grid. As part of the MTEP process, MISO and its stakeholders develop a range of forward-looking scenarios, or Futures, which forecast multiple paths and timelines for states and utilities to meet their energy goals. The Futures are designed to bookend the potential range of future economic and policy outcomes, ensuring that the actual future is within the range of reasonable outcomes considered in the Futures. These Futures, which envision system conditions 20 years ahead, are then used to assess and identify transmission needed to deliver the necessary energy reliably and efficiently from generation resources to customers. Futures are developed through an iterative and robust stakeholder process which includes representatives from MISO utilities, state regulatory authorities, public consumer advocates, environmental representatives, independent power producers, and others.

During the MTEP21 cycle, three Planning Futures were used in MISO's grid planning initiatives, including LRTP Tranche 1. MISO developed a series of future scenarios in 2021 ("MTEP21 Futures") over the course of 18 months and incorporated numerous rounds of stakeholder feedback, policy assessments and industry trends. The Futures incorporate varying assumptions about utility and state goals, retirements, technology, Distributed Energy Resources ("DER") adoption and electrification, and other factors. Starting in July 2022, MISO began the process of refreshing the original MTEP21 Futures. Since the completion of the original MTEP21 Futures,

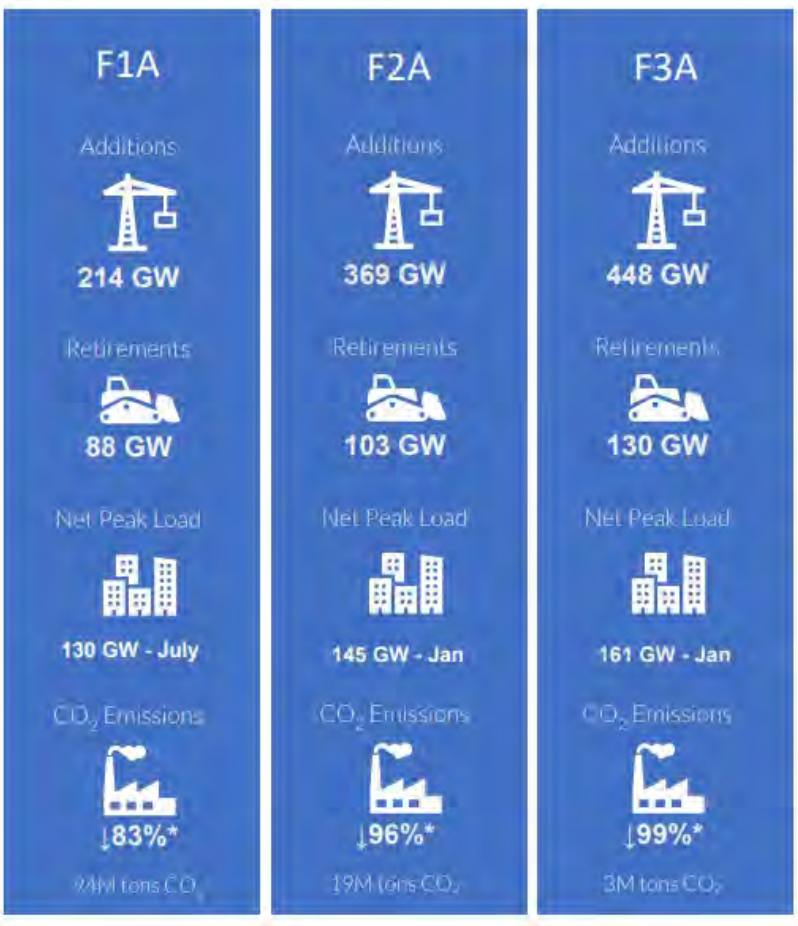
[38] Values as of July 2022. While market forces, have driven project costs to increase since 2022, the same forces will also cause benefits to increase.

utility and state plans had been refined, new legislation and policies had taken effect at the state and federal level, and prices and incentives affecting resource development had seen significant changes. The "Series 1A Futures" incorporated these various timely updates while still foundationally being built upon the original defining characteristics of the MTEP21 Futures. Compared to the MTEP21 Futures, the Series 1A Futures demonstrate an accelerating pace of transformation in the industry and, as a result, accelerating need for transmission to support a reliable transition. A summary of the key assumptions for each Series 1A Future is shown in Figure 9 and Figure 10. MISO focused its evaluation and development of Tranche 2 on Future 2A and Future 1A.[39]

Figure 9. MISO Futures

[39] MISO, *MISO Futures Report, Series 1A* (November 1, 2023), 4. Available at https://cdn.misoenergy.org/Series1A_Futures_Report630735.pdf. Last accessed December 2025.

Figure 10. MISO Series 1A Futures Assumptions[40]

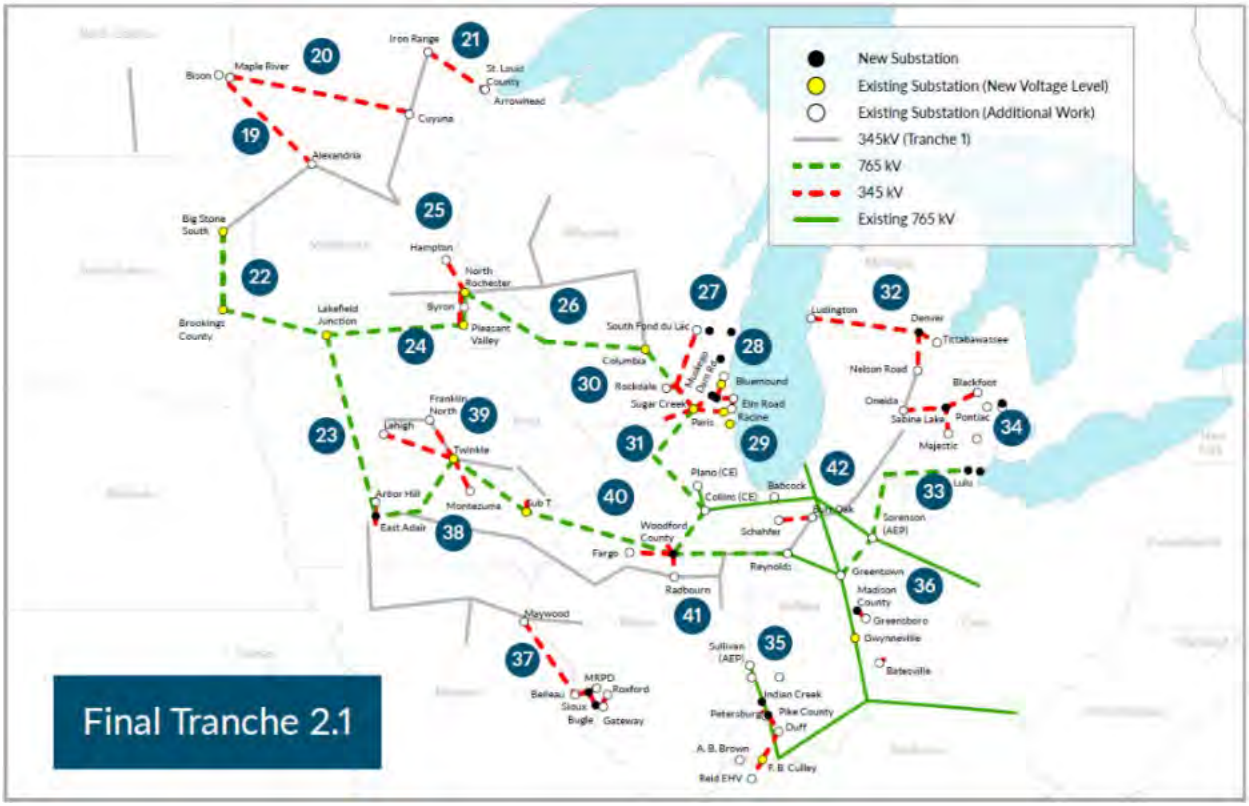


While MISO's original plan was to address long-term transmission needs in the Midwest in two stages (Tranche 1 and Tranche 2), based on the magnitude and complexity of needs identified under the Series 1A futures MISO determined it was necessary to approach its evaluation of needs in the Midwest in three stages. As a result, Tranche 2 was renamed LRTP Tranche 2.1 and a subsequent effort, referred to at the time as Tranche 2.2, was added to MISO's multi-phase LRTP work plan.

Including the time spent working on the Series 1A Futures, the LRTP Tranche 2.1 Portfolio was developed over approximately two and a half years, culminating with its approval in December 2024. MISO followed an extensive stakeholder process, spending more than 40,000 staff hours, facilitating more than 300 meetings, and incorporating stakeholder feedback to arrive at the LRTP Tranche 2.1 Portfolio.[41] The LRTP Tranche 2.1 Portfolio includes several additional 345 kV projects and establishes a new 765 kV "backbone" across the Midwest, as shown in Figure 11.

[40] MISO, *MISO Futures Report, Series 1A* (November 1, 2023), 4. Available at https://cdn.misoenergy.org/Series1A_Futures_Report630735.pdf. Last accessed November 2025.
[41] MISO, *MTEP24 Report*, chap. 2, 6.

Figure 11. MISO LRTP Tranche 2.1 Portfolio[42]



The LRTP Tranche 2.1 Portfolio includes 24 projects totaling approximately 3,600 miles of new and upgraded transmission in MISO's Midwest subregion. The LRTP Tranche 2.1 Portfolio builds upon and is enabled by the LRTP Tranche 1 portfolio and other previous enhancements to the existing transmission grid. Combined, the 765 kV and 345 kV networks established and expanded by the LRTP Tranche 2.1 Portfolio will work together with the existing grid to move electricity from where it is produced by many types of generation in different locations across multiple states to local communities where it is consumed, enabling each state to meet its policy and reliability needs in a more efficient, less costly and less impactful manner. The LRTP Tranche 2.1 Portfolio is needed to address:

- **Reliability Issues** – The portfolio relieves significant levels of transmission line overloads, including 961 unique overloads identified in power flow modeling, in addition to voltage violations, stability limits, and other reliability constraints across the Midwest.[43]

- **Economic Issues –** The portfolio reduces significant generation curtailments, economic price separation between MISO regions, system losses, and severe wide-area congestion, including thousands of hours of uneconomic grid operation caused by nearly 250 unique needs identified in economic planning simulations of future-year conditions.[44]

- **Cost Effectiveness** – The $21.8 billion portfolio has a benefit-to-cost ratio of 1.8 to 3.5. This means that every dollar invested in transmission will result in economic benefits of

[42] *Id*. at 144.
[43] *Id.* at 28-29 and Figure 2.19.
[44] *Id.*

$1.80 to $3.50. Per MISO's analysis, the LRTP Tranche 2.1 Portfolio is expected to provide net economic savings of $23.1 billion to $72.4 billion over the first 20 years of service.[45]

- **Generation Transition and Public Policy** – The portfolio alleviates congestion and enables interconnection of approximately 116 GW of new generation resources[46] to meet projected load, public policy objectives, and planning reserve margins. As a result, the portfolio is anticipated to reduce Midwest carbon dioxide ("CO_2") emissions by 127 to 199 million metric tons over 20 to 40 years to help states like Minnesota comply with decarbonization laws.[47] In addition to Minnesota, Illinois[48] and Michigan[49] have enforceable decarbonization standards, and Wisconsin[50] has a decarbonization goal. In addition, many Midwest utilities have decarbonization goals.

The Project is the Minnesota portion of MISO LRTP Tranche 2.1 project number 21.[51] The Project serves a key role in the execution of the MISO LRTP Tranche 2.1 Portfolio by addressing reliability needs specific to northern Minnesota and western Wisconsin.[52]

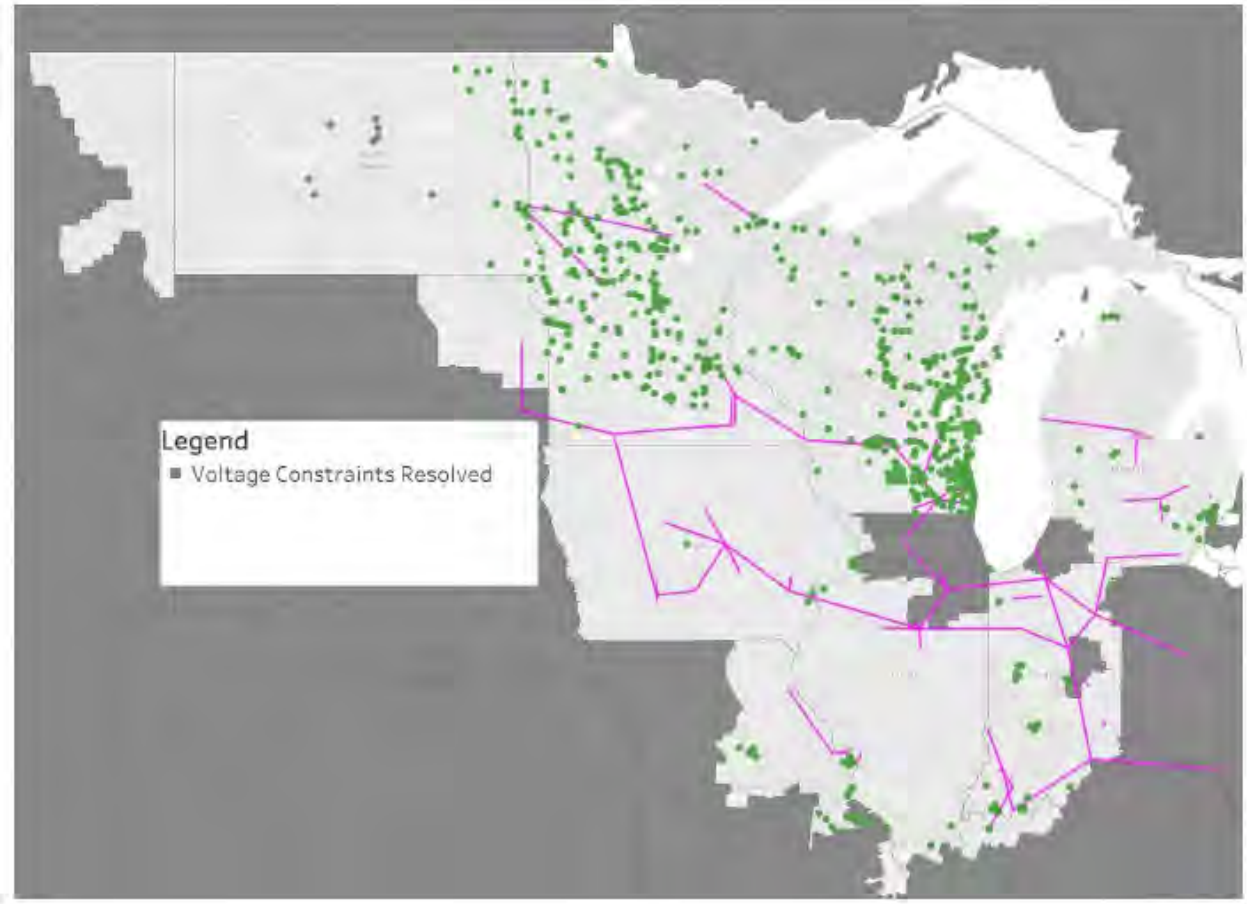
A copy of MISO's full LRTP Tranche 2.1 Portfolio Report can be found in Appendix I.

3.3.7.1 Reliability Need[53]

MISO identified the need for the LRTP Tranche 2.1 Portfolio to prevent numerous thermal and voltage violations and other reliability issues**.** In MISO's assessment of the eight core power flow models developed for LRTP Tranche 2.1 analysis, the severity of transmission line overloads is reduced by an average of approximately 60 percent in the 2032 models and 53 percent in the 2042 models by the LRTP Tranche 2.1 Portfolio. Similarly, the severity of voltage violations is reduced by an average of 31 percent in 2032 models and 45 percent in 2042 models. Figure 12 summarizes voltage constraints observed in the eight core power flow models which MISO found were relieved by the LRTP Tranche 2.1 Portfolio.

[45] *Id*. at 125, Figure 2.137. Net savings are 20-year NPV in $-2024.
[46] *Id*. at 75.
[47] *Id*. at 142.
[48] Illinois Climate and Equitable Jobs Act mandates 100% carbon-free power by 2045.
[49] Michigan Senate bill 271 mandates 100% carbon-free power by 2040.
[50] Wisconsin Governor Evers Executive Order #38 established a state goal to reach 100% carbon-free electricity by 2050.
[51] MISO, *MTEP24 Report*, chap. 2, 145. LRTP Tranche 2.1 Project 21: Iron Range - Arrowhead 345 kV
[52] *Id*. at 81-83.
[53] *Id*. at 63-69, "Total Reliability Results."

Figure 12. Voltage Constraints Relieved by LRTP Tranche 2.1[54]



The LRTP Tranche 2.1 Portfolio also addresses several other reliability issues. Angular separation across the Midwest region, a key indicator for stability issues and transfer limitations, is reduced by the LRTP Tranche 2.1 Portfolio in the most stressed case by nearly 20 percent. Less angular separation across the Midwest means power can take more direct paths from resources to loads, with more efficiency, less congestion, and greater flexibility during outages. MISO also evaluated transient stability performance, finding that the portfolio resolves approximately 90 percent of the transient voltage violations in the 2042 average load case and 30 percent of transient voltage violations in the 2042 summer peak case. In addition to the eight core models, MISO also evaluated four key transfer sensitivities, finding that the LRTP Tranche 2.1 Portfolio mitigates an average of approximately 70 percent of thermal constraints on facilities greater than 200 kV and 44 percent of thermal constraints on facilities less than 200 kV when considering grid conditions under varying transfer conditions.

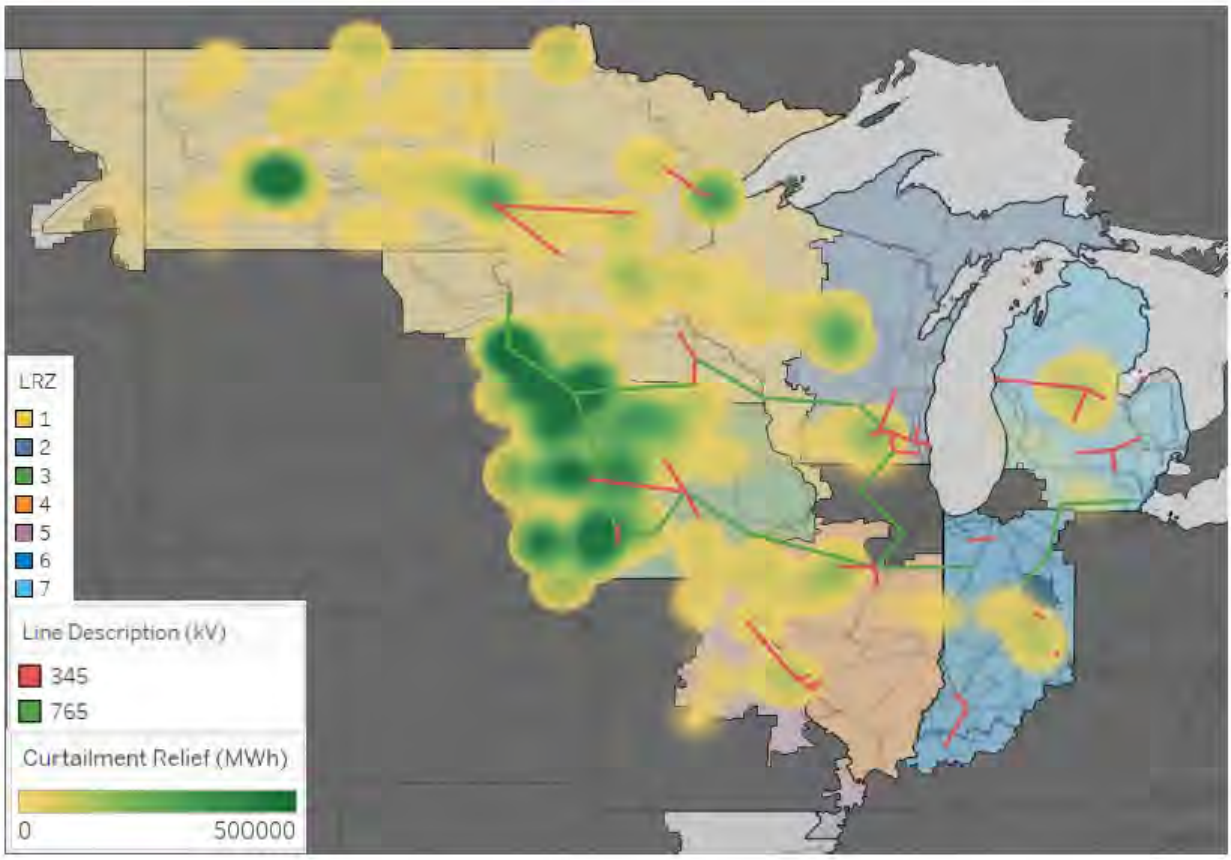
3.3.7.2 Economic Need[55]

MISO identified the need for the LRTP Tranche 2.1 Portfolio to enhance economic value for the MISO Midwest subregion and cost-effectively enable member plans for fleet transition and load growth. For the MISO Midwest subregion, MISO's economic analysis identified that the LRTP

[54] *Id.* at 66, Figure 2.65.
[55] *Id.* at 70-76, "Total Economic Results."

Tranche 2.1 Portfolio would reduce economic congestion on transmission by 29.5 percent and improve access to economic generation through reducing generation curtailment by 11.2 percent (27.1 million MWh). Figure 13 illustrates the curtailment reduction achieved by the portfolio, with significant pockets of curtailment relief in central North Dakota, the Red River Valley, and northeastern Minnesota due to 345 kV project additions.

Figure 13. Generation Curtailment Relieved by LRTP Tranche 2.1[56]



In addition to congestion reduction and curtailment relief, MISO's economic modeling found that the LRTP Tranche 2.1 Portfolio would decrease the system cost of serving load by reducing price separation across the region, facilitate more economic dispatch of generation leading to $8.1 billion in adjusted production cost ("APC") savings, and provide a robust regional transmission backbone to support nearly 116 GW of new resource additions under Future 2A assumptions.

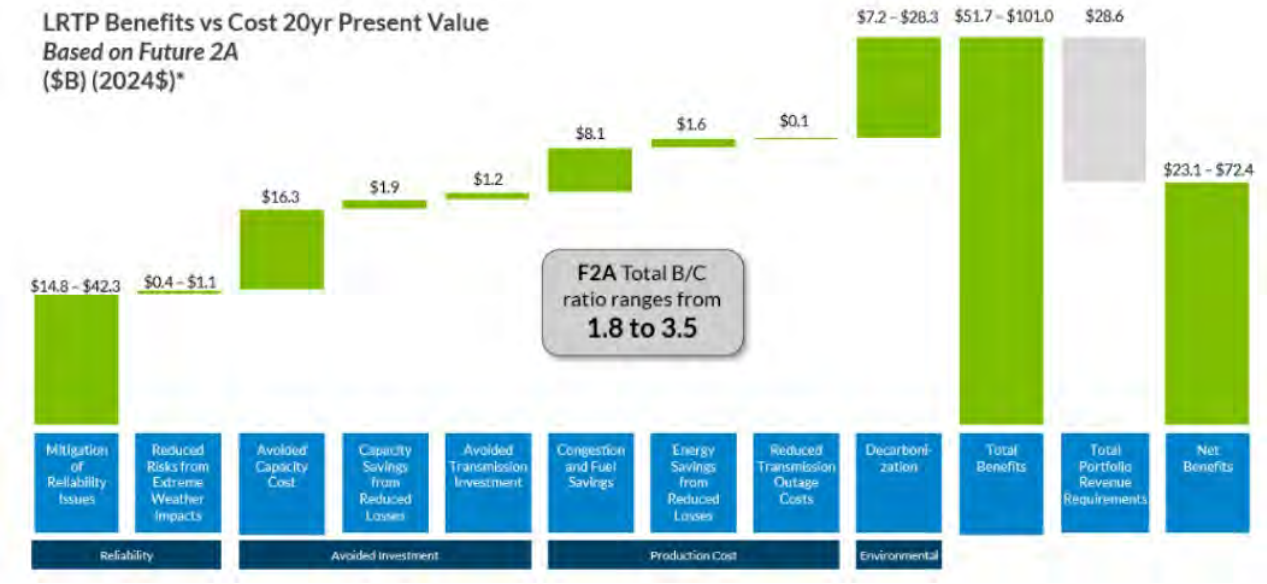
3.3.7.3 Cost-Effectiveness

The MISO LRTP Tranche 2.1 Portfolio will provide net economic savings estimated at $23.1B - $72.4B over the first 20 years of service, as shown in Figure 14.[57] MISO estimates these projected savings will offset the capital cost of the LRTP Tranche 2.1 Portfolio by a ratio of 1.8 to 3.5,

[56] *Id.* at 73, Figure 2.74. "LRZ" refers to MISO's Local Resource Zones.
[57] *Id*. at 125.

meaning that net savings are expected relative to what would be needed without the LRTP Tranche 2.1 Portfolio.[58]

Figure 14. Economic Savings from the MISO LRTP Tranche 2.1 Portfolio[59]



As shown in Figure 14, MISO quantified the economic savings of the LRTP Tranche 2.1 Portfolio using nine different metrics. The development of the LRTP Tranche 2.1 benefit metrics is described in detail in the October 1, 2024 whitepaper[60] produced by MISO, and the application of these metrics to the final LRTP Tranche 2.1 Portfolio is discussed in the MISO LRTP Tranche 2.1 Report. The inclusion of each metric is approved in MISO's federally approved tariff and further supported by FERC Order 1920.[61]

3.3.7.4 Generation Transition and Public Policy

MISO is not an integrated resource planner, but it is obligated to plan the transmission system in a way that ensures the energy planned by its members can be reliably and economically delivered to where it is needed. In developing the Series 1A Futures, MISO considered member plans as well as additional resources needed to meet the projected load, policy objectives, and planning reserve margin requirements for each of the Futures scenarios. MISO's analysis shows that the LRTP Tranche 2.1 Portfolio supports the reliable interconnection of approximately 115.7 GW of new generation resources to meet the needs identified in the Series 1A Futures.[62] Of the capacity supported by the LRTP Tranche 2.1 Portfolio, 32.1 GW is in Minnesota, North Dakota, eastern

[58] *Id*.
[59] *Id*. at 125.
[60] MISO, *LRTP Tranche 2 Business Case Metrics Methodology Whitepaper* (October 1, 2024). Available at https://cdn.misoenergy.org/LRTP%20Tranche%202%20Business%20Case%20Metrics%20Methodology%20Whitepaper633738.pdf. Last accessed November 2025. Last accessed November 2025.
[61] FERC Order 1920, Docket No. RM-21-17-000 (May 14, 2024). Available at https://www.ferc.gov/media/e1-rm21-17-000https://www.ferc.gov/media/e1-rm21-17-000; FERC Order 1920-A, Docket No. RM-21-17-001 (Nov. 21, 2004). Available at https://www.ferc.gov/media/e-1-rm-21-17-001. https://www.ferc.gov/media/e-1-rm-21-17-001. Last accessed November 2025.
[62] MISO, *MTEP24 Report*, chap. 2, 75.

South Dakota, and western Wisconsin (MISO Local Resource Zone ("LRZ") 1).[63] In addition to supporting load growth and reliability, the generation enabled by the LRTP Tranche 2.1 Portfolio is expected to reduce CO_2 emissions by 127 million metric tons over the first 20 years of service and 199 million metric tons over the first 40 years of service.[64] Using the Commission's valuation of CO_2 emission reduction,[65] the LRTP Tranche 2.1 Portfolio is expected to result in approximately $28 to $39 billion in carbon reduction benefits over the first 20 years across the MISO footprint.[66]

3.3.7.5 Other Qualitative Benefits

The LRTP Tranche 2.1 Portfolio also provides multiple other qualitative benefits. MISO expects that the addition of the LRTP Tranche 2.1 Portfolio will increase operational flexibility to better allow timely outage scheduling to maintain the reliability of the system; and reduce the economic impact due to congestion caused by outages. The operational flexibility also helps reduce the economic impacts of natural gas price changes by providing access to a broader pool of generation resources.[67]

The LRTP Tranche 2.1 Portfolio also gives more flexibility to better support diverse policy needs. The proactive long-range approach to planning regional transmission provides regulators greater confidence in achieving policy goals by reducing uncertainty around future resource expansion plans. Elimination of much of the high transmission cost barriers allows resource planners to assume less risk in making resource investment decisions.

3.3.7.6 Need for the Project in MISO LRTP Tranche 2.1

MISO LRTP Tranche 2.1 was developed as a portfolio of projects designed to work together; however, each project in the portfolio was also individually justified by MISO based on regional and local needs. MISO identified that the Project is a critical component of the LRTP Tranche 2.1 Portfolio, enhancing the value of the Portfolio for meeting Minnesota, northern Wisconsin, and the Midwest's electrical needs. To identify the optimal LRTP Tranche 2.1 Portfolio, MISO evaluated 97 alternative project ideas.[68] MISO's justification for the Project is discussed in the LRTP Tranche 2.1 Report along with two other 345 kV projects in North Dakota and Northern Minnesota, shown in Figure 15.

[63] *Id.* at 76.
[64] *Id.* at 142.
[65] *In re Establishing an Updated 2020 Estimate of the Costs of Future Carbon Dioxide Regulation on Elec. Generation under Minn. Stat. § 216H.06*, Docket No. E999/DI-19-406, ORDER ESTABLISHING 2020 AND 2021 ESTIMATE OF FUTURE CARBON DIOXIDE REGULATION (Sept. 30, 2020).
[66] MISO, *MTEP24 Report*, chap. 2, 143. Range given is based on varying discount rate assumptions.
[67] *Id*. at 148.
[68] *Id*. at 42.

Figure 15. North Dakota and Northern Minnesota LRTP Tranche 2.1 Projects[69]

According to MISO, the North Dakota and Northern Minnesota project group including the Project "provides outlets to North Dakota generation, resolves constraint violations in this area and connects to Tranche 1 lines. Congestion in Northern Minnesota is reduced and the increased generation outlet in North Dakota, South Dakota, and Minnesota shifts congestion to new flowgates, which are addressed with the portfolio."[70] Specifically, MISO identified that the North Dakota and Northern Minnesota project group resolves more than 50 percent of constraint violations in the area, including several overloaded 115 kV and 230 kV transmission lines illustrated in Figure 16. With the LRTP Tranche 2.1 Portfolio, the final worst-case loading on these transmission lines is reduced by an average of 63 percent compared to the pre-portfolio worst-case loading and all of them are within their existing rated capacity. The Northern Minnesota project group also increases the deliverability of resources from the Dakotas and Minnesota toward load centers in Northern Minnesota, the Twin Cities, and beyond, reducing overall congestion and addressing some of the most-constrained flowgates in the region. Table 8 shows congestion relief on the top relieved flowgates impacted by the Northern Minnesota project group.

[69] *Id*. at 81.
[70] *Id*. at 82.

Figure 16. Top Reliability Constraints Resolved by LRTP Tranche 2.1 Projects in Northern Minnesota[71]

[71] MISO, *MTEP24 Report*, chap. 2, 82.

Table 8. Top Economic Constraints Resolved by Northern Minnesota LRTP Tranche 2.1 Projects[72]

Y20 Top Relieved Flowgates – Projects 19, 20, & 21			
	Congestion Measure ($/MW)		
Top Relieved Flowgates	Reference	Change Case	Total Relief
Event 1117: [MP] HIBBARD – [MP] WNTR ST 115kV 1	1,621,984	876,000	745,984
Event 270: [NSP] CASS CO7 – [NSP] REDRIVR7 115 kV 1	158,693	-	158,693
Event 192: [MP] LONG PR7 – [GRE] GRE-LTLSKTP7 115 kV1	454,591	329,864	124,727
Base Case: [NSP] CASS CO7 – [NSP] REDRIVR7 115 kV 1	112,246	-	112,246
Event 1033: [MP] AITKNMN7 – [GRE] GRE-AITKIN 7 115 kV 1	47,573	-	47,573
Event 586: [GRE] GRE-INMAN 4 – [GRE] GRE-WINGRIV4 230 kV1	64,442	24,550	39,892
Event 1355: [MP] CLOQUET7 – [MP] CANOSIA7 115 kV 1	58,902	19,317	39,585
Event 1391: [NSP] CASS CO7 – [NSP] REDRIVR7 115 kV 1	38,318	-	38,318
Event 1045: [MP] FLDWDTP7 – [MP] MDWLNDS7 115 kV 1	31,812	-	31,812
Event 592: [NSP] SHEYNNE4 – [OTP] LAKE PARK T4 230 kV 1	40,486	11,028	29,457

To quantify more specific impacts of the Project within the portfolio, the Applicants evaluated detailed results workbooks from MISO's LRTP Tranche 2.1 final portfolio analysis to identify the number of pre- and post-portfolio thermal (transmission line overload) violations on the transmission system in the immediate Project area. Filtering on buses located in northeastern Minnesota and northwestern Wisconsin, where transmission line loading is more directly impacted by the Project, the Applicants identified that LRTP Project #21, including the Project and the Stinson underlying system upgrade, resolves a total of 227 thermal violations on 15 unique transmission facilities. The number of thermal violations resolved by the Project in each of the eight (8) post-portfolio LRTP Tranche 2.1 power flow cases is shown in Table 9. The worst-case pre- and post-portfolio loading for the top ten most overloaded facilities in the 2032 and 2042 cases is shown in Table 10.

[72] *Id*. at 83.

Table 9. Thermal Violations Resolved by the Project in LRTP Post-Portfolio Case

MISO LRTP Tranche 2.1 Power Flow Case	Pre-Portfolio # of Overloads	Post-Portfolio # of Overloads	Overloads Resolved
2032 Average	48	0	48
2032 Light Load	16	0	16
2032 Summer	31	0	31
2032 Winter	0	0	0
2042 Average	50	0	50
2042 Light Load	49	0	49
2042 Summer	23	2	21
2042 Winter	12	0	12
TOTAL	229	2	227

Table 10. Top Ten Constraints Relieved by the Project in LRTP Post-Portfolio Case

Branch	2032 Cases Pre-Portfolio % Loading	2032 Cases Post-Portfolio % Loading	2042 Cases Pre-Portfolio % Loading	2042 Cases Post-Portfolio % Loading
608633 FAIRMPK7 115 608680 WNTR ST7 115 1	216%	92%	252%	95%
608676 HIBBARD7 115 608680 WNTR ST7 115 1	205%	93%	236%	97%
608633 FAIRMPK7 115 608683 STIN-MN7 115 1	190%	71%	223%	74%
608720 COTTNTP7 115 618001 GRE-BERGNTP7 115 1	122%	87%	106%	90%
608673 ARD1BUS7 115 618001 GRE-BERGNTP7 115 1	118%	94%	109%	93%
608718 16L TAP7 115 608720 COTTNTP7 115 1	118%	83%	104%	87%
608673 ARD1BUS7 115 608679 GARY 7 115 1	110%	70%	120%	74%
608678 NEMADJI7 115 608679 GARY 7 115 1	103%	62%	117%	66%
603142 BAYFRNT7 115 603175 GINGLES7 115 1	108%	40%	127%	32%
608773 ARD2BUS7 115 3WXFMR ARD6 115 1	101%	86%	96%	78%

3.4 REGIONAL RELIABILITY AND TRANSFER CAPABILITY

This section will provide background on the regional transfer interfaces enhanced by the Project, including detailed discussion of the limiting constraints – voltage stability and transmission line overloads– which are addressed by the Project. This section will also address the Applicants' request that the Commission remove the 800 MVA Limit on the Arrowhead 345 kV Substation,

which was established in the 2001 Arrowhead – Weston 345 kV transmission line proceedings by the EQB.

3.4.1 Background

One of the cornerstones of the clean energy transition is the evolution of the energy supply portfolio away from traditional fossil-fueled (dispatchable) generating resources to an increasing reliance on intermittent renewable (primarily non-dispatchable) generating resources.

In 2011, over half of the electricity generated in Minnesota came from coal-fired electric power plants. In 2023, renewables provided 33 percent of electricity generation statewide and Minnesota's natural gas generation exceeded coal-fired generation for the first time.[73] The increase in renewable energy sources was driven, in part, by state energy policies. Minnesota's original Renewable Energy Objective, adopted in 2001, directed all electric utilities in the state to "make a good faith effort" to obtain one percent of their Minnesota retail energy sales from renewable energy resources in 2005, increasing to seven percent by 2010.[74] More broadly, Minnesota had previously set a goal to reduce statewide greenhouse gas ("GHG") emissions across all sectors producing those emissions to a level at least 30 percent below 2005 levels by 2025 and to a level at least 80 percent below 2005 levels by 2050.[75] More recently, in February 2023, Governor Walz signed the "100 Percent by 2040" legislation into law, which, at a high level, requires Minnesota utilities to generate an amount of carbon-free electricity equivalent to 100 percent of their Minnesota retail sales by 2040. The Applicants are committed to planning, operating, and maintaining a transmission grid that enables Minnesota utilities to meet these requirements.[76] To comply with this legislation, Minnesota utilities will need to become less reliant on the fossil-fueled resources that have traditionally been used to serve Minnesota's electrical needs and additional sources of emission-free electric energy – like wind and solar – will need to be added.

Many of the traditional generating resources that are being displaced are baseload generators that have provided round-the-clock energy production for many decades. These displaced baseload generators provide more than just energy production. They also provide essential reliability services to local energy consumers and the regional power system. Such services must be replaced when the generators are retired, refueled or transitioned to non-baseload operation. The NERC defines Essential Reliability Services as including frequency response, ramping, and voltage support.[77] In a broader sense, the term "essential reliability services" may also incorporate additional reliability concepts such as local power delivery, regional power delivery, and redundancy. Based on the Applicants' experience with baseload generator retirements[78] and the

[73] "Minnesota State Profile and Energy Estimates," U.S. Energy Information Administration. Available at https://www.eia.gov/state/?sid=MN#tabs-4. Last accessed November 2025.
[74] Minn. Stat. § 216B.1691, subds. 2 and 2a.
[75] Minn. Stat. § 216H.02, subd. 1.
[76] Minn. H.F. 7, sec. 8 (2023); *amending* Minn. Stat. § 216B.1691, subd. 8(g).
[77] North American Electric Reliability Corporation, *Essential Reliability Services* (undated). Available at https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/ERS%20Abstract%20Report%20Final.pdf#search=Essential%20Reliability%20Services. Last accessed November 2025. Helpful background and simplified explanations of these three concepts are also publicly available from the U.S. Department of Energy, "Keeping the Lights On: Essential Reliability Services" (Sept. 13, 2018). Available at https://www.energy.gov/eere/articles/keeping-lights-essential-reliability-services. Last accessed November 2025.
[78] See *Minnesota Power's 2021 Integrated Resource Plan*, Docket No. E015/RP-21-33, APPLICATION at Appendix F Parts 6-8 (February 2, 2021) (eDocket No. 20212-170598-03) (Public Version).

analysis discussed in this section, these essential reliability services are foundational to understanding and planning to address the transmission system impacts of fleet transition.

One of the continued findings of renewable integration and policy-driven studies examining the clean energy transition is that the transmission system needs to be expanded to reliably facilitate larger and less predictable transfers of bulk energy across the region to enable greater penetration levels of intermittent renewable resources and less reliance on dispatchable fossil-fueled resources. The Project facilitates this regional transfer capability optimization to support decarbonization and increased renewable penetration. In northern Minnesota, fleet transition will result in a lack of baseload and local dispatchable generation, especially during times when high regional renewable energy production drives market signals low for other generators. Renewable energy resource potential in northern Minnesota is also comparatively limited for solar and wind. These circumstances lead to the need for reliable transfer capability to bring power into northern Minnesota from remote low-carbon generation located in external areas. Northern Minnesota has also long been a nexus for large regional transfers from energy-rich areas in the Dakotas and Manitoba to load centers in the Twin Cities, southeastern Wisconsin, and beyond. These transfers have typically been predictable, moving power from west to east and from north to south. However, as the regional energy portfolio continues to evolve and the location, size, and operational characteristics of generation shift, expanded regional transfer capability both to and through northern Minnesota will be necessary to reliably navigate changing system conditions and dispatch scenarios.

The following sub-sections describe how the Project provides for increased and more flexible regional transfer capability, first in the south to north direction within Minnesota, then in the north to south into and through northern Minnesota, then in the west to east direction from Minnesota into Wisconsin.

3.4.2 South-to-North Transfers

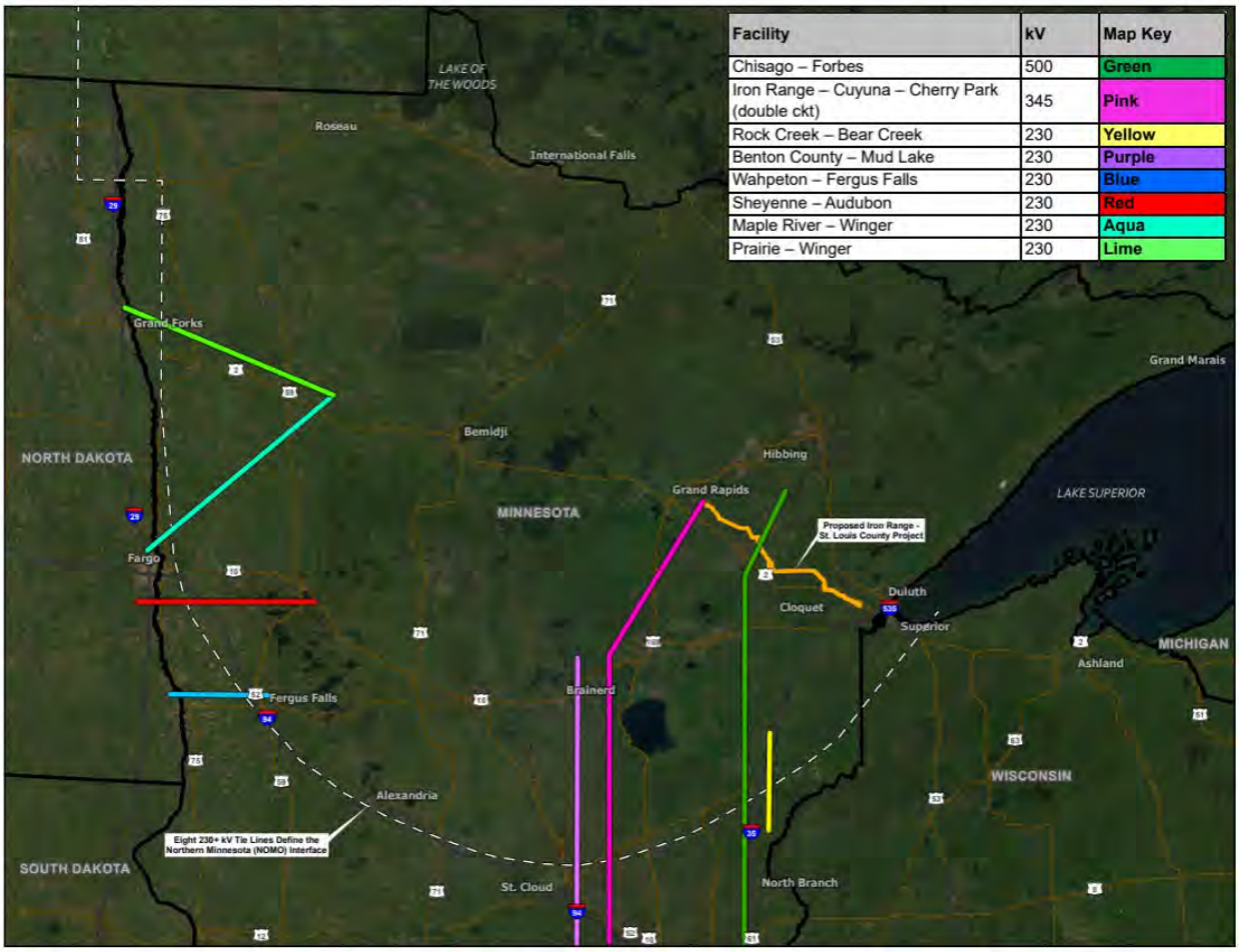
The Project increases and improves the reliability of transfer capability into northern Minnesota during south-to-north (“North Flow”) transfer conditions typically present during local peak load times, which are aggravated by modest-to-high transfers from MISO to Manitoba Hydro, a lack of dispatchable generation resources in northern Minnesota, and low renewable energy output. For example, a typical peak or near-peak hour in northern Minnesota occurs during severely cold winter nights where solar and wind resources may not be locally available. This drives the need for significant power transfers into northern Minnesota to supplement any remaining dispatchable generation in the area. The same set of conditions generally drives peak loading in Manitoba as well, requiring Manitoba to potentially import power from MISO to supplement its own resources. These conditions result in the North Flow condition in Minnesota to serve winter peaking loads. An extended period of severe cold or drought conditions may further aggravate the situation by limiting the availability of hydroelectric and other dispatchable resources in northern Minnesota and Manitoba, creating near-total dependence on the transmission system to reliably serve peak load during these critical hours.

The most limiting transmission constraints during this North Flow condition have historically been regional voltage stability constraints associated with the loss of one or more critical tie lines into northern Minnesota. To understand and evaluate a voltage stability issue, the issue must be expressed in terms of an interface. In this case, the Northern Minnesota (“NOMN”) interface[79]

[79] *In the Matter of the Application for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015,ET2/CN-22-416, APPLICATION at Section 3.3.2.2 (Aug. 4, 2023).

was developed to directly characterize the issue. The NOMN interface definition is provided and illustrated geographically in Figure 17. The Iron Range – Cuyuna – Cherry Park 345 kV double-circuit transmission line was permitted as part of the Northland Reliability Project[80] and is currently under construction with an in-service date in 2030.

Figure 17. NOMN Interface Tie Lines



The Project by itself and in combination with the rest of the Tranche 2.1 Portfolio enhances NOMN interface transfer capability to reliably serve load during winter events that impact the local and regional system. Two MISO LRTP Tranche 2.1 models were used to analyze the impact of the Project on the NOMN interface. The Winter North Flow ("WNF") case represents the system during a period when local load is at or near winter peak in northern Minnesota, and Manitoba is importing power from MISO. As power is drawn from the surrounding region, including the Dakotas, northern Iowa, Wisconsin, and southern Minnesota, it travels through central Minnesota and the Twin Cities to northern Minnesota and Manitoba, stressing the regional transmission system. The Winter Low Renewable ("WLR") scenario captures multi-day periods of low renewable output, particularly during early morning hours or regional winter freezes.[81]

[80] *Id.* at ORDER GRANTING CERTIFICATE OF NEED AND ISSUING ROUTE PERMIT (Feb. 28, 2025).
[81] MISO, *MTEP24 Report*, chap. 2.

For the WNF case, the Project works together with the rest of the MISO Tranche 2.1 regional portfolio to increase NOMN interface transfer capability. Results for the two most limiting regional faults for NOMN voltage stability are shown in Table 11. Fault #1 is historically the most limiting fault for the NOMN interface while Fault #2 is anticipated to become more limiting as the regional transmission system develops. For security purposes, the specific transmission line names of the faulted lines are not given. The Project by itself increases the NOMN voltage stability system operating limit ("SOL") by 65-109 MW, resulting in 100-150 MW of increased load-serving capability in northern Minnesota compared to the WNF pre-portfolio case. As part of the larger LRTP Tranche 2.1 Portfolio, the Project contributes to increasing the NOMN voltage stability SOL by approximately 970 MW, resulting in 1250 MW of increased load-serving potential in northern Minnesota compared to the WNF pre-portfolio case.[82]

Table 11. Project Impact on NOMN Transfer in the WNF Case

NOMN Voltage Stability in 2032 Winter North Flow [MISO LRTP2.1]				
	Fault #1		Fault #2	
Case	SOL (MW)	∆Load	SOL (MW)	∆Load
Pre-Portfolio	2474.5	-	2553.1	-
Pre-Portfolio with ISA	2583.5	+150	2618.4	+100
Post-Portfolio	3449.3	+1250	3523.5	+1250

The Project is also impactful for the WLR case, which is another challenging condition for local and regional reliability. One of the realities of the renewable energy transition is that intermittent generation resources are weather-dependent and may not always be generating power. During times when the wind is not blowing or the sun is not shining, it is important that the system is still resilient, reliable, and flexible to meet customer energy needs. The following analysis shows how the Project, in the WLR case, supports periods of minimal renewable generation.

Results for the two most limiting regional faults in the WLR case are shown in Table 12. In this case, Project by itself increases the NOMN voltage stability SOL by 30-138 MW, resulting in 250-400 MW of increased load-serving capability in northern Minnesota compared to the WLR pre-portfolio case. As part of the larger LRTP Tranche 2.1 Portfolio, the Project contributes to increasing the NOMN voltage stability SOL by 279-324 MW, resulting in 400-450 MW of increased load-serving potential in northern Minnesota compared to the WLR pre-portfolio case.[83]

[82] The analysis described here is limited to NOMN voltage stability under the two most limiting contingencies. Other constraints may exist that are more limiting for total northern Minnesota load-serving capability at this level.
[83] The analysis described here is limited to NOMN voltage stability under the two most limiting contingencies. Other constraints may exist that are more limiting for total northern Minnesota load-serving capability at this level.

Table 12. Project Impact on NOMN Transfer in the WLR Case

NOMN Voltage Stability in 2032 Winter Low Renewables [MISO LRTP2.1]				
	Fault #1		Fault #2	
Case	SOL (MW)	∆Load	SOL (MW)	∆Load
Pre-Portfolio	3845.1	-	3995.3	-
Pre-Portfolio with ISA	3875.4	+250	4132.9	+400
Post-Portfolio	4124.3	+400	4319.7	+450

The results of this NOMN study demonstrate that the Project works together with the LRTP Tranche 2.1 Portfolio to increase the voltage stability limit for the NOMN interface. As a result, the Project and the portfolio contribute to increased load-serving capability in northern Minnesota of up to 1,250 MW in the WNF case and up to 400 MW in the WLR case compared to pre-portfolio load levels for each case. The Project increases NOMN interface transfer capability and reliability, allowing increased load within northern Minnesota and creating a more robust and resilient system.

3.4.3 North-to-South Transfers

The Project increases and improves the reliability of transfer capability into and through northern Minnesota during north-to-south transfer conditions typically present during periods of high transfer from Manitoba Hydro to MISO and when local generation resource output in northern Minnesota is high. This scenario generally occurs during the spring and summer months when hydroelectric generation is abundant and electrical demand is increasing in higher demand load centers where weather warms up faster than it does in northern Minnesota and Manitoba. Higher north-to-south transfer conditions also often accompany times when wind power is at a lower generation output.

The relationship between Manitoba hydroelectric resources and MISO wind resources was first assessed by MISO in the 2013 *Manitoba Hydro Wind Synergy Study*.[84] This study investigated how Canadian hydro power can work with MISO wind generation to enhance their benefits. It also evaluated whether expanding the transmission capacity between Manitoba and MISO would enable greater wind participation in the MISO market. As stated in the Wind Synergy Study Report, "Wind synergy benefits from the expanded use of hydro generators in Manitoba Hydro are demonstrated in three ways: by wind curtailment reduction in MISO; by an inverse correlation between imports from Manitoba Hydro and MISO wind generation; and by a better utilization of both wind and hydro resources."[85] The study evaluated alternative transmission expansion proposals being considered at the time, including a new 500 kV line connecting Winnipeg to Grand Rapids, MN, in combination with a new double-circuit 345 kV line connecting Grand Rapids to

[84] MISO, *Manitoba Hydro Wind Synergy Study Final Report* (2013). Available at https://mn.gov/eera/web/project-file?legacyPath=/opt/documents/33608/GNTL%20Appendix%20I.pdf.
[85] *Id.* at 3.

Duluth, MN. The first part of this transmission expansion was completed in 2020, when the Great Northern Transmission Line ("GNTL")[86] was placed into service.

While not directly driven by the Wind Synergy Study, the Project will establish a single 345 kV connection, built on double-circuit capable structures, between Grand Rapids and Duluth, Minnesota, which is very similar to the original concept considered in the Wind Synergy Study. As demonstrated in the Wind Synergy Study and discussed in Section 3.4, the Project will further optimize regional transfer capability and benefit northern Minnesota and MISO by tying complementary renewable energy resources together. Specifically, the Project will tie together one of the two major tie lines connecting northern Minnesota to Manitoba hydropower, with the existing 465-mile HVDC line connecting the Duluth and Hermantown area to abundant wind and other energy resources located in central North Dakota. With vast renewable hydroelectric generation resources to the north and abundant high-capacity wind and other energy resources to the west, the Project will help to facilitate greater access to the operational and market benefits of wind and hydro synergy, as demonstrated in the Wind Synergy Study.

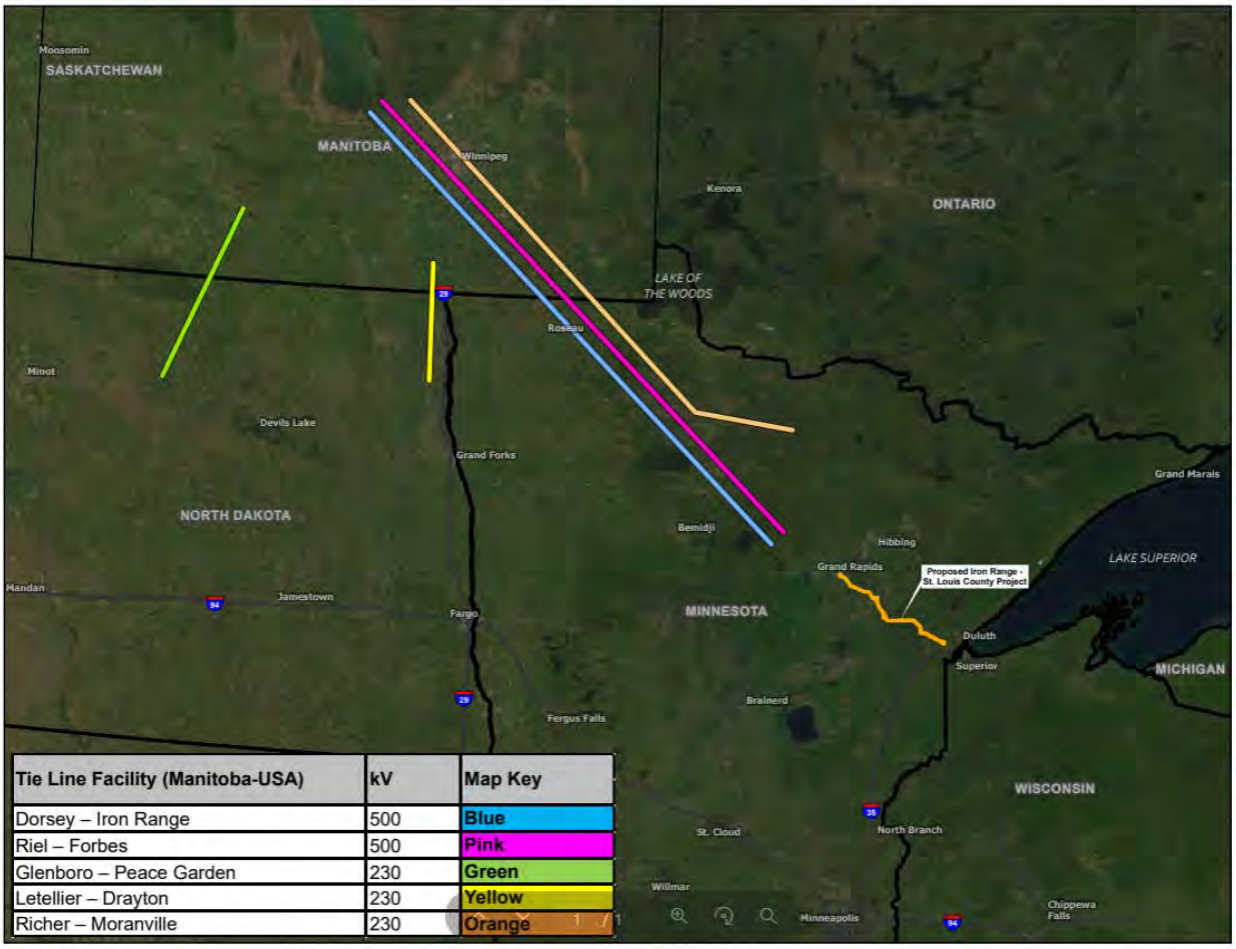
As originally described in the GNTL Project Certificate of Need Application, the synergy between MISO wind and other energy resources and Manitoba Hydro functionally operates like a very large energy storage solution, and it is an innovative, elegant, and necessary solution to support meeting renewable energy integration and decarbonization goals in MISO while continuing to operate a reliable and efficient regional transmission system. In effect, when wind energy resource output is high, hydroelectric resources can be pooled and then later, when wind energy resource output is low or non-existent, hydroelectric generation can be ramped up. The Project enhances the capacity for north-south and south-north transfers into and through northern Minnesota, optimizing and unlocking transfer capability for bi-directional power flows to leverage the complementary attributes of vast carbon-free hydroelectric resources in Manitoba and abundant energy resources in MISO, including intermittent wind and solar resources.

To quantify the Project's impact on the north-to-south transfers described above, the Applicants used the existing, well-established Manitoba Hydro to U.S. ("MHEX") Interface. The MHEX interface definition is provided and illustrated geographically in Figure 18. The most limiting transmission constraint during times of high north-to-south transfer from Manitoba to MISO has historically been the overloading of the Roseau Series Compensation Station[87] located in the Riel – Forbes 500 kV transmission line.

[86] *In the Matter of the Request of Minnesota Power for a Certificate of Need for the Great Northern Transmission Line*, Docket No. E015/CN-12-1163, ORDER GRANTING CERTIFICATE OF NEED WITH CONDITIONS (June 30, 2015); *In the Matter of the Application of Minnesota Power for a Route Permit for the Great Northern 500 kV Transmission Line Project in Roseau, Lake of the Woods, Beltrami, Koochiching, and Itasca Counties*, Docket No. E015/TL-14-21, ORDER ISSUING ROUTE PERMIT WITH MODIFICATIONS (Apr. 11, 2016).

[87] *In the Matter of the Request of Minnesota Power for a Certificate of Need for the Great Northern Transmission Line*, Docket No. E015/CN-12-1163, APPLICATION at Section 7.4.3.1.2 (Oct. 21, 2013).

Figure 18. MHEX Interface Tie Lines



Tie Line Facility (Manitoba-USA)	kV	Map Key
Dorsey – Iron Range	500	Blue
Riel – Forbes	500	Pink
Glenboro – Peace Garden	230	Green
Letellier – Drayton	230	Yellow
Richer – Moranville	230	Orange

The MISO LRTP Tranche 2.1 2042 Summer Peak model was used to analyze the impact of the Project on the MHEX interface. The 2042 Summer Peak case represents the system during a period when loads throughout MISO are at or near summer peak, renewable energy resource output is modest-to-low, and Manitoba is exporting power to MISO. Table 13 shows the MHEX interface transfer limits in the MISO 2042 Summer Peak model. Currently, the total transfer capability on the MHEX interface is limited to 3,058 MW.[88] As shown in Table 13, there is already 340 MW of potential incremental north-to-south transfer capability enabled by the LRTP Tranche 1 portfolio in the pre-portfolio case. The Project by itself increases potential north-to-south transfer capability by another 105 MW above the pre-portfolio case, for a total increase of 445 MW. As a part of the larger LRTP Tranche 2.1 Portfolio, the Project contributes to increasing the potential north-to-south transfer capability by a total of 206 MW above the pre-portfolio case, for a total increase of 546 MW.

[88] Currently, north-to-south flows on the MHEX interface are limited by Presidential Permit 398, which was issued November 16, 2016. Any additional increase in transfer capability would likely have to be reviewed in an updated or amended Presidential Permit Application

Table 13. Project Impact on MHEX Transfer Limit

2042 Summer Peak [MISO LRTP2.1]		
Case	**MHEX Transfer Limit (MW)[89]**	**∆Transfer (MW) above today's limit**
Pre-Portfolio	3398	340
Pre-Portfolio with ISA	3503	445 (+105)
Post-Portfolio	3604	546 (+206)

To provide further insight into the Project's impact on north-to-south transfer capability, the loading on the entire MHEX interface, and the loading on each specific MHEX tie line can be seen in Table 14. Project increases the MHEX transfers because it shifts more power on to the Dorsey – Iron Range 500 kV line, reducing the impacts of increasing north-to-south power transfers on the more limiting Riel – Forbes 500 kV transmission line.

Table 14. MHEX Interface Tie-Line Loading

MHEX Interface Tie-Line Loading (MW) at MHEX Thermal Limit						
Case	**MHEX**	**Riel – Forbes 500 kV**	**Dorsey – Iron Range 500 kV**	**Richer – Moranville 230 kV**	**Letellier – Drayton 230 kV**	**Glenboro – Peace Garden 230 kV**
Pre-Portfolio	3397.1	1711.1	1506.0	205.4	-25.3	0
Pre-Portfolio with ISA	3501.4	1714.5	1600.0	207.5	-20.8	0.2
Post - Portfolio	3604.4	1715.5	1561.9	207.5	119.8	-0.3

The results of this MHEX study demonstrate that the Project works together with recently constructed and planned projects and the LRTP Tranche 2.1 Portfolio to increase north-to-south transfer capability into and through northern Minnesota. In combination with the North Flow transfer capability enhancements discussed in Section 3.4.2, these findings further illustrate the regional transfer optimizations and flexibility provided by the Project. These optimizations have their roots in over a decade of transmission planning and studies looking at how regional transmission system expansion can enable complementary generation resource attributes to be leveraged for a more efficient and reliable grid.

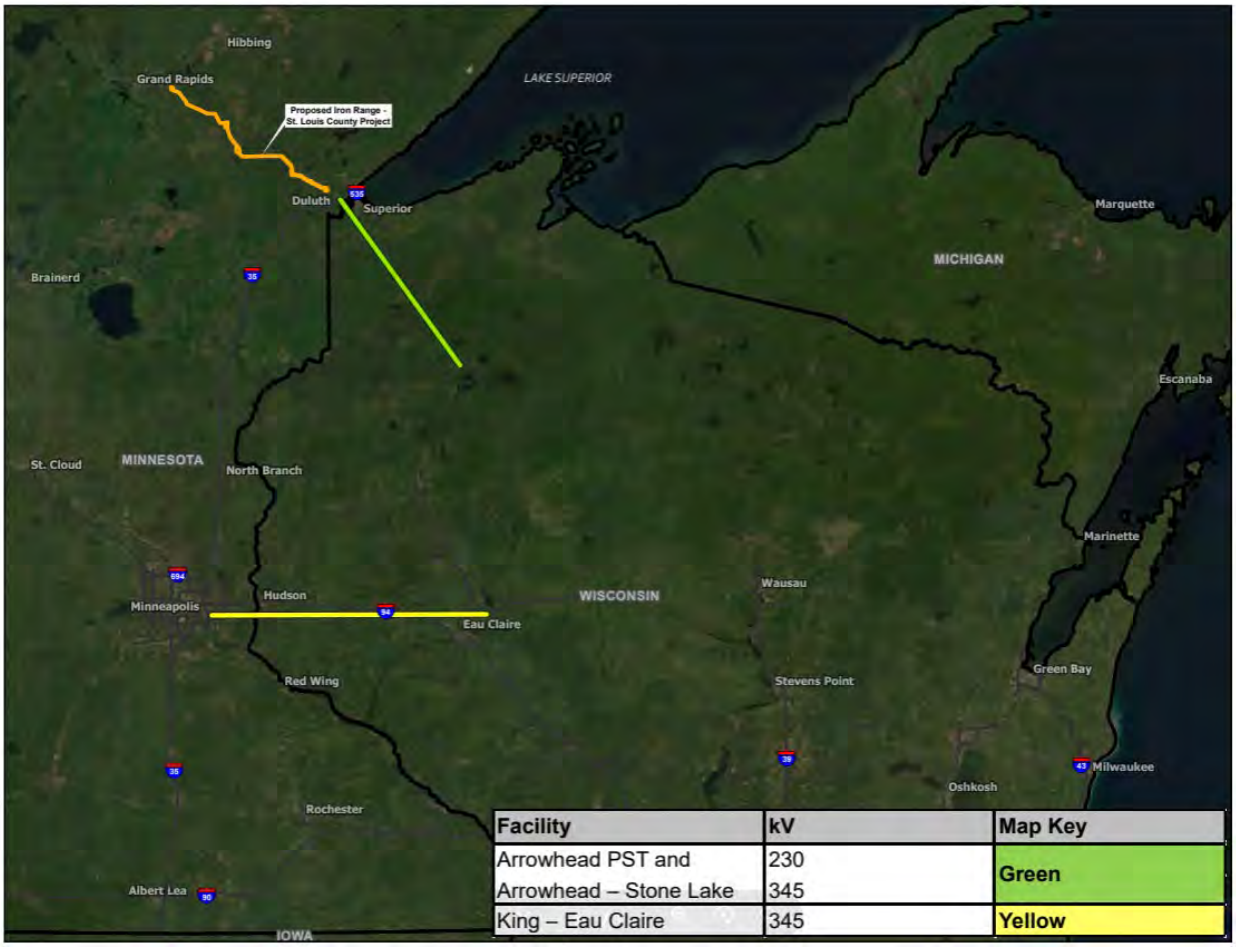
3.4.4 Minnesota – Wisconsin Transfers

The Project increases and improves the reliability of transfer capability between Minnesota and Wisconsin. Historically, regional power transfers have typically moved in a west-to-east fashion as power generated in the Dakotas and Manitoba was transferred through northern Minnesota and towards the larger load centers in the Twin Cities, Wisconsin, and Illinois. While this is typically still the case, regional power transfers are becoming more variable and power transfers can occur in the east-to-west direction from Wisconsin into Minnesota.

[89] This analysis considers only the current and historically most limiting constraint. Other constraints may exist that are more limiting for total transfer capability at this level.

The Minnesota – Wisconsin interface ("MWEX") is historically defined as the power flowing from Minnesota to Wisconsin on the King – Eau Claire 345 kV Line and the Arrowhead 230 kV phase shifting transformer ("PST"), as defined in Figure 19. The Arrowhead 230 kV PST is connected in series with the Arrowhead – Stone Lake 345 kV Line and limits power flow over the line to 800 MVA or less. The 345 kV lines associated with the MWEX interface are illustrated geographically in Figure 19. There are a number of lower voltage transmission lines that connect Minnesota and Wisconsin, and an increasing number of planned extra high voltage ("EHV") transmission lines connecting southeastern Minnesota and Iowa with southern Wisconsin, but the two MWEX 345 kV lines continue to be the best indicator of regional transmission constraints on the interface between Minnesota and Wisconsin.

Figure 19. MWEX Interface Tie Lines



Facility	kV	Map Key
Arrowhead PST and Arrowhead – Stone Lake	230 345	Green
King – Eau Claire	345	Yellow

In recent power flow models, the Arrowhead – Stone Lake 345 kV Line is broken into two parts by the Superior 345 kV Substation, which is the interconnection substation for the proposed Nemadji Trail Energy Center ("NTEC") natural gas generation facility. The western segment of the Arrowhead – Stone Lake 345 kV Line is the Arrowhead – Superior 345 kV Line, and the eastern segment is the Superior – Stone Lake 345 kV Line. This distinction is important because with NTEC online, power flow is typically higher on the Superior – Stone Lake 345 kV Line than on the Arrowhead – Superior 345 kV Line, contributing to higher overall power flows on the tie line into Wisconsin, which in turn affects the MWEX voltage stability limit. This generation facility may also be offline in which case it would not be contributing to power flows along this tie line but also

would not be providing local reactive power and voltage support, which would also affect the voltage stability limit.

The MISO 2021 Definitive Planning Phase ("DPP") Phase 2 Summer Shoulder model was used as a starting point to analyze the impact of the Project on the MWEX interface voltage stability SOL. This was the latest DPP model at the time of the study, and the selected condition historically represents the most stressed condition from previous DPP MWEX studies. The model was updated to include the most impactful LRTP Tranche 1 projects and Minnesota Power's HVDC Modernization Project. This voltage stability study was done both with and without the Project in service, and with and without NTEC online to determine the incremental MWEX transfer capability enabled by the Project. Several regional contingencies were evaluated to identify the most limiting contingency for MWEX voltage stability.

In Table 15, the equivalent MWEX[90] SOL is determined with NTEC online and offline. With NTEC online, the Project increases the SOL by 134 MW as compared to the pre-Project case. With NTEC offline, the Project increases the SOL by 182 MW as compared to the pre-Project case. These results demonstrate that the Project increases the MWEX interface transfer capability to reliably facilitate additional power flow from Minnesota into Wisconsin whether NTEC is online or offline.

Table 15. Project Impact on MWEX Interface

2026 Summer Shoulder [MISO DPP21]			
	MWEX Interface (MW)		
MWEX Transfers	Pre-Project	Post-Project	∆Transfer (MW)
NTEC Online	1600	1734	+134
NTEC Offline	1486	1668	+182

The Project increases MWEX transfer capability and reliability by strengthening the Arrowhead 345 kV Substation and its connection into Wisconsin. In Table 16, the pre-contingent power flow on the Arrowhead – Superior 345 kV Line and the MWEX interface are shown for the pre- and post-Project cases with NTEC offline. As shown in the table, the power flow on the Arrowhead – Superior 345 kV Line increases by 179 MW while the power flow on the MWEX interface only increases by 120 MW. This means that power is also being shifted off the King – Eau Claire 345 kV Line onto the Arrowhead – Superior 345 kV Line as the Arrowhead 345 kV Substation becomes a stronger source, facilitating more balanced flow on these regional tie lines and ultimately leading to a higher MWEX voltage stability SOL. Notably, as the Project enhances the MWEX interface, the Arrowhead 230 kV PST is retired and therefore no longer limits the power flow through the Arrowhead 345 kV Substation into Wisconsin, resulting in over 820 MW of power flow into Wisconsin on the Arrowhead – Superior 345 kV Line.

[90] While the MWEX interface is historically defined by the flow through the Arrowhead 230 kV PST and the King – Eau Claire 345 kV Line, the inclusion of certain generator interconnection projects and the Project in the models necessitated that other monitored elements be used as proxies to monitor the flowgate as it is currently defined. The MWEX levels reported in the table are based on the sum of power flows on the Superior – Stone Lake 345 kV Line and the King – J1528POI 345 kV Line.

Table 16. Arrowhead 345 kV Substation and MWEX Interface Power Flows

2026 Summer Shoulder [MISO DPP21]			
Facility	**Pre-Project**	**Post-Project**	**∆ Change**
Arrowhead-Superior 345 kV Line	642	821	+179
MWEX Flow	1372	1492	+120

The results of the MWEX study demonstrate that the Project also increases the transfer capability from Minnesota into Wisconsin, in addition to providing for increased and more reliable south-to-north and north-to-south transfers through Minnesota. By itself, the Project increases the MWEX voltage stability SOL by 134 to 182 MW in comparison to the pre-Project case. The increased MWEX interface transfer capability and reliability resulting from the Project will enable increased transfer capability between Minnesota and Wisconsin, creating a more robust and resilient regional transmission system.

3.4.5 Arrowhead Substation – Wisconsin Power Flows

In its March 2001 order granting a permitting exemption to Minnesota Power for the construction of the Arrowhead – Weston project, including a 345 kV transmission line and the Arrowhead 345 kV/230 kV Substation, the EQB[91] included a condition that the ATC Arrowhead Substation could not be used to "transmit power . . . beyond 800 MVA." A copy of this order is attached to this Application as Appendix J.[92] The 800 MVA Limit was placed on the ATC Arrowhead Substation in response to concerns from intervenors that by not having the 800 MVA Limit, coal-fired power could be moved from west to east into Wisconsin, Illinois, and beyond. The Applicants consider removal of this 800 MVA Limit (which is necessary to achieve the purpose of the MISO LRTP Tranche 2.1 Portfolio) a condition that is subject to regulatory review by the Commission. This section will provide background on and justification for removal of the 800 MVA Limit as part of the Commission's decision on the Project.

The Arrowhead – Weston project was proposed to address reliability concerns caused by the loss of the King – Eau Claire – Arpin 345 kV transmission line, which was the only high voltage transmission line directly connecting Minnesota and Wisconsin at the time. The parties opposing the Arrowhead – Weston project were concerned that the introduction of this connection could facilitate bulk power transport of electricity from coal-fired generation originating in North Dakota through Minnesota into Wisconsin and further east, resulting in mercury deposition and pollution in Minnesota. While there was no evidentiary support for this claim, the EQB Commissioners ultimately decided to include the 800 MVA Limit in their order for the Arrowhead – Weston project's permitting exemption request. The 800 MVA Limit specified that the operator would have to apply to the EQB (pursuant to authority now exercised by the Commission) to make any changes at the ATC Arrowhead Substation that would lead to an increase in the power flow capability of the substation that would allow transmission of power over the Arrowhead – Weston 345 kV transmission line in excess of 800 MVA.

At the time the 800 MVA Limit was established by the EQB, and prior to the EQB's decision to include the 800 MVA Limit in its Arrowhead – Weston project decision, Minnesota Power's plans

[91] Effective July 1, 2005, transmission line routing authority was transferred from the EQB to the Commission. 2005 Sess. Law 97, art. 3.

[92] While the permitting exemption was in the name of Minnesota Power when it was issued in 2001, the permissions and conditions were transferred to ATC in 2005 in MPUC Docket No E015/M-04-2020. Minnesota Power was the construction manager for the Minnesota Portion of the Arrowhead – Weston 345 kV Project.

for engineering design of the ATC Arrowhead Substation included transformers with a maximum continuous rating of approximately 800 MVA. The northernmost segment of the transmission line constructed for the Arrowhead – Weston project, the Arrowhead – Stone Lake 345 kV Line, is interconnected at the ATC Arrowhead Substation via a single 345 kV/230 kV transformer with a continuous rating of 801 MVA. Due to a lack of other strong transmission connections between northern Minnesota and Wisconsin at the time of the Arrowhead – Weston project, it was also necessary to install equipment at the ATC Arrowhead Substation capable of limiting the power flow on the 345 kV line to prevent adverse reliability impacts under certain regional transfer conditions. Therefore, the 345 kV/230 kV transformer is connected in series to a 230 kV phase shifting transformer (the "Arrowhead PST"), which also has a continuous rating of 801 MVA. The Arrowhead PST serves the purpose of controlling power flow as needed to address phase angle differences between the weakly-connected systems in northern Minnesota and northwestern Wisconsin. It is common to refer to a "Minnesota side" of the Arrowhead PST, generally corresponding to the MP Arrowhead Substation, and a "Wisconsin side" of the Arrowhead PST, generally corresponding to the ATC Arrowhead Substation. There were no other 345 kV connections proposed at the ATC Arrowhead Substation as part of the Arrowhead – Weston project, and no additional 345 kV connections at this substation have been constructed since the Arrowhead – Weston project was placed in service. The result is that, in the current configuration, all power flowing through the ATC Arrowhead Substation into Wisconsin must flow through these two transformers that are limited to 801 MVA. Therefore, at the time the 800 MVA Limit was established, the engineering design for the ATC Arrowhead Substation already precluded the possibility that more than 801 MVA could flow on the transmission line into Wisconsin without overloading the transformers. This configuration remains in place today, making it practically impossible for more than 800 MVA to flow into Wisconsin through the ATC Arrowhead Substation on a continuous basis, thus maintaining compliance with the 800 MVA Limit from the 2001 proceedings.

MISO had not yet been established at the time the EQB set the 800 MVA Limit for the ATC Arrowhead Substation. Specifically, there was no single entity that was responsible for performing long-term regional transmission planning to ensure the transmission system was reliable, economic, and compliant with public policy at that time. The regional generation portfolio was also very different in 2001, with a much greater reliance on fossil-fueled generation. According to the Energy Information Administration, in 2001, 77 percent of the megawatt hours ("MWh") generated in Minnesota and North Dakota were from coal-fired generating resources whereas by 2023, coal-fired generation on a MWh basis dropped to 36 percent.[93] This is reflective of the significant changes that the regional grid has undergone over the 25 years since the EQB established the 800 MVA Limit. These changes have taken place in response to public policies shifting toward renewable and carbon-free resources and the focus of regional planning has also shifted to provide for reliable renewable integration and decarbonization that is responsive to growing electricity demand and relieving transmission congestion.

The concerns raised at the time of the Arrowhead – Weston project proceedings related to the purported increase in transfer of coal-fired generation across the region resulting in mercury deposition in Minnesota must be placed into context of the current regional generation portfolio, environmental laws specifically targeting mercury emissions from coal-fired generating resources, public policy requirements and goals, and MISO's stated purpose for the LRTP Tranche 2.1 Portfolio. As described in Section 3.3, the MISO LRTP Tranche 2.1 Portfolio relieves reliability constraints across the Midwest, improves economic operation of the grid by reducing congestion

[93] U.S. Energy Information Administration, *Form EIA-923* (MN and ND, 2001 and 2023). Available at https://www.eia.gov/electricity/data/state/index.php. Last accessed September 2025.

and price separation, reduces generation curtailments (the vast majority of which are renewable generation resources), and enables interconnection of nearly 116,000 GW of primarily carbon-free energy resources. As a result, CO_2 emissions across the Midwest would be reduced by 127 to 199 million metric tons over a 20-40 year period. As a part of the Northern Minnesota project group evaluated by MISO in its LRTP Tranche 2.1 Report, the Project contributes to increasing (primarily renewable) generation outlet from North Dakota, South Dakota, and Minnesota, and alleviating some of the most constrained flowgates causing uneconomical grid operation in the region. As described in Sections 3.4.2 – 3.4.4, the Project, by itself and as a part of the MISO LRTP Tranche 2.1 Portfolio, enables increased and more flexible regional transfers of an increasing amount of renewable generation to ensure the power grid continues to operate reliably during the many different conditions that will be present as the way electricity is produced and used continues to evolve. To achieve the regional benefits of the Project, it is necessary to allow for circumstances where more than 800 MVA will flow through the ATC Arrowhead Substation into Wisconsin. For example, this is demonstrated in Table 16 showing that the addition of the Project leads to power flow on the Arrowhead – Stone Lake 345 kV transmission line in excess of 800 MVA at the post-Project MWEX interface voltage stability SOL. Therefore, it is necessary for the Commission to remove the 800 MVA Limit as part of its decision on the Project for the Project to perform as planned.

Upon completion of the Project, it will be practically impossible to maintain the 800 MVA Limit by directly controlling power flow into Wisconsin through the ATC Arrowhead Substation. In the post-Project configuration of the transmission system, the only options to comply with the 800 MVA Limit would be MISO market redispatch, additional equipment at the ATC Arrowhead Substation, or modifications to the configuration of the Project. Each of these alternatives would modify the regional purpose and benefits of the Project while in some cases deviating significantly from MISO's definition of the Project. These alternatives, which are discussed in further detail in Section 4, would introduce scope, complexity, and costs that are not currently contemplated as part of the Project while limiting the Project's effectiveness for achieving the regional and local transmission benefits described in this Application.

In summary, the 800 MVA Limit originally established as part of the Arrowhead – Weston project proceedings in 2001 is no longer necessary, particularly to protect against the concerns raised at that time in light of the public policy and environmental rule changes that have developed in the intervening years. If not removed, the 800 MVA Limit would unnecessarily restrict the effectiveness of the Project for enhancing regional reliability, and would require additional scope and costs to maintain after construction of the Project. Therefore, the Applicants request that the Commission remove the 800 MVA Limit as part of its consideration of the Project.

3.4.6 Regional Reliability and Transfer Capability Conclusion

In conclusion, the Project is a flexible solution for regional energy transfers as grid operating conditions become more variable and unpredictable. As more baseload generators retire and more intermittent renewables come online, there is a need for additional regional transmission buildout to create a robust and reliable system. As demonstrated by the NOMN, MHEX, and MWEX studies, the Project works as a part of the regional portfolio as it moves power from where it is generated in energy hubs like Manitoba and the Dakotas to regional load centers, to relieve congestion, support the generation fleet transition, and meet growing electrical demand.

3.5 MEETING CUSTOMER NEEDS AND ENHANCING RESILIENCY

Beyond meeting the regional transmission system needs identified by the Applicants and MISO, the Project provides additional benefits, including local benefits to customers in northern Minnesota. This section will provide an overview of the Applicants' assessment of the Project's beneficial impacts on meeting customer needs, resiliency and transmission source reliability, and additional benefits to facilities that are affected by the construction of the Project.

3.5.1 Meeting Customer Needs

The Project enhances the backbone transmission network in northern Minnesota to meet long-term customer needs. By establishing an additional high-capacity transmission connection between the Iron Range and Duluth area, the Project relieves existing transmission line loading on the underlying 115 kV and 230 kV network following critical contingencies. Overloads on these 115 kV and 230 kV lines limit the ability of the backbone transmission network to move energy to customers around northern Minnesota as the demand for reliable clean energy increases across the region. The Project also supports the transition to more renewable energy on the transmission system for the benefit of Minnesota customers.

To quantify the Project's impact on relieving critical underlying system constraints and enhancing local reliability, the Applicants used the MTEP24 2034 Winter Peak and 2034 Summer Peak power flow models. The impact of general load growth in northern Minnesota on post-contingent loading for the most limiting 115 kV and 230 kV transmission lines was assessed for contingencies impacting this backbone transmission system. By relieving loading on these existing transmission lines, the Project increased local area load-serving capability in northern Minnesota by 256 MW to 850 MW, depending on the particular load area.

The results of this study demonstrate that the Project enhances local reliability and increases local load-serving capability following existing limiting contingencies within northern Minnesota. By ensuring the backbone transmission system is reinforced appropriately to serve the long-term needs of the northern Minnesota grid, the Project contributes to a more robust and flexible system.

3.5.2 Resiliency, Flexibility, and Transmission Source Reliability

The Project establishes a redundant pathway for power transfers in and through northern Minnesota, particularly between the Iron Range and the Duluth area, while enhancing the resiliency, flexibility, and reliability of the regional grid and the major transmission sources to the area.

In recent years, Minnesota Power's evaluations of the impact of generator fleet transition on transmission system reliability in northern Minnesota have consistently demonstrated that the northern Minnesota transmission system becomes more dependent on EHV[94] transmission connections to the bulk regional transmission grid as the availability and operational characteristics of local generation resources change.[95] The Project's three endpoints, including the Iron Range Substation, the ATC Arrowhead Substation, and the St. Louis County Substation are three of the four major transmission sources connecting northern Minnesota to the regional grid. High-capacity EHV transmission from Manitoba, central Minnesota and the Twin Cities, North

[94] EHV transmission is typically defined as 345 kV and above.

[95] *In the Matter of Minnesota Power's 2021–2035 Integrated Resource Plan*, Docket No. E015/RP-21-33, APPLICATION at Appendix F, Part 8 (February 1, 2021); *In the Matter of the Application of Minnesota Power for Approval of 2025-2039 Integrated Resource Plan*, Docket No. E015/RP-25-127, APPLICATION at Appendix F, Part 7 (Mar. 3, 2025).

Dakota, and Wisconsin connect to northern Minnesota at these four key substation locations, creating a confluence of regional transmission connections and transfers in northern Minnesota. In the current system configuration, there are no direct EHV connections between the four major substations, meaning that bulk power transfers between these substations are mainly facilitated by Minnesota Power's 230 kV backbone network. By establishing a high-capacity 345 kV connection between three of the four major EHV transmission sources in northern Minnesota, the Project will create a redundant parallel path for bulk power to flow into and through northern Minnesota between these major sources. This additional high-capacity transmission path will unload the underlying 230 kV and 115 kV networks (as discussed in the preceding section), improve the reliability of the major transmission sources in northern Minnesota, add redundancy for these critical sources to back each other up, and enhance the overall resiliency of the northern Minnesota transmission system.

As discussed in Section 3.3.7 and Section 3.4, the resilient and redundant 345 kV pathway established by the Project enhances the opportunity to leverage complementary regional generation resources in Minnesota, the Dakotas, Manitoba, and Wisconsin to support regional load centers the energy mix continues to evolve. Expanding transmission line connections to the main sources of bulk power delivery in northern Minnesota also provides additional flexibility and resiliency that is needed for the local area to rely more heavily on these sources as the makeup of the local generator fleet changes. By providing another source of power delivery to the local network, the Project also enhances flexibility to meet potential electrical demand increases from adoption of commercial and personal electric vehicles, conversion to electrical heating and cooling, and the switching of industrial process from fossil fuels to electricity (*e.g*. electrifying iron ore mining trucks) – commonly referred to as "electrification" when considered in aggregate. MISO forecasts that electrification could increase energy consumption in Minnesota and the surrounding region (MISO LRZ 1) by approximately 2,600 gigawatt-hours ("GWh") to 40,000 GWh by 2039.[96] By providing additional transfer capability in northern Minnesota and northwestern Wisconsin, the Project supports the ability to serve increased electricity demand due to electrification and other drivers.

The configuration of the Project on robust steel monopole double-circuit capable structures will further enhance the resiliency of regional transfer paths and local power delivery sources in Minnesota. As regional transfer paths are enhanced with both redundancy and additional transfer capability, the robust physical design of the Project helps to better withstand the effects of extreme weather. Constructing Segment 1 and Segment 2 of the Project on double-circuit capable structures will enable the future establishment of a second 345 kV line in the Iron Range – St. Louis County corridor, continuing to enhance transmission capacity and reliability as future needs develop. Utilizing the future second circuit position initially for the existing Iron Range – Arrowhead 230 kV Line in Segment 2 not only reduces the human and environmental impacts of the Project (as discussed in Section 5.2.3.2), but it also enhances the resiliency of the existing 230 kV network. By rebuilding a segment of the existing 230 kV wood pole transmission line on the proposed steel monopole double-circuit structures, the Project addresses asset renewal needs for this 50-year-old transmission line and re-establishes it on more robust and resilient steel monopole towers.

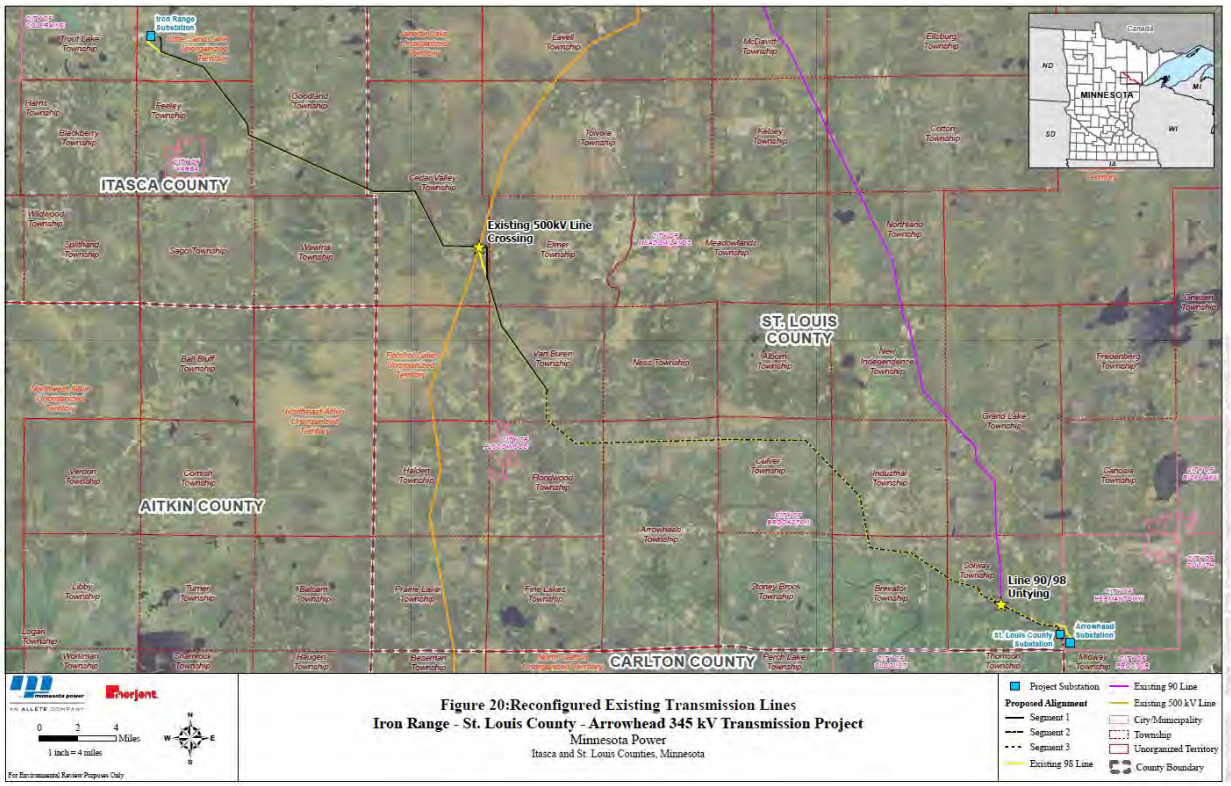
[96] MISO, *MISO Futures Report, Series 1A* (November 1, 2023). Figures 41, 43, and 45. Available at https://cdn.misoenergy.org/Series1A_Futures_Report630735.pdf. Last accessed November 2025.

3.5.3 Improved Transmission Line Crossings

The Project improves resiliency, enhances reliability, and provides a safer working environment at two existing transmission line crossing locations by modifying and improving transmission line crossings.

The Project includes the reconfiguration of existing transmission lines at the locations shown in Figure 20.

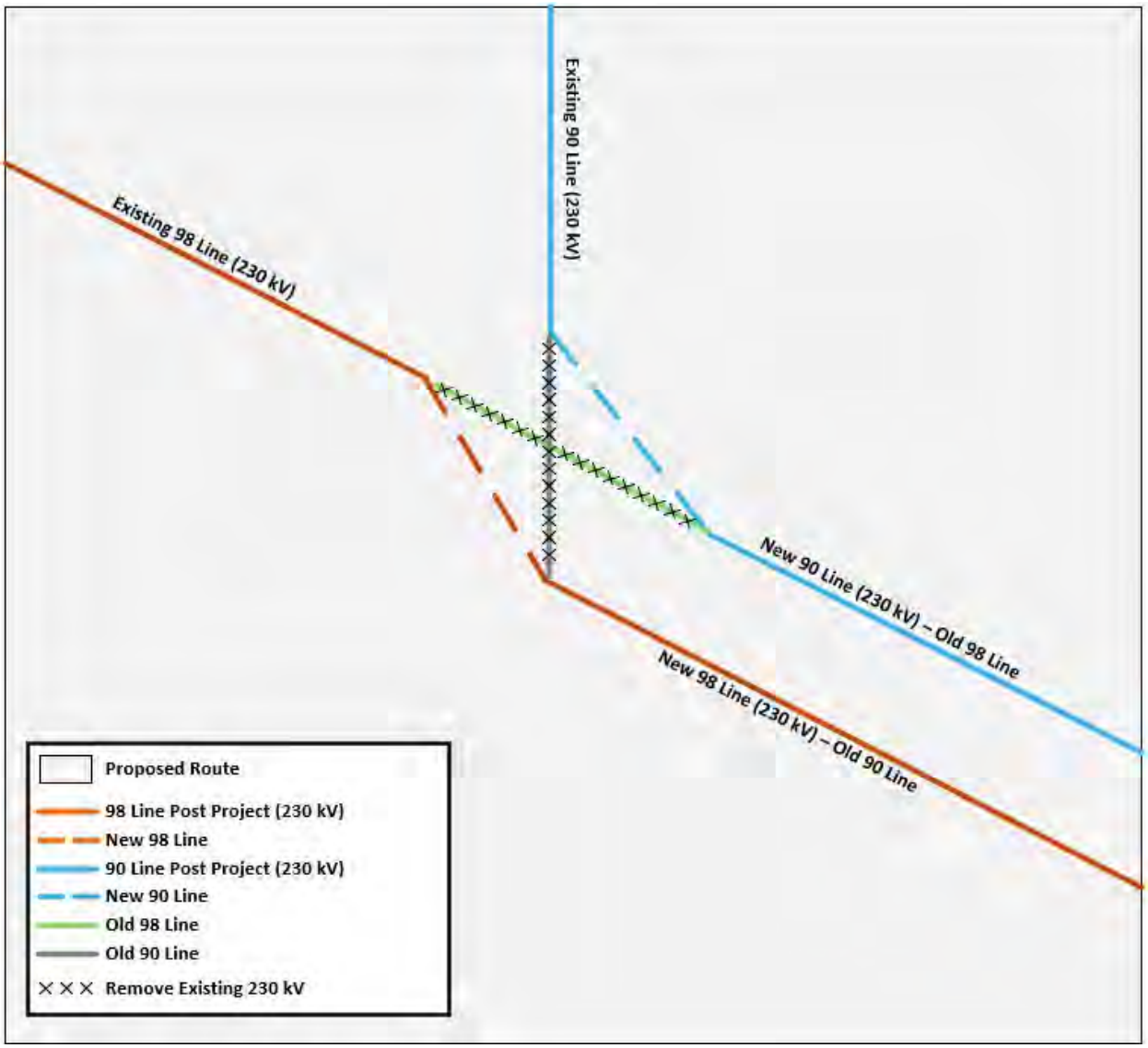
Figure 20. Reconfigured Existing Transmission Lines



The reconfiguration of two existing 230 kV lines (90 and 98 Line) is necessary to eliminate an existing transmission line crossing. Currently, the conductors of the existing Minnesota Power 90 Line and Minnesota Power's 98 Line are interwoven with one another at the location where the two transmission lines cross. Specifically, the 90 Line shield wire, which provides lightning protection for the transmission line and includes OPGW for utility communications, traverses over the top of the 98 Line shield wire. Further, the existing HVDC ground electrode wire, which is above the 90 Line current-carrying phase conductors(which are above the 98 Line phase conductors) which are required to maintain sufficient conductor-to-ground clearances to meet National Electrical Safety Code ("NESC") and Minnesota Power standard transmission line design requirements. All of these wires stacked on top of each other require adequate electrical clearances, increasing tower heights and restricting the ability to work on one transmission line at this crossing location without impacting the other transmission line. As a result, both transmission lines must be taken out of service any time construction or maintenance is required at the crossing spans. Eliminating the transmission line crossing is also proposed because crossing of high-voltage transmission lines increases the risk of simultaneous unplanned outage of both transmission lines. If one of the lines should fall, it risks not only a fault (i.e., unexpected de-

energization) but also taking down the other transmission line. In this case, the loss of the OPGW and the HVDC ground electrode[97] in the shield wire positions would lead to additional impacts from such an outage at the 90 Line and 98 Line crossing. The Project will reconfigure the existing 90 Line and 98 Line transmission lines such that this line crossing is eliminated, achieving additional system resiliency benefits. The reconfigured crossing is shown in Figure 21.

Figure 21. 90 Line and 98 Line Crossing Area



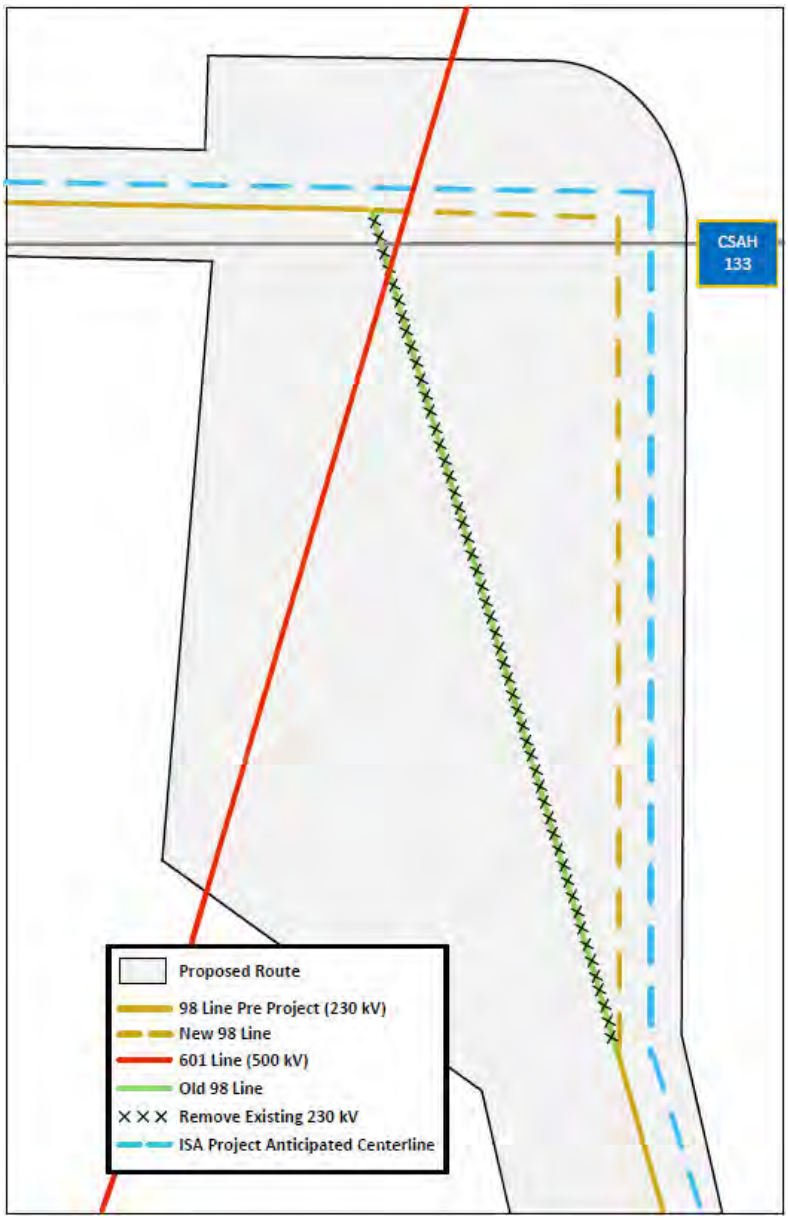
The Project also includes realignment and hardening of an existing regional transmission line crossing location where the existing 98 Line crosses the existing Forbes – Chisago 500 kV Line ("601 Line"). This realignment of the 500 kV transmission line crossing can be seen in Figure 22.

While crossing high voltage transmission lines is minimized and avoided where possible, sometimes due to substation locations or transmission line routing, it is inevitable. In those cases, design and safety precautions are taken into account to create as efficient and safe of a crossing

[97] The HVDC terminal will be reconfigured after HVDC Modernization and no longer use ground electrodes.

as possible. The Project on the Proposed Route will follow the existing 98 Line through this area and therefore will also need to cross under this 500 kV line. The Proposed Route includes a realignment of the existing 98 Line with the Project through this area, relocating and reconfiguring the crossing to reduce impacts to the existing 500 kV transmission line and a nearby road. The Project also includes replacement of structures in the existing 500 kV line on either side of the crossing with taller and more robust structures to ensure adequate electrical clearances, enhance resiliency and reduce the risk of a 500 kV line structure failure, which would cause an outage on all three transmission lines (500 kV, 345 kV Project, and 230 kV 98 Line). Installing more robust structures in the 500 kV line will increase the resiliency of all three transmission lines and the regional grid while also creating a safer working environment for transmission line construction and maintenance, particularly in proximity to the road.

Figure 22. 500 kV Realignment Area



3.6 PROJECT AREA LOAD DATA

Minnesota Power's most recent peak demand and annual forecast may be found in Minnesota Power's 2025 Annual Electric Utility Forecast Report filed on August 1, 2025,[98] which is provided in Appendix K.

ATC's load forecast information is set forth in Table 17.

Table 17. ATC 10-Year Load Forecast Information

Year	Gross Load (MW)	2024-2034 Compounded Annual Growth Rate
2024	12,744	-
2034	15,990	2.3%

In addition to supporting power transfer and electrical demand in the Applicants' service territories, the Project is needed to support the broader MISO region. MISO's base demand forecast is developed by aggregating each MISO member's forecasts. To consider a broader range of potential outcomes to "bookend" uncertainty, MISO creates multiple demand and energy forecasts from the base forecast in the Futures (*see* Section 3.3.7 for details on the MISO's Futures). The load forecasts used in MISO's Futures consider different adoption rates for demand response, energy efficiency, and distributed generation (*e.g.*, behind-the-meter solar) and differing impacts of electrification. MISO's demand and energy forecasts are developed for each of MISO's ten LRZs to consider regional differences. MISO's ten LRZ forecasts are then aggregated to a MISO-wide forecast.

The MISO Series 1A Futures' gross peak demand and annual energy forecast for the MISO Market Footprint are provided in Figure 23 and Figure 24, respectively. The associated gross peak demand and gross annual energy compound annual growth rates ("CAGR") are provided in Table 18. Additional details on MISO's Series 1A Futures and load forecast can be found the MISO Series 1A Futures Report (a copy of this report is provided in Appendix I). MISO's evaluation and justification of the LRTP Tranche 2.1 Portfolio was based primarily on Future 2A assumptions, with a sensitivity analysis to test the business case against Future 1A.

[98] *In the Matter of the Annual Electric Utility Forecast Resports*, Docket No. E999/PR-23-11, ANNUAL COMPLIANCE FILING (Aug. 1, 2025)

Figure 23. MISO Market Footprint Series 1A Futures Coincident Peak Load Forecast[99]

Figure 24. MISO Market Footprint Series 1A Futures Annual Energy Forecast[100]

[99] MISO, *MISO Futures Report, Series 1A* (November 1, 2023). Figure 25. Available at https://cdn.misoenergy.org/Series1A_Futures_Report630735.pdf. Last accessed November 2025.
[100] *Id.* at Figure 26.

Table 18. Series 1A Futures 20-Year CAGR

Series 1A Future	Gross Demand 20-Year CAGR	Gross Energy 20-Year CAGR
Future 1A	0.77%	0.63%
Future 2A	1.14%	1.25%
Future 3A	1.63%	1.95%

3.7 ESTIMATED SYSTEM LOSSES

Losses are a measure of the energy flow across the system that is converted into heat due to impedance within the elements of the transmission system. It is necessary for utilities to provide enough generation to serve their respective system demands (plus reserves), taking into account the loss of the energy before it can be usefully consumed. When system losses are reduced or minimized, electrical energy is delivered to end users more efficiently, helping to defer the need to add more generation resources to a utility's portfolio. Therefore, system loss reduction results in monetary savings in the form of less fuel required to meet the system demand plus potentially delayed capital investment in generation plant construction.

Each new transmission line that is added to the electric system affects the losses of the system. In determining the losses associated with a particular transmission project, it is not reasonable to consider only the project's transmission facilities and calculate losses directly from operation of those new transmission facilities. Rather, it is necessary to look at the total losses of the system that result with and without the proposed project. The losses were therefore studied using the larger MISO North system for loss evaluation. In its Exemption Order, the Commission authorized the Applicants to provide line loss data for the system as a whole, rather than line loss data specific to an individual transmission line.[101]

The Applicants used power flow software power system simulator for engineering ("PSS/E") to calculate the losses at peak demand based on a WLR MISO LRTP Tranche 2.1 case. The results are shown below in Table 19. The Existing Transmission System includes all projects with in-service dates prior to 2042.

Table 19. Calculated Project Peak Demand Loss Savings

Scenario	System Losses (MW)
Existing Transmission System	1616.8
System with Project	1607.3
Difference	-9.5

The table shows that the Project's proposed transmission infrastructure reduces the losses on the electrical system. Under winter peak, low renewable generation conditions, the losses incurred

[101] *In the Matter of the Application for a Certificate of Need for the Iron Range to St. Louis County to Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (Nov. 18, 2025).

on the transmission system in Minnesota and neighboring states are 9.5 MW less when the Project is energized as compared to the existing system configuration.

Because demand for electric power is not constant and losses are related to the square of the current flowing through the transmission lines in the electric system, the losses will change over time, increasing as demand increases and decreasing as demand decreases. Because losses change over time, there is no precise method to calculate average annual loss reductions. One common method is to use the loss savings at peak demand to estimate the average annual loss savings based on the following formula:[102]

$$Loss\ Factor = (0.3 \times Load\ Factor) + (0.7 \times Load\ Factor^2)$$

$$Annual\ Loss\ Savings\ (MWh) = (Loss\ Factor \times Peak\ Loss\ Savings) \times 8760\ hours/year$$

Assuming a load factor of 55 percent and using the calculated loss savings at peak demand, the Project will reduce average transmission losses by an estimated 31,353 MWh annually.

3.8 CONSEQUENCE OF DELAY

If the Project is delayed, there will be both regional and local reliability consequences. The MISO LRTP Tranche 2.1 Portfolio assumes the Project will be in service in 2032. Delay of the Project would impact the performance of the broader portfolio, which was optimized to work together to deliver benefits across the Midwest. The loss in performance would increase the risk of reliability events, delay and potentially diminish the economic benefits of the Tranche 2.1 Portfolio, including approximately $1.37 billion to $2.24 billion in value from reduced congestion and fuel savings for Minnesota and the surrounding area for the length of the delay,[103] and could jeopardize Minnesota and other MISO states in meeting clean energy policy objectives. Additionally, as discussed in the MISO LRTP Tranche 2.1 Report, the Tranche 2.1 projects deliver significant economic benefits to local economies by enabling load growth, investing in local economies, and creating local jobs, all of which benefits would also be delayed or diminished if the Project is delayed.

3.9 EFFECT OF PROMOTIONAL PRACTICES

The Applicants have not conducted any promotional activities or events that have triggered the need for the Project. Rather, the Project is driven by regional reliability related to the clean energy transition and meeting public policy objectives. However, Minnesota Power undertakes various demand side management and conservation programs. A summary of Minnesota Power's latest Conservation Improvement Plan ("CIP") and Demand Side Management and Distributed Resource plans are included as Appendix L.

3.10 EFFECT OF INDUCING FUTURE DEVELOPMENT

The Project is not intended to induce future development, but it may support future economic development that otherwise would not be possible if the Project and the MISO LRTP Tranche 2.1 Portfolio were not constructed. These efforts are discussed in Section 3.3.

[102] Turan Gönen, *Electric Power Distribution System Engineering* (McGraw Hill,1986), 55, 58-59.
[103] See MISO, *MTEP24 Report*, chap. 2, Table 2.31 for CAZ 1 (20 Year PV).

3.11 SOCIALLY BENEFICIAL USES OF FACILITY OUTPUT

The Project supports public policy goals such as Minnesota's carbon-free by 2040 standard and its interim targets. The addition of the broader MISO LRTP Tranche 2.1 Portfolio (including the Project) is projected to result in a reduction in CO_2 emissions by supporting the more efficient dispatch of lower-cost, non-emitting resources. MISO estimates that the broader MISO LRTP Tranche 2.1 Portfolio will reduce CO_2 emissions by 127-199 million metric tons over 20-40 years of the portfolio's service.[104] Furthermore, by expanding the high voltage regional transmission network, additional avenues are created for power to travel to load centers from areas of high generation. This results in a reduction of congestion and power loss, creating a more efficient power grid, and increased access to low cost generation.

[104] *Id.* at 142.

4.1 ANALYSIS OF ALTERNATIVES

In any Certificate of Need proceeding, the Commission is required to evaluate "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation."[105] The Commission requires that an applicant discuss a number of alternatives. Minn. R. 7849.0260 states that each application for a proposed large high-voltage transmission line ("LHVTL") must include:

> B. a discussion of the availability of alternatives to the facility, including but not limited to:
>
> (1) new generation of various technologies, sizes, and fuel types;
>
> (2) upgrading of existing transmission lines or existing generating facilities;
>
> (3) transmission lines with different design voltages or with different numbers, sizes, and types of conductors;
>
> (4) transmission lines with different terminals or substations;[106]
>
> (5) double-circuiting of existing transmission lines;
>
> (6) if the proposed facility is for DC (AC) transmission, an AC (DC) transmission line;
>
> (7) if the proposed facility is for overhead (underground) transmission, an underground (overhead) transmission line; and
>
> (8) any reasonable combinations of the alternatives listed in subitems (1) to (7).

Minn. R. 7849.0340 also requires an applicant to consider the option of not building the proposed facility.[107]

This section examines the different alternatives that the Applicants evaluated. These include: 1) generation, demand-side management, and non-wires alternatives; 2) various transmission alternatives, including system upgrades, different configurations, and voltage levels; and 3) the possibility of not building the project at all (*e.g.*, no-build). This section also includes the Applicants' consideration of alternatives that would enable the Commission to maintain the ATC Arrowhead Substation 800 MVA Limit.[108] As outlined in Sections 4.2 through 4.11 below, none of the alternatives considered by the Applicants present a more reasonable or prudent solution than the proposed Project.

[105] Minn. Stat. § 216B.243, subd. 3(6)
[106] Minn. Stat. § 216B.243, subd. 3(6) provides that the Commission "must not require evaluation of alternative end points for a high-voltage transmission line qualifying as a large energy facility unless the alternative end points are (i) consistent with end points identified in a federally registered planning authority transmission plan, or (ii) otherwise agreed to for further evaluation by the applicant." The Applicants have not agreed to any alternative endpoints and no alternative end points were identified by MISO.
[107] *Id.*
[108] See Section 3.4.

4.2 GENERATION AND NON-WIRES ALTERNATIVES

The Applicants considered various generation and non-wires solutions, including new peaking generation, distributed generation, renewable generation, battery energy storage, demand-side management, and reactive resources, such as capacitor banks, reactors, or STATCOMs that contribute or absorb reactive power from the grid, as alternatives to the Project. To be a viable alternative to the Project, a generation or non-wires alternative (or combination of alternatives) must address the combination of needs addressed by the Project, including MISO LRTP Tranche 2.1 Portfolio needs discussed in Section 3.3.7 and regional transfer capacity and flexibility discussed in Section 3.4. As part of the LRTP Tranche 2.1 Portfolio, the Project relieves thermal and voltage constraints, reduces transmission congestion on some of the most-constrained flowgates in the region, and increases the deliverability of generation resources in the Dakotas and Minnesota toward load centers in Northern Minnesota, the Twin Cities, and beyond. Further, as discussed in Section 3.4, the Project increases capacity and improves flexibility for regional transfers in and through Minnesota in three key directions: South to North, North to South, and Minnesota to Wisconsin. While the various generation and non-wires solutions may individually address some of these Project needs, no generation or non-wires solution exists that can provide the full suite of benefits provided by the Project as part of the LRTP Tranche 2.1 Portfolio. For example, a well-placed and appropriately-sized battery energy storage system may relieve some thermal and voltage constraints and improve transmission congestion on a short-term basis, but its effectiveness will be limited by its duration limitations, and it is not a technically viable solution for increasing the capacity of regional transfer interfaces or enabling the delivery of other types of generation. Therefore, there is no alternative generation or non-wires solution that can provide the holistic benefits provided by the Project.

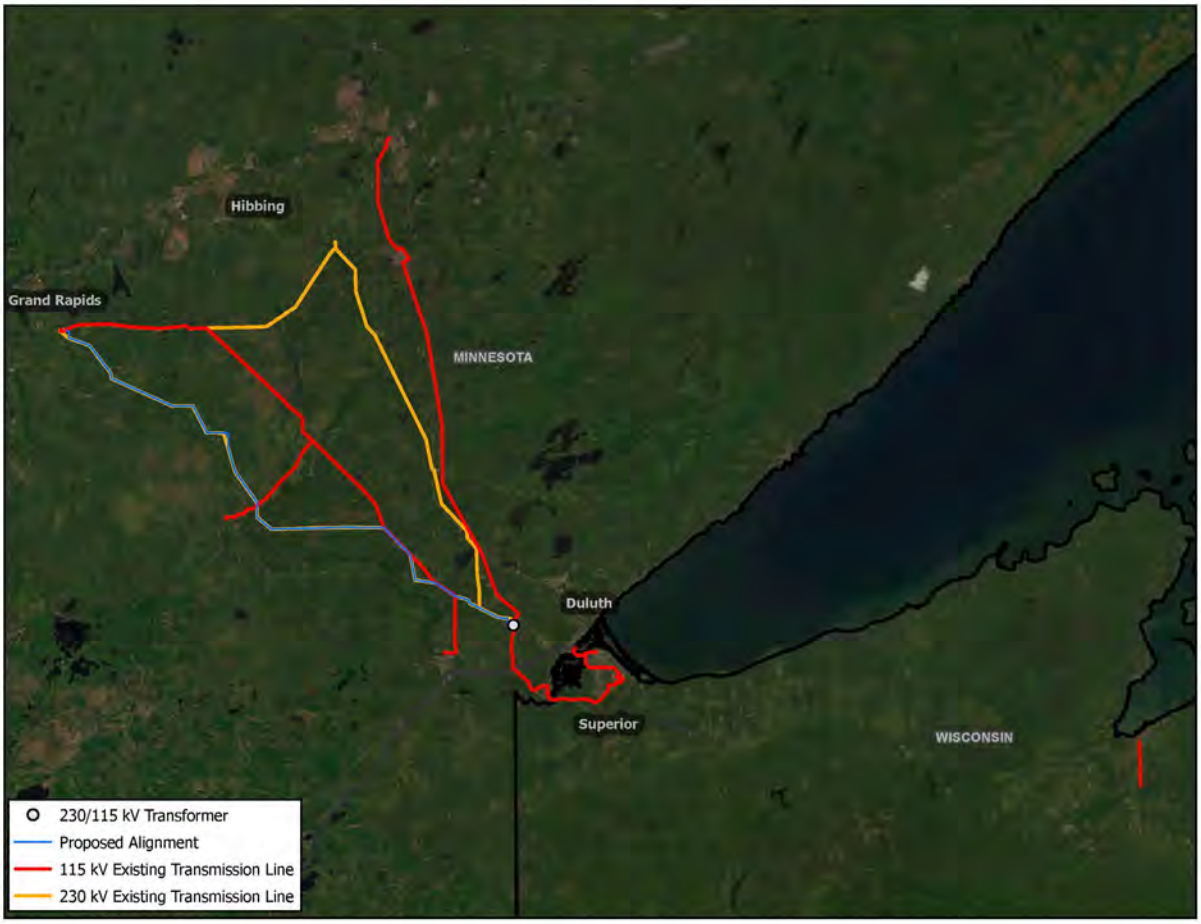
4.3 UPGRADE OF EXISTING FACILITIES

The Applicants considered upgrading existing transmission facilities as an alternative to the Project. To be a viable alternative to the Project, an alternative based on upgrade of existing facilities must address the combination of needs addressed by the Project, including relieving thermal and voltage constraints, reducing transmission congestion on key regional flowgates, and increasing the deliverability of regional generation resources as identified in the MISO LRTP Tranche 2.1 Report and discussion in Section 3.3. Further, as discussed in Section 3.4, any viable alternative to the Project would also need to provide benefits equivalent to the Project by increasing capacity and improving flexibility for regional transfers in and through Minnesota in three key directions: South to North, North to South, and Minnesota to Wisconsin. To address just two aspects of the need for the Project, thermal constraints and congested flowgates, an alternative based on upgrade of existing facilities would have to include upgrading or rebuilding the existing transmission lines shown in Table 20 and a map of these facilities is provided in Figure 25.

Table 20. Existing Transmission Lines Included in the Upgrade Alternative

Existing Transmission Line	Line Length (miles)	Estimated Upgrade Cost (2024$) (millions)
Fairmount Park – Winter St 115 kV	3.48	$17.9
Hibbard – Winter St 115 kV	3.59	$18.2
Fairmount Park – Stinson 115 kV	3.04	$16.6
Arrowhead – Bergen Tap – Cotton Tap – 16 Line Tap 115 kV	45.73	$79.6
Arrowhead – Gary 115 kV	10.72	$22.2
Nemadji – Gary 115 kV	9.49	$20.1
Bayfront – Gingles 115 kV	2.90	$8.9
Floodwood Tap – Meadowlands Tap – Burnett Tap – Cloquet 115 kV	30.26	$53.3
Floodwood Tap – Blackberry 115 kV	32.72	$57.5
Iron Range – Blackberry 230 kV #1	0.60	$7.1
Iron Range – Blackberry 230 kV #2	0.75	$7.4
Arrowhead – Iron Range 230 kV	64.95	$127.9
Arrowhead – Forbes 230 kV	47.49	$95.1
Iron Range – Forbes 230 kV	33.88	$69.6
Arrowhead 230/115 kV Transformer	N/A	$13.5
TOTALS:	**289.6**	**$614.9**

Figure 25. Existing Transmission Lines Included in the Upgrade Alternative



Each of these existing transmission lines was identified in either the MISO LRTP Tranche 2.1 analysis as being a thermal constraint or a congested flowgate that is relieved by the Project[109] or in Minnesota Power's analysis of transmission constraints impacting local reliability.[110] All of these existing transmission lines would have to be upgraded to achieve part of the Project benefits. In some cases, the post-contingent loading on these transmission lines is more than two (2) times rated capacity, exceeding the point where achieving the required capacity by upgrading or rebuilding becomes impractical with typical single-circuit 115 kV construction standards. In those cases, it would be necessary to either rebuild the existing line as a double-circuit transmission line to double its capacity or construct a new transmission line on new right-of-way. For the purpose of this discussion, double-circuiting of the existing heavily-overloaded transmission lines has been assumed. The 15 existing 115 kV and 230 kV transmission facilities shown in Table 20 total 289.6 miles of transmission line upgrade, which would be estimated to cost $614.9 million using the MISO MTEP24 Exploratory Cost Estimation Guide.

Even with those existing facilities upgraded or rebuilt, the existing system upgrade alternative would not address other needs of the Project, including the increased and more flexible regional transfer capability that is only obtainable by constructing the Project as part of the MISO LRTP

[109] See Table 8 and Table 10.
[110] See Section 3.5.

Tranche 2.1 regional transmission superhighway. There are also major constructability challenges. Implementing this alternative would require long-duration outages on 14 transmission lines and one transmission transformer, as well as shorter outages at 15 different substations to install the necessary substation terminal equipment upgrades, complicating project execution and potentially impacting system reliability during construction. Finally, this alternative lacks flexibility for future needs. It is designed only to meet current reliability challenges and does not allow for future system growth or additional changes tied to the ongoing energy transition. As demand increases or system conditions evolve, further upgrades would be needed. For all these reasons, upgrading existing facilities alone is not considered a more reasonable or prudent alternative to the Project.

4.4 ALTERNATIVE VOLTAGES

The Applicants considered both lower and higher voltage alternatives to the Project. In considering either of these alternatives, it is necessary to recognize that the MISO LRTP Tranche 2.1 Portfolio was developed as an extension of the LRTP Tranche 1 portfolio and the existing regional EHV (*e.g*. 345+ kV) transmission backbone. In particular, the northern Minnesota group of LRTP Tranche 2.1 Projects described in Section 3.3. is intended to build upon and facilitate further connectivity of the regional 345 kV network, including a lower impedance path connecting:

- the Iron Range Substation, with its tie to the local northern Minnesota 230 kV system and Manitoba
- the Northland Reliability Project, with its tie between northern Minnesota, central Minnesota and the Twin Cities area
- Minnesota Power's St. Louis County HVDC converter station, with its tie to the local northern Minnesota 230 kV system and North Dakota; and
- the ATC Arrowhead Substation, with its connection into Wisconsin.

A common thread connecting all these areas is the presence of 345 kV transmission as the regional backbone network voltage. A key consideration, therefore, is whether a lower or higher voltage alternative can meet the needs of the Project by connecting these areas more efficiently or cost-effectively compared to the Project, which is proposed to connect at 345 kV.

4.4.1 Lower Voltage Alternatives

The Applicants considered lower voltage solutions involving additions to the local 230 kV transmission system as an alternative to the Project. As defined by MISO, the Project establishes a new low-impedance 345 kV connection between the Project endpoints. For a lower-voltage alternative to be viable, it would need to provide a similar electrical impedance to that of the Project. To achieve the required impedance and be able to accommodate the necessary power transfer levels, the Applicants' analysis indicates multiple 230 kV or 115 kV corridors would need to be developed. Table 21 shows a comparison of the impedance of the proposed single-circuit Iron Range – St. Louis County 345 kV Line, as defined by MISO in the LRTP Tranche 2.1 final portfolio models, and the number of 230 kV or 115 kV lines of a similar length to the Project that would be necessary to provide an equivalent impedance.

Table 21. Impedance Comparison of the Project and Lower Voltage Solutions

Nominal Voltage of Solution	Single-Circuit Impedance (per unit, 100 MVA base)	Required Number of Circuits
345 kV Project	0.032058 pu	1
230 kV Alternative	0.096256 pu	3
115 kV Alternative	0.351990 pu	11

To determine the number of circuits required for each alternative voltage, the single-circuit impedance is divided by the targeted 345 kV Project impedance. A 230 kV alternative would require three individual circuits while a 115 kV alternative would require at least 11 individual circuits compared to the Project. This simple calculation demonstrates why 230 kV and 115 kV are not generally proposed as solutions for the distance and power transfer levels associated with the Project. The increases in the total number of new transmission rights-of-way for the 230 kV and 115 kV alternatives would have considerable human and environmental impacts, in addition to higher costs. Based on this analysis, lower voltages are not a more reasonable or prudent alternative to the Project.

4.4.2 Higher Voltage Alternatives

The Applicants considered higher voltage solutions involving new 765 kV and 500 kV transmission as an alternative to the Project. The Applicants considered a 765 kV alternative; however, there is currently no 765 kV transmission in northern and central Minnesota and the closest LRTP Tranche 2.1 proposed 765 kV projects connect at either the North Rochester Substation in southeastern Minnesota or the Big Stone Substation in eastern South Dakota. The Applicants also considered a 500 kV alternative. Minnesota Power, Xcel Energy, and Great River Energy operate a network of 500 kV transmission lines connecting Minnesota to Manitoba, with interconnections in Minnesota at the Iron Range, Forbes, and Chisago County substations. For either alternative, 500 kV or 765 kV, extensive transformation would be required to step down the voltage to interconnect with the existing 345 kV systems at the Iron Range, St. Louis County, and Arrowhead Substations. These additional transformers would add significantly to project cost and material lead times, and require substantially more total expansion area at the Project endpoint substations. The Project does not require transformers because it interconnects directly with existing 345 kV infrastructure at the Project endpoints. Given the higher construction costs, greater right-of-way needs, and added operational complexity, the increased capacity offered by a 500 kV or 765 kV line does not justify the trade-offs compared to the proposed Project. The Applicants have assessed the current and future needs of the region and concluded that construction of the Project as single-circuit 345 kV on double-circuit capable structures meets the identified needs, integrates most efficiently with the existing transmission network, and provides the greatest degree of capacity, expandability, and long-term flexibility. Based on this analysis, higher voltage solutions such as 765 kV and 500 kV transmission lines are not a more reasonable or prudent alternative to the Project.

4.5 ALTERNATIVE ENDPOINTS

Minn. Stat. § 216B.243, subd. 3(6)(i) states the Commission must not require evaluation of alternative end points for a high-voltage transmission line qualifying as a large energy facility unless the alternative end points are consistent with end points identified in a federally registered planning authority transmission plan. Because the MISO LRTP Tranche 2.1 project number 21

dictates endpoints at the existing Iron Range, St. Louis County, and Arrowhead substations, the Applicants did not assess alternative endpoints. An exemption from this requirement was approved by the Commission on November 18, 2025.[111]

4.6 ALTERNATIVE PROJECT CONFIGURATIONS

In addition to the alternatives required under Minn. R. 7849.0260, the Applicants considered alternative configurations for the Project that would enable the 800 MVA Limit on power flows through the Arrowhead Substation into Wisconsin to be maintained. As discussed in Section 3.4, the configuration of the Project necessitates that the Commission remove the 800 MVA Limit as part of its decision on the Project. Upon completion of the Project, as proposed by the Applicants, it will be physically impossible to maintain the 800 MVA Limit by directly controlling power flow into Wisconsin through the ATC Arrowhead Substation. The reason for this is illustrated in Figure 26 and Figure 27:

Figure 26. Pre-Project System Configuration

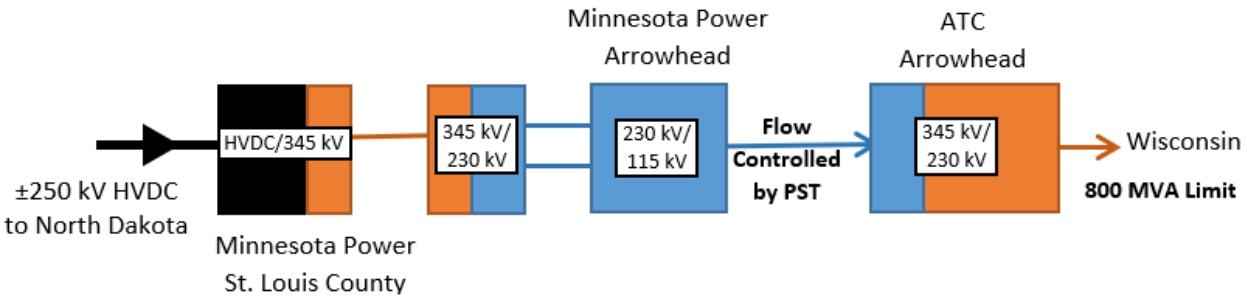
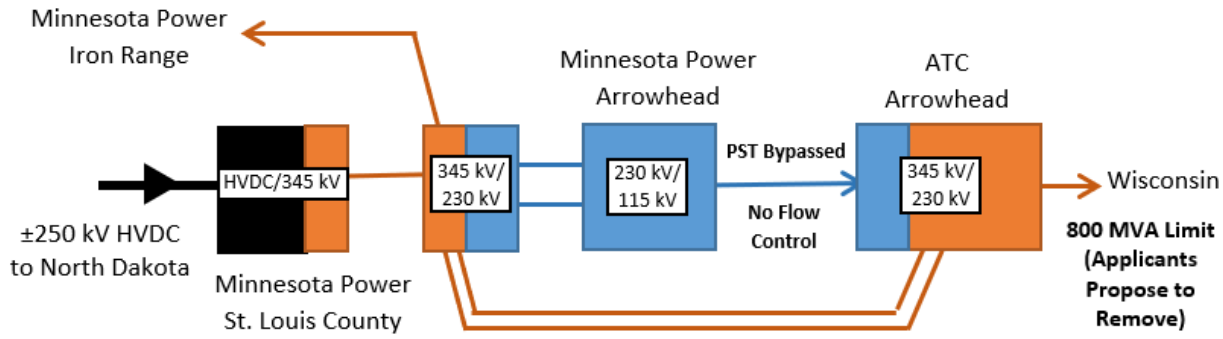


Figure 27. Post-Project System Configuration



In the pre-Project configuration, shown in Figure 26, the existing Arrowhead – Stone Lake 345 kV Line connecting the ATC Arrowhead Substation to Wisconsin is interconnected via a single 345 kV/230 kV transformer with a continuous rating of 801 MVA. That transformer is connected in series to the Arrowhead PST, which also has a continuous rating of 801 MVA. No additional 345 kV connections at the ATC Arrowhead Substation have been constructed since the 800 MVA Limit was established. The result is that, in the current configuration, all power flowing through the ATC

[111] *In the Matter of the Application for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS at 1 (Nov. 18, 2025).

Arrowhead Substation into Wisconsin must flow through these two transformers that are limited to 801 MVA. Therefore, in the current configuration the engineering design for the ATC Arrowhead Substation precludes the possibility that more than 801 MVA could flow on the transmission line into Wisconsin without overloading the transformers.

In the post-Project configuration, shown in Figure 27, the Project includes the connection of two new 345 kV transmission lines (the proposed double-circuit 345 kV transmission line in Segment 3) to the ATC Arrowhead Substation. These new 345 kV transmission lines establish a new parallel path for power flows through the ATC Arrowhead Substation that bypasses the existing Arrowhead PST and Arrowhead 345 kV/230 kV transformer, meaning that power flows into Wisconsin will no longer be required to flow through these two transformers and therefore will not be limited by the transformers' 801 MVA ratings. Consequently, consistent with the MISO project definition, the Arrowhead PST will also be physically bypassed upon completion of the Project to enable more optimal and efficient operation of the transmission system. The Project configuration as described makes it practically impossible to maintain the 800 MVA Limit by directly controlling power flow through the ATC Arrowhead Substation without relying on MISO market redispatch, additional equipment at the ATC Arrowhead Substation, or modifications to the configuration of the Project. As discussed below, each of these alternatives would modify the regional purpose and benefits of the Project while in some cases deviating significantly from MISO's definition of the Project.

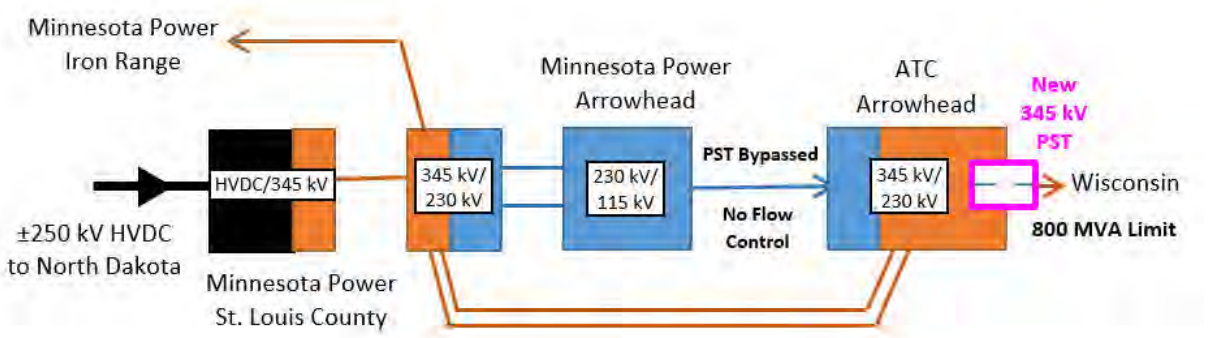
4.6.1 MISO Market Redispatch

The Applicants considered maintaining the 800 MVA Limit by relying on the MISO market to dispatch around the 800 MVA Limit. This would essentially involve derating the Arrowhead – Stone Lake 345 kV transmission line to 800 MVA such that the MISO market would bind on power flows out of the ATC Arrowhead Substation into Wisconsin when the flow on this line exceeds or is anticipated to exceed 800 MVA. Given the Applicants' analysis demonstrating that there are likely to be times when regional transfers and other system conditions would cause more than 800 MVA to flow out of the ATC Arrowhead Substation into Wisconsin after completion of the Project, it is expected that relying on the MISO market to dispatch around the 800 MVA Limit would cause congestion on the transmission system leading to uneconomical grid operations. This approach would be inconsistent with the Project need and benefits discussed in Sections 3.3 and 3.4, particularly with MISO's purpose for the LRTP Tranche 2.1 Portfolio, which is intended to address reliability issues and facilitate economical operation of the grid. This or any of the alternatives discussed in this section for maintaining the 800 MVA Limit could lead to MISO re-evaluating whether the Project still meets the needs and benefit metrics justifying LRTP Tranche 2.1, potentially leading to the removal of the Project from LRTP Tranche 2.1, along with its designation as an MVP Project under the Tariff. Therefore, maintaining the 800 MVA Limit and relying on the MISO market to dispatch around it is not a more reasonable or prudent alternative than removing the 800 MVA Limit for the Project.

4.6.2 Additional Equipment at the ATC Arrowhead Substation

The Applicants considered maintaining the 800 MVA Limit by installing additional equipment at the ATC Arrowhead Substation. Similar to the current configuration, power flows into Wisconsin could be directly controlled by the addition of a new 345 kV phase shifting transformer on the Arrowhead – Stone Lake 345 kV Line (345 kV PST). This configuration is illustrated in Figure 28.

Figure 28. Alternative Configuration, Install 345 kV PST



When compared to a standard large power transformer, such as the 345 kV/230 kV transformers at the ATC Arrowhead Substation, phase shifting transformers are less common and more technically complex in their design. This is because phase shifting transformers are purpose-built for specific applications where power flow control is desired, and the technology necessary to enable this power flow control capability introduces significant complexities to the electromechanical design and manufacturing of the transformer. As a result, the cost and production lead time for a phase shifting transformer is significantly higher compared to a standard large power transformer.

The existing Arrowhead PST is designed to operate at 230 kV and therefore could not be relocated or reconfigured for this purpose. Therefore, a new 345 kV PST would need to be procured and installed at the ATC Arrowhead Substation to maintain this power flow control capability on the line connecting to Wisconsin. While evaluating a different project in mid-2023, Minnesota Power requested indicative pricing and schedule information about phase shifting transformers from a transformer supplier. At that time, the supplier stated that it had one factory in the world that produced phase shifting transformers and the slots for that factory were filled through the end of 2028. More than two years later, it is reasonable to expect that manufacturing slots have been filled at least through the end of 2030, and potentially into 2031 or 2032. Due to the specialized and case-specific nature of PST design, suppliers are reticent to give even a budgetary cost estimate for this equipment. However, based on informal feedback from the supplier, the Applicants estimate the cost impact of adding a new 800 MVA 345 kV PST at the ATC Arrowhead 345 could be more than $30 million. Additionally, installation of a new 345 kV PST would require a significant expansion of the ATC Arrowhead Substation to accommodate the PST's connection with the transmission line to Wisconsin and associated electrical equipment to facilitate that connection.

These additional scope, schedule, and cost impacts for this alternative configuration would be incurred while implementing an inferior alternative that is more complex to operate, less flexible for facilitating long-term regional reliability and transfer capability needs, and fundamentally inconsistent with the purpose, benefits, and definition of the Project as part of the MISO LRTP Tranche 2.1 Portfolio. Therefore, installing a new 345 kV PST to maintain the 800 MVA Limit is not a more reasonable or prudent alternative than removing the 800 MVA Limit for the Project.

4.6.3 Modifications to Project Configuration

The Applicants considered maintaining the 800 MVA Limit by modifying the configuration of the Project such that power flow through the ATC Arrowhead Substation into Wisconsin can still be

controlled to be less than 800 MVA. The only way to modify the configuration to achieve that end would be to avoid establishing new 345 kV connections at the ATC Arrowhead Substation, thus preserving the capacity limitations of the 801 MVA-rated transformers and direct power flow control capability of the Arrowhead PST. Two general approaches to this alternative configuration involve either removing the proposed St. Louis County – Arrowhead 345 kV double-circuit transmission line from the scope of the Project or modifying the configuration of this line so that it bypasses the Arrowhead Substation and connects the St. Louis County Substation to a different endpoint in Wisconsin. These alternative configurations are illustrated in Figure 29 and Figure 30.

Figure 29. Alternative Configuration, Remove St. Louis County – Arrowhead Lines

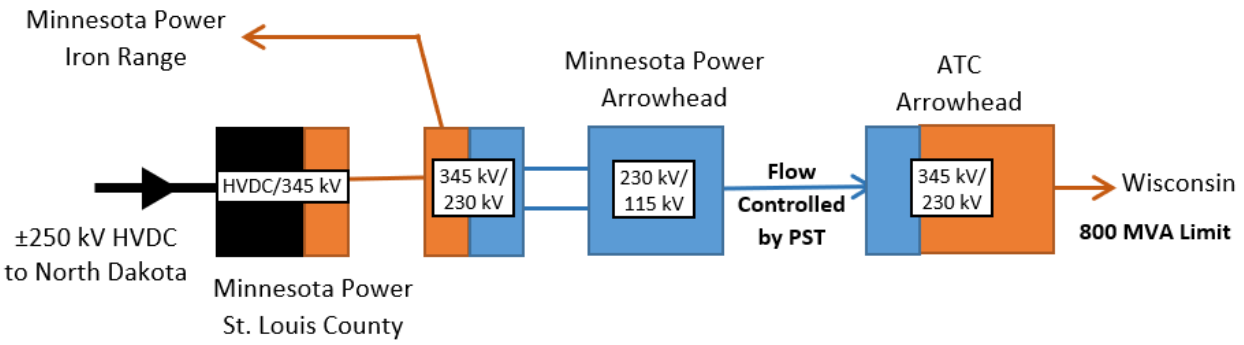
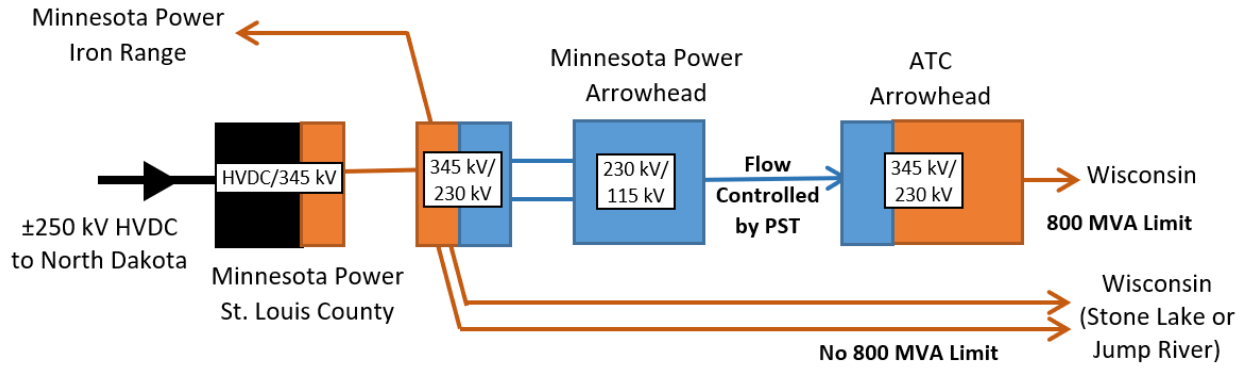


Figure 30. Alternative Configuration, Extend St. Louis County to Wisconsin



Removing the St. Louis County – Arrowhead 345 kV double-circuit transmission line from the scope of the Project would force all regional 345 kV network power flows onto the underlying 230 kV system between the St. Louis County Substation, the MP Arrowhead Substation, and the ATC Arrowhead Substation. The Arrowhead PST would be available to manage flows on the underlying system and through the ATC Arrowhead Substation into Wisconsin, preventing overloads and other reliability concerns. However, the regional reliability and transfer capacity benefits of the Project would be eroded. Similar to the MISO Market Redispatch alternative discussed in Section 4.6.1, this approach would cause transmission congestion and be inconsistent with the Project need and benefits discussed in Sections 3.3 and 3.4, particularly with MISO's purpose for the LRTP Tranche 2.1 Portfolio, which is intended to address reliability issues and facilitate economical operation of the grid.

Extending the St. Louis County – Arrowhead 345 kV double-circuit transmission line past the ATC Arrowhead Substation to another endpoint in Wisconsin, such as the existing ATC Stone Lake 345 kV Substation, would introduce significant additional scope and cost for the Project, including

new transmission construction in Wisconsin that is not currently part of the LRTP Tranche 2.1 Portfolio. This alternative configuration would allow for the 800 MVA Limit to be maintained through the ATC Arrowhead Substation, while still enabling increased regional transfer capability and power flows into Wisconsin consistent with the purpose and benefits of the Project.

Both of these alternative configurations are inconsistent with MISO's definition of the Project and would require MISO to conduct a Variance Analysis under the MISO Tariff to assess the impacts of the scope and cost impacts of the modifications on the original justification for the Project as part of the LRTP Tranche 2.1 Portfolio. Removing the St. Louis County – Arrowhead 345 kV double-circuit transmission line would significantly erode the benefits of the Project in a way that is inconsistent with the purpose and definition of the Project as part of the MISO LRTP Tranche 2.1 Portfolio. Extending the line segment from St. Louis County to a different endpoint in Wisconsin would significantly increase the scope, schedule, and cost compared to the Project and be fundamentally inconsistent with the MISO Project definition. Therefore, modifying the configuration of the Project to maintain the 800 MVA Limit is not a more reasonable or prudent alternative than removing the 800 MVA Limit for the Project.

4.7 DOUBLE-CIRCUITING AND OTHER ENGINEERING CONSIDERATIONS

Double-circuiting is the construction of two separate transmission circuits (three phases per circuit) on the same structure. Placing two transmission circuits on common structures generally reduces right-of-way requirements, which potentially reduces human and environmental impacts. The Project was defined by MISO as a single-circuit 345 kV transmission line on double-circuit capable structures. The Applicants are further proposing to utilize the second circuit position on the proposed double-circuit capable structures to accommodate approximately 33 miles of double circuiting with the existing Iron Range – Arrowhead 230 kV transmission line (98 Line) in Segment 2 of the Project. The proposed double-circuiting with 98 Line enables the Project to overtake the existing 98 Line right-of-way, minimizing human and environmental impacts through the area of the Project with the most routing constraints. The existing 98 Line right-of-way will need to be expanded slightly to accommodate the Project at its higher operating voltage.

From a reliability perspective, double-circuiting is typically avoided because a common structure failure could result in the loss of both lines. Reliability standards established by NERC require that the transmission system is planned to be able to withstand potential contingencies, including the loss of a common structure. The Applicants have evaluated the reliability impacts from a double-circuit outage involving the Project and 98 Line and concluded that, in this case, the two transmission lines can be double-circuited without leading to unacceptable reliability impacts following a common structure failure. For this particular situation, the diversity of electrically parallel transmission line connections is great enough that a simultaneous outage of both of the lines does not result in violations of reliability standards in any of the MISO MTEP or LRTP transmission models evaluated by the Applicants. Based on the Applicants' analysis of long-term load-serving implications from the Project (*see* Section 3.4), it is likely that the double-circuit outage of the Project and 98 Line will eventually become a limiting contingency for the area, depending on how load growth and regional transfers develop in the coming years. However, given that no reliability violations were identified in the current set of long-term transmission planning models and significant routing constraints are present in Segment 2 of the Project, the Applicants concluded that double-circuiting with 98 Line in Segment 2 rather than paralleling the existing right-of-way was the best overall solution for the Project.

The Applicants also considered replacement of existing facilities with the proposed 345 kV line. In both Segments 1 and 2, the Applicants considered replacing the existing 230 kV 98 Line with

the proposed single-circuit 345 kV line on double-circuit capable structures. This alternative was not viable because it would degrade the reliability of the underlying transmission system. While the system can withstand a double-circuit outage of the Project and 98 Line, the existing 230 kV line remains an important link in the backbone 230 kV network, which is necessary to facilitate the movement of energy in and around the local northern Minnesota transmission system. Without the existing parallel 230 kV line, additional transmission system reinforcements may be necessary to provide capacity on the underlying system to ensure local reliability and facilitate transfers during planned or unplanned outages of the proposed 345 kV line.

While 98 Line cannot be directly replaced by the Project, nearly all of Segment 2 will be placed within existing 98 Line right-of-way, including removal of the existing 98 Line structures and construction of a double-circuit 345 kV line in its place. In that case, the Applicants propose to install the second circuit conductors on the new double-circuit line, operating one circuit at 345 kV and the other circuit initially at 230 kV as part of 98 Line. The second circuit initially operating at 230 kV will be designed for future operation at 345 kV when conditions warrant. This proposed Project configuration provides flexibility for the Applicants to determine based on future needs whether 98 Line in Segment 2 should ultimately be replaced by a 345 kV line or continue to operate at 230 kV on common structures with the Project, or if a new 230 kV line should be constructed to enable 98 Line to continue operating in parallel with the Project.

In Segment 1, the Applicants are proposing to construct a single-circuit 345 kV line on double-circuit capable structures along the existing 98 Line right-of-way. The existing 98 Line structures will be maintained in the parallel right-of-way adjacent to the Project, and 98 Line will continue to operate at 230 kV on the existing structures. Maintaining the Project separate and distinct from the existing 230 kV line in Segment 1 provides future optionality for adding the second 345 kV circuit in the future while continuing to operate the existing 230 kV transmission line on separate structures. Given that there are considerably fewer routing constraints in Segment 1 to be avoided by overtaking the existing 98 Line right-of-way compared to Segment 2, the Applicants concluded that the proposed parallel corridor configuration in Segment 1 provides the greatest long-term value and flexibility for the local and regional transmission system.

4.8 ALTERNATIVE NUMBER, SIZE, AND TYPE OF CONDUCTOR

Project conductors are subject to change and may be refined based on a conductor optimization study to be completed during detailed design of the Project. At this time, the Applicants anticipate using a double bundled T2-ACSR conductor type. The 345 kV transmission line conductor must be capable of carrying 3,000 amps per the MISO project definition. The size of the conductor will be selected to meet or exceed the emergency capacity needed for the Project during detailed design studies. Conductors are generally bundled together to optimize corona performance and cost effectiveness, particularly at extra high-voltages of 345 kV and above. A conductor optimization study may consider single conductors, but the Applicants expect those conductor configurations will not meet performance criteria for audible noise, electric fields, and radio frequency interference, in addition to resulting in higher losses. Based on recent project experiences, the optimal conductor configuration for the Project is most likely to be a two-conductor bundle, as described above. A conductor optimization study may also consider three-conductor bundles, but the Applicants do not expect to see significant technical or economic benefits from additional sub-conductors at 345 kV, particularly in view of the added cost and structural loading requirements from a three-conductor bundle. A conductor optimization study may also consider various sizes of conductor. Utilizing a larger conductor can reduce transmission losses; however, the long-term savings must exceed the initial cost increase to be considered as a viable alternative. Beyond the wire cost alone, larger wires translate to increased structural

loading which results in higher structure costs. A conductor optimization study would be specifically designed to identify the optimal conductor configuration or configurations for the Project based on technical and economic analysis of selecting different conductor sizes and configurations in view of mechanical and electrical performance criteria, long-term losses, and initial capital costs.

4.9 DIRECT-CURRENT ALTERNATIVE

HVDC lines are typically used to transmit large amounts of electricity over long distances, as they experience lower line losses compared to alternating current ("AC") lines over such spans. However, HVDC systems require converter stations at each endpoint to convert DC power back into AC for use by customers. A single converter station can cost over $400 million, not including the cost of building the HVDC transmission line itself. The inclusion of HVDC converter stations would significantly increase the overall project cost. HVDC lines are typically proposed for large regional transmission projects that involve hundreds of miles of new transmission line. As a rule of thumb, HVDC becomes a cost-effective alternative to AC transmission when the total line length is greater than 350-400 miles. The total length of the Project is much shorter than this threshold – 67.5 miles in total. In addition, the Project is designed to enhance regional transmission system reliability and support the underlying AC transmission system by connecting three existing 345 kV substations (Iron Range, St. Louis County, and Arrowhead). If the Project were constructed as a HVDC line, each of these connections would require its own HVDC converter station, and any future interconnections to the Project would require additional HVDC converter stations. For all of these reasons, there is no justification – in terms of reliability, economy, performance, or otherwise – for a HVDC line in this case.

4.10 UNDERGROUND ALTERNATIVE

Undergrounding is an alternative that is seldom used for high-voltage transmission lines like those being proposed for the Project. One of the primary reasons underground high-voltage transmission lines are seldom used outside congested city areas is that they are significantly more expensive than overhead lines. The cost range depends on the design voltage, the type of underground cable required, the extent of underground obstructions like rock formations, the thermal capability of the soil, the number of river crossings, and other factors, but the construction cost of locating the entire length of the Project's proposed transmission underground is estimated to be as much as 5 to 16 times greater per mile than if it were to be constructed overhead as proposed. This cost does not include the large reactors that would likely be required at each substation to counteract the large line charging currents present on underground high-voltage lines. In addition, there are increased line losses and additional maintenance expenses incurred throughout the useful life of an underground high-voltage line which further increase the total additional cost of building an underground line instead of an overhead line.

Beyond initial costs, another important consideration of undergrounding lines is consistency with existing lines and standards. Minnesota Power, who will be responsible for maintaining the Project, does not have any buried lines at voltages of 115 kV or above. The addition of underground transmission is outside Minnesota Power's current standards and would require new installation and maintenance training, tooling, equipment, and new inventory to be carried for maintenance and critical spares resulting in increased costs and/or a reduction in inventory levels of other items, which then results in diminished maintenance and emergency restoration responsiveness and effectiveness.

A common argument in favor of implementing underground lines is that they will minimize the human and environmental impacts above ground. However, there are human and environmental impacts both during and after construction of an underground transmission line. During both underground and overhead transmission line construction, the right-of-way must be cleared of vegetation. For overhead transmission, excavation work is concentrated near line structure foundations; however, for underground transmission excavation work occurs along the entirety of the line. This results in increased impacts, especially in sensitive environmental areas. In addition, large areas for access roads capable of supporting heavy construction equipment, trenching activities, and cable installation are needed for underground transmission. After construction, the right-of-way needs to be maintained free of all woody vegetation to reduce soil moisture loss, since high-voltage underground conductors make use of soil moisture for conductor cooling. A permanent road must also be maintained along the right-of-way for maintenance and repair.

Underground lines can also be more challenging to operate and maintain. While overhead lines are typically subject to more frequent outages than underground cables, service can usually be quickly restored. This is accomplished by automatic reclosing of circuit breakers, which results in only a momentary outage of the line. Since circuit breakers on underground lines are typically not reclosed until it can be verified that a fault has not occurred on the underground cable, the smaller number of outages is typically offset by their increased duration. A faulted underground line takes much longer to restore because of the difficulty in locating the fault and accessing the site to make repairs. If the fault is due to a failure in the cable, the segment of failed cable must typically be replaced. This usually involves completely replacing the failed cable between two man-hole splice points, which are ordinarily located every 1,500 to 2,000 feet along the line. To replace failed cable, it must be possible to bring heavy equipment, including cable reels weighing 30,000 to 40,000 pounds, into the right-of-way during all seasons of the year. If the fault occurs in a wetland area where all-season roads are not maintained, restoration can be delayed due to the need to install wetland matting to gain access to the manholes involved in replacing the failed cable.

Due to the construction, maintenance, reliability, and cost drawbacks of high-voltage underground transmission lines, undergrounding is not a more reasonable and prudent alternative for any segment of the Project.

4.11 NO-BUILD ALTERNATIVE/CONSEQUENCE OF DELAY

In accordance with Minn. R. 7849.0340, the Applicants also evaluated the “no-build” alternative (*i.e.*, not constructing new transmission) to address the identified reliability needs. As outlined in Sections 4.2 and 4.3, alternatives such as demand-side management, conservation programs, peaking generation, distributed or renewable generation, energy storage, reactive power additions, and upgrades to the existing system were all found to be unreasonable or insufficient to meet the Project’s objectives. If the Project is delayed or not built, it would result in local and regional reliability issues, as well as negative policy and economic impacts. The Project and the broader MISO LRTP Tranche 1 Portfolio are needed to maintain regional reliability as utilities in Minnesota and surrounding states diversify energy resource portfolios, modify the way they use existing fossil-fuel plants, and facilitate increasing demand for reliable electricity. These additions and modifications in the 2020s and early 2030s are a key component of Minnesota utilities’ IRPs. These IRPs include significant renewable additions and the retirement and/or conversion of legacy fossil-fuel generation. As discussed in Section 3.3.7, the LRTP Tranche 2.1 Portfolio, of which the Project is a part, alleviates transmission congestion and enables interconnection of 116,000 GW of primarily carbon-free resources. This enables lower-cost generation to be delivered to customers while reducing CO_2 emissions by 127 to 199 million metric tons over 20 to 40 years. The Project also addresses reliability and economic issues as part of the LRTP Tranche

2.1 Portfolio, as further discussed in Section 3.3.7. If the Project is delayed or not built, these reliability issues will still need to be addressed, likely through solutions that are less efficient and less regionally beneficial. Finally, because the Project was evaluated and optimized by MISO as part of a broader regional transmission portfolio, the reliability impacts of a delay would extend beyond Minnesota and affect the wider region.

The Applicants used a multi-stage, interactive routing process to identify the Proposed Route that focused on the use of existing high-voltage transmission line rights-of-way. This process was intended to identify a Proposed Route that met the objectives of the Project along with minimizing impacts on the human and natural environment in conformance with Minnesota's routing considerations. The iterative process started with development of an initial study area for evaluation for the Project. This area was then refined into a Preliminary Route before the Applicants finalized the Proposed Route. The presence of existing high-voltage transmission lines running the entire length of the Project provided an initial routing opportunity that was reviewed and analyzed prior to considering routes that deviated from the existing transmission line corridors. In areas where a route following the existing transmission lines encountered significant constraints, possible alternatives were developed and compared to identify an alternative that complied with the Minnesota routing requirements and the Project need.

Throughout this process, and to refine each stage of route development, the Applicants sought feedback from stakeholders and the public through nine in-person public open houses, a virtual open house made available via the project website, landowner mailings, in-person landowner property site visits, stakeholder-specific meetings, print and social media engagement, a project email address and hotline, and a Project website with an interactive mapping tool.

5.1 SUMMARY OF ROUTE SELECTION PROCESS AND GUIDING FACTORS

The factors to be considered by the Commission in designating a route for a high-voltage transmission line are set forth in Minn. Stat. § 216I.05, subd. 11. These factors directed the Applicants' route development process.

Minn. Stat. § 216I.05, subd. 11(a) provides that the Commission's route permit determinations "must be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure." Subdivision 11(e) of the same section requires the Commission to "make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the Commission must state the reasons."

In addition to the statutory factors noted above, Minn. Stat. § 216I.05, subd. 11(b) specifies that the Commission must include the following when determining whether to issue a route permit:

(1) evaluating research and investigations relating to: (i) large energy infrastructure facilities' effects on land, water, and air resources; and (ii) the effects water and air discharges and electric and magnetic fields ["EMF"] resulting from large energy infrastructure facilities have on public health and welfare, vegetation, animals, materials, and aesthetic values, including baseline studies, predictive modeling, and evaluating new or improved methods to minimize adverse impacts of water and air discharges and other matters pertaining to large energy infrastructure facilities' effects on the water and air environment;

(2) conducting environmental evaluation of sites and routes that are proposed for future development and expansion, and the relationship of proposed sites and

routes for future development and expansion to Minnesota's land, water, air, and human resources;

(3) evaluating the effects of measures designed to minimize adverse environmental effects;

(4) evaluating the potential for beneficial uses of waste energy from proposed large electric power generating plants;

(5) analyzing the direct and indirect economic impact of proposed sites and routes, including but not limited to productive agricultural land lost or impaired;

(6) evaluating adverse direct and indirect environmental effects that are unavoidable should the proposed site and route be accepted;

(7) evaluating alternatives to the applicant's proposed site or route, if applicable;

(8) when appropriate, evaluating potential routes that would use or parallel existing railroad and highway rights-of-way;

(9) evaluating governmental survey lines and other natural division lines of agricultural land to minimize interference with agricultural operations;

(10) evaluating the future needs for large energy infrastructure facilities in the same general area as any proposed site or route;

(11) evaluating irreversible and irretrievable commitments of resources if the proposed site or route is approved;

(12) when appropriate, considering the potential impacts raised by other state and federal agencies and local entities;

(13) evaluating the benefits of the proposed facility with respect to (i) the protection and enhancement of environmental quality, and (ii) the reliability of state and regional energy supplies;

(14) evaluating the proposed facility's impact on socioeconomic factors; and

(15) evaluating the proposed facility's employment and economic impacts in the facility site's vicinity and throughout Minnesota, including the quantity, quality, and compensation level of construction and permanent jobs. The commission must consider a facility's local employment and economic impacts, and may reject or place conditions on a site or route permit based on the local employment and economic impacts.

(c) If the commission's rules are substantially similar to existing federal agency regulations the utility is subject to, the commission must apply the federal regulations.

(d) The commission is prohibited from designating a site or route that violates state agency rules.

(e) When applicable, the commission must make a specific finding that the commission considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and using parallel existing highway right-of-way. To the extent an existing high-voltage transmission route or parallel existing right-of-way is not used for the route, the commission must state the reasons.

The Applicants used these statutory routing criteria, routing experience, engineering considerations, NERC reliability standards, good utility practice, and stakeholder feedback to develop the Proposed Route for the Project. The Applicants started with the identification of existing linear infrastructure, which offered existing rights-of-way along which a new transmission line might be co-located to minimize impacts to the natural and human environment. The Applicants then identified routing opportunities and constraints in these rights-of-way through a series of public engagement activities discussed in detail in Chapter 7.

Routing opportunities include existing linear infrastructure or other features (*e.g.*, transmission lines, roads, and public land survey divisions of land, such as section lines) along which siting a high-voltage transmission line would be most compatible. Routing opportunities also facilitate Project development by minimizing impacts to identified resources. Minn. Stat. § 216I.05, subd. 11(c), 11(b)(8) and 11(b)(9) requires the Commission to consider the use or paralleling of existing rights-of-way (e.g., high-voltage transmission lines, highways, and railroads), survey lines, and natural division lines of agricultural land.

Routing constraints may include natural resources, human-induced land uses, or physical conditions that are less favorable (but not necessarily impossible) for siting a high-voltage transmission line. Examples of constraints include natural resources such as lakes; existing land uses such as residences and schools; federal, state, and locally designated environmental protection areas; critical habitats or sensitive natural resource areas; cultural resources such as national landmarks and archaeological sites; and public infrastructure such as airports and aeronautical and commercial telecom structures. The routing process aims to avoid or minimize interactions with constraints where practicable. For the Project, the Applicants identified existing transmission line corridors and evaluated those corridors based on constraints.

Technical and reliability considerations also affect the routing process. These include specific engineering requirements, standards, and objectives associated with the design and construction of the Project. For example, there are circumstances where technical and maintenance objectives make certain line co-locations unworkable. Other engineering objectives may include spacing for line entrances into substations, minimizing the overall line length, ensuring adequate access for construction and inspections, minimizing the number of angles, minimizing the number of “special” structures, and considering the use of longer than average spans between structures.

The Applicants developed a list of potential routing opportunities, constraints, and technical guidelines for the Project (Table 22, Table 23, and Table 24). It is important to note that not all of the items in Table 22, Table 23, and Table 24 are applicable to the Proposed Route but are provided here to illustrate the wide range of issues considered by the Applicants in developing the Proposed Route.

The items listed in Table 22, Table 23, and Table 24 were identified through:

1. Routing factors found in state statutes;

2. Technical expertise of engineers and planning staff responsible for the reliable and economic construction, operation, and maintenance of the Project, and other electric system facilities;

3. The NERC reliability standards;

4. Input received from public outreach and stakeholder engagement; and

5. Industry best practices.

Table 22. Routing Opportunities

Routing Opportunities
Existing Transmission Lines
Roadways/Trails
Railroads
Public Land Survey System (e.g., section lines, half section lines, etc.)
Property Lines (legal divisions of land)
Natural Division Lines; Field Boundaries
Pipelines

Table 23. Routing Constraints

Routing Constraints
Federal/State/County Resources
National Wildlife (and Fisheries) Refuges
State Natural Resource Areas
State or National Parks (Minn. R. 7850.4300)
State and National Historic Sites and Landmarks
National Historic Districts
State or National Wilderness Areas (Minn. R. 7850.4300)
Land and Water Conservation Fund Land
National Monuments
State Scientific and Natural Areas (Minn. R. 7850.4300)
State Wild, Scenic, and Recreational Rivers
County or City Parks
Nature Preserves
Prairie Restoration Areas
National and State Forests
Wild and Scenic Rivers

Routing Constraints
State Wildlife Refuges
Military Lands and Operations
Resource Easement Lands
Non-Government Organization (NGO) Lands
Conservation Areas (The Nature Conservancy, Sierra Club)
Important Bird Areas (The Audubon Society)
NGO Resource Easement Lands
Special Status Species/Habitat
Designated Critical Habitat
Bald Eagle Wintering/Breeding Habitat
State and Federally Protected Species
Cultural Resources
Historic and Cultural Resources
National Register of Historic Places (Listed or Eligible Sites)
Historic Landscapes/Trails/Markers
National Natural Landmarks
Burial Areas (Prehistoric, Historic)
Cemeteries
Special Jurisdictions
Tribal Nation Reservations
Tribal Nation Owned Lands
Visual Resources
Scenic Highways or Corridors
Scenic Overlooks
Geological Markers
Public Infrastructure
Airports
Very High Frequency Omni-Directional Range (Aeronautic Navigation Equipment- Clear Zone)
Doppler Radar Systems
Residences
Land Use
Planned Development (City/County Plans)
Daycares/Schools/Hospitals
Religious Facilities
Safety Regulations (gas stations, electrically sensitive areas, etc.)
Orchards
Aggregate Mine/Quarries

Routing Constraints
Trails (local, snowmobile, bike, horse)
Recreation Areas (Parks, Golf Courses, Off Highway Vehicle Trails)
Contaminated Areas (Superfund, Brownfields, etc.)
Natural Resources/Geomorphology
Flood Control Areas (Floodplain)
Lakes/Ponds/Reservoirs
Rivers/Streams (Public Waters Inventory)
Trout Streams
Wetlands/Peatlands/Calcareous Fens
Native Prairie
Wooded Areas/Lands
Significant Geomorphology or Geologically Unstable Areas

Table 24. Technical Considerations

Technical Considerations
Terrain/Soil Conditions
Project Length
Number of Angle Structures
Size and Type of Foundation
Construction and Maintenance Access
Existing Transmission and Rights-of-Way
Crossing of Other Linear Features (e.g., transmission lines, rivers, pipelines)
Proximity to Airports and Associated Restrictions
Tree-trimming/Vegetation Management

5.2 ROUTE DEVELOPMENT PROCESS

The endpoints of the Project are currently connected by existing 115 kV and 230 kV transmission lines (opportunities). In light of the Minnesota statutory considerations for following existing high-voltage transmission line rights-of-way, initial routing was focused on following existing high-voltage transmission lines, to the extent practicable. As explained below, while 92 percent of the Proposed Route follows existing high-voltage transmission line rights-of-way, the Applicants identified limited areas where constraints along the existing transmission lines prompted the Applicants to review areas not located along high-voltage existing transmission line rights-of-way to develop the final Proposed Route. A detailed discussion of the portions of the Proposed Route that will replace an existing 230 kV transmission line or follow along an existing 230 kV transmission line is provided in Section 2.1.

5.2.1 Project Study Area

The Applicants identified an initial area that would help guide the corridor and route development processes. This area was initially developed based on the defined Project endpoints which include:

- Existing Iron Range Substation;
- Existing St. Louis County Substation; and
- Existing Arrowhead Substation

The Study Area is divided into a northeastern portion or corridor, and a southwestern corridor, both of which generally follow existing 115 kV and 230 kV high-voltage transmission lines that run from the Iron Range Substation to the St. Louis County Substation. The northeastern corridor of the Study Area follows Minnesota Power's existing 9 Line, a 115 kV high-voltage transmission line, while the southwestern corridor of the Study Area generally follows Minnesota Power's existing 98 Line, a 230 kV high-voltage transmission line. The northeastern and southwestern corridors of the Study Area are approximately two miles wide, except in areas where the presence of additional high-voltage transmission lines presented additional routing opportunities. Near the Iron Range Substation, between the St. Louis River and the St. Louis County Substation, and between the St. Louis County Substation and the ATC Arrowhead Substation, the Study Area was widened to provide additional routing flexibility.

Within the Study Area, key landforms, jurisdictional boundaries, sensitive land uses, public land ownership, and existing utility corridors were identified to help refine the boundaries and inform the location and extent of reasonable and feasible transmission line corridors to be considered for the Project (as discussed in the following paragraph). The Study Area is shown in Appendix G, Map 4.

The Study Area was designed to include potential and feasible route alternatives that follow existing linear features, avoid constraints, and minimize impacts on known resources. As part of the routing process, areas with significant constraints were reviewed and excluded from further consideration as route alternatives were refined. The Study Area was presented at public open houses and local, state, and federal agency meetings held in May and June 2025 to gather input on opportunities and constraints related to transmission line development within the area.

5.2.2 Study Area Refinement

This Study Area was further refined after the May open houses and May and June agency engagement, and more defined routing areas were presented to the public at open house meetings in August 2025 and to individual agencies, Tribal Nations, and local units of government. These various meetings provided additional information to the public about the Project and allowed the Applicants to solicit and gather additional public and stakeholder feedback before the Applicants established a more defined route in July 2025 ("Preliminary Route"). The Preliminary Route generally followed existing high-voltage transmission lines or other existing rights-of-way between the identified endpoints, but included additional route width in areas or alternative routes where the Applicants had identified potential constraints as they worked to narrow the Study Area. The Preliminary Route is shown in Appendix G, Map 5.

The Preliminary Route was then presented to the public and various stakeholders and agencies during public open houses and agency meetings in August 2025. Following the August 2025 open houses, the Applicants refined the Preliminary Route into the Proposed Route. The more defined Proposed Route was developed as three segments (Segment 1, Segment 2, and Segment 3). Segment 1 of the Proposed Route extended from the existing Iron Range Substation to north of the St. Louis River crossing and follows existing transmission line rights-of-way to the extent

practicable (approximately 87 percent co-location). Segment 2 of the Proposed Route extended from the St. Louis River crossing to the St. Louis County Substation and ATC's Arrowhead Substation. Segment 2 of the Proposed Route primarily followed existing high-voltage transmission line right-of-way (approximately 100 percent co-location). Segment 3 of the Proposed Route will connect the Minnesota Power St. Louis County Substation to ATC's Arrowhead Substation in Hermantown (approximately 50 percent co-location).

The Applicants then applied several refinements and finalized the Proposed Route for the Project. These refinements included:

- The route width of the Proposed Route was expanded from the Preliminary Route coming out of the Iron Range Substation to provide additional routing flexibility given the presence of other existing and planned high-voltage transmission lines connecting to the Iron Range Substation.

- The route width of the Proposed Route was expanded south of County Road 444 to allow for flexibility to avoid a structure identified by a landowner.

- The route width of the Preliminary Route was narrowed on both sides of the St. Louis River crossing so that the Proposed Route more directly follows two existing and adjacent high-voltage transmission lines where they cross the St. Louis River, which minimizes impacts to a Public Water and reduces habitat fragmentation.

- The Preliminary Route that followed the existing 250 kV HVDC Line, which is located entirely in Segment 2, was removed from the Proposed Route due to the opportunity to continue co-locating with and overtaking the existing 98 Line right-of-way. Since the Project is defined by MISO as being constructed with the capability to be operated in the future as a double circuit 345 kV transmission line, it cannot be double circuited with the HVDC Line. Furthermore, any routing adjacent to the HVDC Line would need to consider the construction necessary to address asset renewal and upgrade needs for the HVDC Line, which was originally constructed in the mid-1970s and is a significant regional transmission corridor. As a result, routing the Project adjacent to the HVDC Line would have required additional right-of-way compared to overtaking the existing 98 Line right-of-way in Segment 2. Several small connector options between the 98 Line and the HVDC Line alternative were also removed from the Proposed Route.

- The portion of the Preliminary Route south of U.S. Highway 2 where it deviates from 98 Line and follows the 250 kV HVDC Line right-of-way to where it intersects with 9 Line was removed for the same reasons as those stated above (co-locating with and overtaking the existing 98 Line right-of-way will lead to a minimal amount of additional right-of-way along the corresponding portion of the Proposed Route, whereas co-locating with the HVDC Line would require additional right-of-way).

- The portion of the Preliminary Route that was co-located with the HVDC Line from where it intersects with 9 Line to the St. Louis County and Arrowhead substations was removed for the same reasons as stated above (avoiding additional right-of-way).

The Proposed Route is shown in Appendix G, Map 6.

During the route refinement process from May to September of 2025, through the development of the Proposed Route, the Applicants continued to evaluate routing constraints and opportunities.

In locations where routing constraints were present, the Proposed Route was widened to greater than the Project standard route width to provide additional flexibility so that the future alignment can avoid or minimize effects to those constraints. Priority was placed on following existing rights-of-way and property lines and maximizing distance from residences.

To minimize impacts on people and residences, Applicants identified residences and non-residential buildings (*e.g.*, barns, garages, sheds, businesses, etc.) within the Study Area that were located near the existing linear features, particularly in close proximity to the existing high-voltage transmission lines between the Project endpoints.

Residences and non-residential buildings were initially identified through geographic information system ("GIS") raster data, parcel data, aerial image interpretation, and public comments. After the identification process was completed, Applicants calculated the distance to residences and non-residential buildings.

Using this information, Applicants prioritized contiguous route segments that maximized the distance from residences and non-residential buildings, as well as following existing high-voltage transmission lines, while seeking to minimize the length, number of turns requiring angle structures, and number of crossings of existing transmission lines. The Applicants also prioritized routing the Project along property lines or field lines, where feasible, which helps minimize impacts on existing land uses. See Section 5.3 for a description of route segments considered but rejected ("Rejected Route Alternatives") by the Applicants.

5.2.3 Description of the Route

The Proposed Route is located in the following physical locations as shown in Table 25.

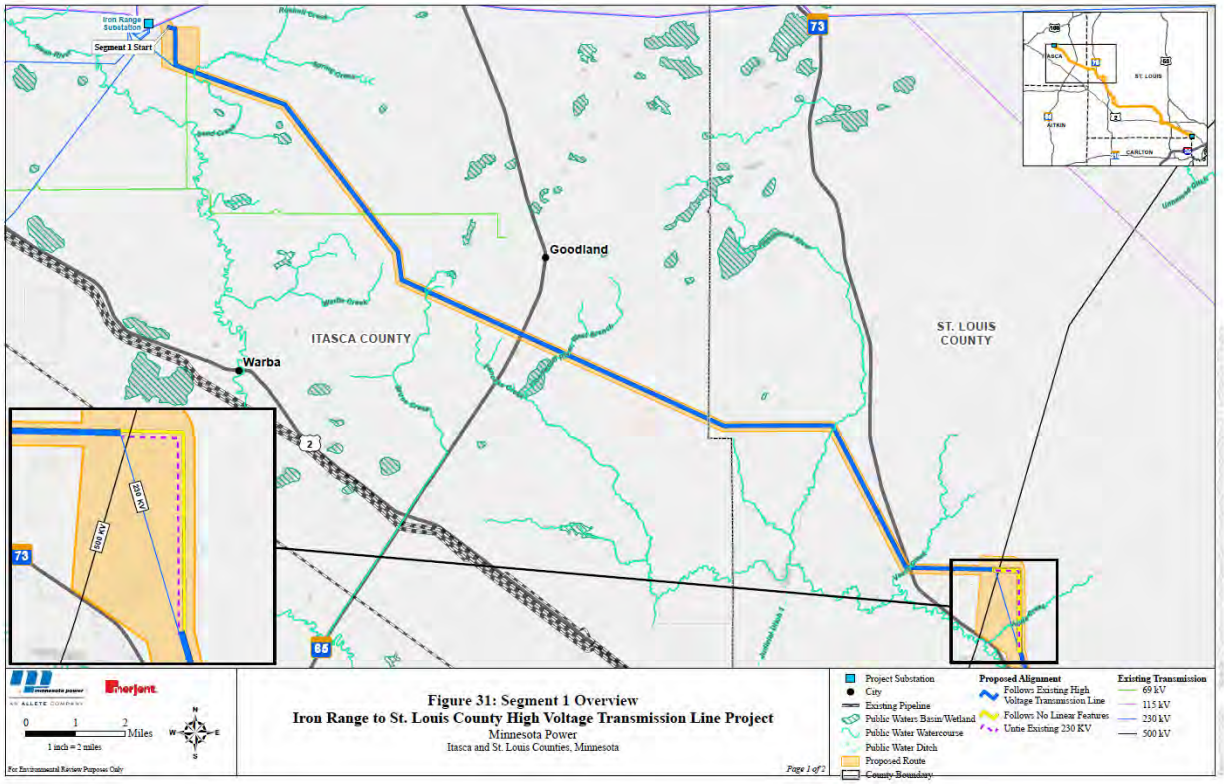
Table 25. Proposed Route Physical Description

Segment Number	County	Section	Township	Range
1	St. Louis	6, 7, 8, 16, 17, 20, 21, 22, 27, 28	52N	20W
	St. Louis	19, 30, 31	53N	20W
	St. Louis	4, 9, 10, 13, 14, 15, 22, 23, 24, 25, 36	53N	21W
	St. Louis	31, 32, 33	54N	21W
	Itasca	18, 19, 20, 21, 26, 27, 28, 35, 36	54N	22W
	Itasca	2, 3, 11, 12, 13, 24	54N	23W
	Itasca	19, 20, 27, 28, 29, 30, 33, 34, 35	55N	23W
2	St. Louis	30, 31	50N	15W
	St. Louis	17, 18, 20, 21, 22, 25, 26, 27, 28, 36	50N	16W
	St. Louis	2, 3, 4, 5, 9, 10, 11, 12, 13	50N	17W
	St. Louis	18, 19, 20, 29, 32	51N	17W
	St. Louis	7, 8, 9, 10, 11, 12, 13	51N	18W
	St. Louis	7, 8, 9, 10, 11, 12	51N	19W
	St. Louis	2, 3, 4, 11, 12	51N	20W
	St. Louis	27, 28, 33, 34	52N	20W
3	St. Louis	31	50N	15W
	St. Louis	36	50N	16W

5.2.3.1 Segment 1

Segment 1 of the Proposed Route generally follows the 98 Line from the Iron Range Substation to north of the St. Louis River. There are several areas where the Proposed Route deviates from the existing line rights-of-way and/or is wider to allow for flexibility in developing an alignment. Where the Proposed Route follows existing high-voltage transmission lines, the Applicants propose a route width of 1,000 to 5,250, feet to allow for routing of the Project on either side of the existing transmission lines. Where the Proposed Route does not follow existing transmission lines (“greenfield route”), the Applicants propose a wider route width to allow for flexibility to minimize impacts on resources and coordinate with landowners. There are several exceptions to these widths and deviations from the existing high-voltage transmission line rights-of-way that are explained below. Segment 1 is shown in Appendix G, Map 7 and Figure 31.

Figure 31. Segment 1 Overview



5.2.3.1.1 Iron Range Substation to Great River Energy's 500 kV Line

From the Iron Range Substation, the Proposed Route is co-located with the Northland Reliability Project 345 kV transmission line for approximately 0.71 mile before it turns to the southeast and is co-located with Minnesota Power's existing 230 kV 98 Line for approximately 20.9 miles. The Applicants propose a route width of 1,000 feet.

The Applicants request a route width of up to 1 mile to allow for flexibility in crossing Great River Energy's 500 kV line and to allow for a realignment of 98 Line, resulting in a single location where Minnesota Power's ISA and 98 Lines will cross the 500 kV line adjacent to each other and nearly perpendicular to the 500 kV line. As part of the realignment of 98 Line, Minnesota Power will install more robust structures on either side of the 500 kV line crossing.

5.2.3.1.2 Great River Energy's 500 kV Line to St. Louis River

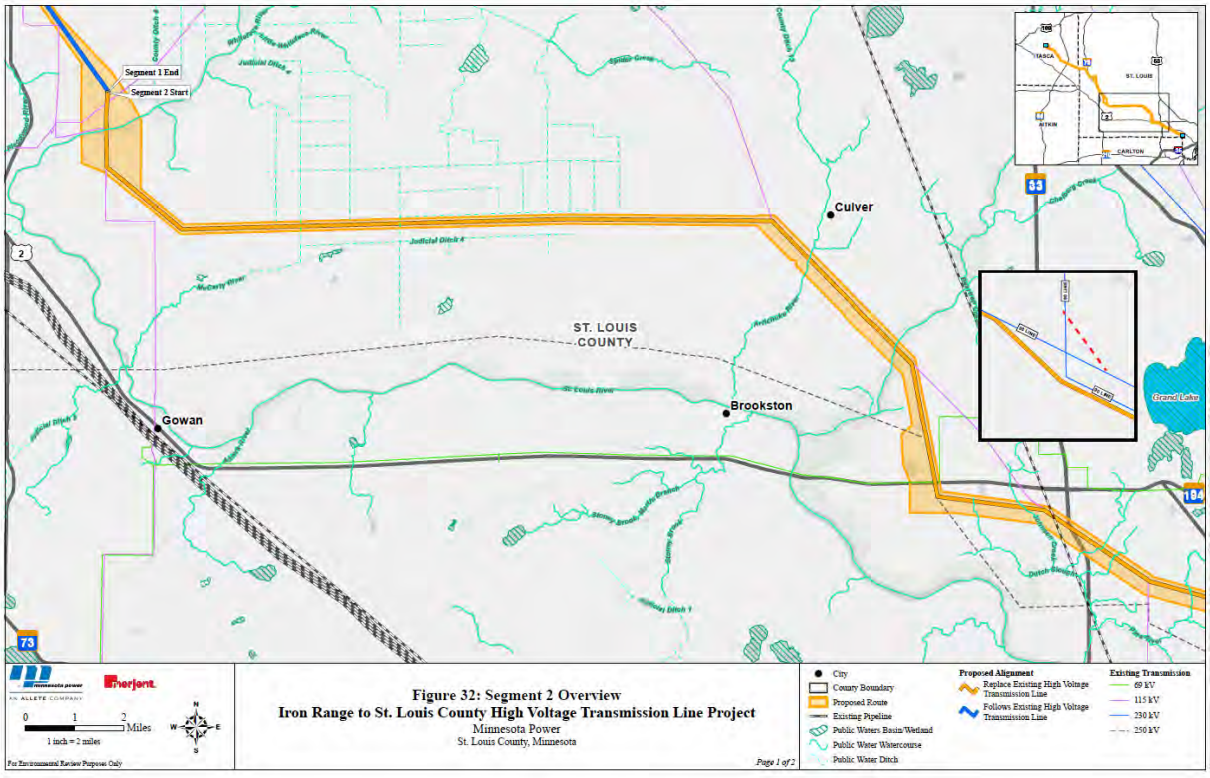
The Proposed Route then continues to follow the 98 Line right-of-way for approximately 8.82 miles to a point approximately 0.74 miles north of the St. Louis River.

5.2.3.2 Segment 2

Segment 2 of the Proposed Route continues to primarily follow Minnesota Power's existing 98 Line and will include approximately 33.5 miles of new double-circuit 345 kV line generally built within the existing right-of-way. The Project will be double-circuited with the existing 98 Line

starting approximately 0.7 mile north of the St. Louis River until approximately 0.35 mile north of the St. Louis County Substation. Segment 2 is shown in Appendix G, Map 8 and Figure 32.

Figure 32. Segment 2 Overview



5.2.3.2.1 St. Louis River to St. Louis County Substation

The Applicants request a route width of up to 1.25 miles to allow for flexibility in crossing the St. Louis River. The St. Louis River is a Public Water and State Water Trail, with land subject to LAWCON management on the southeast side of the river crossing. Two existing high-voltage transmission lines cross the river in this area, and several farm and residential buildings exist within the crossing area.

From a point approximately 0.75 mile north of the St. Louis River crossing, the Proposed Route continues south for 1.5 miles and then southeast for 2 miles and then east for approximately 12 miles where it meets Minnesota Power's existing 9 Line. The Applicants request a route width of up to 0.4 mile for a distance of approximately 4 miles where 9 Line and 98 Line are adjacent to each other to allow for flexibility to minimize impacts to residences.

The double-circuited ISA / 98 Line continues south for 1.5 miles, then joins Minnesota Power's existing HVDC Line right-of-way for approximately 1.2 miles. The Applicants request a route width of up to 0.7 mile where 98 Line and the HVDC Line are adjacent to each other to allow for flexibility in routing near the HVDC Line.

The Proposed Route then continues east with the double-circuited 98 Line for approximately 2.2 miles until it rejoins the existing 9 Line right-of-way. The Proposed Route follows the 9 Line right-

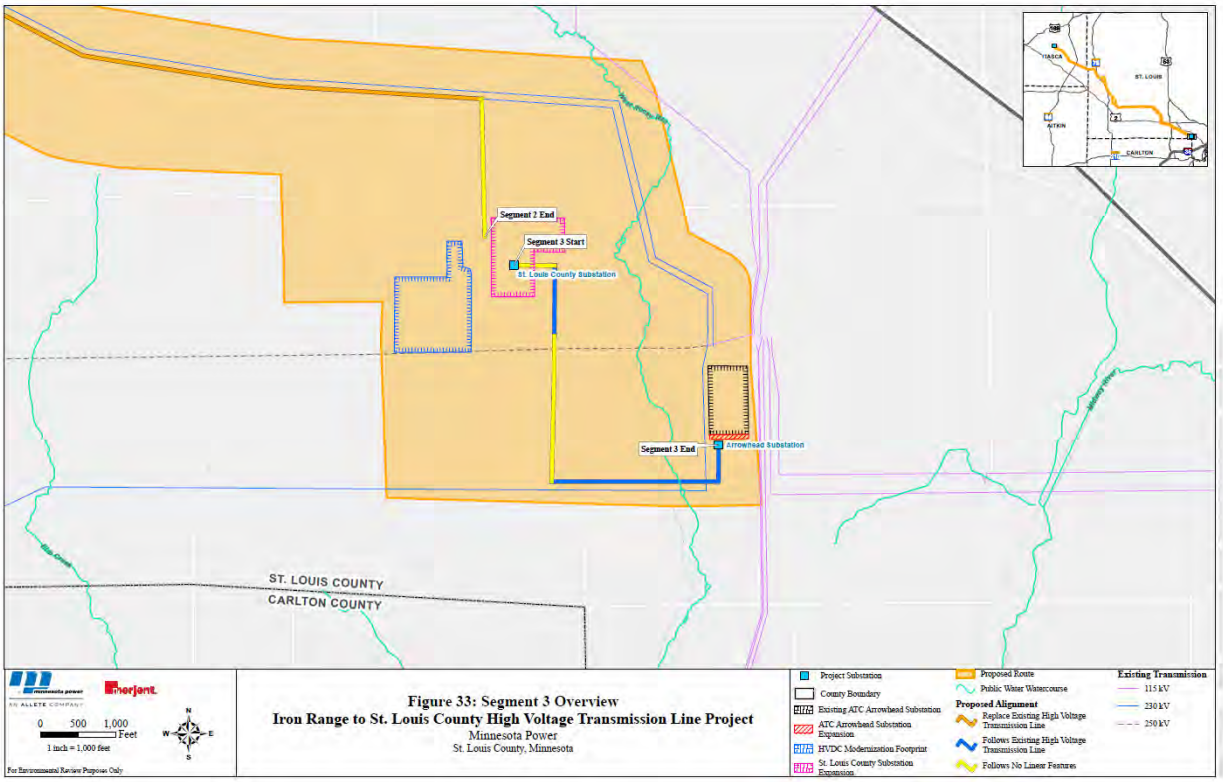
of-way southeast for approximately 2.5 miles and then continues southeast for approximately 3 miles to Minnesota Power's existing 230 kV 90 Line.

At this point, the existing 90 Line crosses to the south side of the existing 98 Line and the two lines remain parallel to each other with the 90 Line on the south and the 98 Line on the north until they enter ATC's Arrowhead Substation. The Project proposes reconfiguring the alignment at this location such that the double-circuited ISA Project and 98 Line will take over the southern right-of-way, and the 90 Line will be moved to the existing structures in the northern right-of-way. The reconfigured lines will remain parallel to each other in the existing southeast-oriented right-of-way for approximately 3.2 miles, to the point where the ISA Project's Proposed Route turns south for approximately 0.3 mile where it will connect to the St. Louis County Substation. The Applicants request a route width of up to 0.4 mile from where the Proposed Route leaves the HVDC Line right-of-way until it crosses approximately 0.25 mile east of Sandberg Road to allow for flexibility in a corridor that includes multiple high-voltage transmission lines in adjacent rights-of-way (98 Line, 9 Line, 90 Line) and an increasing number of occupied dwellings adjacent to the existing rights-of-way.

5.2.3.3 Segment 3

Segment 3 of the Proposed Route will include approximately 1.5 miles of new double-circuit 345 kV transmission line that is co-located for 50 percent of its length. This line will be jointly owned by Minnesota Power and ATC from Minnesota Power's St. Louis County Substation in Solway Township to the existing ATC Arrowhead Substation in Hermantown. Segment 3 is shown in Appendix G, Map 9 and Figure 33.

Figure 33. Segment 3 Overview



5.2.3.3.1 St. Louis County Substation to ATC's Arrowhead Substation

From the east side of Minnesota Power's St. Louis County Substation, the Proposed Route continues east for approximately 0.1 mile, then south for approximately 0.5 mile to the north side of Minnesota Power's existing 230 kV 902 Line, where it turns east and parallels the 902 Line right-of-way for approximately 0.4 mile, then turns north for approximately 0.1 mile into the south side of ATC's Arrowhead Substation from the south.

The Applicants request a route width of up to 1.2 miles to ensure a sufficient area is identified to connect into the St. Louis County Substation and to connect the St. Louis County Substation to ATC's Arrowhead Substation while allowing for existing and planned transmission lines, substations, and the HVDC Modernization Project's new converter station.

5.3 ROUTE ALTERNATIVES CONSIDERED BUT REJECTED

Under Minn. Stat. 216I.05, subd. 3(b)(14), the Applicants must include a discussion of route alternatives that were considered but rejected. Over the course of initial routing analysis, public workshops and open houses, agency meetings, and stakeholder outreach from May through September 2025, various route alternatives were suggested and considered before the Proposed Route was finalized. Rejected Route Alternatives are discussed below and shown in Appendix G, Map 10.

5.3.1 Co-location with Minnesota Power's Existing 9 Line from Iron Range Substation to Culver

From the Iron Range Substation, a route was considered that followed Minnesota Power's existing 9 Line east for approximately 15 miles, then southeast for approximately 28 miles. This Route Alternative was rejected because it includes a high incidence of state managed lands, including the Spider Creek Aquatic Management Area ("AMA"), the Sand Creek AMA, the Feely Deer Management Area, the Itasca Trial #1 Greenway Snowmobile Trail, the Alborn Snowmobile Trails, the St. Louis River Trail, the Floodwood/Meadowlands Trails, the Goodland Trail, and the Alborn-Pengilly Railroad State Trail, in addition to historic peat leases and portions of the Sax-Zim Bog, which is an important birding area. The Proposed Route includes fewer managed lands and recreation areas and provides more opportunities to avoid managed lands and recreation resources with the proposed alignment. This rejected route alternative is located in Goodland Township and Little Sand Lake Unorganized Territory in Itasca County, and in Culver, Alborn, Ness, Meadowlands, Toivola, and Lavell Townships and Janette Lake Unorganized Territory in St. Louis County. See Map 11 in Appendix G.

5.3.2 Co-location with Minnesota Power's Existing HVDC Line from Saint Louis River to Cloquet River

The Applicants considered and rejected a route alternative that followed Minnesota Power's existing HVDC Line from south of where the 98 Line crosses the Saint Louis River, approximately 18 miles south and east to where the HVDC Line joins the 98 Line right-of-way, just east of the Cloquet River. This route alternative was rejected due to the opportunity to continue co-locating with and overtaking the existing 98 Line right-of-way, whereas routing the Project adjacent to the HVDC Line would have required additional right-of-way. In addition, to get from the 98 Line right-of-way to the HVDC Line right-of-way would have required a significant greenfield (not co-located) connection between 2.6 and 2.8 miles long. This rejected route alternative is located in Industrial,

Culver, Arrowhead, and Floodwood Townships in St. Louis County and shown in Appendix G, Map 12.

5.3.3 Co-location with Minnesota Power's Existing HVDC Line from U.S. Highway 2 to Minnesota Power's Existing 9 Line

The Applicants considered and rejected a route alternative that followed Minnesota Power's existing HVDC Line from south of U.S. Highway 2, approximately 5.3 miles south and east to where the HVDC Line joins the 9 Line right-of-way. This route alternative was rejected due to the opportunity to continue co-locating with and overtaking the existing 98 Line right-of-way, which will lead to a minimal amount of additional right-of-way along the corresponding portion of the Proposed Route. Co-locating with the HVDC Line would require additional right-of-way. This rejected route alternative is located in Solway and Brevator Townships in St. Louis County and shown in Appendix G, Map 13.

5.3.4 Co-location with Minnesota Power's Existing HVDC Line from Minnesota Power's Existing 9 Line to St. Louis County Substation

The Applicants considered and rejected a route alternative that followed Minnesota Power's existing HVDC Line from a point where the existing 9 Line turns south from the 98 Line, approximately 6.7 miles south and east to where the HVDC Line enters the St. Louis County HVDC Converter Station. This route alternative was rejected due to the opportunity to continue co-locating with and overtaking the existing 98 Line right-of-way, which will lead to a minimal amount of additional right-of-way along the corresponding portion of the Proposed Route. Co-locating with the DC Line would require additional right-of-way. In addition, the Proposed Route creates a preferred entry point into the St. Louis County Substation from the north rather than entering from south of the substation, which would require that the Proposed Route cross the HVDC Line where it enters the St. Louis County HVDC Converter Station and navigate other planned infrastructure at the site of the converter station. This rejected route alternative is located in Solway Township in St. Louis County and shown in Appendix G, Map 14.

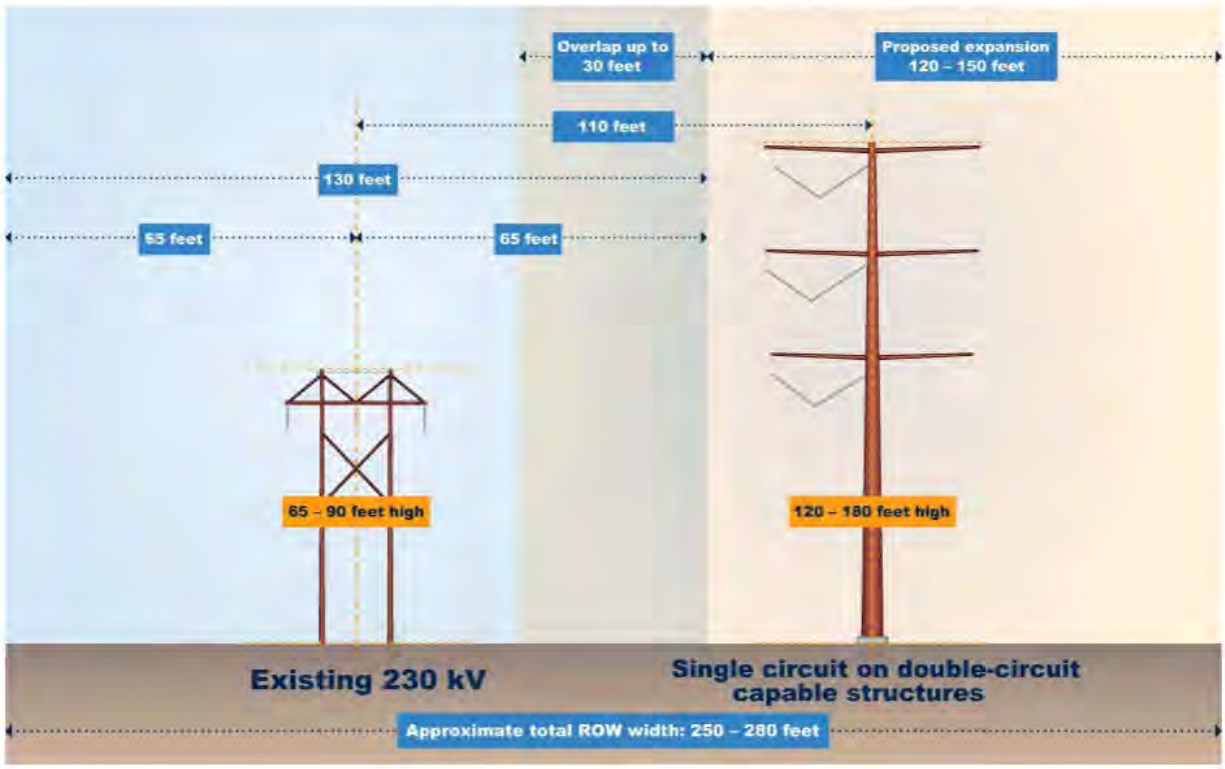
6.1 RIGHT-OF-WAY REQUIREMENTS AND ACQUISITION

6.1.1 Transmission Line Right-of-Way Width and Acquisition

As described in Chapter 2, the Project will require a right-of-way of up to 150 feet for construction, operation, and maintenance of the new transmission line. The final right-of-way width will vary depending on factors such as proximity to or overlap with existing HVTL and public road rights-of-way, transmission line structure types, transmission line structure locations relative to existing or future improvements, etc. Modifications to the right-of-way width acquired and/or used will be made on a case-by-case basis. The Applicants' representatives will work directly with individual landowners to acquire the necessary easements and other land rights for the construction, operation, and maintenance of the Project once the final route and alignment are determined (*see* Chapter 5).

Because the Proposed Route largely follows existing high-voltage transmission lines owned by Minnesota Power, the Applicants have existing easement rights that will be used or paralleled to the extent possible. To accommodate new construction, the Proposed right-of-way width may be accomplished through overlapping with existing infrastructure easements and other rights-of-way, which can reduce the amount of new easement areas acquired from landowners. Figure 34 presents existing easement rights that overlap the Proposed right-of-way. Where additional or different land rights are required, the Applicants intend to work with landowners to secure those new or amended easement rights.

Figure 34. Overlap with Existing Rights of Way



As part of early transmission design work, the Applicants will complete preliminary survey work and may need to acquire some soil characteristics data. If soil data is needed, the Applicants will notify landowners prior to accessing their parcel(s).

Preliminary right-of-way discussions with landowners may begin as early as 2026.[112] In locations where new easements or amendments to existing easements are needed or otherwise beneficial, the Applicants will work with landowners to negotiate the terms of a mutually acceptable agreement. In locations where new rights are not necessary, the Applicants will work with existing landowners to address the Applicants' survey, construction and access plans, potential impacts on the land, and the restoration plan. The land evaluation and acquisition process will include a title search, contact with the landowner, survey, real estate document preparation, discussion, negotiation, and completion of agreements, including options, permanent easements, temporary easements, and/or other agreements necessary to support the initial survey needs of the project and construction, operation and maintenance of the Project.

As part of the land rights acquisition process, the Applicants' right-of-way agents will discuss the construction schedule and construction requirements with the owner of each parcel. Special considerations may be discussed, such as temporary or permanent gates, fencing, and access accommodations. The Applicants' experience with easement discussions is that, in most cases, they are able to work with landowners to address their concerns to reach an agreement for the purchase of the easement.

In all cases, the Applicants will use fair market value data to try in good faith to reach agreements with landowners on a voluntary basis. In some cases, agreements cannot be reached. In those cases, the Applicants may be required to obtain the necessary rights for the Project by exercising their right of eminent domain under Minnesota law. The process of exercising the right of eminent domain is called condemnation. Minnesota law establishes a common process – through Minn. Stat. 117 – for condemnation actions and has a well-developed body of law for determining valuation issues to ensure that landowners receive just compensation.

Before commencing a condemnation proceeding, typically a condemning authority obtains an appraisal and provides it to the property owner, along with the condemning authority's offer of compensation. To start the formal condemnation process, a utility (or other condemning authority) files a petition in the district court where the property is located and serves that petition on all owners of interests in each of the properties identified in the petition. If the court grants the petition, the court then appoints a three-person condemnation commission that will determine the just compensation for the easement. The three commissioners must be knowledgeable with respect to applicable real estate issues. The commissioners schedule a viewing of the property and then schedule a valuation hearing where the utility and landowners can testify as to the fair market value of the easement or fee. As part of the valuation process, the landowner typically also obtains an appraisal, and has certain rights of reimbursement in connection with the costs of obtaining that appraisal. At the commissioners' hearing on valuation, the parties offer their evidence, such as testimony by appraisers or the landowners, about the fair market value impacts the acquisition has on the property's value. The condemnation commission then makes an award in an amount representing just compensation and that award is filed with the district court. Each party has the right to appeal the award to the district court for a trial. In the event of an appeal, the jury or judge

[112] The Applicants may obtain certain land rights ahead of a final Commission decision on the final route for the Project. The Applicants acknowledge that the Commission is not bound by any land rights obtained by the Applicants.

considers the parties' evidence and renders a verdict. At any point in this process, the case can be dismissed if the parties reach a settlement.

There may be instances where a landowner elects to require the Applicants to purchase the landowner's fee interest in all or some portion of the landowner's contiguous, commercially viable property that is adjacent to the Proposed right-of-way. Owners of certain types of property are granted this right under Minn. Stat. § 216I.12, subd. 4, sometimes referred to as the "Buy-the-Farm" Statute. The Buy-the-Farm Statute applies only to transmission facilities that are 200 kV or more. Thus, the Buy-the-Farm Statute may apply to parcels crossed by the proposed 345 kV and 230 kV transmission lines where new easements are being acquired by the Applicants.

6.1.2 Substations

No new substations are anticipated to be constructed as part of the Project. Instead, the Project will connect the existing Minnesota Power Iron Range Substation, Minnesota Power St. Louis County Substation, and ATC Arrowhead Substation. Detailed explanations of the work to be performed at each of Minnesota Power's Iron Range Substation, Minnesota Power's St. Louis County Substation, and ATC's Arrowhead Substation are provided in Section 2.1.5.1, Section 2.1.5.2, and Section 2.1.5.3, respectively.

6.1.3 Communication Infrastructure Modifications

Modifications to communications infrastructure in the Project area will be completed as part of the Project to improve overall communication capabilities of the transmission system. While these modifications to communication infrastructure do not independently require a Certificate of Need or Route Permit from the Commission, Applicants elected to identify that certain communication infrastructure modifications may be necessary for the Project and elected to do so in this Application to ensure transparency in the overall work being completed in the Project area.

6.2 CONSTRUCTION PROCEDURES

6.2.1 Transmission Lines

Construction will begin once all necessary federal, state, and local approvals are received, land rights are secured, and the final design is complete. The exact timing and duration will also depend on permit requirements, system demands, and workforce availability. Once land rights are obtained, landowners will be informed before construction starts. This notice will include an updated project schedule and details about upcoming construction activities.

The initial phase of constructing new transmission structures entails surveying the centerline, easement boundaries, and pole locations, followed by the removal of all trees and vegetation within the designated rights-of-way. In areas where the project aligns with existing rights-of-way, overlapping rights-of-way may reduce the need for additional clearing, thereby minimizing vegetation clearing and environmental impact. This phase also includes identifying and marking existing underground utilities via the Gopher State One Call process to prevent damage and injury during construction and conducting soil tests and surveys (geotechnical surveys) to determine foundation requirements.

Tree species that could compromise the safe and reliable operation of the transmission facility will be removed. According to the NESC, "vegetation that may damage ungrounded supply conductors should be pruned or removed." Additionally, trees located beyond the easement area

that pose a risk of falling into the energized transmission line, commonly referred to as “danger trees,” will be removed or trimmed to eliminate the hazard, as permitted by the terms of the acquired easement. Danger trees are typically characterized as dead, weak, or leaning toward the energized conductors.

In certain cases, right-of-way clearing may need to occur before finalizing the overall line design and pole placements. This is often due to calendar restrictions aimed at avoiding vulnerable timeframes in the life cycles of specific flora or fauna species. In such situations, the right-of-way width is defined while the final line design is still in progress, allowing the clearing activities to proceed concurrently with the design efforts. The final survey staking of pole locations will occur after the vegetation has been removed and just prior to the structure installation. Figure 35 shows standard vegetation management practices.[113] Prior to site clearing and vegetation removal activities, erosion and sediment control measures will be installed in accordance with any municipal stormwater permits and the Minnesota Pollution Control Agency (“MPCA”) National Pollutant Discharge Elimination System (“NPDES”) Construction Stormwater Permit (Section 8.2.4).

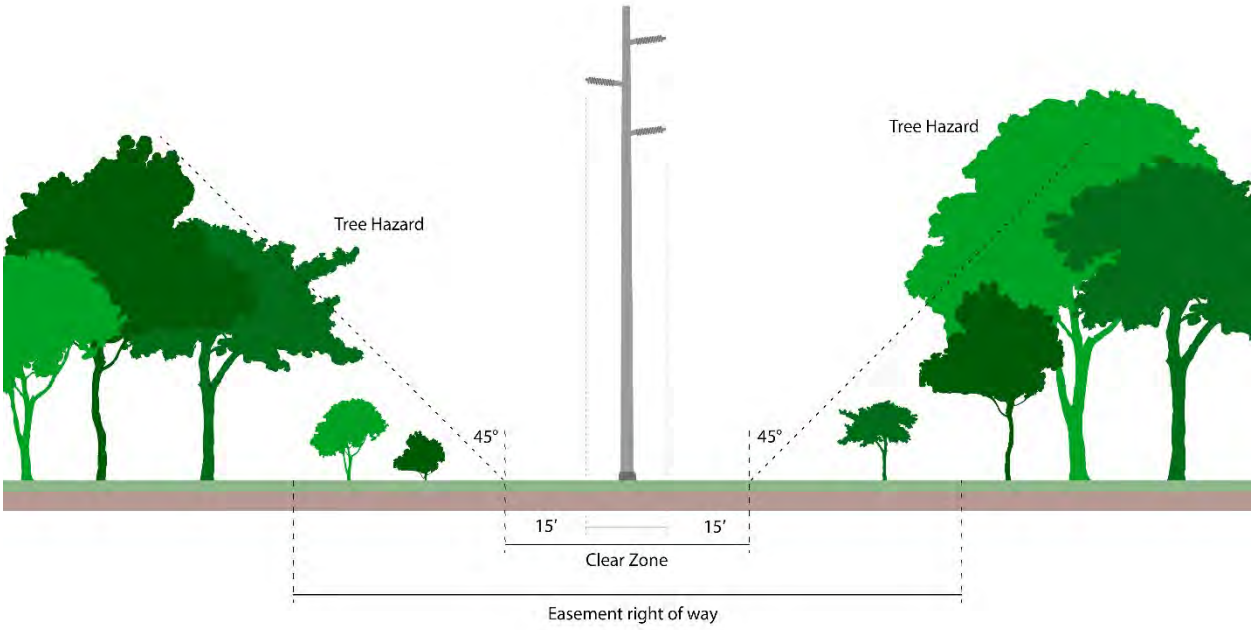
All material resulting from the clearing operations will be managed in accordance with agreements made with the property owner during easement negotiations. Options include chipping the material on-site and spreading it within the right-of-way, stacking it for use by the property owner, or removing it for proper disposal.

The location of proposed access roads, crane paths, temporary storage areas, and laydown yards will be identified by the Applicants’ contractor prior to construction.

Figure 35 shows the vegetation management practices that will be implemented for the majority of the Project. There may be instances where the full easement area may need to be cleared of vegetation due to site-specific conditions, or for portions of the Project that will be owned and maintained by ATC pursuant to ATC’s standard vegetation management practice.

[113] The width at which vegetation will be maintained to ground level may increase at structure locations, around guy wires and anchors, and other improvements.

Figure 35. Standard Vegetation Management Practices



The second phase of construction will focus on the installation of transmission line structures and the stringing of conductor wire.

If it becomes necessary to temporarily remove or relocate fences to accommodate construction activities, the installation of either temporary or permanent gates will be coordinated in advance with the landowner. In addition, the right-of-way agent may coordinate with landowners to allow for early crop harvesting when feasible, and compensation will be provided for any verified crop losses. Property owners may also be asked to temporarily move equipment or livestock from the right-of-way to ensure safety and minimize disruptions during construction.

Transmission structures are typically engineered for placement at existing ground elevations, minimizing the need for grading. However, if construction vehicles cannot safely access or operate near a structure location due to uneven terrain, limited grading may be performed to create a sufficiently level work area.

The Applicants will adhere to established construction practices informed by prior project experiences and industry-recognized Best Management Practices ("BMPs"). BMPs address right-of-way clearance, transmission line structure erection, and stringing transmission lines. Tailored to the specific construction design, these practices integrate prohibitions, maintenance guidelines, inspection procedures, and other activities integral to line construction. In certain instances, construction activities may be adjusted to incorporate BMPs that mitigate impacts on sensitive environments.

Self-supporting steel monopole transmission line structures are typically installed on reinforced concrete foundations to ensure stability and support. The foundation installation process involves drilling a hole approximately seven to ten feet in diameter and 30-50 feet deep, though these dimensions may vary based on soil conditions determined during the initial survey and

geotechnical testing phases. For angle or dead-end structures, larger foundations may be required, with diameters reaching 12 feet or more. Alternative structure types may also require alternative foundations due to certain soil and/or loading conditions.

Once the hole is drilled, a steel rebar support cage is placed within it to reinforce the foundation. Concrete is then delivered to the site via trucks from a local batch plant and poured around the rebar cage, forming the foundation. After the foundation has cured, the steel pole is transported from the staging area to the installation site. While still on the ground, insulators and other necessary hardware are attached to the pole. A crane is then used to lift the pole into position and secure it on the cured concrete foundation.

Some soil conditions will require that construction mats be placed along the right-of-way or at a pole location to minimize soil disturbances. These mats can also be used to provide access across sensitive areas to minimize impacts including soil compaction, rutting, or damage to plant species. Once the pole has been set, any remaining holes are back-filled with the excavated material or crushed rock. The Applicants prefer to spread any remaining excavated material in the area from which they were removed if landowner permission is obtained. If spreading of the excavated material is not permitted by the landowner, the material will be offered to the landowner or completely removed from the site.

After a number of structures have been erected, the Applicants will begin to install the conductor wire by establishing stringing setup areas.[114] These stringing setup areas are usually located every four miles along a project route, or as needed, and occupy approximately 150-foot by 600-foot area. Conductor stringing operations require brief access to each structure to secure the conductor wire to the insulators and to install shield wire clamps once final sag is established. Temporary guard or clearance structures are installed, as needed, over existing distribution or communication lines, streets, roads, highways, railways or other obstructions after any necessary notifications are made or permits obtained. This ensures that conductors will not obstruct traffic or contact existing energized conductors or other cables. This also protects the conductors from damage. Crossing of rivers, streams and wetlands will require particular attention during construction. The EA is available in Appendix E and describes potential public water inventory and wetland crossings anticipated for the Project. In areas where construction occurs close to waterways, BMPs help prevent soil erosion and ensure that equipment fueling and lubricating occur at a distance from waterways

6.2.2 Substations

Details regarding the work necessary at the existing Iron Range, St. Louis County, and Arrowhead Substations are provided in Section 2.1.5.

Substation construction will be performed in compliance with the applicable NESC, Occupational Safety and Health Act, and state and local requirements. Designs will be completed by Minnesota licensed professional engineers, as required by Minnesota Statutes and Rules. Contractors will be committed to safe working practices. The final design of the substations will take into account the local conditions of the substation sites and comply with all applicable safety codes and the Applicants' standards.

[114] Where the Project will replace the existing 230 kV line, the 230 kV transmission line will first be decommissioned in this area before the new 345 kV double-circuit structures are erected.

The substation modifications will be designed to allow future maintenance to be done with minimum impact on substation operation and provide the necessary clearance from energized equipment to ensure safety. Standard construction and mitigation practices developed from experience with past projects in addition to industry-specific BMPs will be employed. BMPs for the Project will be based on the specific construction design, prohibitions, maintenance guidelines, inspection procedures, and other activities involved in constructing the substations. As with the transmission lines, in some cases these activities will be modified to incorporate a BMP for construction that will assist with minimizing impacts on sensitive environments.

When construction activities are completed, the Applicants will restore the remainder of the construction sites in accordance with the restoration procedures described in Section 6.3.

6.2.3 Workforce Required

The workforce required for construction of the Project's facilities is estimated to be about 75-150 construction workers, depending on the construction sequencing and time of the year. This includes vegetation maintenance crews, transmission line and substation construction workers, safety supervisors, environmental support, and other on- and offsite support staff. Applicants will work with local contractors, to the extent practicable, in the Project area to identify potential opportunities to complete this work using contractors local to the Project area. Additionally, Applicants have strong relationships with the Building Trades and are committed to working with organized labor on the Project, including paying prevailing wages for applicable positions for the construction of the Project, as discussed in Appendix E, Section 2.1.4.

The construction activities will provide a seasonal influx of additional dollars into the communities during the construction phase, with construction materials purchased from local vendors where feasible.

6.3 RESTORATION PROCEDURES

During construction, limited ground disturbances at the structure sites may occur. Staging areas for temporary storage of materials and equipment are established under agreements with the property owner or agency. Preferably, a previously disturbed or developed area is used, and includes sufficient space to lay down material and preassemble certain structural components or hardware and store construction equipment. Parts of the right-of-way or property immediately adjacent to the right-of-way may be used for structure laydown and framing prior to structure installation. Additionally, stringing setup areas are used to store conductors and equipment necessary for stringing operations. Disturbed areas will be restored to their original condition to the maximum extent practicable, or as negotiated with the landowner.

Disturbed areas will be restored to their original condition to the maximum extent practicable, or as negotiated with the landowner. Post-construction reclamation activities will include removing and disposing of debris, removing all temporary facilities, including staging and laydown areas, employing appropriate erosion control measures, reseeding areas disturbed by construction activities with a seed mixture certified as free of noxious or invasive weeds and restoring the areas to their original condition to the extent practicable, restoring agricultural lands to production quality, reseeding areas as described in the Vegetation Management Plan (Appendix M), and establishing erosion control measures that will be maintained long-term. In instances where soil compaction has occurred, the construction crew or restoration contractor will use various methods to alleviate the compaction, or as negotiated with landowners.

The right-of-way agent will contact the landowners once construction is completed to determine if the clean-up measures have been to their satisfaction and if any other damage may have occurred. If damage has occurred to crops, fences or other property, Applicants will compensate the landowner. In some cases, an outside contractor may be hired to restore the damaged property as near as practicable to its original condition. In the event of unanticipated erosion after restoration activities are considered complete, the Applicants will promptly assess the affected areas and implement additional erosion control measures as necessary.

6.4 OPERATION AND MAINTENANCE

6.4.1 Transmission Lines

Transmission lines will be engineered and maintained in accordance with the NESC and the Applicants' internal standards. These lines are inherently reliable, with unplanned outages occurring infrequently. On average, transmission systems demonstrate annual availability rates exceeding 99 percent. While transmission infrastructure is designed with service lives spanning several decades, high-voltage lines are rarely decommissioned. In Minnesota Power's 2021 Intangible, Transmission, Distribution, and General Plant Depreciation Petition, the detailed depreciation study found that while older transmission structures were expected to have service lives of approximately 50 years, newer structures used today were expected to have service lives of approximately 75 years.[115] To ensure long-term performance and safety, routine maintenance and periodic replacement of system components are essential.

Periodic access to the transmission line right-of-way is necessary for inspections, maintenance, and any required repairs. Inspections are conducted annually, typically once by air and once on the ground. Ground inspections focus on the right-of-way and areas where topography or obstacles require off-right-of-way access. If issues are discovered, timely repairs will be carried out, and any associated land disturbance will be remediated. If restoration is not feasible, reasonable compensation will be provided to the affected landowner.

The right-of-way will be actively managed to prevent encroachments that may interfere with the operation of the transmission line including removal of vegetation that interferes with the operation and maintenance of the transmission line, and maintain safe and reliable operation. This includes removal of vegetation that poses a risk to transmission infrastructure. Native shrubs that do not interfere with safe operations will be permitted to regrow along the outer edges of the right-of-way. Vegetation management techniques may include mechanical clearing, manual cutting, and herbicide application where permitted. Additionally, herbicides may be applied selectively to control noxious weeds, particularly around structures and anchor points.

Parking will be determined as needed along the right-of-way to accommodate maintenance vehicles and equipment. Regular inspections of all equipment will be conducted to ensure functionality, safety, and compliance with operational standards.

6.4.2 Substations

Substations also require a degree of maintenance to keep them functioning in accordance with accepted operating parameters and NESC requirements. Transformers, circuit breakers, batteries, protective relays and other equipment need to be serviced periodically in accordance

[115] *In the Matter of the 2021 Intangible, Transmission, Distribution, and General Plant Depreciation Petition*, Docket No. E015/M-21-229, INITIAL FILING at Appendix II at 28 (Apr. 1, 2021).

with the manufacturer's recommendation. The site itself must also be kept free of vegetation, and drainage maintained.

The operating and maintenance costs associated with the transmission lines and substations are provided in Section 2.4.2. Actual transmission line and substation maintenance costs will depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, age of the equipment, and other variables.

6.4.3 Workforce Required

The operation and maintenance of the transmission line will require a dedicated team of two to four skilled workers. This team will be responsible for conducting regular inspections and performing necessary maintenance to ensure the continued reliability and safety of the transmission system. Annual inspections will be performed on foot or by motorized vehicle, in addition to annual aerial inspections. Traditionally, vegetation management has been performed by contract employees separate from the operation and maintenance team.

6.5 ELECTRIC AND MAGNETIC FIELDS

EMF are invisible lines of force that are present anywhere electricity is produced or used, including around electric appliances and any wire that is conducting electricity. The term "EMF" is typically used to refer to electric and magnetic fields that are coupled together; however, for the lower frequencies associated with power lines, electric and magnetic fields are relatively decoupled and should be described separately. Electric fields are the result of electric charge, or voltage, on a conductor. The intensity of an electric field is related to the magnitude of the voltage on the conductor and is typically described in terms of kilovolts per meter ("kV/m"). Magnetic fields are the result of the flow of electricity, or current, traveling through a conductor. The intensity of a magnetic field is related to the magnitude of the current flow through the conductor and is typically described in units of magnetic flux density expressed as Gauss ("G") or milliGauss ("mG"). EMF are found anywhere there are energized, current-carrying conductors, such as near transmission lines, distribution lines, substation transformers, household electrical wiring, and common household appliances.

6.5.1 Electric Fields

Voltage on any wire produces an electric field in the area surrounding the wire. The voltage on the conductors of a transmission line produces an electric field extending from the energized conductors to other nearby objects, such as the ground, structures, vegetation, buildings, and vehicles. The intensity of transmission line electric fields is proportional to the voltage of the line and rapidly decreases with distance from the transmission line conductors. The presence of trees, buildings, and other solid structures nearby can also significantly reduce the magnitude of the electric field. Because the magnitude of the voltage on a transmission line is near-constant, the magnitude of the electric field will be near-constant for each of the proposed transmission lines, regardless of the power flowing on the lines. When an electric field reaches a nearby object, such as a vehicle or a metal fence, it induces a voltage on the object. The magnitude of the induced voltage is dependent on many factors, including the object's capacitance, shape, size, orientation, location, resistance to ground, and weather conditions. If the object is insulated or semi-insulated from the ground and a person touches it, a small current would pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock, similar to what can occur when a person walks across a carpet and touches a grounded object, like a doorknob, or another person.

The main concern with induced voltage is not the magnitude of the voltage induced, but the current that would flow through a person to the ground should the person touch the object. To ensure that any such spark discharge associated with transmission line induced voltage does not reach unsafe levels, the NESC requires that any discharge be less than five milliamperes. The Project will be designed consistent with this NESC requirements. There is no federal standard for transmission line electric fields. The Commission, however, has historically imposed a maximum electric field limit of eight kV/m measured at one meter above ground for new transmission projects.[116] As demonstrated below, the electric field associated with the Project will be within the Commission's eight kV/m limits The predicted intensity of electric fields associated with the various structure configurations of the Project is given in Table 26 for the edge of right-of-way and at the location where the maximum electric field will be experienced. Where the Project parallels existing transmission lines, the presence of another energized line nearby will impact the electric field profile around the parallel lines. Therefore, the predicted intensity of electric fields associated with the various corridor scenarios where the Project's new transmission line parallels existing transmission lines are also given in Table 26. Because electric fields are particularly dependent on the voltage of the transmission line, the values in Table 26 were calculated at the lines' maximum continuous operating voltage.

Maximum continuous operating voltage is defined for the Project as the nominal voltage plus 10 percent, in this case 379.5 kV (for nominally 345 kV lines), 253 kV (for nominally 230 kV lines), or 126.5 kV (for nominally 115 kV lines). Values were calculated assuming minimum conductor-to-ground clearance (that is, at mid-span) and a height of one meter above ground. The maximum calculated electric field among all possible configurations is 7.5 kV/m, which is within the Commission's eight kV/m limit. Plots of the lateral profile of electric field for each corridor configuration in Table 26 are provided in Appendix N.

[116] *In the Matter of the Route Permit Application for a 345 kV Transmission Line from Brookings County, S.D. to Hampton*, Docket No. ET2/TL-08-1474, ORDER GRANTING ROUTE PERMIT (Sept. 14, 2010) (adopting the Administrative Law Judge's Findings of Fact, Conclusions, and Recommendation [Finding ¶ 194]).

Table 26. Calculated Electric Fields for Proposed Project

Corridor Configuration	Line Voltage	Edge of right-of-way	Maximum Overall		
		Intensity (kV/m)	Intensity (kV/m)	Distance from right-of-way Centerline (feet)	Combined right-of-way Width (feet)
Project: Single-Circuit 345 kV on Double-Circuit Capable	379.5 kV	0.5	7.5	16	150
Project: Double-Circuit 345 kV	379.5 kV 379.5 kV	0.6	6.0	19	150
Existing: 230 kV H-Frame Project: Single-Circuit 345 kV on Double-Circuit Capable	253 kV 379.5 kV	0.7	7.3	40	250
Project: Double-Circuit 345 kV With One Operating at 230 kV	379.5 kV 253 kV	0.5	6.5	18	150
Existing: 115 kV H-Frame Project: Double-Circuit 345 kV With One Operating at 230 kV	126.5 kV 379.5 kV 253 kV	0.5	6.5	73	235
Existing: 230 kV H-Frame Project: Double-Circuit 345 kV With One Operating at 230 kV	253 kV 379.5 kV 253 kV	0.8	6.5	73	250
Existing: Double-Circuit 345 kV Project: Single-Circuit 345 kV on Double-Circuit Capable	379.5 kV 379.5 kV 379.5 kV	0.5	7.4	49	280
Existing: HVDC 250 kV Project: Double-Circuit 345 kV With One Operating at 230 kV	250 kV 379.5 kV 253 kV	AC: 0.1 DC: 1.7	AC: 6.5 DC: 3.9	AC: 50 DC:105	150

6.5.2 Magnetic Fields

Current passing through any conductive material, including a wire, produces a magnetic field in the area around the material. The current flowing through the conductors of a transmission line produces a magnetic field that extends from the energized conductors to other nearby objects. The intensity of the magnetic field associated with a transmission line is proportional to the amount of current flowing through the line's conductors, and rapidly decreases with the distance from the conductors. Unlike electric fields, magnetic fields are not significantly impacted by the presence of trees, buildings, or other solid structures nearby. Because the actual power flow on a transmission line could potentially vary widely throughout the day depending on electrical system conditions, the actual magnetic field level in the vicinity of the transmission line could also vary widely from hour to hour.

There are currently no Minnesota regulations pertaining to magnetic field exposure. The Commission has acknowledged that Florida, Massachusetts, and New York have established standards for magnetic field exposure.[117] To provide context for the calculated magnetic field levels associated with the Project, magnetic field levels associated with some common household electric appliances are provided in Table 27.

[117] *In the Matter of the Route Permit Application for the North Rochester to Chester 116 kV Transmission Line Project*, Docket No. E-002/TL-11-800, ORDER at 20 (Sept. 12, 2012).

Table 27. Magnetic Fields of Common Electric Appliances

Appliance	6 Inches from Source	1 Foot from Source	2 Feet from Source
Hair Dryer	300 mG	1 mG	-
Electric Shaver	100 mG	20 mG	-
Can Opener	600 mG	150 mG	20 mG
Electric Stove	30 mG	8 mG	2 mG
Television	N/A	7 mG	2 mG
Portable Heater	100 mG	20 mG	4 mG
Vacuum Cleaner	300 mG	60 mG	10 mG
Copy Machine	90 mG	20 mG	7 mG
Computer	14 mG	5 mG	2 mG

The predicted intensity of magnetic fields associated with the various structure configurations of the Project are given in Table 28 and Table 29 for the edge of right-of-way and at the location where the maximum magnetic field will be experienced. Where the Project parallels existing transmission lines, the presence of another energized line nearby will impact the magnetic field profile around the parallel lines. Therefore, the predicted intensity of magnetic fields associated with the various corridor scenarios where the Project parallels existing transmission lines are provided in Table 28 and Table 29**.** Because magnetic fields are particularly dependent on the current flowing on the transmission line, magnetic field information is provided for two conditions: the maximum continuous rating of the Project's transmission lines, shown in Table 28, and the projected peak loading of the Project's transmission lines when placed into service, shown in Table 29**.** Maximum continuous rating is defined for the Project as the maximum allowable current flow based on the most limiting series element of the transmission facility as determined by the Company's Facility Ratings Methodology. Projected peak loading for the Project was derived from power system modeling of the Project under system normal conditions when the HVDC Line is scheduled at its maximum capacity. Values were calculated assuming minimum conductor-to-ground clearance (that is, at mid-span) and a height of one meter aboveground. Plots of the lateral magnetic field profile for each configuration are provided in Appendix N.

Out of all the possible transmission line configurations, the maximum possible magnetic field associated with the Project under typical operating conditions during typical loading is 122 mG with the maximum possible magnetic field at the edge of the right-of-way calculated at 22mG. These projected levels are below the magnetic field levels associated with most of the household electric appliances shown in Table 27.

Table 28. Calculated Magnetic Fields for Proposed Project (Maximum Continuous Rating)

Corridor Configuration	Line Current (Amps)	Edge of right-of-way	Maximum Overall		
		Intensity (mG)	Intensity (mG)	Distance from right-of-way Centerline (feet)	Combined right-of-way Width (feet)
Project: Single-Circuit 345 kV on Double-Circuit Capable	3000	160	474	16	150
Project: Double-Circuit 345 kV	3000 3000	92	518	0	150
Existing: 230 kV H-Frame Project: Single-Circuit 345 kV on Double-Circuit Capable	1181 3000	87	464	38	250
Project: Double-Circuit 345 kV With One Operating at 230 kV	3000 1181	130	452	13	150
Existing: 115 kV H-Frame Project: Double-Circuit 345 kV With One Operating at 230 kV	392 3000 1181	131	452	68	234
Existing: 230 kV H-Frame Project: Double-Circuit 345 kV With One Operating at 230 kV	1181 3000 1181	124	450	67	250
Existing: Double-Circuit 345 kV Project: Single-Circuit 345 kV on Double-Circuit Capable	3000 3000 3000	104	476	47	280
Existing: HVDC 250 kV Project: Double-Circuit 345 kV With One Operating at 230 kV	900 MW 3000 1181	AC: 17 DC:161	AC: 448 DC: 553	AC: 55 DC: 85	150

Table 29. Calculated Magnetic Fields for Proposed Project (Projected Peak Loading)

Corridor Configuration	Line Current (Amps)	Edge of right-of-way	Maximum Overall		
		Intensity (mG)	Intensity (mG)	Distance from right-of-way Centerline (feet)	Combined right-of-way Width (feet)
Project: Single-Circuit 345 kV on Double-Circuit Capable	399.7	21	63	15	150
Project: Double-Circuit 345 kV	708.8	22	122	0	150
Existing: 230 kV H-Frame Project: Single-Circuit 345 kV on Double-Circuit Capable	143.8 399.7	12	62	38	250
Project: Double-Circuit 345 kV With One Operating at 230 kV	399.7 143.8	18	60	13	150
Existing: 115 kV H-Frame Project: Double-Circuit 345 kV With One Operating at 230 kV	98.4 399.7 143.8	18	60	68	234
Existing: 230 kV H-Frame Project: Double-Circuit 345 kV With One Operating at 230 kV	417.7 399.7 143.8	16	60	65	250
Existing: Double-Circuit 345 kV Project: Single-Circuit 345 kV on Double-Circuit Capable	584.9 399.7	19	95	60	280
Existing: HVDC 250 kV Project: Double-Circuit 345 kV With One Operating at 230 kV	494.8 MW 399.7 143.8	AC: 6 DC: 88	AC: 60 DC: 304	AC: 55 DC: 85	150

6.5.3 EMF and Health Effects

Significant research has been performed since the 1970s to determine whether exposure to power frequency magnetic fields causes biological responses and health effects. Reviews of this research by public health agencies such as the U.S. National Cancer Institute, the U.S. National Institute of Environmental Health Sciences, and the World Health Organization do not show that exposure to electric power EMF causes or contributes to adverse health effects. For instance, in 2016, the U.S. National Cancer Institute concluded that:

> Numerous epidemiologic studies and comprehensive reviews of the scientific literature have evaluated possible associations between exposure to non-ionizing EMFs and risk of cancer in children (12-14). (Magnetic fields are the component of non-ionizing EMFs that are usually studied in relation to their possible health effects.) Most of the research has focused on leukemia and brain tumors, the two most common cancers in children. Studies have examined associations of these cancers with living near power lines, with magnetic fields in the home, and with exposure of parents to high levels of magnetic fields in the workplace. No consistent evidence for an association between any source of non-ionizing EMF and cancer has been found.[118]

[118] "Electromagnetic Fields and Cancer," updated Jan. 3, 2019, National Cancer Institute. Available at https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet.

Minnesota, Wisconsin, and California have also all performed literature reviews or research to examine this issue. In 2002, Minnesota formed an Interagency Working Group to evaluate EMF research and develop policy recommendations to protect the public health from any potential problems arising from EMF effects associated with high-voltage transmission lines. The Working Group included staff from a number of state agencies and published its findings in *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options.* The Working Group summarized its findings as follows:

> Research on the health effect of EMF has been carried out since the 1970s. Epidemiological studies have mixed results—some have shown no statistically significant association between exposure to EMF and health effects, some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields may cause cancer. A number of scientific panels convened by national and international health agencies and the United States Congress have reviewed the research carried out to date. Most concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe.[119]

Based on findings like the Working Group and U.S. National Cancer Institute, the Commission has consistently found that "there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects."[120]

The potential impacts of electric fields include interference with the operation of pacemakers and Implantable Cardioverter/Defibrillators ("ICDs"). Interference with implanted cardiac devices can occur if the electric field intensity is high enough to induce sufficient body currents to cause interaction. Generally, the response depends on the make and model of the device in addition to the individual's height, build and physical orientation with respect to the electric field. Pacemaker manufacturers such as Medtronic and Guidant have indicated that modern cardiac devices are considerably less susceptible to interactions with electric fields than older "unipolar" designs. A 2005 study concludes that the risk of interference inhibition of unipolar cardiac pacemakers from high voltage power lines in everyday life is small.[121] In 2007, Minnesota Power and Xcel Energy conducted studies with Medtronic to evaluate the impact of the electric fields associated with existing 115 kV, 230 kV, 345 kV, and 500 kV transmission on implantable medical devices. The analysis was based on real life public exposure levels under actual transmission lines in

---

[119] Minnesota State Interagency Working Group on EMF Issues, *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options* (Minnesota Department of Health, 2002). Available at https://apps.commerce.state.mn.us/eera/web/project-file?legacyPath=/opt/documents/EMF%20White%20Paper%20-%20MN%20Workgroup%20Sep%202002.pdf. Last accessed November 2025.

[120] *In the Matter of the Application for a HVTL Route Permit for the Tower Transmission Line Project*, Docket No. ET2, E015/TL-06-1624, FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER ISSUING A ROUTE PERMIT TO MINNESOTA POWER AND GREAT RIVER ENERGY FOR THE TOWER TRANSMISSION LINE PROJECT AND ASSOCIATED FACILITIES (August 1, 2007); see also *In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET2/TL-08-1474, ORDER ISSUING ROUTE PERMIT (Sept. 14, 2010); OAH Docket No. 7-2500-20283-2, ALJ Findings of Fact, Conclusions and Recommendation at Finding 216 (April 22, 2010 and amended April 30, 2010) ("there is no demonstrated impact on human health and safety that is not adequately addressed by the existing State standards for exposure"); *In the Matter of the Application of Xcel Energy for a Route Permit for the Lake Yankton to Marshall Transmission Line Project in Lyon County*, Docket No. E002/TL-07-1407, FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER ISSUING A ROUTE PERMIT TO XCEL ENERGY FOR THE LAKE YANKTON TO MARSHALL TRANSMISSION PROJECT at 7-8 (Aug. 29, 2008).

[121] A. Scholten, S. Joosten, and J. Silny, "Unipolar Cardiac Pacemakers in Electromagnetic Fields of High Voltage Overhead Lines," *Journal of Medical Engineering and Technology,* 29 (2005), 170-175. Available at https://pubmed.ncbi.nlm.nih.gov/16012068. Last accessed August 2025.

Minnesota; no adverse interaction with pacemakers or ICDs occurred. The analysis concluded that, although interaction may be possible in unique situations, device interaction due to typical public exposure would be rare. In the unlikely event a pacemaker is impacted, the effect is typically temporary asynchronous pacing. The pacemaker would return to its normal operation when the person moves away from the source of the interference.

6.6 STRAY VOLTAGE AND INDUCED VOLTAGE

Stray voltage is a condition that can occur on the electric service entrances to structures from distribution lines—not transmission lines. More precisely, stray voltage is a voltage that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors. The U.S. Department of Agriculture ("USDA") further defines stray voltage as a small voltage (less than 10 V) measured between two points that can be simultaneously contacted by an animal.[122] Since stray voltage is present when a voltage exists between the neutral wire of an electrical service entrance and grounded objects in buildings, transmission lines do not, by themselves, create stray voltage because the lines do not connect directly to businesses or residences. Transmission lines can, however, induce stray voltage on a distribution circuit that is parallel and immediately under the transmission line. The Project will not parallel any distribution lines.

6.7 CORONA-INDUCED OZONE AND NITROGEN OXIDE EMISSIONS

Corona, in the context of transmission lines, refers to the breakdown or ionization of air within a few centimeters of conductors. Corona occurs when the electric field intensity, or surface gradient, on the conductor exceeds the breakdown strength of air. Usually, a water droplet or some imperfection such as a sharp edge or scratch on the conductor is necessary to cause corona. Corona may result in a visible violet glow, hissing noise, and production of ozone gas in the air surrounding overhead transmission line conductors.[123] Corona also produces ozone, which is created by chemical reactions between oxides of nitrogen and volatile organic compounds.[124] Ozone is produced in the air surrounding the conductor from the operation of transmission lines.[125] The Company typically engineers transmission lines to limit corona, as it also signifies a loss of electricity.[126]

In general, monitored concentrations of ozone due to corona discharge from transmission lines show no significant incremental ozone concentrations at ground level, and minimal (zero to eight parts per billion ("ppb")) concentrations at an elevation nearer to the transmission line. Typically, these concentrations are detected only during heavy corona discharge in foul weather conditions. Additional testing has shown that production of nitrogen oxide due to corona discharges is approximately one-fourth of the production of ozone due to corona discharges. Ozone also forms in the lower atmosphere from lightning discharges, and from reactions between solar ultraviolet radiation and air pollutants. The natural production rate of ozone is directly proportional to temperature and sunlight, and inversely proportional to humidity. Thus, humidity or moisture, the same factor that increases corona discharges from transmission lines, inhibits the natural

[122] A.M. Lefcourt, ed., *Effects of Electrical Voltage/Current on Farm Animals; How to Detect and Remedy Problems* (U.S. Department of Agriculture, 1991). USDA Agricultural Handbook 696, 1992-617-013/46592.
[123] CH2M Hill, *Electric and Magnetic Fields and Audible Noise* (May 2012). Available at https://www.rd.usda.gov/sites/default/files/UWP_CO47-Tri-State_Bromley-Prairie_EA-AppE.pdf. Last accessed November 2025.
[124] "Ground-Level Ozone Basics," U.S. Environmental Protection Agency. Available at https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics#formation. Last accessed October 2025.
[125] Electric Power Research Institute, *Transmission Line Reference Book: 345 kV and Above* (1982). Second Edition.
[126] CH2M Hill, *Electric and Magnetic Fields and Audible Noise.*

production of ozone. Ozone is a very reactive form of oxygen molecules and combines readily with other elements and compounds in the atmosphere. Because of its reactivity, it is relatively short-lived.

Both the State and federal governments currently have regulations regarding permissible concentrations of ozone and oxides of nitrogen. The National and State Ambient Air Quality Standards for ozone is 0.070 parts per million ("ppm") on an eight-hour averaging period per Minnesota Rules 7009.0080 and 7009.0090. The national and state standard for nitrogen dioxide ("NO_2"), one of several oxides of nitrogen, is 100 ppb and the annual standard is 53 ppb. The State of Minnesota is currently in compliance with the federal standards for ozone and NO_2. The operation of the proposed transmission lines would not create any potential for the concentration of these pollutants to exceed ambient air standards.

6.8 RADIO AND TELEVISION INTERFERENCE

Generally, transmission lines do not cause interference with radio, television, or other communication signals and reception. While it is rare in everyday operations, four potential sources for interference do exist, including gap discharges, corona discharges, and shadowing and reflection effects.

Gap discharge interference is the most commonly noticed form of power line interference with radio and television signals, and also typically the most easily fixed. Gap discharges are usually caused by hardware defects or abnormalities on a transmission or distribution line causing small gaps to develop between mechanically connected metal parts. As sparks discharge across the gap, they create the potential for electrical noise. The degree of interference depends on the quality and strength of the transmitted communication signal, the quality of the receiving antenna, and the distance between the receive and the power line. Gap discharges are usually a maintenance issue, since they tend to occur in areas where gaps have formed due to broken or ill-fitted hardware (*e.g.*, clamps, insulators, brackets). Because gap discharges are a hardware issue, they can be repaired relatively quickly once the issue has been identified.

Corona from transmission line conductors can also generate electromagnetic noise at the same frequencies that radio and television signals are transmitted. The air ionization caused by corona generates audible noise, radio noise, light, heat, and small amounts of ozone as noted in Section 6.7. The potential for radio and television signal interference due to corona discharge relates to the magnitude of the transmission line-induced radio frequency noise compared to the strength of the broadcast signals. Because radio frequency noise, like EMF, becomes significantly weaker with distance from the transmission line conductors, very few practical interference problems related to corona-induced radio noise occur with transmission lines. In most cases, the strength of the radio or television broadcast signal within a broadcaster's primary coverage area is great enough to prevent interference.

If interference from transmission line corona associated with the Project does occur for an AM radio station within a station's primary coverage area where good reception existed before the Project was built, satisfactory reception can be obtained by appropriate modification of (or addition to) the receiving antenna system. The situation is unlikely, however, because AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly with increasing distance from the line.

FM radio receivers usually do not pick up interference from transmission lines because:

- Corona-generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88-108 Megahertz (“MHz”)), and

- The interference rejection properties inherent in FM radio systems make them virtually immune to amplitude type disturbances.

The potential for television interference due to radio frequency noise caused by transmission lines is very low now that the United States has completed the transition to digital broadcasting. Digital reception is in most cases considerably more tolerant of noise than analog broadcasts. Due to the higher frequencies of television broadcast signals (54 MHz and above) a transmission line seldom causes reception problems within a station’s primary coverage area. In the rare situation where the Project may cause interference within a station’s primary coverage area, the problem can usually be corrected with the addition of an outside antenna.

Shadowing and reflection effects are typically associated with large structures, such as high buildings, that may cause reception problems by disturbing broadcast signals and leading to poor radio and television reception. Although the occurrence is rare, a transmission structure or the conductor can create a “shadow” on adjoining properties that obstructs or reduces the transmitted signal. Structures may also cause a “reflection” or scattering of the signal. Reflected signals from a structure result in the original signal “breaking” into two or more signals. Multipath reflection or “scattering” interference can be caused by the combination of a signal that travels directly to the receiver and a signal reflected by the structure that travels a slightly longer distance and is received slightly later by the receiver. If one signal arrives with significant delay relative to the other, the picture quality of digital television broadcast signals may be impacted. With digital broadcasts, the picture can become pixelated or freeze and become unstable. The most significant factors affecting the potential for signal shadow and multipath reflection are structure height above the surrounding landscape and the presence of large flat metallic facades. Television interference due to shadowing and reflection effects is rare but may occur when a large transmission structure is aligned between the receiver and a weak distant signal, creating a shadow effect. In the rare situation where the Project may cause interference within a station’s primary coverage area, the problem can usually be corrected with the addition of an outside antenna.

If television or radio interference is caused by or from the operation of the proposed facilities in those areas where good reception was available prior to construction of the Project, Minnesota Power will evaluate the circumstances contributing to the impacts and determine the necessary actions to restore reception to the present level, including the appropriate modification of receiving antenna systems if necessary.

6.9 AUDIBLE NOISE

Transmission lines can cause audible noise due to corona discharge from the conductors. This noise, which resembles a cracking noise, is typically only within the threshold of human hearing during rainy or foggy conditions, and even then, is generally imperceptible due to background noise. The impacts and mitigation of audible noise due to the Project are discussed further in Appendix E, Section 2.1.2.

As part of the pre-application process, the Applicants initiated outreach to federal, Tribal, state, and local agencies through project notification letters and meetings. Table 30 identifies agencies that were contacted through meetings or a notification letter outside of the public outreach outlined in Section 7.5 and the date that the consultation was conducted. See Appendices Q and R for copies of communications with Tribal Nations and agencies.

Table 30. Agency and Tribal Nation Contacts

Name	Dates of Meeting(s)/Key Correspondence
Federal	
U.S. Army Corps of Engineers	4/18/25, 6/18/25, 9/19/25
U.S. Department of Agriculture	4/18/25
U.S. Fish and Wildlife Service	4/18/25, 6/4/25, 6/18/25, 8/7/25, 9/19/25
Federal Aviation Administration	4/18/25
Tribal	
1854 Treaty Authority	4/18/25, 9/19/25
Bois Forte Band of Chippewa	4/18/25, 9/19/25
Fond du Lac Band of Lake Superior Chippewa	4/18/25, 9/19/25
Grand Portage Bank of Lake Superior Chippewa	4/18/25, 9/19/25
Leech Lake Band of Ojibwe	4/18/25, 9/19/25
Lower Sioux Indian Community	4/18/25, 9/19/25
Mille Lacs Band of Ojibwe	4/18/25, 9/19/25
Minnesota Chippewa Tribe	4/18/25, 9/19/25
Prairie Island Indian Community	4/18/25, 9/19/25
Red Lake Nation	4/18/25, 9/19/25
Shakopee Mdewakanton Sioux Community	4/18/25, 9/19/25
Upper Sioux Community	4/18/25, 9/19/25
White Earth Nation	4/18/25, 9/19/25
State	
Minnesota Board of Soil and Water Resources	4/18/25, 9/19/25
Minnesota Department of Agriculture	4/18/25, 9/19/25
Minnesota Department of Commerce	4/18/25, 9/19/25, 10/20/25
Minnesota Department of Health	4/18/25, 4/28/25, 9/19/25
Minnesota Department of Labor & Industry	9/19/25
Minnesota Department of Natural Resources	4/18/25, 6/10/25, 6/25/25, 9/19/25, 10/10/25, 11/5/25
Minnesota Department of Public Safety	9/19/25
Minnesota Department of Revenue	9/19/25
Minnesota Department of Transportation	4/18/25, 8/12/25, 9/19/25, 11/24
Minnesota Indian Affairs Council	4/18/25, 9/19/25
Minnesota Pollution Control Agency	4/18/25, 9/19/25
Minnesota Public Utilities Commission	4/18/25, 9/19/25, 10/20/25
Minnesota State Historic Preservation Office	4/18/25, 6/6/25, 9/19/25
Minnesota Office of the State Archaeologist	4/18/25, 9/19/25

Name	Dates of Meeting(s)/Key Correspondence
Minnesota Association of Townships	4/18/25, 9/19/25
Southwest Regional Development Commission	9/19/25
Local	
Itasca County	4/18/25, 5/6/25, 9/19/25, 10/7/25
Itasca Economic Development Corporation	4/18/25, 9/19/25
St. Louis County	4/18/25, 5/6/25, 9/19/25, 10/7/25
St. Louis County Economic & Community Development	4/18/25, 9/19/25
Alborn Township	4/18/25
Arrowhead Township	4/18/25, 9/19/25, 9/30/25
Brevator Township	4/18/25, 9/19/25, 10/14/25
Cedar Valley Township	4/18/25, 9/19/25, 11/18/25
Culver Township	4/18/25, 9/19/25, 11/11/25
Deer River City	9/19/25
Elmer Township	4/18/25, 9/19/25, 10/11/25
Feeley Township	4/18/25, 9/19/25, 10/8/25
Floodwood Township	4/18/25, 9/19/25, 11/10/25
Goodland Township	4/18/25, 9/19/25, 12/9/25
Hermantown City	4/18/25, 9/19/25
Industrial Township	4/18/25, 9/19/25, 11/19/25
Lavell Township	4/18/25
Little Sand Lake Unorganized Territory	9/19/25
Meadowlands Township	4/18/25
Ness Township	4/18/25
Solway Township	4/18/25, 9/19/25
Toivola Township	4/18/25
Trout Lake Township	4/18/25
Van Buren Township	4/18/25, 9/19/25, 10/8/25
Wawina Township	4/18/25, 9/19/25, 12/16/25

In April 2025, the Applicants sent Project introduction letters with a map of the Project Study Area to federal, Tribal, state, and local agencies whose constituents may have an interest in the proposed Project, in accordance with Minn. Stat. § 216I.05, subd. 5. The letter introduced the Project and requested input regarding public and environmental resources that may be located within the Project Study Area, or resources that could potentially be affected by the proposed Project.

In May - October 2025, Minnesota Power attended meetings with government agencies to provide preliminary project details and a timeline of major milestones. The Applicants also requested input with respect to the resources under their jurisdiction as well as the identification of federal and state permits and/or approvals that may be required for the Project.

On September 19, 2025, the Applicants sent a letter to the Tribal agencies on the Commission's eDockets Service Lists for Tribal Government Contacts and Tribal Historic Preservation Offices, the federal and state agencies listed on the Commission's eDockets Service List for Agency Representatives, and each local government unit ("LGU") within which the Proposed Route is

located, as required by Minn. Stat. § 216I.05, subd. 5. A copy of the letter is available in Appendix D.

A summary of communications with Tribes and public agencies is included below. The Applicants will continue to meet with federal, Tribal, state, and local agencies as the Project moves forward.

7.1 FEDERAL AGENCIES

On April 18, 2025, on behalf of the Applicants, Merjent transmitted Project introduction letters to the federal agencies listed in Table 30. On May 6, 2025 and July 21, 2025, the Applicants invited the same list of agencies to the Project open houses. On September 19, 2025, the Applicants sent a pre-application notice letter to the federal agencies listed on the MPUC eDockets Service List for Agency Representatives.

7.1.1 U.S. Fish and Wildlife Service

On June 4, 2025, U.S. Fish and Wildlife Service (“USFWS”) provided an early comment letter which included recommendations to avoid or minimize potential impacts on migratory birds, assess potential impacts on eagles, minimize habitat fragmentation, and preserve or enhance native plant communities. On June 18, 2025, Minnesota Power held a meeting with USFWS to discuss the Project and potential effects to federally listed, proposed, and candidate species and designated critical habitat. Minnesota Power and USFWS also discussed the Sax-Zim Bog, which is also an Important Bird Area, in relation to the Project Study Area, anticipated consultation with the U.S. Army Corps of Engineers (“USACE”), and coordination with Tribes and Minnesota Department of Natural Resources (“MnDNR”). The Applicants committed to conducting bald and golden eagle aerial surveys and to clearing trees outside of seasonal restrictions for bats. In October 2025, the Applicants obtained an Official Species List from IPaC for the Proposed Route and completed the Determination Key for the northern long-eared bat. On August 7, 2025, USFWS provided information on the approach to consultation, effects determinations related to tree clearing, and the likelihood of foreseeable listing of the tri-colored bat, monarch butterfly, or Suckley’s Cuckoo bumble bee. As the Project develops, the Applicants will continue to coordinate with USFWS.

7.1.2 U.S. Army Corps of Engineers

On April 21, 2025, the USACE left the Applicants a voice message in response to the Project introduction letter asking about any plans to submit a permit application for the Project. On May 9, 2025, Minnesota Power had a phone call with USACE to discuss scheduling a coordination meeting for the Project. On June 18, 2025, Minnesota Power held a meeting with USACE to discuss the Project and potential impacts to Waters of the United States and federally listed, proposed, and candidate species including the northern long-eared bat. Minnesota Power and USACE also discussed their approach to consultation, restoration plans, and the permitting process. The Applicants committed to clearing trees outside of seasonal restrictions for bats. The Applicants will continue to consult with USACE as the Project’s design becomes better defined in relation to the delineated features identified during field surveys in 2026.

7.1.3 Federal Aviation Administration

On April 21, 2025, the Federal Aviation Administration (“FAA”) responded to the Project introduction letter regarding potential Project impacts to Approach and Transitional Surfaces at the Duluth International Airport. On April 23, 2023, the Applicants committed to use the Notice

Criteria Tool to as the Project develops. The Applicants will continue to consult with the FAA as the Project's design becomes better defined.

7.2 TRIBAL NATIONS

On April 18, 2025, on behalf of the Applicants, Merjent transmitted Project introduction letters to the Tribal agencies listed in Table 30. On May 6, 2025 and July 21, 2025, the Applicants invited the same list of agencies to the Project open houses. The Applicants identified the list of Tribal agencies through the MPUC eDockets Service Lists for Tribal Government Contacts and Tribal Historic Preservation Offices. On September 19, 2025, the Applicants sent a pre-application notice letter to the Tribal agencies listed on the same MPUC eDockets Service Lists.

On April 22, 2025, the Bois Forte Tribal Government responded to the Project introduction letter and indicated that they will review the Project and will advise on any concerns. The Applicants responded on April 23, 2025 that they look forward to receiving comments throughout the routing/permitting process (*see* Appendix O).

On April 21, 2025 the Shakopee Mdewakanton Sioux Community responded to the Project introduction letter and expressed interest in the results of the Phase I Literature Review for the Project. On May 7, 2025 Minnesota Power committed to providing the Literature Review once available. On September 2, 2025, the Applicants provided the Shakopee Mdewakanton Sioux Community with the Phase Ia Literature Review Report and requested comments on the Project and the Proposed Route (*see* Appendix O).

On May 13, 2025, the Fond du Lac Band of Lake Superior Chippewa responded to the Project introduction letter expressing interest in consulting on the Project and requested a shapefile of the Project Study Area and information resulting from historic property identification efforts. On May 19, 2025, Minnesota Power responded with the requested shapefile and committed to providing the Phase I Literature Review for the Project. On September 2, 2025, the Applicants provided the Fond du Lac Band of Lake Superior Chippewa with the Phase Ia Literature Review Report and requested comments on the Project and the Proposed Route (*see* Appendix O).

On December 9, 2025, the Applicants reached out via phone call to the Tribal Historic Preservation Officers from the following Tribal Nations: Grand Portage Band of Lake Superior Chippewa, Leech Lake Band of Ojibwe, Lower Sioux Indian Community, Mille Lacs Band of Ojibwe, Prairie Island Indian Community, Red Lake Nation, Upper Sioux Community, and White Earth Nation.

7.3 STATE AGENCIES

On April 18, 2025, on behalf of the Applicants, Merjent transmitted Project introduction letters to the state agencies listed in Table 30. On May 6, 2025 and July 21, 2025, the Applicants invited the same list of agencies to the Project open houses. On September 19, 2025, the Applicants sent a pre-application notice letter to the state agencies listed on the MPUC eDockets Service List for Agency Representatives.

7.3.1 Minnesota Department of Agriculture

On October 13, 2025, the Applicants reached out to the Minnesota Department of Agriculture via email to provide a Project update, including the timeline for submitting the Application to the Commission. The email also discussed cultivated cropland and pasture/hay lands within the

Proposed Route and Right-of-Way, potential impacts to agricultural lands during construction, and the Applicants' commitment to work with landowners to minimize impacts and to restore disturbed areas to pre-construction conditions. The Applicants requested concurrence that an Agricultural Impact Mitigation Plan is not needed for the Project.

On November 24, 2025, the Minnesota Department of Agriculture responded to the Applicants email indicating that a standard AIMP would be required for the Project; however, it does not need to be provided concurrently with the Certificate of Need and Route Permit Application.

On November 26, 2025, the Applicants responded to the Minnesota Department of Agriculture and committed to providing an AIMP for the Project under a separate filing.

7.3.2 Minnesota Department of Health

On April 21, 2025, Minnesota Department of Health ("MDH") responded to the Project introduction letter providing a map of water supply wells and guidance for outreach to any potentially affected cities. On April 23, 2025, the Applicants requested a shapefile with public water supply well data and committed to evaluating the data and reaching out to cities as appropriate. On April 28, 2025, MDH provided a comment letter regarding potential impacts on groundwater and wells, which included recommended mitigation methods for the Applicants to consider. MDH requested the Applicants identify all well owners within 200 feet of the Proposed Route. On May 1, 2025, the Applicants committed to providing MDH the list of well owners once a Proposed Route was established. On August 21, 2025, the Applicants provided MDH with a Project update regarding the development of a Conceptual Route and the list of well owners within 200 feet of the Conceptual Route.

7.3.3 Minnesota Department of Natural Resources

On June 10, 2025, Minnesota Power met with MnDNR Ecological and Water Resources Division and Lands and Minerals Division to provide an overview of the Project and to request feedback. Topics of discussion included LAWCON land, vegetation management, wildlife management areas, protected species, mineral resources, and Project infrastructure. The MnDNR provided a follow-up comment letter on June 25, 2025 (*see* Appendix P), which discussed habitat preservation, threatened or endangered species, water crossings, peat leases, and recommendations to avoid or minimize potential effects to various resources. The comment letter stated MnDNR's preference for the project to follow the southern route of the initial study area along existing right-of-way corridors. On June 17, 2025, the Applicants submitted the Project through the Minnesota Conservation Explorer ("MCE"). On September 2, 2025, the Applicants provided the MnDNR with spreadsheets showing the public lands, public waters, and public basins that intersect the Conceptual Route. On October 10, 2025, Minnesota Power met with MnDNR and discussed an update on the Project status, the Project's proposed crossing of West Rocky Run, routing and co-location opportunities, and LAWCON lands along the Proposed Route. On October 21, 2025, in follow up to the October 10th meeting, MnDNR provided additional comments and recommendations for the Project, specifically regarding impacts to cold-water resources. MnDNR recommended avoiding work in sensitive areas or minimizing impacts by increasing span length and decreasing the frequency of tower structures while also minimizing existing vegetative removal. For special very sensitive resources in the proper scenario, it may be least impactful to cross these waterways via underground or directional boring of utilities rather than spanning. MnDNR suggested the Applicants conduct additional studies to focus on minimizing impacts to high quality Brook Trout stream resources within the utility corridor such as West Rocky Run Creek. On November 5, 2025, Minnesota Power met with MnDNR and

discussed LAWCON lands along the Proposed Route, next steps for the funding review of state parcels, co-location and right-of-way needs, existing easements, and impacts to West Rocky Run and coordination with the fisheries department. On December 11, 2025, the Applicants provided MnDNR with a summary of their review of easement rights associated with potential LAWCON parcels and the associated warranty deeds. The Applicants will continue to coordinate with the MnDNR as the Project develops.

7.3.4 Minnesota Department of Transportation

On April 21, 2025, Minnesota Department of Transportation ("MnDOT") responded to the Project introduction letter requesting an introductory meeting at least 3 months prior to the Application submission. On April 23, 2025, the Applicants committed to scheduling a meeting after refining the Project's Study Area to a Preliminary Route. Minnesota Power met with MnDOT on August 12, 2025, and discussed MnDOT's expectations for their early notification memo and environmental review, specifically related to any intersections of the Project with MnDOT rights-of-way. The Applicants committed to initiating the early notification memo once a Proposed Route was defined. On August 19, 2025, the Applicants submitted a request to initiate the early notification memo for the Project and provided the Conceptual Route. MnDOT provided the early notification memo on August 22, 2025, for the Applicants to complete. The Applicants submitted the early notification memo on November 24, 2025.

7.3.5 Minnesota Indian Affairs Council

On April 21, 2025, Minnesota Indian Affairs Council ("MIAC") responded to the Project introduction letter providing the Cultural Resource Review Form for completion. On May 7, 2025, the Applicants committed to completing the form later in the Project's routing process. On September 23, 2025, MIAC provided the completed project review form, which stated there are no known or suspected burial sites that may be affected by the Project.

7.3.6 Minnesota Public Utilities Commission

On October 20, 2025, Minnesota Power met with staff from the Commission and the Minnesota Department of Commerce and presented an overview of the Project. The group discussed Tribal Nation outreach, co-location and right-of-way needs, routing, and the review process and timeline for the draft Application.

7.3.7 Minnesota State Historic Preservation Office

On June 6, 2025, Minnesota State Historic Preservation Office ("SHPO") responded to the Project introduction letter with a comment letter recommending a Phase I Archaeological Survey be completed. On September 2, 2025, the Applicants provided the SHPO with the Project Review Request Form and Phase Ia Literature Review Report and requested comments on the Project and the Proposed Route. On October 6, 2025, the SHPO provided a comment letter in response to the Phase Ia Literature Review Report recommending an archaeological survey be completed. The survey must meet the requirements of the Secretary of the Interior's Standards for Identification and Evaluation and should include an evaluation of National Register eligibility for any properties that are identified.

7.3.8 Office of the State Archaeologist

On April 21, 2025, the Office of the State Archaeologist ("OSA") responded to the Project introduction letter providing the Project Review Request Form. On April 22, 2025, the Applicants committed to completing the form later in the Project's routing process.

7.4 LOCAL GOVERNMENT UNITS

7.4.1 Itasca County

The Applicants sent an initial Project introduction letter to Itasca County on April 18, 2025. Minnesota Power attended county board meetings on May 6, 2025, to introduce the Project and on July 22, 2025, to provide updates on the Project, including an overview of the Preliminary Route, agency and stakeholder feedback, and upcoming Project milestones. County officials were also invited to the in-person open houses in May and August 2025. On September 19, 2025, the Applicants sent a pre-application notice letter to Itasca County (*see* Appendix D). Minnesota Power attended a county board meeting on October 7, 2025 to provide another Project update and present the Notice Area.

7.4.2 St. Louis County

The Applicants sent an initial Project introduction letter to St. Louis County on April 18, 2025. Minnesota Power attended a county board meeting on May 6, 2025 to introduce the Project and provided a project update memo on July 22, 2025 to share an overview of the Preliminary Route, agency and stakeholder feedback, and upcoming Project milestones. County officials were also invited to the in-person open houses in May and August 2025. On September 19, 2025, the Applicants sent a pre-application notice letter to Itasca County (*see* Appendix D). On October 7, 2025, the Applicants provided a memo to share another Project update and present the Notice Area.

7.4.3 Cities and Townships

The Applicants sent Cities and Townships within the Study Area a Project introduction letter on April 18, 2025, and an invitation to the in-person open houses in May 2025. As the routing process progressed, the Cities and Townships located within the Preliminary Route were invited to the second round of open houses in August 2025. On September 19, 2025, the Applicants sent a pre-application notice letter to Cities and Townships within the Notice Area (*see* Appendix D). Beginning September 30, 2025, the Applicants initiated outreach meetings with Cities and Townships within the Notice Area to provide an overview of the Project, including sharing the Notice Area and Project timeline. As shown in Table 30, the Townships included in outreach meetings were: Arrowhead, Van Buren, Feeley, Elmer, Brevator, Floodwood, Culver, Cedar Valley, Industrial, Goodland, and Wawina.

The Applicants received feedback and responded to questions during the meetings with Cities and Townships. Arrowhead Township asked about the routing process and how much additional right-of-way the Project would need. Van Buren Township asked about landowner easements and potential impacts on nearby buildings. Feeley Township asked about co-locating the Project with existing transmission lines and whether the Iron Range Substation would be expanded. Elmer Township asked about the connection to MISO and requested a map showing Elmer Township in relation to the preliminary route. The Applicants provided Elmer Township with the requested map on October 14, 2025. In Brevator Township, a member of the public asked whether the plan is to

take over the HVDC Line or the wooden H-frame structures. Floodwood Township noted that only one potential routing area would barely overlap the township area and were appreciative of the overview. Culver Township asked about the likelihood of Commission approval of the Project. Cedar Valley Township and Industrial Township asked about other projects in the area. Goodland Township asked about Project cost allocation, the existing 98 Line, the source of energy generation, and environmental surveys. In Wawina Township, it was discussed that while the northeast portion of the township is within the Notice Area, the Proposed Route will not include the township.

7.5 PUBLIC OUTREACH

7.5.1 Outreach Kickoff and Engagement Planning

The Applicants developed a public engagement plan in March 2025 that included in-person public open houses, web-based "virtual" open houses, social media posts, a dedicated email and hotline to field questions and comments, a Project website with an interactive map, and supporting digital materials (*e.g*., fact sheets) that could be downloaded. See Appendix Q for engagement materials.

7.5.2 Key Communication Channels

The following communication channels were made available throughout the Project.

7.5.2.1 Project Website

The Project website (ISATransmissionProject.com) was launched on May 20, 2025 and will remain open throughout Project permitting and construction. The website provides an overview of the Project and key milestones, information regarding the permitting process, an interactive mapping tool, and opportunities to engage by providing comments, asking questions, and requesting meetings. The website will continue to be updated through Project development, permitting, and construction. Any comments and requests to be added to the mailing list received through the Project website contact form were recorded and directly acknowledged. Specific questions or requests with a need for follow-up information were forwarded to the Applicants for a response.

7.5.2.2 Project Email and Information Line

A Project email address (connect@ISATransmissionProject.com) and an information hotline (1-888-510-5303) were created to provide contact points to receive and respond to questions, comments, and requests for meetings with the Applicants. Any comments and requests to be added to the mailing list received through the Project email and information hotline were recorded and directly acknowledged. Specific questions or requests needing follow-up information were forwarded to the Applicants for a response.

7.5.3 Engagement Events

The Applicants hosted in-person open houses in May and August 2025. May 2025 open houses provided opportunities to learn more about the Project, discuss and ask questions about the Study Area, and provide comments. The Applicants accounted for the feedback received during May open houses, along with agency feedback and prepared a Preliminary Route that was presented in the August 2025 open houses. The August open houses provided opportunities to learn about the Preliminary Route and provide comments.

In both May and August 2025, in-person open houses were complemented by a virtual open house replicating the meeting materials and key information, made available for review and download on the project website.

7.5.3.1 May 2025 Open Houses

7.5.3.1.1 Notifications

- Email – An email providing the dates, times, and locations of the open houses was sent to federal, tribal, state, and local agencies, and project stakeholders. The email also offered Project staff contact information and an invitation to coordinate agency-specific meetings as requested. A total of 202 emails were transmitted on May 6, 2025.

- Landowner Postcard – A postcard was mailed on May 5, 2025, to a total of 2,616 landowners within the Study Area. The mailing list was generated from county parcel data records within the Study Area. The postcard included information about the dates, times, and locations of the open houses.

- Press Release – 10 media outlets received the release on May 20, 2025. Media outreach resulted in local media coverage, including stories in the Grand Rapids Herald Review, KAXE - KBXE News, The Forum, The Proctor Journal, Pine Journal, Duluth News Tribune, Pine Knot News, WDIO News, KBJR, Fox 21.

- Social Media – Boosted Facebook posts on May 18-20, 2025, were used to promote the in-person public open houses, new project email address, hotline, and website.

7.5.3.1.2 In-Person Public Open Houses

There were five open houses held within the Study Area with both midday and early evening options. The schedule of open houses is provided in Table 31.

Table 31. Schedule of Initial Open Houses

Tuesday, May 20, 2025	Wednesday, May 21, 2025	Thursday, May 22, 2025
1:00 – 3:00 PM Yanmar Arena 1401 NW 3rd Avenue, Grand Rapids, MN 55744 5:00 – 8:00 PM Meadowlands Community Center 7758 Western Avenue, Meadowlands, MN 55765	5:00 – 8:00 PM Floodwood Event Center 201 W 7th Avenue, Floodwood, MN 55736	12:00 – 2:00 PM Hermantown Government Center/City Hall – Training Center 5105 Maple Grove Road, Hermantown, MN 55811 5:00 – 8:00 PM Solway Town Hall 4029 Munger Shaw Road, Cloquet, MN 55720

A total of about 100 attendees participated in the open houses. Each open house provided the same information including Project displays and detailed maps for the attendees to review and provide comment. Attendees were paired with Project staff walking through the displays and maps, responding to questions and noting topics of concern. GIS stations and mapping specialists

were available to view specific locations of concern, to discuss potential constraints for specific parcels, and to record comments. Event materials are available in Appendix Q.

7.5.3.2 August 2025 Open Houses

7.5.3.2.1 Notifications

- Email – An email providing the dates, times, and locations of the open houses was sent to federal, state, and local agencies, Tribal Nations, and project stakeholders. The email also offered Project staff contact information and an invitation to coordinate agency-specific meetings as requested. A total of 197 emails were transmitted on July 21, 2025.

- Landowner Postcard – A postcard was mailed on July 18, 2025 to a total of 575 landowners within the Preliminary Route. The mailing list was generated from county parcel data records. The postcard included information about the dates, times, and locations of the open houses, as well as the project email address, hotline, and website.

- Press Release – 15 media outlets received the release on August 5, 2025. Media outreach resulted in local media coverage, including stories in the Duluth News Tribune, Star Tribune, Grand Rapids Herald Review, KAXE, Floodwood Forum, Voyageur Press, Hermantown Star, Proctor Journal, Pine Knot News, Pine Journal, WDIO, KQDS Fox 21, KBJR, Minnesota Public Radio, and KDAL.

- Social Media – Facebook and X posts on August 4, 2025 were used to promote the in-person public open houses, new project email address, hotline, and website.

7.5.3.2.2 In-Person Public Open Houses

There were four open houses held along the Preliminary Route with both midday and early evening options. The schedule of open houses is provided in Table 32.

Table 32. Schedule of Second Open Houses

Wednesday, August 6, 2025	Thursday, August 7, 2025
12:00 – 2:00 PM Coleraine City Hall Nyberg Community Center 302 Roosevelt Ave, Coleraine, MN 55722	1:00 – 3:00 PM Hermantown Government Center/City Hall – Training Center 5105 Maple Grove Road, Hermantown, MN 55811
5:00 – 7:00 PM Floodwood Event Center 201 W 7th Ave, Floodwood, MN 55736	5:00 – 7:00 PM Solway Town Hall 4029 Munger Shaw Road, Cloquet, MN 55720

A total of about 80 attendees participated in the open houses. Each open house provided the same information including Project displays and detailed maps for the attendees to review and provide comment. Attendees were paired with Project staff walking through the displays and maps, responding to questions and noting topics of concern. GIS stations and mapping specialists were available to view specific locations of concern, to discuss potential constraints for specific parcels, and to record comments. Event materials are available in Appendix Q.

In addition to the Certificate of Need and Route Permit requested in this Application, several other permits will be required to construct the Project depending on the final route selected and conditions encountered during construction. A list of the local, state, and federal permits, approvals, or consultations that could be required for the Project as well as their anticipated applicability to the Project are provided in Table 33. Appendices Q and R contain a record of correspondence with regulatory agencies, Tribal Nations, and stakeholders to date.

Table 33. Summary of Permits, Licenses, Approvals, and Consultations

Permit	Jurisdiction	Anticipated
LOCAL		
Right of Way (Utility Permit)	Itasca County Transportation/St. Louis County Public Works	Possible
Zoning Permit	Itasca County	No
Land Alteration Permit	St. Louis County	Possible
Oversize/Overweight Permit	Itasca County Transportation/St. Louis County Public Works	Possible
Driveway Approach/Driveway Permit	Itasca County Transportation/St. Louis County Public Works	Possible
STATE		
State Endangered Species Consultation	MnDNR, Natural Heritage and Nongame Research Program	Yes
License to Cross Public Lands and Waters	MnDNR Division of Lands and Minerals	Yes
State Lease for Access Roads	MnDNR Division of Lands and Minerals	Possible
National Pollutant Discharge Elimination System / State Disposal System Construction Stormwater General Permit	Pollution Control Agency	Yes
Section 401 Clean Water Act Water Quality Certification	Pollution Control Agency	Yes
Spill Prevention, Control and Countermeasure Plan	Pollution Control Agency – Emergency Response Program	Yes
Wetland Conservation Act – Wetland Type Confirmation and Delineation Concurrence	Local Government Units: Itasca County SWCD and St. Louis County SWCD/Optional: Board of Soil and Water Resources	Yes
Wetland Conservation Act – Utility Exemption	Local Government Units: Itasca County SWCD and St. Louis County SWCD/Optional: Board of Soil and Water Resources	Yes

Permit	Jurisdiction	Anticipated
Water Appropriation Permit	MnDNR Ecological and Water Resources	Possible
Public Waters Work Permit	MnDNR Ecological and Water Resources	Unlikely
Minnesota Field Archaeology Act Compliance Minnesota Historic Sites Act Compliance Minnesota Private Cemeteries Act Compliance	State Historic Preservation Office Tribal Historic Preservation Office Minnesota Indian Affairs Council	Yes
Driveway/Access Permit	Department of Transportation	Possible
Utility Accommodation on Trunk Highway Right-of-Way	Department of Transportation	Possible
Oversize/Overweight Permit	Department of Transportation	Possible
FEDERAL		
Section 404 Clean Water Act Permit	United States Army Corps of Engineers, St. Paul District	Yes
Section 10 Rivers and Harbors Act Permit	United States Army Corps of Engineers, St. Paul District	Yes
Endangered Species Act Consultation Migratory Bird Treaty Act Consultation Bald and Golden Eagle Protection Act Consultation	United States Fish and Wildlife Service	Yes
Section 106 National Historic Preservation Act Consultation	State Historic Preservation Office Tribal Historic Preservation Office	Possible
Part 7460 Airport Obstruction Evaluation	Federal Aviation Administration	Possible
Land and Water Conservation Fund Conversion Approval	National Park Service (via MnDNR)	Possible
OTHER		
Utility License Agreements	Utilities (Pipelines, Transmission Lines)	Yes
Crossing Agreements	Other Utilities (Railways)	Yes

8.1 LOCAL APPROVALS

8.1.1 Road Crossing/Right-of-Way Permits

8.1.1.1 Itasca County

A Right-of-Way (Utility) permit allows for the installation of utilities or other work to be performed with the county road right-of-way. The Applicants will submit an on-line application for a Right-of-Way Utility Permit, as applicable, to the County's Transportation Department for proposed work

within County Road right-of-way once the Commission approves a route for the Project and more detailed engineering is available.

8.1.1.2 St. Louis County

A Right-of-Way (Utility) permit allows for the installation of utilities or other work to be performed with the county road right-of-way. The Applicants will submit an on-line application for a Right-of-Way Utility Permit, as applicable, to the County's Public Works Department for proposed work within County Road right-of-way once the Commission approves a route for the Project and more detailed engineering is available.

8.1.2 Land Permit or Easements

8.1.2.1 Itasca County

The Commission has sole responsibility and authority for the siting and routing of energy facilities in Minnesota, including power plants, transmission lines, wind farms, and pipelines. A Zoning Permit from Itasca County is not required.

8.1.2.2 St. Louis County

In accordance with St. Louis County, Zoning Ordinance No. 62, land alteration permits are required for filling, grading, or excavating on shoreland.[127] Shoreland is land located within the following distances from public waters: 1,000 feet from the ordinary high water level of a lake, pond or flowage; and 300 feet from the ordinary high water level of a river or stream or the landward extent of a floodplain designate by ordinance on a river or stream, whichever is greater. Construction of the Project is expected to require a land alteration permit. The Applicants will obtain any required permits from St. Louis County once the Commission approves a route for the Project and more detailed engineering is available.

8.1.3 Oversize/Overweight Load Permits

8.1.3.1 Itasca County

An Oversize/Overweight Permit allows for heavy loads on county roads. The Applicants will submit an on-line application for an Oversize/Overweight Permit, as applicable, to the County's Transportation Department once the Commission approves a route for the Project and more detailed engineering is available.

8.1.3.2 St. Louis County

An Oversize/Overweight Permit allows for truck/trailer/load combinations that exceed the maximum dimensions and weight specified in state law to operate on county roads. The Applicants will submit an application for an Oversize/Overweight Permit, as applicable, to the County's Public Works Department through the County's on-line permit system once the Commission approves a route for the Project and more detailed engineering is available.

[127] Zoning Ordinance of St. Louis County, Minnesota Ordinance Number 62, Adopted Spring 2015, amended October 1, 2016 and February 25, 2020

8.1.4 Driveway/Access Permits

8.1.4.1 Itasca County

A Driveway Approach permit through the Itasca County Transportation Department is needed to construct permanent or temporary driveway access from county roads. The Applicants will submit an on-line application for a Driveway Approach Permit, as applicable, to the County's Transportation Department once the Commission approves a route for the Project and more detailed engineering is available.

8.1.4.2 St. Louis County

The Driveway Permit allows for the installation of new driveways or the revision of existing driveways that connect onto county roads ("County State Aid Highway") or Unorganized Township Roads ("UT"). All permits must be submitted to the Public Works Department electronically through St. Louis County's online permitting system. Permit applications will be submitted, as applicable, once the Commission approves a route for the Project and more detailed engineering is available.

8.1.5 Municipal Stormwater Permit

8.1.5.1 Itasca County

Construction stormwater and erosion control for the Project is regulated by the MPCA and is discussed further in Section 8.2.4.

8.1.5.2 St. Louis County

Construction stormwater and erosion control for the Project is regulated by the MPCA and is discussed further in Section 8.2.4.

8.2 STATE APPROVALS

8.2.1 Endangered Species Consultation

Minnesota Statute § 84.0895 prohibits the take, import, transport, or selling of any portion of an endangered species or wild animal or plant. To determine if a project will impact a state-listed threatened or endangered species, the Applicants will consult with the MnDNR Natural Heritage and Nongame Research Program, which collects, manages, and interprets information about nongame species. The Program works closely with the Minnesota Biological Survey to identify and locate rare natural resources and to develop and maintain lists of Minnesota's rare natural features. The Applicant will consult with MnDNR by accessing the Natural Heritage Information System and request a review through the MnDNR MCE online tool. If a species or habitat of concern is known to the Proposed Route then the Applicants will work with the MnDNR regarding Project-specific construction considerations after the Commission approves a route for the Project. The results of initial consultation regarding the Proposed Route are provided in the EA (*see* Appendix E, Section 2.6.8.1).

8.2.2 License to Cross Public Land and Waters

The MnDNR Division of Lands and Minerals regulates utility crossings over, under, or across any land owned by the state, or public water identified on the Public Waters and Wetlands Maps. A license to cross Public Lands and Waters is required under Minn. Stat. § 84.415 and Minn. R. Ch. 6135. The Project is anticipated to cross both MnDNR Public Lands and Waters and thus, a license will be required for each individual crossing. The Applicants will work with the MnDNR to obtain these licenses once a route is approved and sufficient engineering work is completed to support the MnDNR's application process.

8.2.3 State Lease for Access Roads

The MnDNR Division of Lands and Minerals provides services to MnDNR resource managers in processing leases for crossing state-managed lands. State leases, if applicable, will be needed in tandem with utility licenses, described in Section 8.2.2, to allow for access roads to the Project. The Applicants will work with the MnDNR, if necessary, to obtain these leases once a route is approved, and sufficient engineering work is completed to support the MnDNR's process.

8.2.4 NPDES Permit

A National Pollutant Discharge Elimination System/State Disposal System ("NPDES/SDS") stormwater permit from the MPCA is required for discharges associated with construction activities disturbing one or more acres of land (Minn. R. 7090.0030). A requirement of the permit is to develop and implement a Stormwater Pollution Prevention Plan ("SWPPP"), which includes BMPs to identify and minimize discharge of pollutants from stormwater runoff at the site. Construction of transmission lines will disturb more than one acre of land. Applicants will coordinate the development of a comprehensive SWPPP for the Project and obtain any required permit(s) from the MPCA once the Commission approves a route.

8.2.5 Section 401 Water Quality Certification

A Section 401 Water Quality Certification ("WQC") under the federal Clean Water Act ("CWA") is necessary to obtain a federal permit for a project that could result in a discharge to navigable waters. A Section 401 WQC is a part of the Section 404 process and would be obtained with the joint applications for WCA and the Section 404 permit (*see* Section 8.3.1), if applicable. While the CWA is a federal statue, the MPCA has been delegated authority under the CWA to administer the Section 401 WQC process in Minnesota. The MPCA will either certify that the project impacting waters of the U.S. will comply with state water quality standards or waive its review of the project. If the Regional General Permit applies to the Project, the MPCA has already issued a Section 401 certification for the permit and no additional application is required.

8.2.6 Spill Prevention, Control, and Countermeasure Plan

A non-transportation related facility is subject to Spill Prevention, Control and Countermeasure Plan ("SPCC") regulations if the total aboveground storage capacity exceeds 1,320 gallons or the underground oil storage capacity exceeds 42,000 gallons and the facility could reasonably expect to discharge oil into or upon the navigable waters of the United States. SPCC plans are prepared and implemented according to U.S. Environmental Protection Agency ("EPA") regulations Title 40, Code of Federal Regulations, Part 112. A SPCC plan will be prepared by the Applicants, if determined necessary, once more detailed engineering is completed. A SPCC plan will be reviewed by the MPCA Emergency Response Program.

8.2.7 Wetland Conservation Act

The Minnesota Board of Water and Soil Resources ("BWSR") coordinates the state Wetland Conservation Act. LGUs (Itasca Soil and Water Conservation District and St. Louis County) administer the Wetland Conservation Act. If the activity is located in two jurisdictions the LGU exercising authority is the one in which most of the wetland impacts will occur. Additionally, the BWSR may coordinate the project review to ensure consistency and consensus among the LGUs involved. LGUs may maintain separate jurisdiction if mutually agreed upon.

Wetlands will be impacted along the Proposed Route. The Applicants will request wetland type confirmation and delineation concurrence which is required for a utility exemption. The Applicants anticipate being eligible for the Exemption for Utilities in accordance with Minnesota Statute § 103G.2241, subd. 6, which states new placement or maintenance, repair, enhancement, realignment, or replacement of existing utility or utility-type service, including pipelines, when wetland impacts are authorized under and conducted in accordance with a permit issued by the USACE under Section 404 of the federal CWA, United States Code, title 33, section 1344, and the direct and indirect impacts of the proposed project have been avoided and minimized to the extent possible; and Minn. R. 8420.0420, Subp. 6, which states that a replacement plan is not required for impacts resulting from the installation, maintenance, repair, or replacement of utility lines (including pipelines) if the impacts have been avoided and minimized to the extent possible and the proposed project significantly modifies or alters less than one-half acre of wetlands.

Alternatively, the transmission line may also qualify for a federal approvals exemption for utilities under Minn. R. 8420.0420, Subp. 4, which waives the requirement for a replacement plan for impacts authorized under Section 404 of the Clean Water Act and if minimum state standards are met.

Further discussion on the potential impacts to wetlands associated with the Proposed Route are provided in Appendix E, Section 2.6.4.

8.2.8 Water Appropriation General Permit

Minnesota Statute § 103G.265 requires the MnDNR to manage water resources to ensure an adequate supply to meet long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes. A water use permit from the MnDNR (Ecological and Water Resources) is required for all uses withdrawing more than 10,000 gallons of water per day or 1 million gallons per year. Construction dewatering activities are sometimes required during the installation of transmission poles, as further discussed in Section 6.2.1.

8.2.9 Public Waters Work Permit

Projects affecting the course, current, or cross-section of public waters or public waters wetlands may require a Public Waters Work Permit; this includes temporary impacts. The Public Waters Work Permit applies to those lakes, wetlands, and streams identified on MnDNR's Public Water Inventory maps. The aquatic resource identification and delineation data will be reviewed to determine if a Public Waters Work Permit from MnDNR Ecological and Water Resources will be required based upon the approved route. Although a Public Waters Work permit is not anticipated, the Applicants will obtain a permit if required based upon detailed engineering drawings.

Further discussion on the potential impacts to wetlands associated with the Proposed Route are provided in Appendix E, Section 2.6.4.

8.2.10 Minnesota Field Archaeology Act and Historic Sites Act

The Minnesota Field Archaeology Act (Minn. Stat § 138.32-138.42) establishes the OSA; requires licenses to engage in archaeology on nonfederal public land; establishes ownership, custody, and use of objects and data recovered during survey; and requires state agencies to submit development plans to the OSA, SHPO, and MIAC for review when there are known or suspected archaeological sites in the area and to establish measures to avoid, reduce or mitigate adverse impacts, when considering an administrative action such as the approval of a Certificate of Need and Route Permit from the Commission.

The Applicants will prepare a literature review of archaeological and historic properties in the Project area and consult with the OSA, SHPO, and MIAC regarding potential impacts to known or suspected archaeological sites for compliance with the Minnesota Field Archaeology Act.

The Minnesota Field Archaeology Act also requires an archaeological license be acquired from the OSA and Minnesota Historical Society prior to conducting any archaeological work on non-federal public land. If the Project requires archaeological survey on any non-federal public land, the Applicants and their contractors will work with the OSA and Minnesota Historical Society to obtain any necessary licenses prior to completing survey.

The Minnesota Historic Sites Act establishes the State Historic Sites Network and the State Register of Historic Places and directs state agencies to consult with SHPO before undertaking or licensing projects that may affect properties on the Network or on the State or National Registers of Historic Places. The Applicants will work with state agencies to consult with SHPO regarding potential effects the Project may have on properties on the Network or listed in the State Register of Historic Planes or the National Record of Historic Places (“NRHP”).

Minnesota’s Private Cemeteries Act (Minn. Stat § 307.08) affords all human burial grounds and remains older than 50 years and located outside of platted or identified cemeteries protection from unauthorized disturbance. This statute applies to burials on either public or private lands or waters and includes prehistoric American Indian burial mounds as well as historic cemeteries. Burial areas will be identified as part of the literature review and the OSA and if necessary for American Indian burials the MIAC will review the project.

Further details of initial consultation regarding the Proposed Route are provided in Chapter 7, and correspondence is provided in Appendices Q and R.

8.2.11 Driveway/Access Permit

A MnDOT Driveway/Access Permit is required whenever there is a request for a change in access to or from a MnDOT right-of-way or a change in use of MnDOT property. The Applicants and their contractors will work with MnDOT should access from a MnDOT right-of-way be required for construction, which will be determined once the Commission approves a route for the Project and more detailed transmission engineering is completed.

8.2.12 Utility Accommodation on Trunk Highway Right-of-Way

MnDOT requires the submission of an Application for Utility Accommodation on Trunk Highway right-of-way when utilities request permission to place, construct, and reconstruct utility facilities within a trunk highway right-of-way, whether the utility facility runs longitudinally, skewed, or perpendicular to the centerline of the highway. The Applicants will consult with MnDOT District 1A and 1B, as applicable, on the Project at locations where the Route requires access to Trunk Highway right-of-way. The Applicants will work with MnDOT and submit the Utility Accommodation Form 2525 once the Commission approves a route for the Project and more detailed transmission engineering is completed.

8.2.13 Oversize and/or Overweight Permit

In accordance with Minnesota Commercial Truck and Passenger Regulations, Section 05, a MnDOT Oversize/Overweight Permit is required when a vehicle is transporting an oversize and/or overweight load on Minnesota trunk highways. Additionally, for oversize and/or overweight transportation on county, township, and municipal roads, permits from local road authorities are required (*see* Local Approvals, Section 8.1 of this Application). If the Project requires the transport of oversize or overweight loads on local and state road properties, the Applicants and their contractors will work with MnDOT and local road authorities to obtain any required permits.

8.3 FEDERAL APPROVALS

8.3.1 Section 404 Permit

A permit is required from the USACE, St. Paul District under Section 404 of the Clean Water Act if there are discharges of dredged or fill material into waters (including wetlands) of the United States. Currently, the Applicants anticipate impacting waters of the United States and will obtain coverage under the USACE's Utility Regional General Permit. The Applicants, in consultation with the USACE, St. Paul District, will seek authorization under the appropriate permit once design of the Commission approves a route for the Project and additional engineering details are complete. Appendix E, Section 2.6.4 discusses the potential impacts to wetlands associated with the Proposed Route.

8.3.2 Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits without authorization the creation of any obstruction (in, over, or under) to navigable waters of the United States that will affect the course, location, or condition of the water body of the United States. The Project is expected to cross navigable waters (St Louis River and Pine River), which will require a review of the Project by the USACE, St. Paul District, to gain authorization under Section 10 of the Rivers and Harbors Act. The Applicants will work with the USACE through the Joint Permit Application process after the Commission approves a route for the Project to determine Project-specific construction considerations. Appendix E, Section 2.6.4 discusses the potential impacts upon waters associated with the Proposed Route.

8.3.3 Endangered Species Consultation

The Endangered Species Act ("ESA") of 1973 as amended provides protective measures for federally-listed threatened and endangered species, including their habitats, from unlawful take 16 U.S.C. §§ 1531–1544). The ESA defines take to mean "harass, harm, pursue, hunt, shoot,

wound, kill, trap, capture or collect or to attempt to engage in any such conduct." The ESA Section 7(a)(2) requires consultation with USFWS if a federal agency undertakes, funds, permits, or authorizes any action that may impact endangered or threatened species or designated critical habitat. This includes issuing a federal permit, such as a Clean Water Act Section 404 permit from USACE. The Applicants will assess whether activities associated with construction and operation of the Project could affect any federally listed threatened, endangered, or proposed threatened and endangered species, designated critical habitat, or proposed critical habitat.

If it is determined the potential exists for effects upon federally listed species, then the USFWS will be consulted regarding Project-specific measures to avoid and minimize impacts upon threatened or endangered species or their habitats. Appendix E, Section 2.6.8 discusses the potential impacts to federally listed threatened and endangered species associated with the Proposed Route.

8.3.4 Migratory Bird Treaty Act

Migratory Birds are protected under the Migratory Bird Treaty Act ("MBTA") of 1918, as amended (16 U.S.C. §§ 703–7121). The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS. Specifically, the MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any listed migratory bird (50 C.F.R. § 10), including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. § 21). However, based upon an M-Opinion issued by the Trump Administration (April 11, 2025), only purposeful take of migratory birds is prohibited by the MBTA.

The Applicants will work with the USFWS to evaluate and implement conservation measures as per the USFWS's *Nationwide Avoidance and Minimization Measures for Birds* and/or Avian Power Line Interaction Committee ("APLIC") guidance to the extent practicable in order to avoid and minimize impacts upon migratory birds, including to reduce the potential risk of avian collision and electrocution and loss of habitat during the nesting season.[128] Measures may include the identification of any areas that will require marking transmission line shield wires or to use alternate structures to reduce the likelihood of avian collisions once design of the Transmission Line is complete or modifications in daily or seasonal Project activities.

8.3.5 Bald and Golden Eagle Protection Act

Bald and golden eagles are protected under the federal Bald and Golden Eagle Protection Act ("BGEPA") of 1940, (16 U.S.C. §§ 668-668d), as amended. The BGEPA prohibits anyone, without a permit ("Take Permit") issued by the Secretary of the Interior, from taking Bald or Golden Eagles, including parts (such as feathers), nests or eggs. A take involves the action to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The regulations define disturb as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 C.F.R. § 22.6). The Applicants will coordinate with the USFWS to identify if potential bald or golden eagle nest(s) occur within the route for the Project. If eagle activity or a nest(s) is present

[128] US Fish and Wildlife Service, *Nationwide Avoidance and Minimization Measures for Birds*, Version 2, Updated July 2024.

conservation measures will be implemented to avoid and minimize potential impacts (for example, application of buffer, modification of daily or seasonal timing of Project activities, monitoring).

8.3.6 Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 ("NHPA") requires federal agencies to consider the effects on historic properties (significant cultural resources) of projects they carry out, assist, fund, permit, license, or approve throughout the United States. A review will be conducted to determine if any historic properties or archaeological resources that are listed on, eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places are present in the Proposed Route for the Project. If the Project has a federal nexus and the potential to affect historic properties within the Study Area, a Section 106 review will take place through consultation with SHPO.

8.3.7 Obstruction Evaluation / Airport Airspace Analysis Process

14 C.F.R. Ch. 77.9 requires notice to the FAA for structures 200 feet above ground level or those that exceed an imaginary surface at airports extending outward and upward from public use airports at slopes defined in this regulation. This regulation is part of the safe, efficient use and preservation of the navigable airspace. A filing is also required, if requested by the FAA. Form 7460-1 shall be submitted to the FAA for notice of construction. After receiving favorable Determinations of No Hazard from the FAA, supplemental notice may be required, in the form of a 7460-2 Part 1, or 7460-2 Part 2. Pre-construction notice is submitted by the 7460-2 Part 1, within the prescribed time annotated on Determinations. Following construction completion, as-built information will be submitted using Form 7460-2.

8.3.8 Federal Land and Water Conservation Fund

The LAWCON Act of 1965 ("Act") was enacted "to strengthen the health and vitality of the citizens of the United States" through planning, acquisition, and development of land and water outdoor recreation facilities.[129] Section 6(f) of the Act requires all funded lands to be retained and used solely for outdoor recreation in perpetuity.[130] The National Park Service ("NPS") is the federal agency responsible for LAWCON. Lands developed, improved or acquired with LAWCON assistance must be retained and used for public outdoor recreation and cannot be converted to other than public outdoor recreation uses without approval from the NPS. The Applicants will coordinate with the MnDNR Bureau of Outdoor Recreation, Division of Parks & Trails, Local Grants Unit to determine if any properties crossed by the Proposed Route are subject to the LAWCON program. If the final alignment will cross LAWCON lands, the Applicants will work with the MnDNR to support the MnDNR's request to the NPS for conversion and replacement in accordance with the Act. The NPS must approve the conversion of LAWCON lands to a use other than for recreation, and the replacement lands that must be suitable for the originally approved recreational use. Presumably, a License to Cross Public Lands from the MnDNR would also be required.

[129] "Land and Water Conservation Fund," Minnesota Department of Natural Resources. Available at https://www.dnr.state.mn.us/aboutdnr/lawcon/index.html.
[130] Minnesota Department of Natural Resources, *Conversions of Use – Guidelines and Requirements* (Nov. 13, 2020). Available at https://files.dnr.state.mn.us/aboutdnr/lawcon/conversion-requirements-final-11-13-2020.pdf.

8.4 OTHER APPROVALS

In addition to the Certificate of Need and Route Permit sought in this Application, other permits, license approvals, or consultations may be required to construct the Project depending on the route permitted by the Commission and conditions encountered during construction. For example, approvals and/or crossing agreements may be required where Project facilities cross an existing utility such as a pipeline, transmission line, or a railway. The need for approvals will be determined after a final route is selected, and these approvals will be obtained after a Route Permit has been issued by the Commission.

9.1 CERTIFICATE OF NEED CRITERIA

Pursuant to Minn. Stat. § 216B.243, the Commission has established criteria under Minn. R. 7849.0120 that it will apply to determine whether an applicant has established that a new proposed high-voltage transmission line is needed and shall be granted a Certificate of Need. The Applicants have described in this Application the reasons why the Commission should grant a Certificate of Need to build the ISA Project, as described in this Application. Those reasons are summarized below.

9.1.1 Denial would Adversely Affect the Energy Supply

Denial of a Certificate of Need for the Project would adversely affect the future adequacy, reliability, or efficiency of energy supply to the Applicants, their customers and members, and to electric customers in the Upper Midwest. As the Applicants and their customers have transitioned away from reliance on fossil fuel generation to more renewable sources, and fossil-fueled generators throughout the state have retired or ceased operations, the regional power system requires updates and new facilities. The Project, as part of the LRTP Tranche 2.1 Portfolio, is needed to enhance grid reliability in the Upper Midwest as grid operating conditions become more variable, increase grid efficiency as energy is transferred from where it is produced to where it is needed, and meet the growing demand for reliable clean energy in the Upper Midwest. If the Project is not approved, each of these areas of performance of the regional transmission system would suffer negative impacts as would the Applicants' customers.

9.1.2 No Reasonable and Prudent Alternative

As discussed in Chapter 4, a more reasonable and prudent alternative was not demonstrated by the study work and analysis conducted by the Applicants. The Applicants evaluated multiple alternatives including: (1) size alternatives (different voltages or conductor arrays, AC/DC, and double-circuit); (2) generation and non-wires alternatives; (3) no build alternatives and reasonable combinations of alternatives. After evaluating these alternatives, the Applicants concluded that none of these alternatives is a more reasonable and prudent alternative to the Project.

9.1.3 Project would Provide Benefits to Society in a Manner Compatible with Protecting the Environment

The Project will support the state's decarbonization goals and ensure that the power grid in northern Minnesota continues to operate reliably as energy resources in Minnesota and the regional power system continue to evolve. The Project enhances the reliability of the regional transmission system, increases regional transfer and local load-serving capacity, and enables delivery of diverse generation resources that will support local customers. As the way energy is produced and used evolves, the operation of the grid becomes more dynamic and variable, causing more unpredictability in the way the electric system operates from day to day. Proactively planning the transmission grid, including constructing new transmission lines like the Project, enables an orderly and timely transmission expansion plan during a time of rapid industry change, ensuring the grid continues to operate reliably for the upcoming decades. In addition, consistent with the Commission's routing criteria, the Project will be routed in a manner compatible with protecting the natural and socioeconomic environment.

9.1.4 Project will Comply with all Applicable Requirements

The Applicants have identified the other permits and approvals that may be required for the Project in Chapter 8. The Applicants have demonstrated that it will comply with all applicable requirements and obtain all necessary permits.

9.2 ROUTE PERMIT FACTORS

According to Minn. Stat. § 216I.03, subd. 1, it is the policy of the State of Minnesota to locate high-voltage transmission lines in an orderly manner that is compatible with environmental preservation and the efficient use of resources. Thus, the Commission "must choose locations that minimize adverse human and environmental impact while ensuring (1) continuing electric power system reliability and integrity, and (2) that electric energy needs are met and fulfilled in an orderly and timely fashion." This Application includes all information required under Minn. Stat. § 216I.05, subd. 3, with the information required under Minn. Stat. § 216I.05, subd. 4, included in Appendix E.

Minn. Stat. § 216I.05, subd. 11 establishes the requirements for a Commission's route permit determination. Specifically, in making a route permit determination, the Commission's decision must (1) be guided by the state's goals to conserve resources; (2) minimize environmental impacts, and minimize human settlement and other land use conflicts; (3) consider impacts to environmental justice areas, as defined in section 216B.1691, subdivision 1, paragraph (e), including cumulative impacts, as defined in section 116.065, to environmental justice areas; and (4) ensure the state's energy security through efficient, cost-effective energy supply and infrastructure.

The Proposed Route for the Project meets these factors by: utilizing existing high-voltage transmission line rights-of-way to the extent feasible (more than 80 percent of the Proposed Route) and double-circuiting with an existing line where this configuration is not contrary to the operational requirements of the Project, including realignments of existing lines to reduce impacts to natural resources and residences.

9.3 CONCLUSION AND REQUEST FOR COMMISSION APPROVAL

For all the reasons set forth in this Application and as supported by the Appendices hereto, the Applicants respectfully request that the Commission issue a Certificate of Need and Route Permit authorizing construction of the ISA Project.

Term	Definition
601 Line	Minnesota Power's existing Forbes - Chisago 500 kV Line
800 MV	The 2001 EQB condition limiting the ATC Arrowhead Substation to transmit power below 800 MVA.
81 Line	Minnesota Power’s existing 230 kV Arrowhead – Bear Creek Line
9 Line	Minnesota Power’s existing 115 kV Line in Segment 2
90 Line	Minnesota Power’s existing 230 kV Line in Segment 2
98 Line	Minnesota Power’s existing Iron Range – Arrowhead 230 kV line
AC	Alternating Current
Act	Land and Water Conservation Fund Act of 1965
AMA	Aquatic Management Area
Amps	Amperes
APC	Adjusted Production Costs
APLIC	Avian Power Line Interaction Committee
Applicants	Minnesota Power and ATC
Application	This combined application for a Certificate of Need and Route Permit submitted by Applicants.
Arrowhead PST	230 kV Phase Shifting Transformer
ATC	American Transmission Company, LLC by and through its corporate manager ATC Management Inc.
ATC Arrowhead Substation	ATC's Arrowhead 345 kV/230 kV Substation in Hermantown
BMPs	Best Management Practices
BWSR	Minnesota Board of Water and Soil Resources
CAGR	Compound Annual Growth Rates
CAPX2020	Capacity Expansion Needed by 2020 now known as Grid North Partners
CO_2	Carbon Dioxide
Commission	Minnesota Public Utilities Commission
County State Aid Highway	County Roads
Department	The Minnesota Department of Commerce
DER	Distributed Energy Resources
DPP	Definitive Planning Phase
EA	Environmental Assessment
EHV	Extra High Voltage
EIP Staff	Commission Energy Infrastructure Permitting Staff
EMF	Electric and Magnetic Fields

Term	Definition
EPA	U.S. Environmental Protection Agency
EQB	Environmental Quality Board
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
G	Gauss
GHG	Greenhouse Gas
GIS	Geographic Information System
GNTL	Great Northen Transmission Line
Greenfield route	Places where the Proposed Route does not follow existing transmission lines.
GWh	Gigawatt-Hours
HVDC	High-voltage Direct Current
ICDs	Implantable Cardioverter/Defibrillators
Iron Range Substation	Minnesota Power's Iron Range 500 kV/345 kV/230 kV Substation in Itasca County
ISA Project	The Iron Range – St. Louis County – Arrowhead 345 kilovolt Transmission Project
kV	Kilovolt
kV/m	Kilovolts per meter
LAWCON	Land and Water Conservation Fund
LBA	Local Balancing Authority Area
LGU	Local Government Units
LHVTL	Large High-Voltage Transmission Line
LRTP	Long-Range Transmission Plan
LRZ	Local Resource Zone
MBTA	Migratory Bird Treaty Act
MCE	Minnesota Conservation Explorer
MDH	Minnesota Department of Health
mG	milliGauss
MHEX	Manitoba Hydro to U.S. Interface
MHz	Megahertz
MIAC	Minnesota Indian Affairs Council
MISO	Midcontinent Independent System Operator, Inc.
MISO Tariff	MISO’s Open Access Transmission, Energy and Operating Reserve Markets Tariff
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation

Term	Definition
MPCA	Minnesota Pollution Control Agency
MRO	Midwest Reliability Organization
MTEP	MISO Transmission Expansion Plan
MTEP21 Futures	Future scenarios developed by MISO in 2021
MTEP24	MISO Transmission Expansion Plan 2024
MVP	Multi-Value Project
MW	Megawatt
MWEX	Minnesota to Wisconsin Interface
MWh	Megawatt-Hours
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NTEC	Nemadji Trail Energy Center
NHPA	National Historic Preservation Act of 1966
NO_2	Nitrogen Dioxide
NOMN	Northern Minnesota
North Flow	System conditions arising from winter peak loading and heavy south-to-north transfers.
NPDES	National Pollutant Discharge Elimination System
NPDES/SDS	National Pollutant Discharge Elimination System/State Disposal System
NPS	National Park Service
NRHP	National Record of Historic Places
O&M	Operations and maintenance
OPGW	Fiber-Optic Cable
OSA	Office of the State Archaeologist
ppb	Parts Per Billion
ppm	Parts Per Million
Preliminary Route	The more defined July 2025 route developed after stakeholder engagement.
Project	The Iron Range – St. Louis County – Arrowhead 345 kilovolt Transmission Project
Proposed Route	Includes the route proposed for Segments 1 through 3 of the Project
PSS/E	Power System Simulator for Engineering
Rejected Route Alternatives	Route segments Applicants considered but rejected
RIIA	Renewable Integration Impact System
SHPO	Minnesota State Historic Preservation Office
SOL	System Operating Limit
SPCC	Spill Prevention, Control, and Countermeasure Plan

Term	Definition
St. Louis County Substation	Minnesota Power's St. Louis County 345 kV/230 kV Substation in Solway Township
SWPPP	Stormwater Pollution Prevention Plan
T2-ACSR	Twisted Pair Aluminum Conductor Steel Reinforced
TO	Transmission Owner
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UT	Unorganized Township
V	Volts
WLR	Winter Low Renewable
WNF	Winter North Flow
WQC	Water Quality Certification

Authority	Required Information	Location in Application
Minn. R. 7829.2500, Subp. 2	Brief summary of filing on separate page sufficient to apprise potentially interested parties of its nature and general content	Filing Summary
Minn. R. 7849.0200, Subp. 2	Title Page and Table of Contents	Title Page and Table of Contents
Minn. R. 7849.0200, Subp. 4	Cover Letter	Cover Letter
Minn. R. 7849.0220, Subp. 3	Joint Ownership and Multiparty use	§§ 1.1, 2.3
Minn. R. 7849.0240	Need summary and additional considerations	—
Subp. 1	Summary of the major factors that justify the need for the proposed facility	§§ 1.2, 3.1, 3.3, 3.4, 3.5
Subp. 2	Relationship of the proposed facility to the following socioeconomic considerations:	—
A.	Socially beneficial uses of the output of the facility	§ 3.11
B.	Promotional activities that may have given rise to the demand for the facility	§ 3.9 EXEMPT as to ATC
C.	Effects of the facility in inducing future development	§ 3.10
Minn. R. 7849.0260	Proposed LHVTL and Alternatives	—
A.	A description of the type and general location of the proposed line, including:	—
(1)	Design voltage	§ 2.1
(2)	Number, sizes and types of conductors	§ 2.1

Authority	Required Information	Location in Application
(3)	Expected losses under projected maximum loading and under projected average loading in the length of the line and at terminals or substations	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA – Estimated overall system losses	§ 3.7
(4)	Approximate length of the proposed line	§ 2.1
(5)	Approximate locations of DC terminals or AC substations on a map	§§ 1.1, 1.3, Appendix G
(6)	List of likely affected counties	§ 7.4
B.	Discussion of the available alternatives including:	—
(1)	New generation	§ 4.2
(2)	Upgrading existing transmission lines	§ 4.3
(3)	Transmission lines with different voltages or conductor arrays	§§ 4.4, 4.11
(4)	Transmission lines with different terminals or substations	EXEMPT
(5)	Double circuiting of existing transmission lines	§ 4.10
(6)	If facility for DC (AC) transmission, an AC (DC) transmission line	§ 4.12
(7)	If proposed facility is for overhead (underground) transmission, an underground (overhead) transmission line	§ 4.13
(8)	Any reasonable combination of alternatives (1) – (7)	EXEMPT
C.	For the facility and each for alternative in B, a discussion of:	—
(1)	Total cost in current dollars	§§ 1.4, 2.4.1
(2)	Service life	§ 6.4.1
(3)	Estimated average annual availability	§ 6.4.1

Authority	Required Information	Location in Application
(4)	Estimated annual O&M costs in current dollars	§ 2.4.2
(5)	Estimate of its effect on rates system wide in Minnesota	§ 2.4.3.2 EXEMPT as to ATC, provided alternative data is supplied
	ALTERNATIVE DATA (ATC) – Information regarding Project cost, MVP allocation methodology, and share allocated to Minnesota utilities.	§ 2.4.3.1
(6)	Efficiency expressed for a transmission facility as the estimated losses under projected maximum loading and under projected average loading in the length of the transmission line and at the terminals or substations	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA – Estimated overall system losses	§ 3.7
(7)	Major assumptions made in subitems (1) – (6)	Chapters 2, 3, 6
D.	A map (of appropriate scale) showing the applicant's system or load center to be served by the proposed LHVTL	§ 1.1 EXEMPT as to ATC, provided alternative map is supplied
	ALTERNATIVE DATA (ATC) – Map of ATC's network of transmission lines in Minnesota and Wisconsin.	§ 1.1
E.	Such other information about the proposed facility and each alternative as may be relevant to determination of need.	Chapter 4
Minn. R. 7849.0270	Content of Forecast	—
Minn. R. 7849.0270, Subp. 1	Peak demand and annual consumption data within the applicant's service area and system.	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA – Minnesota Power's most recent Annual Electric Utility Forecast Report	Appendix K

Authority	Required Information	Location in Application
Minn. R. 7849.0270, Subp. 2	Subps. 2 (A)-(D) Minnesota forecast data; forecast demand data by customer class, peak period, and month; estimated system annual revenue per kilowatt hour; estimated average weekday system load factor by month.	EXEMPT except as noted below and provided alternative data is supplied
	ALTERNATIVE DATA – Minnesota Power's most recent Annual Electric Utility Forecast Report	§ 3.6, Appendix K
	Subp. 2(E) – Alternative explanation of how wholesale electricity costs are spread and general financial effect on Minnesota Power's customers.	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA - Alternative explanation of how MISO spreads wholesale electricity costs and general financial impact on Minnesota customers.	§ 2.4.3
	Subp. 2 (F) - The applicant's estimated average system weekday load factor by month; in other words, for each month, the estimated average of the individual load factors for each weekday in the month.	EXEMPT
Minn. R. 7849.0270, Subp. 3	Detail of the forecast methodology used in Subp. 2	EXEMPT provided alternative data is supplied
Minn. R. 7849.2070, Subp. 4	Discussion of database used in current forecasting.	EXEMPT provided alternative data is supplied
Minn. R. 7849.0270, Subp. 5	Discussion of each essential assumption made in forecast preparation and sensitivity to variations in assumptions.	EXEMPT provided alternative data is supplied
Minn. R. 7849.0270, Subp. 6	Coordination of forecasts.	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA FOR SUBPS. 3-6 – Minnesota Power's most recent Annual Electric Utility Forecast Report and any forecast information used in analyzing the need for the Project.	§ 3.6, Appendix K

Authority	Required Information	Location in Application
Minn. R. 7849.0280	System Capacity	—
	Description of ability of existing system to meet demand forecast including:	—
A.	Power planning programs	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA – Minnesota Power's most recent Annual Electric Utility Forecast Report	§ 3.6 Appendix K
B.	Seasonal firm purchases and sales	EXEMPT
C.	Seasonal participation purchases and sales	EXEMPT
D.	Load and generation capacity data request in subitems 1-13 for summer and winter seasons for each forecast year, including anticipated purchases, sales, and capacity retirements and additions except those that depend on a not yet issued certificate of need.	EXEMPT
E.	Summer and winter season load generation and capacity in years subsequent to application contingent on proposed facility	EXEMPT
F.	Summer and winter season load generation and capacity including all projected purchases, sales and generation in years subsequent to application	EXEMPT
G.	List of proposed additions and retirements in generating capacity for each forecast year subsequent to application	EXEMPT
H.	Graph of monthly adjusted net demand and capability with difference between capability and maintenance outages plotted	EXEMPT
I.	Appropriateness and method of determining system reserve margins	EXEMPT
Minn. R. 7849.0290	Conservation Programs	—

Authority	Required Information	Location in Application
A.	Persons responsible for energy conservation and efficiency programs	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
B.	List of energy conservation and efficiency goals and objectives	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
C.	Description of programs considered, implemented and rejected	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
D.	Description of major accomplishments in conservation and efficiency	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
E.	Description of future plans with respect to conservation and efficiency	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
F.	Quantification of the manner by which these programs impact the forecast	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
	ALTERNATIVE DATA FOR A-F – Minnesota Power will provide a summary of its most recent Integrated Resource Plan and Energy Conservation and Optimization filings.	§ 1.7, Appendix L
Minn. R. 7849.0300	Consequence of Delay	EXEMPT from three levels of demand

Authority	Required Information	Location in Application
	ALTERNATIVE DATA – General discussion of the consequence of delay	§ 4.14
Minn. R. 7849.0310	Required Environmental Information	
Minn. R. 7849.0330	Transmission Facilities	—
	Data for each alternative that would require LHVTL construction including:	—
A.	For overhead transmission lines	—
(1)	Schematics showing dimensions of support structures	§ 2.1.4. Appendix H
(2)	Discussion of electric fields	§ 6.5.1
(3)	Discussion of ozone and nitrogen oxide emissions	§ 6.7
(4)	Discussion of radio and television interference	§ 6.8
(5)	Discussion of audible noise	§ 6.9 and Appendix N
B.	For underground transmission facilities:	N/A
(1)	Types and dimensions of cable systems	N/A
(2)	Types and qualities of cable system materials	N/A
(3)	Heat released in kW per foot of cable	N/A
C.	Estimated right-of-way required for the facility	§ 6.1
D.	Description of construction practices	§ 6.2
E.	Description of O&M practices	§ 6.4
F.	Estimated workforce required for construction and O&M	§ 6.4.3
G.	Description of region between endpoints in likely area for routes emphasizing a three mile radius of endpoints including:	—

Authority	Required Information	Location in Application
(1)	Hydrological features	Appendix E
(2)	Vegetation and wildfire	Appendix E
(3)	Physiographic regions	Appendix E
(4)	Land use types	Appendix E
Minn. R. 7849.0340	No-Facility Alternative	EXEMPT from three levels of demand
	ALTERNATIVE DATA – General discussion of the no-build alternative	§ 4.14

Authority	Required Information	Reference
Minn. Stat. § 216I.05, subd. 5 – Preapplication Coordination		
	At least 30 days before filing an application for a route permit with the Commission, an applicant must provide notice to: (1) each local unit of government within which a route "may be" proposed; (2) Minnesota Tribal governments, as defined under Minn. Stat. § 10.65, subd. 2 and; (3) state technical resource agencies. The notice must describe the proposed project and provide the entities receiving the notice an opportunity for preapplication coordination or feedback.	Appendix D
Minn. Stat. § 216I.05, subd. 6 – Preapplication Review		
	(a) Before submitting an application under this chapter, an applicant must provide a draft application to commission staff for review. A draft application must not be filed electronically. (b) Commission staff's draft application review must focus on the application's completeness and clarifications that may assist the commission's review of the application. Upon completion of the preapplication review under this subdivision, commission staff must provide the applicant a summary of the completeness review. The applicant may include the completeness review summary with the applicant's application under subdivision 3.	Appendix F
Minn. Stat. § 216I.05, subd. 3(b) – Route Permit Application for Large Energy Infrastructure Facility		
(7)	A statement of proposed ownership of the facility at the time of filing the application and after commercial operation.	§§ 1.1, 2.3
(8)	The name of any person or organization initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated.	§ 1.10
(9)	A description of the proposed large energy infrastructure facility and all associated facilities, including the size, type, and timing of the facility.	§§ 2.1, 3.7

Authority	Required Information	Reference
(10)	The environmental information required under Minn. Stat. § 216I.05, subd. 4	Appendix E
(11)	The names of each owner described under Minn. Stat. § 216I.05, subd. 8	Appendix R
(12)	United States Geological Survey topographical maps, or other maps acceptable to the Commission, that show the entire length of the proposed large energy infrastructure facility.	Appendix G
(13)	A document that identifies the existing utility and public rights-of-way along or near the large energy infrastructure facility.	Appendix G
(14)	The engineering and operational design at each of the proposed sites for the proposed large energy infrastructure facility, and identify transportation, pipeline, and electrical transmission systems that are required to construct, maintain, and operate the facility.	Appendix H
(9)	A cost analysis of the proposed large energy infrastructure facility, including the costs to construct, operate, and maintain the facility.	§§ 1.4, 2.4
(10)	A description of possible design options to accommodate expansion the large energy infrastructure facility's future expansion.	§ 2.2
(11)	The procedures and practices proposed to acquire, construct, maintain, and restore the large energy infrastructure's right-of-way or site.	§§ 6.1, 6.2, 6.2, 6.4
(12)	A list and brief description of federal, state, and local permits that may be required for the proposed large energy infrastructure facility.	Chapter 8
(13)	A discussion regarding whether a certificate of need application is required and, if a certificate of need application is required, whether the certificate of need application has been submitted.	§ 1.9 This Joint Certificate of Need and Route Permit Application
(14)	A discussion regarding any other sites or routes that were considered and rejected by the applicant.	Chapter 4
(15)	Any information that Commission requires pursuant to an administrative rule.	§ 9.2

Authority	Required Information	Reference
(16)	A discussion regarding coordination with Minnesota Tribal governments, as defined under Minn. Stat. § 10.65, subd. 2, by the applicant, including but not limited to the notice required under Minn. Stat. § 216I.05, subd. 5.	Appendix O
Minn. Stat. § 216I.05, subds. 4(a) and (b) – Environmental Information		
(1)	A description of the each site or route's environmental setting.	§ 1.5, Appendix E
(2)	A description of the effects of facility's construction and operation has on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, environmental justice impacts, cultural values, recreation, and public services.	§ 1.5, Appendix E
(3)	A description of the facility's effects on land-based economies, including, but not limited to agriculture, forestry, tourism, and mining.	§ 1.5, Appendix E
(4)	A description of the facility's effects on archaeological and historic resources.	§ 1.5, Appendix E
(5)	A description of the facility's effects on the natural environment, including effects on air and water quality resources, flora, and fauna.	§ 1.5, Appendix E
(6)	A description of greenhouse gas emissions associated with construction and operating the facility.	§ 1.5, Appendix E
(7)	A description of the facility's climate change resilience.	§ 1.5, Appendix E
(8)	A description of the facility's effects on rare and unique natural resources.	§ 1.5, Appendix E
(9)	A list that identifies human and natural environmental effects that are unavoidable if the facility is approved at a specific site or route.	§ 1.5, Appendix E
(10)	A description of (i) measures that might be implemented to mitigate the potential human and environmental impacts identified clauses (1) to (7), and (ii) the estimated costs of the potential mitigative measures.	§ 1.5, Appendix E

Authority	Required Information	Reference
(b)	An applicant that applies using the standard process under § 216I.06 may include the environmental information required under paragraph (a) in the applicant's environmental assessment.	§ 1.5, Appendix E
Recommended Application Content not Specified in Statute or Rule[131]		
Vegetation Management Plan	The PUC may require any reasonable conditions in a site or route permit that are necessary to protect the public interest and maintains jurisdiction over site and route permits and any conditions in those permits. In practice, site and route permits issued by the PUC require permittees to develop a Vegetation Management Plan to detail how a site or route will be vegetated, maintained, and monitored over time. Staff recommends that a draft version of the vegetation management plan be included as an appendix to the application to allow for review during the permitting process.	Appendix M

[131] *See* Draft Permitting Guidance Documents published by PUC Staff. Available at https://mn.gov/puc/activities/energy-facilities/eip/.

APPENDIX A

IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION LINE PROJECT

NOTICE PLAN PETITION

30 West Superior Street, Duluth, MN 55802
218.864.6059 | www.mnpower.com

P.O. Box 47, Waukesha, WI 53187-0047
866.899.3204

August 7, 2025

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

Via E-Filing

Re: Notice Plan Petition
In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project
Docket No. E015/CN-25-111

Dear Mr. Bull:

Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively, the "Applicants") respectfully submit this Notice Plan for approval by the Minnesota Public Utilities Commission ("Commission") pursuant to Minnesota Rule 7829.2550. In accordance with Minnesota Rule 7829.2550, subp. 1, copies of this Notice Plan have been provided to the Minnesota Department of Commerce, the Minnesota Office of Attorney General-Residential Utilities and Antitrust Division, and to persons listed on the "General List of Persons Interested in Power Plants and Transmission Lines" as maintained by the Commission under Minnesota Rule 7850.2100, subp. 1(A).

If you have questions or need additional information, please contact Jackson Evans, Minnesota Power's legal counsel at jjevans@allete.com or 612.516.0682, or Eric Swanson, ATC's legal counsel at eswanson@winthrop.com or 612.604.6511.

Sincerely,

/s/ Jackson J. Evans
Jackson J. Evans
Minnesota Power
FERC Counsel

/s/ Eric F. Swanson
Eric F. Swanson
Winthrop & Weinstine, P.A.
Counsel for ATC

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 IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION PROJECT

Docket No. E015/CN-25-111

NOTICE PLAN PETITION

Public Comments on this Notice Plan Petition can be submitted to the Minnesota Public Utilities Commission until 4:30 p.m. on August 27, 2025

Replies to Comments can be submitted to the Minnesota Public Utilities Commission until 4:30 p.m. on September 16, 2025

The Minnesota Public Utilities Commission's address is: Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN 55101-2147

I. INTRODUCTION

ALLETE, Inc. d/b/a Minnesota Power ("Minnesota Power") and American Transmission Company LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively, the "Applicants") submit this Notice Plan for approval by the Commission pursuant to Minn. R. 7829.2550. This Notice Plan is intended to provide notice to all persons reasonably likely to be affected by the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project ("ISA Project" or "Project"). The Applicants intend to submit a combined application for a Certificate of Need and a Route Permit to construct and maintain the ISA Project pursuant to Minn. Stat. §§ 216B.243 and 216I.05 in the fourth quarter of 2025.

The Project consists of construction of a new, approximately 62-mile-long, single-circuit 345 kV transmission line on double-circuit capable structures from Minnesota Power's Iron Range Substation in Itasca County, Minnesota to Minnesota Power's St. Louis County Substation in Solway Township, St. Louis County, Minnesota. The Project also involves construction of a new, approximately one-mile-long, double-circuit 345 kV transmission line from Minnesota Power's St. Louis County Substation to ATC's Arrowhead Substation in Hermantown, St. Louis County, Minnesota.

The Project was studied, reviewed, and approved by the Midcontinent Independent System Operator, Inc. ("MISO") as part of its Long-Range Transmission Planning ("LRTP") Tranche 2.1 portfolio of projects included in the 2024 MISO Transmission Expansion Plan ("MTEP24"). The Project, as part of the LRTP Tranche 2.1 portfolio, is needed to enhance grid reliability in the Upper Midwest as grid operating conditions become more variable, increase grid efficiency as energy is transferred from where it is produced to where it is needed, and meet the growing demand for reliable clean energy in the Upper Midwest.

A Certificate of Need is required under Minn. Stat. § 216B.243 before a high voltage transmission line of the voltages and lengths proposed for the Project is constructed. Minn. R. 7829.2550 requires a Notice Plan to be submitted for review by the Commission at least three months before filing a Certificate of Need application. Applicants intend to submit a combined application for a Certificate of Need and a Route Permit for the Project in the fourth quarter of 2025. Applicants, therefore, submit this Notice Plan for the Commission's approval.

I. NOTICE PLAN PROPOSAL

This Notice Plan is prepared as an initial step in the Certificate of Need regulatory process. Preparation of a Notice Plan, and its review and approval by the Commission, will ensure that interested persons are aware of the proceeding and have the opportunity to participate. The area proposed to be included in notices under this Plan ("Notice Area") is depicted in **Attachment A, Figure 1**.

The Notice Area is generally 1.5 miles wide centered on existing high voltage transmission lines. The Notice Area expands up to 2.25 miles wide in some areas to provide routing flexibility. The Notice Area is located within St. Louis and Itasca counties.

While the Notice Plan is the first step in the regulatory process, Applicants have already begun gathering stakeholder, agency, Tribal, and public input on possible route alternatives. This outreach has included public open houses, stakeholder workshops, individual stakeholder outreach, and creation of a Project website that includes Project information, ways to provide input, and interactive, detailed maps. The Project website can be viewed at: https://isatransmissionproject.com/. With this proposed Notice Plan, the Applicants will continue this public outreach and provide the notices listed below in compliance with Minn. R. 7829.2550.

A. Direct Mail Notice

Attachment A includes a letter that will be mailed to landowners, residents, local units of government, elected officials, tribal government contacts, and agencies within the Notice Area.

1. Landowners

Minn. R. 7829.2550, subp. 3(A), requires an applicant for a Certificate of Need to provide direct mail notice to all landowners reasonably likely to be affected by the proposed transmission line. Applicants propose to provide direct mail notice to all landowners who own property within the Notice Area. Applicants have obtained tax landowner names and addresses within the Notice Area using geographic information system ("GIS") county parcel records from St. Louis and Itasca Counties.

2. Mailing Addresses

Minn. R. 7829.2550, subp. 3(B), requires an applicant for a Certificate of Need to provide direct mail notice to all mailing addresses in the area that are reasonably likely to be affected by the proposed transmission line. Applicants propose to provide direct mail notice to all residential and commercial mailing addresses within the Notice Area. Applicants have obtained a list of mailing addresses in the Notice Area from St. Louis and Itasca Counties.

3. Tribal Government Officials

Minn. R. 7829.2550, subp. 3(C), requires an applicant for a Certificate of Need for a high voltage transmission line to provide direct mail notice to Tribal governments whose jurisdictions are reasonably likely to be affected by the proposed transmission line. Applicants will provide direct mail notice to each of the 11 federally recognized Tribal Nations in Minnesota, as well as the Minnesota Indian Affairs Counsel, as listed in

Attachment B-1. Applicants will provide direct mail notice to the Tribal Nations and other Tribal government officials and administrators listed in **Attachment B-1.**

4. Local Governments

Minn. R. 7829.2550, subp. 3(C), requires an applicant to provide direct mail notice to governments of towns, statutory cities, home rule charter cities, and counties whose jurisdictions are reasonably likely to be affected by the proposed transmission line. Applicants propose to provide direct mail notice to lead administration personnel in the towns, cities, and counties. Applicants will also provide notice to the elected officials of those local units of government and to those state senators and state representatives whose districts are within the Notice Area. A complete list of these government recipients is included in **Attachment B-2**.

B. Newspaper Notice.

Minn. R. 7829.2550, subp. 3(D), requires an applicant to publish public notice in newspapers of local, regional, and statewide circulation. Specifically, Applicants propose to place notice advertisements in the following newspapers:

Table 1. Newspaper Notice

Name of Newspaper	County of Circulation
Star Tribune	Statewide
Duluth News Tribune	St. Louis County
The Proctor Journal	St. Louis County
Grand Rapids Herald-Review	Itasca County

In addition to the Notice Plan newspaper notice requirement, Minn. R. 7829.2500, subp. 5 requires that after a Certificate of Need application is filed that an applicant publish a newspaper notice of the filing in a newspaper of general circulation throughout the state. Given that under the proposed Notice Plan, the Applicants will publish a newspaper notice of the Certificate of Need proceeding shortly before a Certificate of Need application is filed in the newspapers of local, regional, and statewide circulation, the Applicants request a variance of Minn. Rule 7829.2500, subp. 5, to remove this additional newspaper notice requirement.

The three requirements for a rule variance under Minn. R. 7829.3200, subp. 1 are: (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. These three requirements are met here.

The requirement under Minn. R. 7829.2500, subp. 5 would be an excessive burden as it requires duplicate notice (and associated expense) without a corresponding benefit. The public will receive notice of the Project and ways to participate in the regulatory proceedings via the pre-application filing in the Minnesota Star Tribune and other papers

of local and regional circulation. Therefore, the public interest would not be adversely affected by the requested variance. Finally, the Commission has previously granted such a variance[1] and there is no conflict with any standards imposed by law. Applicants respectfully request the Commission grant this variance.

C. Notice Content

Minn. R. 7829.2550, subp. 4 sets forth the information that must be incorporated into the notice letter including: a map showing the end points of the line and existing transmission facilities in the area; right-of-way requirements for the proposed line and a statement of intent to acquire property rights for the right-of-way; notice that the transmission upgrade cannot be constructed unless the Commission certifies that it is needed; Commission contact information; utility website information that includes its biennial transmission projects report; a statement that an environmental report will be prepared; an explanation of how to get on the Project's mailing list; and a list of applicable regulatory laws and rules that govern the request for Project approval. Applicants' proposed notice mailing meets these requirements.

The map (**Attachment A, Figure 1**) that will be included with the notice letter will depict the entire Project notice area including end points, existing transmission lines and substations, counties, townships, and notable landmarks to aid in orientation. The map that will be sent with the notice letter will be updated from the enclosed **Attachment A, Figure 1** to show the routes the Applicants are likely to propose in its Route Permit application. The Applicants will provide a copy of this updated map to Commission staff for review prior to mailing.

D. Distribution of Notice Plan Filing

As required under Minn. R. 7829.2550, subp. 1, this Notice Plan filing has been sent to the Department, the Office of the Attorney General – Residential Utilities Division, and to those parties listed on the "General List of Persons Interested in Power Plants and Transmission Lines" as maintained in eDockets.

E. Notice Timing

Minn. R. 7829. 2550, subp. 6, requires the applicant to implement the Notice Plan within 30 days of its approval by the Commission. Applicants request that the Commission vary the Notice Plan implementation rule requirement to allow notice to more closely coincide with the filing of the Certificate of Need application. Therefore, Applicants request that the Commission grant a variance and direct the notices identified in this Notice Plan to occur not more than 90 days and no less than two weeks prior to the filing of the Certificate of Need application.

[1] *In the Matter of the Application of Xcel Energy for a Certificate of Need for Two Gen-Tie Lines from Sherburne County to Lyon County, Minnesota,* Docket No. E002/CN-22-131, ORDER APPROVING THE NOTICE PLAN PETITION AND EXEMPTION REQUEST at 1 and 6 (June 28, 2022).

The three requirements for a rule variance under Minn. R. 7829.3200, subp. 1 are met here. The notice requirements outlined in the rule would burden all parties by separating notice provided to interested stakeholders from the start of the proceeding. Further, granting a variance would neither adversely affect the public interest nor conflict with standards imposed by law. The Commission has previously requested a similar variance in other Certificate of Need dockets.[2]

F. Project Service List

Pursuant to Minn. R. 7829.0700, subp. 1, the Applicants request that the following persons be placed on the Commission's Office Service List for this matter, and requests electronic service for these persons:

Jackson J. Evans Minnesota Power 30 West Superior Street Duluth, MN 55802 jjevans@allete.com	John Sagone American Transmission Company W234 N2000 Ridgeview Pkwy Ct. Waukesha, WI 53188 jsagone@atcllc.com
Zach Golkowski Minnesota Power 30 West Superior Street Duluth, MN 55802 zgolkowski@mnpower.com	Eric F. Swanson Winthrop & Weinstine, P.A. 225 South 6th Street Suite 3500 Minneapolis, MN 55105 eswanson@winthrop.com
Kodi Jean Verhalen Taft Stettinius & Hollister LLP 2200 IDS Center 80 South 8th Street Minneapolis, MN 55402-2157 kverhalen@taftlaw.com	Elizabeth H. Schmiesing Winthrop & Weinstine, P.A. 225 South 6th Street Suite 3500 Minneapolis, MN 55105 eschmiesing@winthrop.com
Valerie T. Herring Taft Stettinius & Hollister LLP 2200 IDS Center 80 South 8th Street Minneapolis, MN 55402-2157 vherring@taftlaw.com	Christopher J. Cerny Winthrop & Weinstine, P.A. 225 South 6th Street Suite 3500 Minneapolis, MN 55105 ccerny@winthrop.com

[2] *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS at 3, 6 (May 17, 2021); *In the Matter of the Application of Byron Solar Project, LLC for a Certificate of Need for the up to 200 MW Byron Solar Project and 345 kV Transmission Line in Olmstead and Dodge Counties, Minnesota*, Docket No. IP-7041/CN-20-764, ORDER APPROVING NOTICE PLAN, APPROVING EXEMPTION REQUESTS, AND GRANTING VARIANCES (Jan. 15, 2021).

II. CONCLUSION

Applicants respectfully request that the Commission (1) approve this Notice Plan prepared in advance of the filing of a Certificate of Need application to construct the Project; (2) grant a variance from duplicative newspaper notice requirements under Minn. R. 7829.2500, subp. 5; and (3) grant the variance from the 30-day implementation notice in Minn. R. 7829.2550, subp. 6, and modify the time for implementation of the Notice Plan to no more than 90 days and no less than two weeks prior to the filing of the Certificate of Need Application.

August 7, 2025

Respectfully submitted,

MINNESOTA POWER

/s/ Jackson J. Evans
Jackson J. Evans
FERC Counsel
30 West Superior Street
Duluth, MN 55802
jjevans@allete.com
(218) 723 3963

Kodi Jean Verhalen
Valerie T. Herring
Taft Stettinius & Hollister LLP
2200 IDS Center
80 South 8th Street
Minneapolis, MN 55402-2157
(612) 977-8400
kverhalen@taftlaw.com
vherring@taftlaw.com

AMERICAN TRANSMISSION COMPANY LLC

/s/ Eric F. Swanson
Eric F. Swanson
Winthrop & Weinstine, P.A.
225 South Sixth Street, Suite 3500
Minneapolis, MN 55402
eswanson@winthrop.com
(612) 604-6400

Example Notice Letter

August 7, 2025

NOTICE OF PROPOSED TRANSMISSION LINE PROJECT

Re: In the Matter of Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project
Docket No. E015/CN-25-111

PLEASE TAKE NOTICE that Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc. (collectively, the "Applicants") are applying to the Minnesota Public Utilities Commission (also "Commission") for a Certificate of Need to construct the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project ("ISA Project" or "Project").

Project Description

The ISA Project consists of construction of a new, approximately 62-mile-long, single-circuit 345 kV transmission line on double-circuit capable structures from Minnesota Power's Iron Range Substation in Itasca County, Minnesota to Minnesota Power's St. Louis County Substation in St. Louis County, Minnesota. The Project also involves construction of a new, approximately one-mile-long, double-circuit 345 kV transmission line from Minnesota Powers' St. Louis County Substation to ATC's Arrowhead Substation in Hermantown, St. Louis County, Minnesota. A map of the ISA project is provided as **Attachment A**.

Project Need

The Project was studied, reviewed, and approved by the Midcontinent Independent System Operator, Inc. ("MISO") as part of its Long-Range Transmission Planning ("LRTP") Tranche 2.1 portfolio of projects included in the 2024 MISO Transmission Expansion Plan ("MTEP24"). The Project, as part of the LRTP Tranche 2.1 portfolio, is needed to enhance grid reliability in the Upper Midwest as grid operating conditions become more variable, increase grid efficiency as energy is transferred from where it is produced to where it is needed, and meet the growing demand for reliable clean energy in the Upper Midwest.

Regulatory Review Process

Before the Applicants can construct the Project, the Minnesota Public Utilities Commission ("Commission") must determine whether the Project is needed (Certificate of Need) and if so, will determine the route along which the Project will be built (Route Permit).

The Certificate of Need process is governed by Minnesota Law, including Minnesota Statutes section 216B.243, and Minnesota Rules Chapter 7849, specifically Rules parts 7849.0010 to 7849.0400 and 7849.1000 to 7849.2100. A copy of the Certificate of Need application, once submitted, can be obtained by visiting the Commission's website at www.mn.gov/puc/ in Docket No. E015/CN-25-111.

In addition to certifying the need for the Project, the Commission must also grant a Route Permit for the Project. The routing of the Project is also governed by Minnesota Law, including Minnesota Statutes Chapter 216I. A copy of the Route Permit Application, once submitted, can be obtained by visiting the Commission's website in Docket No. E015/TL-25-112.

The Commission will not make its determinations on the Certificate of Need or Route Permit until it has completed a thorough review process that encourages public involvement and analyzes the impacts of the Project and various route alternatives. Because the Applicants anticipate requesting a joint proceeding for the Certificate of Need and Route Permit, a single environmental review document will be prepared. This process includes preparation of an Environmental Assessment ("EA") for the Project that will be submitted with the Route Permit Application. An addendum to the EA may be prepared by the Commission after the public information meetings are held in early 2026.

The Applicants will submit an application for a Route Permit with one proposed route for the proposed transmission line. Other routes can be proposed to be evaluated during the scoping process. The Commission staff will decide which routes get studied in the addendum to the EA and considered for approval. Routes that have been shown at public meetings are preliminary and subject to change. In addition, other, new routes may also be studied and considered for approval.

The Commission will review all of the data from the public process and will decide if the Project is needed and which route should be approved. Selection of a final route by the Commission will be based on an evaluation of the routes guided by the factors identified in Minnesota Statues section 216I.05, subd. 11 and stakeholder input received during the regulatory process. The table below provides a high-level summary of the major steps in the regulatory process.

Summary of Regulatory Schedule

Action	Approximate Date
Pre-application study and public meeting and stakeholder outreach	May and August 2025
Certificate of Need and Route Permit Application and EA submitted to Commission	December 2025
Informational and Scoping Meetings (public meeting and comment)	February 2026
Addendum to Environmental Assessment Issued	May 2026
Public Hearings (public meeting and comment period)	June 2026
Commission Decision	July 2026

Right-of-Way for the Project

Before beginning construction, the Applicants will acquire property rights for the right-of-way, typically through an easement that will be negotiated with the landowner for each parcel. The Applicants anticipate acquiring easements with a minimum right-of-way width of approximately 150 feet for the 345 kV transmission line. Where these transmission lines parallel existing lines, fewer new rights-of-way may be required because the new transmission line may share a portion of the existing right-of-way.

Proposed Structures for the Project

The specific type and size of structures to be used will depend on the route identified in this process along with land use/land cover, topography, water/wetlands, and soil types. Currently, structures for the Project are anticipated to be 120- to 180-foot high single-pole weathering steel structures with arms on both sides of the structure. For this type of structure, the Applicants anticipate having five to eight structures for each mile of the line.

Additional Information and Mailing Lists

To subscribe to the Project's Certificate of Need docket (E015/CN-25-111) and to receive email notifications when information is filed in that docket, please visit www.mn.gov/puc/ and click on "eDockets," then click on "Go to eDockets," and then click on "Sign In" in the top right corner. Then, click on "Subscriptions" and "Create a Subscription." In the "Docket #" box, type 25-111 and click "Create." These same steps can be followed to subscribe to the Project's Route Permit docket 25-112.

If you would like to have your name added to the Project Route Permit proceeding mailing list (E015/TL-25-112) you may register by contacting the public advisor in the consumer affairs office at the Commission at consumer.puc@state.mn.us, or (651) 296-0406 or 1-800-657-3782. Please be sure to note: 1) how you would like to receive notices (regular mail or email) and 2) your complete mailing or email address.

A separate mailing list is maintained for the Certificate of Need proceeding (E015/CN-25-111). To be placed on the Project Certificate of Need mailing list (MPUC Docket No. E015/CN-25-111), mail, fax, or email Robin Benson at Minnesota Public Utilities Commission, 121 7th Place E., Suite 350, St. Paul, MN 55101-2147, Fax: 651-297-7073 or robin.benson@state.mn.us.

If you have any questions about the state regulatory process, you may contact the Minnesota state regulatory staff listed below:

Minnesota Public Utilities Commission
Energy Infrastructure Permitting Staff
Staff Name
121 7th Place East, Suite 350
St. Paul, Minnesota 55101
Staff Phone Number
1-800-657-3782
Staff Email
Website: www.mn.gov/puc/

Please visit the Project website at: https://isatransmissionproject.com/ for more information. Project phone and e-mail addresses are:

Project Phone Number: 1-888-510-5303

Project E-mail Address: connect@isatransmissionproject.com

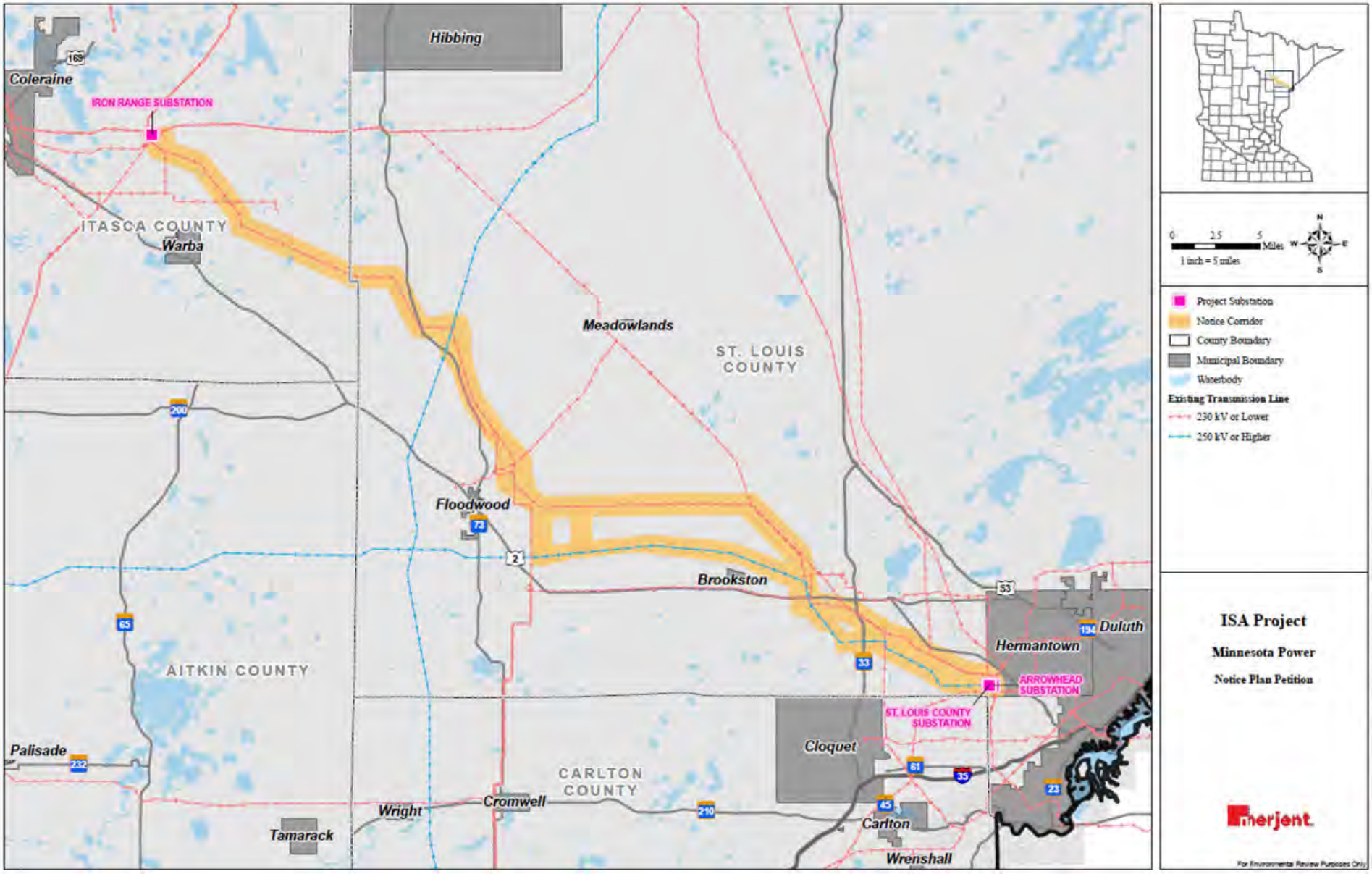
Transmission Planning Process in Minnesota

Minnesota Statutes section 216B.2425, subd. 2 requires that each electric transmission-owning utility in the state file a biennial transmission planning report with the Commission in the fall of each odd-numbered year. These reports provide information on the transmission planning process used by the utilities in the state of Minnesota and information about other transmission line projects. The 2023 Biennial Transmission Projects Report is available at: www.minnelectrans.com. The 2023 Biennial Transmission Projects Report was submitted on November 1, 2023. An updated planning report will be submitted by November 1, 2025.

Sincerely,

Zach Golkowski
Minnesota Power
Senior Environmental Compliance Specialist

Figure 1. ISA Project Notice Area



Minnesota Tribes

Tribal Name	First Name	Last Name	Title	Street Address	City	State	Zip Code	Work Phone	Fax Number	Email	URL
1854 Treaty Authority	Sonny	Myers	Executive Director	4428 Haines Rd	Duluth	MN	55811	218-722-8907 ext #7004	218-722-7003	smyers@1854treatyauthority.org	https://www.1854treatyauthority.org/contact/contact-us-2.html
Bois Forte Band of Chippewa	Carlos	Hernandez	Chairperson	5344 Lake Shore Dr	Nett Lake	MN	55772	218-335-8200	218-757-3312	carloshernandez@boisforte-nsn.gov	https://boisforte.com/
Bois Forte Band of Chippewa	Miranda	Lilya	Tribal Historic Preservation Officer	5344 Lake Shore Dr	Nett Lake	MN	55772	218-335-8200	218-757-3312	mlilya@boisforte-nsn.gov	https://boisforte.com/
Bois Forte Band of Chippewa	Jaylen	Strong	Tribal Historic Preservation Officer	5344 Lake Shore Dr	Nett Lake	MN	55772	218-335-8200	218-757-3312	jaylen.strong@boisforte-nsn.gov	https://boisforte.com/
Fond du Lac Band of Lake Superior Chippewa	Bruce	Savage	Chairman	1720 Big Lake Rd	Cloquet	MN	55720	218-879-4593	218-757-0064	brucesavage@fdlband.org	https://fdlband.org/
Fond du Lac Band of Lake Superior Chippewa	Evan	Schroeder	Tribal Historic Preservation Officer	1720 Big Lake Rd	Cloquet	MN	55720	218-879-4593	218-757-0064	evanschroeder@fdlrez.com	https://fdlband.org/
Grand Portage Band of Lake Superior Chippewa	Bobby	Deschampe	Chair	83 Stevens Rd	Grand Portage	MN	55605	218-475-2277		robertdeschampe@grandportage.com	https://www.grandportageband.com/
Grand Portage Bank of Lake Superior Chippewa	Rob	Hull	Tribal Historic Preservation Officer	83 Stevens Rd	Grand Portage	MN	55605	218-475-2277		thpo@grandportage.com	https://www.grandportageband.com/
Leech Lake Bank of Ojibwe	Faron	Jackson, Sr.	Chairman	190 Sailstar Drive NW	Cass Lake	MN	56633	218-335-8200	218-335-8309	faron.jackson@llojibwe.net	https://llojibwe.org/
Leech Lake Bank of Ojibwe	Ashley	Harrison	Tribal Historic Preservation Officer	190 Sailstar Drive NW	Cass Lake	MN	56633	218-335-8200	218-335-8309	ashley.harrison@llojibwe.net	https://llojibwe.org/
Leech Lake Bank of Ojibwe	Gina	Lemon	Tribal Historic Preservation Officer	190 Sailstar Drive NW	Cass Lake	MN	56633	218-335-8200	218-335-8309	gina.lemon@llojibwe.net	https://llojibwe.org/
Lower Sioux Indian Community	Robert L.	Larsen	President	39527 Reservation Hwy 1	Morton	MN	56270	507-697-6185	507-697-8916	robert.larsen@lowersioux.com	https://lowersioux.com/
Lower Sioux Indian Community	Cheyanne	St. John	Tribal Historic Preservation Officer	39527 Reservation Hwy 1	Morton	MN	56270	507-697-6185	507-697-8916	cheyanne.stjohn@lowersioux.com	https://lowersioux.com/
Mille Lacs Band of Ojibwe	Melanie	Benjamin	Chief Executive	43408 Oodena Dr	Onamia	MN	56359	320-532-4181	320-532-7505	Melanie.Benjamin@millelacsband.com	https://millelacsband.com/
Mille Lacs Band of Ojibwe	Mike	Wilson	Tribal Historic Preservation Officer	43408 Oodena Dr	Onamia	MN	56359	320-532-4181	320-532-7505	mike.wilson@millelacsband.com	https://millelacsband.com/
Minnesota Chippewa Tribe	Michael	LaRoque	President	15542 State Hwy 371 NW	Cass Lake	MN	56633	218-335-8581	218-335-8496		https://mnchippewatribe.org/
Prairie Island Indian Community	Grant	Johnson	President	5636 Sturgeon Lake Rd	Welch	MN	55089	800-554-5473	651-267-4009	grant.johnson@piic.org	https://prairieislandmdp.org/

Tribal Name	First Name	Last Name	Title	Street Address	City	State	Zip Code	Work Phone	Fax Number	Email	URL
Prairie Island Indian Community	Noah	White	Tribal Historic Preservation Officer	5636 Sturgeon Lake Rd	Welch	MN	55089	800-554-5473	651-267-4009	noah.white@piic.org	https://prairieisland.org/
Red Lake Nation	Darrell	Seki, Sr.	Chairman	15484 Migizi Dr	Red Lake	MN	56671	218-679-3341	218-679-2188	dseki@redlakenation.org	https://www.redlakenation.org/
Red Lake Nation	Kade	Ferris	Tribal Historic Preservation Officer	15484 Migizi Dr	Red Lake	MN	56671	218-679-3341	218-679-2188	kade.ferris@redlakenation.org	https://www.redlakenation.org/
Shakopee Mdewakanton Sioux Community	Cole W.	Miller	Chairman	1905 Mystic Lake Dr S	Shakopee	MN	55379	952-445-8900	952-233-4256	cole.miller@shakopeedakota.org	https://shakopeedakota.org/
Shakopee Mdewakanton Sioux Community	Leonard	Wabasha	Tribal Historic Preservation Officer	1905 Mystic Lake Dr S	Shakopee	MN	55379	952-496-6120	952-233-4256	leonard.wabasha@shakopeedakota.org	https://shakopeedakota.org/
Upper Sioux Community	Kevin	Jensvold	Chairman	5722 Travers Ln	Granite Falls	MN	56241	320-564-3853	320-564-2550	kevinj@uppersiouxcommunity-nsn.gov	https://www.uppersiouxcommunity-nsn.gov/
Upper Sioux Community	Samantha	Odegaard	Tribal Historic Preservation Officer	5722 Travers Ln	Granite Falls	MN	56241	320-564-3853	320-564-2550	samanthao@uppersiouxcommunity-nsn.gov	https://www.uppersiouxcommunity-nsn.gov/
White Earth Nation	Michael	Fairbanks	Chairman	35500 Eagle View Rd	Ogema	MN	56569	218-983-3285		michael.fairbanks@whiteearth-nsn.gov	https://www.whiteearth.com/
White Earth Nation	Jaime	Arsenault	Tribal Historic Preservation Officer	35500 Eagle View Rd	Ogema	MN	56569	218-983-3285		jaime.arsenault@whiteearth-nsn.gov	https://www.whiteearth.com/

Tribal Organizations

Organization	First Name	Last Name	Title	Street Address	City	State	Zip Code	Work Phone	Fax Number	Email	URL
Minnesota Indian Affairs Council	Shannon	Geshick	Executive Director	161 St. Anthony Ave, Suite 919	St. Paul	MN	55103			shannon.geshick@state.mn.us	https://mn.gov/indian-affairs/
Minnesota Department of Commerce	Chase	Christopher	Tribal Liaison	85 7th Place E, Suite 280	St. Paul	MN	55101			chase.christopherson@state.mn.us	https://mn.gov/commerce/

Federal, State, and Local Agencies

Organization	Name	Title	Address	City	State	Zip Code
Federal Agencies						
Federal Aviation Administration	Marla Duchatellier	Air Traffic Technician	6020 28th Ave S, Ste. 201	Minneapolis	MN	55450
Federal Aviation Administration	Ashley Wilson	Air Traffic Specialist	6020 28th Ave S, Ste. 201	Minneapolis	MN	55450
U.S. Army Corps of Engineers		St. Paul District - Regulatory and Permits, Duluth Field Office	11 E Superior St, Suite 260	Duluth	MN	55802
U.S. Army Corps of Engineers	Jeremy Kinney	Project manager				
U.S. Department of Agriculture	Candi Fuller	District Conservationist	1889 E Hwy 2	Grand Rapids	MN	55744
U.S. Department of Agriculture	Allison Praet	District Conservationist	4850 Miller Trunk Hwy	Duluth	MN	55811
U.S. Fish and Wildlife Service	Robert Tawes	Field Supervisor	3815 American Blvd E	Bloomington	MN	55425
U.S. Fish and Wildlife Service	Katie O'Brien	Endangered Species Biologist	3815 American Blvd E	Bloomington	MN	55425
U.S. Fish and Wildlife Service		Minnesota Ecological Services Field Office	3815 American Blvd E	Bloomington	MN	55425
State Agencies						
Minnesota Association of Townships	Kevin Comnick	Director	P.O. Box 267	St. Michael	MN	55376
Minnesota Board of Soil and Water Resources	Ryan Hughes	Manager	525 S Lake Ave, #400	Duluth	MN	55802
Minnesota Board of Soil and Water Resources	Matt Johnson	Wetland Specialist	2532 Hannah Ave NW	Bemidji	MN	56601
Minnesota Board of Soil and Water Resources	Waylon Glienke	Wetland Specialist	1889 E Hwy 2	Grand Rapids	MN	55744
Minnesota Board of Soil and Water Resources	Dave Demmer	Wetland Specialist	525 S Lake Ave #400	Duluth	MN	55802
Minnesota Board of Soil and Water Resources	Mark Lindhorst	Wetland Specialist	100 N 5th Ave W	Duluth	MN	55802
Minnesota Department of Agriculture	Stephan Roos	Planner	625 Robert St N	St. Paul	MN	55155

Organization	Name	Title	Address	City	State	Zip Code
Minnesota Department of Health	Christopher Parthun	Principal Planner	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	Nick Budde	Hydrologist	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	Dereck Richter	Principal Planner	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	Danielle Luzinski	Statewide Surface Water Hydrologist	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Natural Resources	Shelly Patten	Regional Director	1201 E Hwy 2	Grand Rapids	MN	55744
Minnesota Department of Natural Resources	Grant Wilson	Regional Director	1200 Warner Rd	St. Paul	MN	55106
Minnesota Department of Natural Resources	Kate Fairman	Environmental Review Operations Lead	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Becky Horton	EIS Project Manager	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Diane Johnson	Realty Specialist, Utility License Crossing	2115 Birchmont Beach Rd, NE	Bemidji	MN	56601
Minnesota Department of Natural Resources	Jessica Parson	NE Region Ecologist	1201 E Hwy 2	Grand Rapids	MN	55744
Minnesota Department of Natural Resources	Patty Thielen	NE Region Director	1601 Minnesota Dr	Brainerd	MN	56401
Minnesota Department of Natural Resources	Brianna Speldrich	Hydrologist	525 Lake Ave. S, Suite 415	Duluth	MN	55802
Minnesota Department of Natural Resources	Molly Barrett	Natural Heritage Review Specialist	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Jim Drake	Natural Heritage Review Specialist	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Chuck Carpenter	Northeast Regional Manager	1201 E Hwy 2	Grand Rapids	MN	55744
Minnesota Department of Transportation	Joe Pignato	Land Management Office Director	395 John Ireland Blvd Mailstop 630	St. Paul	MN	55155
Minnesota Department of Transportation	Stacy Kotch Egstad	Utility Routing and Siting Coordinator	395 John Ireland Blvd Mailstop 630	St. Paul	MN	55155

Organization	Name	Title	Address	City	State	Zip Code
Minnesota Department of Transportation	Matt Meyer	Hydrologist	1123 Mesaba Ave	Duluth	MN	55811
Minnesota Department of Transportation	Tom Lee	Hydrologist	1123 Mesaba Ave	Duluth	MN	55811
Minnesota Department of Transportation	Shane Gries	Right of Way Permits	1123 Mesaba Ave	Duluth	MN	55811
Minnesota Indian Affairs Council	Shannon Geshick	Executive Director	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Indian Affairs Council	George Goggleye Jr.	Cultural Resources Manager	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Indian Affairs Council	Lilly Geraghty	Cultural Resources Manager	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Indian Affairs Council	Isaac Weston	Cultural Resources Manager	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Pollution Control Agency	Jim Dexter	Environmental Review Specialist	520 Lafayette Rd, Box 25	St. Paul	MN	55155
Minnesota Pollution Control Agency	Kirsten Barta	Regional General Permits	520 Lafayette Rd, Box 25	St. Paul	MN	55155
Minnesota State Historic Preservation Office	Leslie Coburn	Manager, Environmental Review Specialist	50 Sherburne Ave, Suite 203	St. Paul	MN	55155
Minnesota State Historic Preservation Office	Kelly Gragg-Johnson	Environmental Review Specialist	50 Sherburne Ave, Suite 203	St. Paul	MN	55155
Office of the State Archaeologist	Amanda Gronhovd	MN State Archaeologist	328 W Kellogg Blvd	St. Paul	MN	55102
Public Utilities Commission	Bret Eknes	Supervisor	121 7th Place E, Suite 350	St. Paul	MN	55101
County Commissioners						
Itasca County	Cory Smith	District 1 Commissioner	123 NE 4th St	Grand Rapids	MN	55744
Itasca County	Terry Snyder	District 2 Commissioner	123 NE 4th St	Grand Rapids	MN	55744
Itasca County	John Johnson	District 3 Commissioner	123 NE 4th St	Grand Rapids	MN	55744
Itasca County	Burl Ives	District 4 Commissioner	123 NE 4th St	Grand Rapids	MN	55744

Organization	Name	Title	Address	City	State	Zip Code
Itasca County	Casey Venema	District 5 Commissioner and Chair	123 NE 4th St	Grand Rapids	MN	55744
St. Louis County	Annie Harala	District 1 Commissioner, Chair	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Patrick Boyle	District 2 Commissioner	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Ashley Grimm	District 3 Commissioner	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Paul McDonald	District 4 Commissioner	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Keith Musolf	District 5 Commissioner	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Keith Nelson	District 6 Commissioner	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Mike Jugovich	District 7 Commissioner, Vice Chair	100 N 5th Ave W, Room 202	Duluth	MN	55802
County Agencies						
Itasca County	Amanda Schultz	Deputy Clerk	123 NE 4th St	Grand Rapids	MN	55744
Itasca County	Brett Skyles	County Administrator	123 NE 4th St	Grand Rapids	MN	55744
Itasca County	Katie Benes	Director	123 NE 4th St	Grand Rapids	MN	55744
Itasca County		Assessor's Department	123 NE 4th St	Grand Rapids	MN	55744
Itasca County	Kory Cease	Land Commissioner	123 NE 4th St	Grand Rapids	MN	55744
Itasca Economic Development Corporation	Tamara Lowney	President & CEO	1201 SE 7th Ave	Grand Rapids	MN	55744
St. Louis County	Phil Chapman	Clerk	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County		Administration	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County	Ryan Logan	Director	100 N 5th Ave W, Room 202	Duluth	MN	55802

Organization	Name	Title	Address	City	State	Zip Code
St. Louis County		Assessor's Department	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County		Lands & Minerals	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County Economic & Community Development	Darren Jablonsky	Interim Director	320 West 2nd Street, Suite 301	Duluth	MN	55802
Cities						
City of Hermantown	Wayne Boucher	Mayor	5105 Maple Grove Rd	Hermantown	MN	55811
City of Hermantown	John Geissler	Councilor	5105 Maple Grove Rd	Hermantown	MN	55811
City of Hermantown	Joe Peterson	Councilor	5105 Maple Grove Rd	Hermantown	MN	55811
City of Hermantown	Andy Hjelle	Councilor	5105 Maple Grove Rd	Hermantown	MN	55811
City of Hermantown	Brian LeBlanc	Councilor	5105 Maple Grove Rd	Hermantown	MN	55811
City of Hermantown	Alissa McClure	Clerk	5105 Maple Grove Rd	Hermantown	MN	55811
City of Hermantown	Eric Johnson	Director	5105 Maple Grove Rd	Hermantown	MN	55811
Townships						
Arrowhead Township	Steven Emerson	Chair	4650 Arrowhead Township Rd	Brookston	MN	55711
Arrowhead Township	Randy Willeck	Supervisor	4701 Stevens Rd	Brookston	MN	55711
Arrowhead Township	Lowell Kytola	Supervisor	4829 Poupores Rd	Brookston	MN	55711
Arrowhead Township	Angela Irvine	Clerk	4192 Brandon Rd	Brookston	MN	55711
Brevator Township	Chad Vermeersch	Chair	3864 Hwy 33 N	Cloquet	MN	55720
Brevator Township	Keith Oswald	Supervisor	3864 Hwy 33 N	Cloquet	MN	55720

Organization	Name	Title	Address	City	State	Zip Code
Brevator Township	Linda Way	Supervisor	3864 Hwy 33 N	Cloquet	MN	55720
Brevator Township	Brenda Pallin	Clerk	P.O. Box 623	Cloquet	MN	55720
Cedar Valley Township	Brian Maki	Chair	12845 Floodwood River Rd	Hibbing	MN	55746
Cedar Valley Township	Daniel High	Supervisor	12804 Hwy 133 W	Floodwood	MN	55736
Cedar Valley Township	Scott Peterson	Supervisor	7826 Hwy 73	Floodwood	MN	55736
Cedar Valley Township	Barb Peterson	Clerk	7826 Hwy 73	Floodwood	MN	55736
Culver Township	Robert Hendrickson	Chair	5292 Hwy 31	Brookston	MN	55711
Culver Township	Bob Johnson	Supervisor	5292 Hwy 31	Brookston	MN	55711
Culver Township	Susan D. Smith	Supervisor	5292 Hwy 31	Brookston	MN	55711
Culver Township	Catherine Elder	Clerk	5292 Hwy 31	Brookston	MN	55711
Elmer Township	Jerry Turnboom	Chair	7468 Creek Rd	Meadowlands	MN	55765
Elmer Township	Hope Skripsky	Supervisor	10910 Hwy 133	Meadowlands	MN	55765
Elmer Township	Dean Matvey	Supervisor	7465 Creek Rd	Meadowlands	MN	55765
Elmer Township	Patricia Bernsdorf	Clerk	7982 Goldfinch Rd	Meadowlands	MN	55765
Feeley Township	Lori Hamm	Chair	20326 County Road 10	Warba	MN	55793
Feeley Township	Debra Langanki	Supervisor	20736 Feeley 1	Warba	MN	55793
Feeley Township	Casey Dabrowski	Supervisor	19914 Feeley 6	Warba	MN	55793

Organization	Name	Title	Address	City	State	Zip Code
Feeley Township	Lori Gill	Clerk	21738 Shallow Lake Rd	Warba	MN	55793
Floodwood Township	Tad Farrell	Mayor	P.O. Box 348	Floodwood	MN	55736
Floodwood Township	James Schminski	Chair	4856 Hwy 73 S	Floodwood	MN	55736
Floodwood Township	Eric Collman	Supervisor	11810 Fine Lakes Rd	Floodwood	MN	55803
Floodwood Township	Dennis Juusola	Supervisor	11867 Floodwood Rd	Floodwood	MN	55736
Floodwood Township	Rhonda Lundstrom	Clerk	11765 Clark Rd	Floodwood	MN	55736
Goodland Township	Charles Miller	Chair	11780 Hall Rd	Goodland	MN	55742
Goodland Township	Charlene Obrecht	Supervisor	21682 County Rd 574	Goodland	MN	55742
Goodland Township	Dave Detjen	Supervisor	21006 Co Rd 560	Goodland	MN	55742
Goodland Township	Holly Henrickson	Clerk	13485 E County Rd 578	Goodland	MN	55742
Industrial Township	Richard Williams Jr.	Chair	P.O. Box 4	Saginaw	MN	55779
Industrial Township	Don Carlson	Supervisor	P.O. Box 4	Saginaw	MN	55779
Industrial Township	Brent Johnson	Supervisor	P.O. Box 4	Saginaw	MN	55779
Industrial Township	Amy Skluzacek	Clerk	P.O. Box 4	Saginaw	MN	55779
Solway Township	Scott Welsh	Chair	4134 Jeffery Rd	Duluth	MN	55810
Solway Township	Ron Gajewski	Supervisor	5939 Wargin Rd	Duluth	MN	55810
Solway Township	Jeffrey A. Keppers	Supervisor	6115 Hwy #12	Proctor	MN	55720

Organization	Name	Title	Address	City	State	Zip Code
Solway Township	Tami McGregor	Clerk	4029 Munger Shaw Rd	Cloquet	MN	55720
Solway Township		Planning & Zoning Manager	320 West Second Street, Room #301	Duluth	MN	55802
Van Buren Township	Marilyn Arro	Chair	11647 Parantala Rd	Floodwood	MN	55736
Van Buren Township	David Rauvola	Supervisor	6155 Hwy 29	Floodwood	MN	55736
Van Buren Township	Albert Moline	Supervisor	6155 Hwy 29	Floodwood	MN	55736
Van Buren Township	Susan Hutchinson	Clerk	11792 Parantala Rd	Floodwood	MN	55736
Unorganized Territories						
Little Sand Lake Unorganized Territory	Christine Hobrough	President				
Federal and State Legislators						
U.S. House of Representatives	Pete Stauber	Representative - MN 8th District	5094 Miller Trunk Hwy, Suite 900	Hermantown	MN	55811
U.S. House of Representatives	Michelle Fischbach	Congresswoman - MN 7th District	2513 8th Street S	Moorhead	MN	56560
U.S. Senate	Amy Klobuchar	U.S. Senator	820 9th Street North, Room 105	Virgina	MN	55792
U.S. Senate	Tina Smith	U.S. Senator	60 Plato Blvd, Suite #220	St. Paul	MN	55107
Minnesota State Senate	Grant Hauschild	Senator, District 3	3111 Minnesota Senate Bldg.	St. Paul	MN	55155
Minnesota State Senate	Robert D. Farnsworth	Senator, District 7	2323 Minnesota Senate Bldg.	St. Paul	MN	55155
Minnesota State Senate	Jennifer A. McEwen	Senator, District 8	3217 Minnesota Senate Bldg.	St. Paul	MN	55155
Minnesota House of Representatives	Pete Johnson	Representative, District 8A	5th Floor Centennial Office Building 658 Cedar Street	St. Paul	MN	55155
Minnesota House of Representatives	Natalie Zeleznikar	Representative, District 3B	2nd Floor Centennial Office Building 658 Cedar Street	St. Paul	MN	55155

Organization	Name	Title	Address	City	State	Zip Code
Minnesota House of Representatives	Cal Warwas	Representative, District 7B	2nd Floor Centennial Office Building 658 Cedar Street	St. Paul	MN	55155
Minnesota House of Representatives	Spencer Igo	Representative, District 7A	2nd Floor Centennial Office Building 658 Cedar Street	St. Paul	MN	55155

IN THE MATTER OF THE APPLICATION FOR A CERTIFICATE OF NEED FOR THE IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION LINE PROJECT.

Docket No. E015/CN-25-111

CERTIFICATE OF SERVICE

Gustav Gerhardson certifies that on the 7th day of August, 2025, on behalf of Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc., he efiled a true and correct copy of the **Notice Plan Petition** by posting the same on eDockets. Said filing is also served as designated on the attached Service List on file with the Minnesota Public Utilities Commission in the above-referenced docket number.

/s/ Gustav Gerhardson
Gustav Gerhardson

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	Michael	Ahern	ahern.michael@dorsey.com	Dorsey & Whitney, LLP		50 S 6th St Ste 1500 Minneapolis MN, 55402-1498 United States	Electronic Service		No	CN-25-111
2	Kristine	Anderson	kanderson@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Lane PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
3	Matthew	Brodin	mbrodin@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
4	Mike	Bull	mike.bull@state.mn.us		Public Utilities Commission	121 7th Place East, Suite 350 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
5	James	Canaday	james.canaday@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Suite 1400 445 Minnesota St. St. Paul MN, 55101 United States	Electronic Service		No	CN-25-111
6	Cody	Chilson	cchilson@greatermngas.com	Greater Minnesota Gas, Inc. & Greater MN Transmission, LLC		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
7	Ray	Choquette	rchoquette@agp.com	Ag Processing Inc.		12700 West Dodge Road PO Box 2047 Omaha NE, 68103-2047 United States	Electronic Service		No	CN-25-111
8	John	Coffman	john@johncoffman.net	AARP		871 Tuxedo Blvd. St, Louis MO, 63119-2044 United States	Electronic Service		No	CN-25-111
9	Generic	Commerce Attorneys	commerce.attorneys@ag.state.mn.us		Office of the Attorney General - Department of Commerce	445 Minnesota Street Suite 1400 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
10	Hillary	Creurer	hcreurer@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
11	George	Crocker	gwillc@nawo.org	North American Water Office		5093 Keats Avenue Lake Elmo MN, 55042 United States	Electronic Service		No	CN-25-111
12	Jackson	Evans	jjevans@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
13	John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance		2720 E. 22nd St Institute for Local Self-	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						Reliance Minneapolis MN, 55406 United States				
14	Eric	Fehlhaber	efehlhaber@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
15	Sharon	Ferguson	sharon.ferguson@state.mn.us		Department of Commerce	85 7th Place E Ste 280 Saint Paul MN, 55101-2198 United States	Electronic Service		No	CN-25-111
16	Daryll	Fuentes	energy@usg.com	USG Corporation		550 W Adams St Chicago IL, 60661 United States	Electronic Service		No	CN-25-111
17	Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP		Suite 1750 220 South Sixth Street Minneapolis MN, 55402-1425 United States	Electronic Service		No	CN-25-111
18	Daniel	Gunderson	dgunderson@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
19	Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
20	Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors		413 Wacouta Street #230 St.Paul MN, 55101 United States	Electronic Service		No	CN-25-111
21	Corey	Hintz	chintz@dakotaelectric.com	Dakota Electric Association		4300 220th Street Farmington MN, 55024-9583 United States	Electronic Service		No	CN-25-111
22	Michael	Hoppe	lu23@ibew23.org	Local Union 23, I.B.E.W.		445 Etna Street Ste. 61 St. Paul MN, 55106 United States	Electronic Service		No	CN-25-111
23	Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
24	Travis	Jacobson	travis.jacobson@mdu.com	Great Plains Natural Gas Company		400 N 4th St Bismarck ND, 58501 United States	Electronic Service		No	CN-25-111
25	Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law		2950 Yellowtail Ave. Marathon FL, 33050 United States	Electronic Service		No	CN-25-111
26	Richard	Johnson	rick.johnson@lawmoss.com	Moss & Barnett		150 S. 5th Street Suite 1200	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						Minneapolis MN, 55402 United States				
27	Sarah	Johnson Phillips	sjphillips@stoel.com	Stoel Rives LLP		33 South Sixth Street Suite 4200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
28	Nick	Kaneski	nick.kaneski@enbridge.com	Enbridge Energy Company, Inc.		11 East Superior St Ste 125 Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
29	Michael	Krikava	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S 8th St Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
30	Nicolle	Kupser	nkupser@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
31	James D.	Larson	james.larson@avantenergy.com	Avant Energy Services		220 S 6th St Ste 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
32	Peder	Larson	plarson@larkinhoffman.com	Larkin Hoffman Daly & Lindgren, Ltd.		8300 Norman Center Drive Suite 1000 Bloomington MN, 55437 United States	Electronic Service		No	CN-25-111
33	Eric	Lipman	eric.lipman@state.mn.us		Office of Administrative Hearings	PO Box 64620 St. Paul MN, 55164-0620 United States	Electronic Service		No	CN-25-111
34	Susan	Ludwig	sludwig@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
35	Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting, LLC		961 N Lost Woods Rd Oconomowoc WI, 53066 United States	Electronic Service		No	CN-25-111
36	Joseph	Meyer	joseph.meyer@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Bremer Tower, Suite 1400 445 Minnesota Street St Paul MN, 55101-2131 United States	Electronic Service		No	CN-25-111
37	Stacy	Miller	stacy.miller@minneapolismn.gov	City of Minneapolis		350 S. 5th Street Room M 301 Minneapolis MN, 55415 United States	Electronic Service		No	CN-25-111
38	David	Moeller	dmoeller@allete.com	Minnesota Power			Electronic Service		No	CN-25-111
39	Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP		33 South Sixth St Ste 4200	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						Minneapolis MN, 55402 United States				
40	David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
41	Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company		200 1st Street SE PO Box 351 Cedar Rapids IA, 52406-0351 United States	Electronic Service		No	CN-25-111
42	Ellen	Nowak	ellen.nowak@wisconsin.gov	Public Service Commission of Wisconsin		4822 Madison Yards Way Madison WI, 53707 United States	Electronic Service		No	CN-25-111
43	Matthew	Olsen	molsen@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
44	Carol A.	Overland	overland@legalectric.org	Legalectric - Overland Law Office		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	CN-25-111
45	Greg	Palmer	gpalmer@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
46	Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
47	Catherine	Phillips	catherine.phillips@wecenergygroup.com	Minnesota Energy Resources		231 West Michigan St Milwaukee WI, 53203 United States	Electronic Service		No	CN-25-111
48	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		Yes	CN-25-111
49	Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy		26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States	Electronic Service		No	CN-25-111
50	Susan	Romans	sromans@allete.com	Minnesota Power		30 West Superior Street Legal Dept Duulth MN, 55802 United States	Electronic Service		No	CN-25-111
51	Elizabeth	Schmiesing	eschmiesing@winthrop.com	Winthrop & Weinstine, P.A.		225 South Sixth Street Suite 3500 Minneapolis	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						MN, 55402 United States				
52	Christine	Schwartz	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall, MN1180-07-MCA Minneapolis MN, 55401-1993 United States	Electronic Service		No	CN-25-111
53	Ken	Smith	ken.smith@districtenergy.com	District Energy St. Paul Inc.		76 W Kellogg Blvd St. Paul MN, 55102 United States	Electronic Service		No	CN-25-111
54	Peggy	Sorum	peggy.sorum@centerpointenergy.com	CenterPoint Energy		505 Nicollet Mall Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
55	Byron E.	Starns	byron.starns@stinson.com	STINSON LLP		50 S 6th St Ste 2600 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
56	Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 South 8th Street Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
57	Cary	Stephenson	cstephenson@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
58	James M	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered		150 S 5th St Ste 700 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
59	Stuart	Tommerdahl	stommerdahl@otpco.com	Otter Tail Power Company		215 S Cascade St PO Box 496 Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
60	Joseph	Windler	jwindler@winthrop.com	Winthrop & Weinstine		225 South Sixth Street, Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
61	Kurt	Zimmerman	kwz@ibew160.org	Local Union #160, IBEW		2909 Anthony Ln St Anthony Village MN, 55418-3238 United States	Electronic Service		No	CN-25-111
62	Patrick	Zomer	pat.zomer@lawmoss.com	Moss & Barnett PA		150 S 5th St #1200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	Jay	Anderson	jaya@cmpas.org	CMPAS		7550 Corporate Way Suite 100 Eden Prairie MN, 55344 United States	Electronic Service		No	PPSA General List
2	Melissa	Birch	mbirch@umn.edu	Clean Energy Resource Teams		null null, null United States	Electronic Service		No	PPSA General List
3	David	Birkholz	david.birkholz@state.mn.us	MN Department of Commerce		Suite 500 85 7th Place East St. Paul MN, 55101-2198 United States	Electronic Service		No	PPSA General List
4	Michelle F.	Bissonnette	michelle.bissonnette@hdrinc.com	HDR Engineering, Inc.		Golden Hills Office Center 701 Xenia Ave S Ste 600 Minneapolis MN, 55416 United States	Electronic Service		No	PPSA General List
5	B. Andrew	Brown	brown.andrew@dorsey.com	Dorsey & Whitney LLP		Suite 1500 50 South Sixth Street Minneapolis MN, 55402-1498 United States	Electronic Service		No	PPSA General List
6	Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron		60 S 6th St Ste 1500 Minneapolis MN, 55402-4400 United States	Electronic Service		No	PPSA General List
7	PUC	CAO	consumer.puc@state.mn.us		Public Utilities Commission	Consumer Affairs Office 121 7th Place E Suite 350 St. Paul MN, 55101 United States	Electronic Service		No	PPSA General List
8	Bill	Cook	bcook@rpu.org	Rochester Public Utilities		4000 East River Road NE Rochester MN, 55906 United States	Electronic Service		No	PPSA General List
9	John	Crane	johncranefishing@gmail.com	Fishing		1250 Wee Gwaus DR SW Bemidji MN, 56601 United States	Electronic Service		No	PPSA General List
10	George	Crocker	gwillc@nawo.org	North American Water Office		5093 Keats Avenue Lake Elmo MN, 55042 United States	Electronic Service		No	PPSA General List
11	Thomas	Davis	atdavis1972@outlook.com	-		1161 50th Ave Sherburn MN, 56171 United States	Electronic Service		No	PPSA General List
12	Mike	DellaPenna	mdellapenna@google.com			null null, null United States	Electronic Service		No	PPSA General List
13	Cory	Dutcher	cory.dutcher@ge.com	GE Power and Water		1 River Rd. Bldg. 37-413 Schenectady NY, 12345 United States	Electronic Service		No	PPSA General List

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
14	Kristen	Eide Tollefson	healingsystems69@gmail.com	R-CURE		28477 N Lake Ave Frontenac MN, 55026-1044 United States	Electronic Service		No	PPSA General List
15	Karen A	Gebhardt	kageb1@gvtel.com			43901 253rd Ave Leonard MN, 56652-4026 United States	Electronic Service		No	PPSA General List
16	Larry	Hartman	larry.hartman@state.mn.us		Department of Commerce	85 7th Place East, Suite 280 St. Paul MN, 55101 United States	Electronic Service		No	PPSA General List
17	Valerie	Herring	vherring@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S. Eighth Street Minneapolis MN, 55402 United States	Electronic Service		No	PPSA General List
18	Scott	Johnson	scott.johnson@ci.medina.mn.us	City of Medina		2052 County Road 24 Medina MN, 55340-9790 United States	Electronic Service		No	PPSA General List
19	Michael	Kaluzniak	mike.kaluzniak@state.mn.us		Public Utilities Commission	Suite 350 121 Seventh Place East St. Paul MN, 55101 United States	Electronic Service		No	PPSA General List
20	Tom	Karas	tomskaras@gmail.com			3171 309th Ave NW Cambridge MN, 55008 United States	Electronic Service		No	PPSA General List
21	Bruce	King	brenda@ranww.org	Realtors, Association of Northwestern WI		Suite 3 1903 Keith Street Eau Claire WI, 54701 United States	Electronic Service		No	PPSA General List
22	Stacy	Kotch Egstad	stacy.kotch@state.mn.us		MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd. St. Paul MN, 55155 United States	Electronic Service		No	PPSA General List
23	Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP		33 South Sixth St Ste 4200 Minneapolis MN, 55402 United States	Electronic Service		No	PPSA General List
24	Dan	Nelson	dan.nelson@isginc.com	I&S Group		115 E Hickory St Ste 300 Mankato MN, 56001 United States	Electronic Service		No	PPSA General List
25	Carol A.	Overland	overland@legalectric.org	Legalectric - Overland Law Office		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	PPSA General List
26	Shantal	Pai	spai@fredlaw.com	Fredrikson and Byron, P.A.		60 South Sixth Street Suite 1500 Minneapolis MN, 55402 United States	Electronic Service		No	PPSA General List

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
27	Kevin	Peterson	kjp@ibew160.org			1109 Northway Lane NE Rochester MN, 55906 United States	Electronic Service		No	PPSA General List
28	Angela	Piner	angela.piner@hdrinc.com	HDR, Inc.		Suite 600 701 Xenia Avenue South Suite 600 Minneapolis MN, 55416 United States	Electronic Service		No	PPSA General List
29	Larry	Rebman	larryemls@hotmail.com	EMLS, Inc		PO Box 122 Appleton MN, 56208 United States	Electronic Service		No	PPSA General List
30	Margaret	Rheude	margaret_rheude@fws.gov	U.S. Fish and Wildlife Service		Twin Cities Ecological Services Field Office 4101 American Blvd. E. Bloomington MN, 55425 United States	Electronic Service		No	PPSA General List
31	Christine	Schwartz	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall, MN1180-07-MCA Minneapolis MN, 55401-1993 United States	Electronic Service		No	PPSA General List
32	Tom	Slukich	tom@nationalconductor.com	National Conductor Constructors		18119 Hwy 371 North Brainderd MN, 56401 United States	Electronic Service		No	PPSA General List
33	Adam	Sokolski	adam.sokolski@edf-re.com	EDF Renewable Energy		10 Second Street NE Ste 400 Minneapolis MN, 55410 United States	Electronic Service		No	PPSA General List
34	Brent	Stavig	brentstavig@gmail.com			8961 490th St. Rush City MN, 55069 United States	Electronic Service		No	PPSA General List
35	Mark	Strohfus	mstrohfus@grenergy.com	Great River Energy		12300 Elm Creek Boulevard Maple Grove MN, 55369-4718 United States	Electronic Service		No	PPSA General List
36	Carl	Strohm	cjsmg@sbcglobal.net	SBC Global		105 East Edgewood Ave Indianapolis IN, 46227 United States	Electronic Service		No	PPSA General List
37	Tom	Swafford	tswafford@umsi.us	Utility Mapping Services, Inc		3947 E Calvary Rd Suite 103 Duluth MN, 55803 United States	Electronic Service		No	PPSA General List
38	Todd	Tadych	ttadych@atcllc.com	American Transmission Company LLC		5303 Fen Oak Dr Madison WI,	Electronic Service		No	PPSA General List

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						53718 United States				
39	Caren	Warner	caren.warner@state.mn.us		Department of Commerce	85 7th Place East Suite 280 St. Paul MN, 55101-2198 United States	Electronic Service		No	PPSA General List
40	Cynthia	Warzecha	cynthia.warzecha@state.mn.us	Minnesota Department of Natural Resources		500 Lafayette Road Box 25 St. Paul MN, 55155-4040 United States	Electronic Service		No	PPSA General List
41	Elizabeth	Wefel	eawefel@flaherty-hood.com	Missouri River Energy Services		525 Park St Ste 470 Saint Paul MN, 55103 United States	Electronic Service		No	PPSA General List
42	Deanna	White	mncwa@cleanwater.org	Clean Water Action & Water Fund of MN		330 S 2nd Ave Ste 420 Minneapolis MN, 55401 United States	Electronic Service		No	PPSA General List

30 West Superior Street, Duluth, MN 55802
218.864.6059 | www.mnpower.com

P.O. Box 47, Waukesha, WI 53187-0047
866.899.3204 | www.atcllc.com

September 16, 2025

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

Via E-Filing

Re: Reply Comments of Minnesota Power and American Transmission Company LLC – Notice Plan Petition
Docket No. E015/CN-25-111

Dear Ms. Bergman:

Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively the "Applicants") respectfully submit these Reply Comments to the Initial Comments filed by the Minnesota Department of Commerce, Division of Energy Resources ("Department") and No CapX 2020 and World Organization for Landowner Freedom (collectively, "No CapX") on the Applicants' Notice Plan Petition for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project ("Project").

In its Comments on the Notice Plan Petition, the Department recommended approval of the Applicants' proposed Notice Plan Petition as filed.[1] Additionally, No CapX did not object to or request any modifications to the Applicants' proposed Notice Plan Petition.[2] The Applicants appreciate the Department and No CapX's review and respectfully request that the Commission approve the Applicants' proposed Notice Plan Petition.

[1] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, Comments of the Minnesota Department of Commerce (August 27, 2025) (eDocket No. 20258-222450-01).
[2] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, Comments of No CapX (August 27, 2025) (eDocket No. 20258-222486-01).

If you have questions or need additional information, please contact Jackson Evans, Minnesota Power's legal counsel at jjevans@allete.com or 612.516.0682, or Eric Swanson, ATC's legal counsel at eswanson@winthrop.com or 612.604.6511.

Sincerely,

/s/ Jackson Evans
Jackson J. Evans
Minnesota Power
FERC Counsel

/s/ Eric F. Swanson
Eric F. Swanson
Winthrop & Weinstine, P.A.
Counsel for ATC

cc: Service List

APPENDIX B

IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION LINE PROJECT

EXEMPTION REQUEST

30 West Superior Street, Duluth, MN 55802
218.864.6059 | www.mnpower.com

P.O. Box 47, Waukesha, WI 53187-0047
866.899.3204

August 7, 2025

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

Via E-Filing

Re: Request for Exemptions
In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project.
Docket No. E015/CN-25-111

Dear Mr. Bull:

Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively, the "Applicants") respectfully submit this Request for Exemptions for Certain Certificate of Need Application Content Requirements to the Minnesota Public Utilities Commission pursuant to Minnesota Rule 7849.0200, subp. 6.

If you have questions or need additional information, please contact Jackson Evans, Minnesota Power's legal counsel at jjevans@allete.com or 612.516.0682, or Eric Swanson, ATC's legal counsel at eswanson@winthrop.com or 612.604.6511.

Sincerely,

/s/ Jackson J. Evans
Jackson J. Evans
Minnesota Power
FERC Counsel

/s/ Eric F. Swanson
Eric F. Swanson
Winthrop & Weinstine, P.A.
Counsel for ATC

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 IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION PROJECT

Docket No. E015/CN-25-111

REQUEST FOR EXEMPTIONS FROM CERTAIN CERTIFICATE OF NEED APPLICATION CONTENT REQUIREMENTS

I. INTRODUCTION

Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively, the "Applicants") respectfully submit this request for exemption from certain requirements for a Certificate of Need Application for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project ("ISA Project" or "Project") pursuant to Minn. R. 7849.0200, subp. 6. The Applicants intend to file a combined Application for a Certificate of Need and Route Permit for the ISA Project pursuant to Minn. Stat. §§ 216B.243 and 216I.05 in the first quarter of 2026.

The Project consists of construction of a new, approximately 62-mile-long, single-circuit 345 kV transmission line on double-circuit capable structures from Minnesota Power's Iron Range Substation in Itasca County, Minnesota to Minnesota Power's St. Louis County Substation in Solway Township, St. Louis County, Minnesota. The Project also requires construction of a new, approximately one-mile-long, double-circuit 345 kV transmission line from Minnesota Power's St. Louis County Substation to ATC's Arrowhead Substation in Hermantown, St. Louis County, Minnesota.

The Applicants believe that certain Certificate of Need application content requirements in Minn. R. Ch. 7849 should be modified to better address the nature of this Project. The Minnesota Public Utilities Commission ("Commission") has granted similar exemptions for other transmission line projects in the recent past.[1] The Applicants therefore

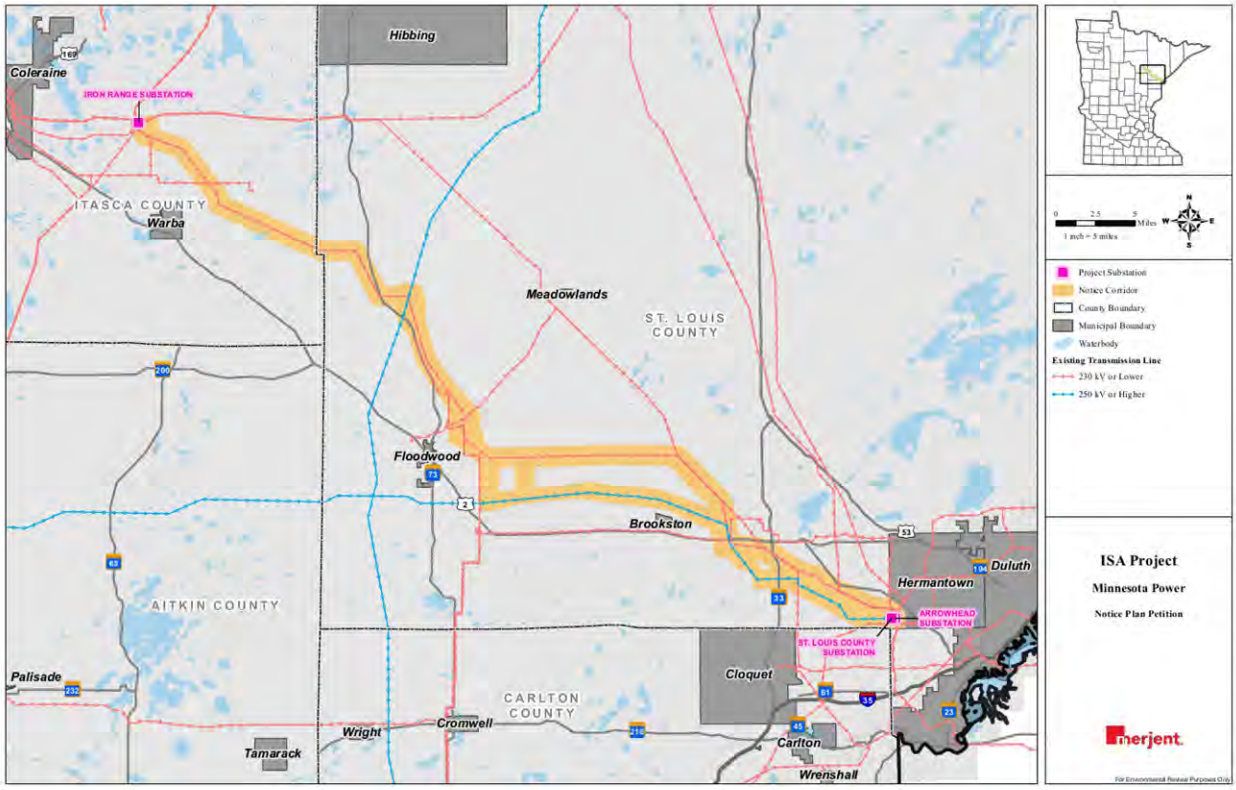
[1] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416,

respectfully request that the Commission grant exemptions from certain requirements as provided under Minn. R. 7849.0200, subp. 6. In lieu of some content requirements, the Applicants propose to submit alternative information that will better inform the Commission's decision regarding the need for the Project.

II. BACKGROUND

An overview of the ISA Project as well as other transmission facilities in the area is provided in Figure 1 below.

Figure 1. ISA Project Notice Area



The Project was studied, reviewed, and approved by the Midcontinent Independent System Operator, Inc. ("MISO") as part of its Long-Range Transmission Planning

---

ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty*., Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In the Matter of Application of Xcel Energy and ITC Midwest, LLC for the Huntley-Wilmarth 345 kV Transmission Line Project*, Docket No. E002, E6675/CN-17-184, [Order on Exemption Request] (Sept. 1, 2017); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014); *In re Request of Minnesota Power for a Certificate of Need for the Great Northern Transmission Line*, Docket No. E015/CN-12-1163, ORDER APPROVING NOTICE PLAN, GRANTING VARIANCE REQUEST, AND APPROVING EXEMPTION REQUEST (Feb. 28, 2013)

("LRTP") Tranche 2.1 portfolio of projects included in the 2024 MISO Transmission Expansion Plan ("MTEP24"). The Project, as part of the LRTP Tranche 2.1 portfolio, is needed to enhance grid reliability in the Upper Midwest as grid operating conditions become more variable, increase grid efficiency as energy is transferred from where it is produced to where it is needed, and meet the growing demand for reliable clean energy in the Upper Midwest.

III. LEGAL STANDARD AND SUMMARY OF EXEMPTION REQUESTS

Minn. R. 7849.0220, subp. 2, part 7849.0240, and parts 7849.0260 to 7849.0340 specify the content requirements for Certificate of Need applications for large high-voltage transmission line ("LHVTL") projects. The Commission has authority to grant exemptions from the requirements of Minn. R. Ch. 7849 pursuant to Minn. R. 7849.0200, subp. 6, which provides:

> Before submitting an application, a person is exempted from any data requirement of parts 7849.0010 to 7849.0400 if the person (1) requests an exemption from specified rules, in writing to the commission, and (2) shows that the data requirement is unnecessary to determine the need for the proposed facility or may be satisfied by submitting another document. A request for exemption must be filed at least 45 days before submitting an application. The commission shall respond in writing to a request for exemption within 30 days of receipt and include the reasons for the decision. The commission shall file a statement of exemptions granted and reasons for granting them before beginning the hearing.

Based on the standard set forth in this rule, the Commission may grant exemptions when the data requirements: (1) are unnecessary to determine need in a specific case; or (2) can be satisfied by submitting documents other than those required by the rules.[2] For the ISA Project, the Applicants request that the Commission grant exemptions from the following rules as they are either unnecessary to determine the need for the Project or can be satisfied by submitting alternative data:

Minnesota Rule	Scope of Exemption
Minn. R. 7849.0240 subp. 2(B) (Promotional Activities)	Request full exemption for ATC from the requirement to provide data regarding the relationship of the project and promotional activities that may have given rise to the demand for the facility.
Minn. R. 7849.0260 C(5) (Effect of Project on Rates Systemwide)	As to ATC, request to submit alternative data in the form of the estimated Multi-

[2] *In re Application for a Certificate of Need for the Appleton – Canby 115 kV Line,* Docket No. E017/CN-06-0677, ORDER GRANTING EXEMPTIONS AND APPROVING NOTICE PLAN (Aug. 1, 2006).

	Value Project ("MVP") revenue requirement and cost allocation calculations showing costs that will be allocated to Minnesota utilities for the Project. Minnesota Power will provide relevant data related to effects on its rates systemwide, per Minn. R. 7849.0260 C(5).
Minn. R. 7849.0260 A(3) and C(6) (Losses)	Request an exemption from providing Project-specific loss information. The Applicants propose to provide substitute data in the form of overall system losses.
Minn. R. 7849.0260 D (System Map)	As to ATC, request to submit an alternative map of ATC's transmission network in Minnesota and Wisconsin.
Minn. R. 7849.0260 B(4) and (8) (Transmission Lines with Different Terminals or Substations)	Request an exemption from providing a discussion on the availability of alternative transmission lines with different terminals or substations. The commission must not require evaluation of alternative end points for a high-voltage transmission line qualifying as a large energy facility unless the alternative end points are (i) consistent with end points identified in a federally registered planning authority transmission plan, or (ii) otherwise agreed to for further evaluation by the applicant.[3]
Minn. R. 7849.0270, subps. 1-6 (Peak Demand and Annual Consumption Forecast; System Revenue Requirements)	Request exemption from providing forecasting and capacity information for the Applicants' systems and to instead provide forecast information from Minnesota Power's most recent Annual Forecast Report ("AFR"). The Applicants also seek an exemption from providing annual revenue requirements for the Project. Minnesota Power proposes to provide the general rate impact of the Project on Minnesota Power's customers.
Minn. R. 7849.0280 (System Capacity)	Request full exemption from providing a discussion of the ability of the existing system to meet the forecasted demand for electrical energy identified in response to Minn. R. 7849.0270.
Minn. R. 7849.0290 (Conservation) (Minnesota Power)	Request exemption from discussing conservation programs and their effect on

[3] *See* Minn. Stat. § 216B.243, subd. 3(6).

	the forecast information required by Minn. R. 7849.0290. Minnesota Power proposes to provide substitute information on its conservation efforts from, as applicable, Minnesota Power's most recent Conservation Improvement Plan and Integrated Resource Plan filings. Minnesota Power will also provide information regarding how conservation and energy efficiency was considered by MISO in its evaluation of the Project.
Minn. R. 7849.0290 (Conservation) (ATC)	Request full exemption for ATC.
Minn. R. 7849.0300 (Consequences of Delay)	Request exemption from providing analysis using three confidence levels. The Applicants propose to provide substitute data regarding potential impacts caused by delay in implementing the Project.
Minn. R. 7849.0340 (No Facility Alternative)	Request to be exempt from providing analysis using three confidence levels. The Applicants propose to provide substitute data regarding potential impacts caused by no build alternatives.
800 MVA Exemption	
The ATC Arrowhead 345 kV/230 kV Substation is subject to an 800 MVA limitation per a Minnesota Environmental Quality Board ("MEQB") permitting exception issued in March 2001. This limitation would need to be removed to facilitate the Project as developed by MISO.	Request that the 800 MVA issue be moved to and resolved in this docket, as discussed further below. The Applicants propose to provide notice of this issue to parties in Docket Nos. E015/AI-11-75 and E015/PA-04-2020

Each of these requests is discussed in more detail below. This request is being made at least 45 days prior to submitting an application for a Certificate of Need as required by Minn. R. 7849.0200, subp. 6.[4]

[4] A proposed completeness checklist of the Certificate of Need requirements, reflecting this exemption request is provided at Attachment A.

IV. REQUESTED EXEMPTIONS

A. Minn. R. 7849.0240, subp. 2(B) – Need Summary and Additional Considerations

Minn. R. 7849.0240, subp. 2(B) requires that a Certificate of Need application contain "an explanation of the relationship of the proposed facility to . . . promotional activities that may have given rise to the demand for the facility." Promotional practices are any action or policy "which directly or indirectly give rise to the demand for the facility, including but not limited to advertising, billing practices, promotion of increased use of electrical energy, and other marketing activities."[5] ATC does not directly serve end-users of electric service and does not engage in promotional activities that could have given rise to the need for the proposed Project. The Applicants request that the Commission grant ATC an exemption from this request. This approach is consistent with several prior exemption requests approved by the Commission in other Certificate of Need transmission line dockets.[6]

B. Minn. R. 7849.0260 C(5) – Effect of Project on Rates Systemwide

Minn. R. 7849.0260 C(5) requires that an applicant estimate a proposed project's "effect on rates systemwide and in Minnesota, assuming a test year beginning with the proposed in-service date." ATC requests an exemption from this requirement because it is not a Minnesota public utility whose rates are regulated by the Commission. As a transmission-only utility, ATC's rates are regulated by the Federal Energy Regulatory Commission and the prices for providing transmission service are governed by the MISO tariff. The proposed Project, as part of the LRTP Tranche 2.1 portfolio, will have its costs allocated across the MISO footprint following MISO's MVP cost allocation process.[7] Information regarding the expected Project cost, the MVP allocation methodology, and the share that will be allocated to Minnesota utilities' load would be more useful in evaluating the Project, and as such, ATC will provide its relevant data as substitute information. Minnesota Power will provide its relevant data related to the Project's effects on its rates systemwide.

C. Minn. R. 7849.0260 A(3) and C(6) – Proposed LHVTL and Alternatives Application (Losses)

Minn. R. 7849.0260 A(3) requires the applicant to provide the expected losses "under maximum loading and under projected average loading in the length of the transmission

---

[5] Minn. R. 7849.0010, subp. 24.

[6] *See, e.g., In the Matter of Application of Xcel Energy and ITC Midwest, LLC for the Huntley-Wilmarth 345 kV Transmission Line Project*, Docket No. E002, E6675/CN-17-184, [Order on Exemption Request] (Sept. 1, 2017); *In the Matter of the Application of Prairie Rose Wind, LLC for Certificate of Need for up to 200 MW wind project in Rock and Pipestone Counties*, Docket No. IP6838/CN-10-80, ORDER APPROVING EXEMPTION PETITION (May 14, 2010); *In the Matter of the Application of Goodhue Wind for a Certificate of Need for a 78 MW Wind Project and Associated Facilities in Goodhue Cnty.*, ORDER FINDING APPLICATION COMPLETE AND INITIATING INFORMAL REVIEW PROCESS (Dec. 30, 2009).

[7] *MISO Open Access Transmission, Energy and Operating Reserve Market Tariff, Attachment FF* Section III.A.2.g.ii.

line and at the terminals or substations." Minn. R. 7849.0260 C(6) requires similar information (efficiency of proposed system under maximum and average loading along the length of the line). The electrical grid operates as a single, integrated system, which prevents electricity from being "directed" along a particular line or set of lines. Consequently, heat loss takes place across the entire transmission system and is not isolated to a single transmission line within the integrated regional electric grid. Therefore, losses should be calculated across the entire system rather than based on a single transmission line.

The Applicants request an exemption from Minn. R. 7849.0260 A(3) and C(6) and propose to provide system losses information in lieu of line-specific losses required by the rules. This approach is consistent with several prior exemption requests approved by the Commission in other Certificate of Need transmission line dockets.[8]

D. Minn. R. 7849.0260 D – System Map

Minn. R. 7849.0260 D requires a map showing the applicant's system or load center to be served by the proposed Project. Because a transmission-only company such as ATC does not directly serve load, ATC proposes to submit a map showing ATC's network of transmission lines in Minnesota and Wisconsin.

E. Minn. R. 7849.0260 B(4) – Transmission Lines with Different Terminals or Substations

Minnesota Rule 7849.0260 B(4) requires a discussion of "transmission lines with different terminals or substations." Likewise, section B(8) of that rule requires a discussion of "any reasonable combination of the alternatives" listed in, among others, section B(4). Minn. Stat. § 216B.243, subd. 3(6), however, states that "the commission must not require evaluation of alternative end points for a high-voltage transmission line qualifying as a large energy facility unless the alternative end points are (i) consistent with end points identified in a federally registered planning authority transmission plan, or (ii) otherwise agreed to for further evaluation by the applicant." The only end points identified in the MISO MTEP24 definition for the Project are those proposed by the Applicants, and the Applicants have not agreed to an evaluation of an alternative. Thus, the Applicants request an exemption consistent with Minn. Stat. § 216B.243, subd. 3(6).

[8] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021).

F. Minn. R. 7849.0270, subps. 1-6 – Peak Demand and Annual Consumption Forecast and System Revenue Requirements

1. Minn. R. 7849.0270, subp. 1 – Peak Demand and Annual Consumption Data

Minn. R. 7849.0270, subp. 1 requires information concerning peak demand, and annual consumption for the applicant's entire service area and system. The Project is intended to support the reliability of the regional transmission system, particularly in northern Minnesota and northwest Wisconsin, to provide additional transmission capacity and regional transfer capacity to reliably integrate new renewable generation, meet growing electrical demand across the region, and strengthen the regional transmission grid. The Applicants propose to provide Minnesota Power's most recent AFR filed on July 1, 2025 in Docket No. E999/PR-25-11. The Commission has previously granted similar requests for other transmission projects.[9]

2. Minn. R. 7849.0270, subps. 2(A) and 2(B) – Customer Annual Consumption Data

Minn. R. 7849.0270, subps. 2(A) and 2(B) requires an applicant to estimate the number of customers and the amount of energy consumed annually by nine classes of customers (residential, commercial, industrial, farming, etc.). Energy consumption data is not relevant to establishing the need for a proposed transmission line. Transmission systems must be sized so that they have sufficient capacity to operate reliably during periods of peak demand. It is the demand for power during peak times that is the primary driver for the Project, not the amount of power consumed annually. Accordingly, it would be appropriate for the Commission to exempt the Applicants from providing this data and accept substitute data in the form of Minnesota Power's most recent AFR. The Commission has previously granted similar exemption requests for other transmission projects.[10]

---

[9] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014).

[10] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014); I*n re Application of Great River Energy and Minnesota Power for a Certificate of Need for a 115 kV High Voltage Transmission Line in St. Louis and Carlton Counties*, Docket No. E015, ET2/CN-10-973, ORDER APPROVING EXEMPTIONS AND PROPOSED PROVISION OF ALTERNATIVE DATA (Nov. 2, 2010).

3. Minn. R. 7849.0270, subps. 2(C) and 2(D) – System Demand and Peak Demand

Minn. R. 7849.0270, subp. 2(C) seeks an estimate of the demand for power in the system at the time of annual system peak demand. Minn. R. 7849.0270, subp. 2(D) calls for monthly system peak demand data. Instead of the information called for in Minn. R. 7849.0270, subps. 2(C) and (D) that provides little insight into the specific transmission needs underlying the Project, the Applicants propose to provide Minnesota Power's AFR forecast information and discussion of the different regional demand scenarios evaluated in the analysis used by MISO to justify the Project.[11]

4. Minn. R. 7849.0270, subp. 2(E) – System Revenue Requirements

Minn. R. 7849.0270, subp. 2(E) requires an estimate of the "annual revenue requirement per kilowatt-hour for the system in current dollars." The Applicants propose to provide the general rate impact of the ISA Project on Minnesota Power's customers. The Commission has previously granted similar exemption requests for other transmission projects.[12]

5. Minn. R. 7849.0270, subp. 2(F) – Weekday Load Factor

Minn. R. 7849.0270, subp. 2(F) requires an applicant's average system weekday load factor for each month. The Applicants request an exemption from this requirement because load factor is not a relevant consideration when evaluating the need for a transmission facility. Load factor is a measure of how demand varies over time and is relevant to the need determination for new generation. Load factor has no bearing on the need for a new transmission line. Rather, transmission capacity must be designed to meet peak demand and other system power flow circumstances. This is done to ensure there is sufficient transmission capacity to meet lower levels of instantaneous demand. Thus,

[11] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014).

[12] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota,* Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014); I*n re Application of Great River Energy and Minnesota Power for a Certificate of Need for a 115 kV High Voltage Transmission Line in St. Louis and Carlton Counties*, Docket No. E015, ET2/CN-10-973, ORDER APPROVING EXEMPTION AND PROPOSED PROVISION OF ALTERNATIVE DATA (Nov. 2, 2010).

the Applicants respectfully request an exemption from this requirement. The Commission has previously granted similar exemption requests for other transmission projects.[13]

6. Minn. R. 7849.0270, subps. 3-6 – Forecast Methodology, Data Base, Assumptions, and Coordination of Forecasts

Minn. R. 7849.0270, subps. 3-6 require the applicant to detail the forecast methodology employed, identify the database used for the forecast, detail the assumptions made in preparing the forecasts provided under subpart 2 of the same rule, and a description of load forecast coordination efforts with other systems. As stated above, the need for the Project is not prompted by energy consumption, but rather by demand during peak times. Thus, instead of providing energy consumption forecasts, the Applicants believe that forecast information and discussion of the different regional demand scenarios evaluated in the analysis used by MISO to justify the Project will better enable the Commission to evaluate the need for this Project. The Applicants will provide Minnesota Power's most recent AFR. The AFR discusses forecast methodology, databases, forecast assumptions, and coordination of the forecasts with other systems. The Commission has previously granted similar exemption requests for other transmission projects.[14]

In sum, the Applicants request an exemption from the data requirements of Minn. R. 7849.0270, subps. 1-6 and will provide relevant AFR forecast information and discussion of the different regional demand scenarios evaluated in the analysis used by MISO in analyzing the need for the Project. This substitute information is better tailored to the need for the ISA Project and will assist the Commission in evaluating the Project.

G. Minn. R. 7849.0280 – System Capacity

Minn. R. 7849.0280 pertains to system capacity and generation data. The general purpose of this section is to provide a discussion of the ability of the existing system to meet the forecasted demand for electrical energy in response to Minn. R. 7849.0270.

---

[13] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014); I*n re Application of Great River Energy and Minnesota Power for a Certificate of Need for a 115 kV High Voltage Transmission Line in St. Louis and Carlton Counties*, Docket No. E015, ET2/CN-10-973, ORDER APPROVING EXEMPTIONS AND PROPOSED PROVISION OF ALTERNATIVE Data (Nov. 2, 2010).

[14] *See, e.g., In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Docket No. E015, ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND THE NOTICE PLAN (June 21, 2023); *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota,* Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014).

Subparts (A) through (I) pertain to an examination of generation adequacy and do not address transmission planning considerations. The Applicants therefore request that the Commission grant an exemption from Minn. R. 7849.0280, subps. (A) through (I). The Commission has previously granted exemption requests from part of Minn. R. 7849.0280 in several other transmission line Certificate of Need dockets where issues of transmission adequacy, rather than generation adequacy, were at issue.[15]

H. Minn. R. 7849.0290 – Conservation

a. Minnesota Power

The Applicants request an exemption from Minn. R. 7849.0290, which relates to conservation programs the Applicants have in place and their effect on the forecast information called for in Minn. R. 7849.0270. This rule is intended to ensure that regulated load serving utilities fully consider conservation as well as generation when planning for future needs of their customers.[16] Minnesota Power's conservation and efficiency information is examined in detail in its resource planning process. All of the information requested by Minn. R. 7849.0290 is contained, as applicable, in the Integrated Resource Plan and Conservation Improvement Plan ("CIP") filings filed by Minnesota Power with the Commission. Instead of replicating that information in this application, Minnesota Power proposes to present a summary of these filings. This will allow interested parties to pursue their investigation into this issue further through those materials if they wish. The Applicants will also provide information regarding how conservation and energy efficiency was considered by MISO in its evaluation of the Project. This request is consistent with prior exemptions the Commission has granted in other dockets.[17]

b. ATC

ATC requests a full exemption from Minn. R. 7849.0290 This rule is intended to ensure that regulated load serving utilities fully consider conservation as well as generation when

---

[15] *See, e.g., In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014); I*n re Application of Great River Energy and Minnesota Power for a Certificate of Need for a 115 kV High Voltage Transmission Line in St. Louis and Carlton Counties*, Docket No. E015, ET2/CN-10-973, ORDER APPROVING EXEMPTIONS AND PROPOSED PROVISION OF ALTERNATIVE DATA (Nov. 2, 2010).

[16] *In re Application of Rapids Power LLC for a Certificate of Need for its Grand Rapids Cogeneration Project,* Docket No. IP-4/CN-01-1306, ORDER GRANTING EXEMPTIONS FROM FILING REQUIREMENTS at 6 (Oct. 9, 2001).

[17] *See, e.g., In re Request of Minnesota Power for a Certificate of Need for the Great Northern Transmission Line,* Docket No. E015/CN-12-1163, ORDER APPROVING NOTICE PLAN, GRANTING VARIANCE REQUEST, AND APPROVING EXEMPTION REQUEST (Feb. 28, 2013); *In re Application of Northern States Power Company d/b/a Xcel Energy and Great River Energy for a Certificate of Need for the Upgrade of the Southwest Twin Cities (SWTC) Chaska Area 69 kV Transmission Line to 115 kV Capacity,* Docket No. E022/CN-11-826, ORDER GRANTING THE COMPANY'S EXEMPTION REQUEST (Nov. 4, 2011).

planning for future needs of their customers.[18] ATC does not have end-use customers and, therefore, cannot affect customers' energy consumption levels. This request is consistent with prior exemptions the Commission has granted in other dockets.[19]

I. Minn. R. 7849.0300 – Consequences of Delay and Minn. R. 7849.0340 – No Facility Alternative

Minn. R. 7849.0300 requires detailed information regarding the consequences of delay on three specific statistically-based levels of demand and energy consumption. Similarly, Minn. R. 7849.0340 requires a discussion of the impact on existing generation and transmission facilities at the three levels of demand specified in Minn. R. 7849.0300 for the no-build alternatives. While the Applicants will discuss the consequences of delay and a no build alternative in its application, there is no need to discuss these items in terms of three levels of demand. Rather, as noted above, for transmission planning purposes, the relevant inquiry is whether the system can meet peak demand. The Commission has approved similar partial exemption requests from the requirements of Minn. R. 7849.0300 and 7849.0340 in other transmission line Certificate of Need dockets.[20]

J. MEQB 800 MVA Limit

In its March 2001 order, the MEQB granted a permitting exemption to Minnesota Power for the construction of the Arrowhead – Weston 345 kV transmission line and the ATC Arrowhead 345 kV/230 kV Substation.[21] The MEQB included a condition that the ATC Arrowhead 345 kV/230 kV Substation could not be used to "transmit power . . . beyond 800 MVA."[22] While the permitting exemption was in the name of Minnesota Power when it was issued in 2001, the permissions and conditions were transferred to ATC in 2005 in

---

[18] *See, e.g., In the Matter of the Application of Rapids Power LLC for a Certificate of Need for its Grand Rapids Cogeneration Project*, Docket No. IP4/CN-01-1306, ORDER GRANTING EXEMPTIONS FROM FILING REQUIREMENTS, at 6 (Oct. 9, 2001).

[19] *See, e.g., In the Matter of Application of Xcel Energy and ITC Midwest, LLC for the Huntley-Wilmarth 345 kV Transmission Line Project*, Docket No. E002, E6675/CN-17-184, [Order on Exemption Request] (Sept. 1, 2017); *In the Matter of Application of ITC Midwest LLC for a Certificate of Need for the Minnesota-Iowa 345 kV Transmission Line Project in Jackson, Martin, and Faribault Cnties., Minnesota*, Docket No. ET6675/CN-12-1053, ORDER ON EXEMPTION REQUEST (Feb. 8, 2013).

[20] *See, e.g.*, *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.*, Docket No. E015/CN-21-140, ORDER APPROVING NOTICE PLAN AND GRANTING VARIANCES AND EXEMPTIONS (May 17, 2021); *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Docket No. E015/CN-14-787, ORDER APPROVING EXEMPTION REQUEST (Dec. 3, 2014); *In re Request of Minnesota Power for a Certificate of Need for the Great Northern Transmission Line*, Docket No. E015/CN-12-1163, ORDER APPROVING NOTICE PLAN, GRANTING VARIANCE REQUESTION AND APPROVING EXEMPTION REQUEST (Feb. 28, 2013); *In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy and Great River Energy for a Certificate of Need for the Upgrade of the Southwest Twin Cities (SWTC) Chaska Area 69 kV Transmission Line to 115 kV Capacity Docket No. E002/CN-11-826,* ORDER GRANTING THE COMPANY'S EXEMPTION REQUEST (Nov. 4, 2011).

[21] *See In the Matter of the Exemption Application by Minnesota Power for a 345/230 kV High Voltage Transmission Line Known as the Arrowhead Project*, MEQB Docket No. MP-HVTL-EA-1-99, Order at 8-9 (2001).

[22] *Id.*

Docket No. E015/PA-04-2020.[23] The Commission approved the transfer under the condition that "Minnesota Power shall file for Commission review all subsequent agreements between itself and ATC that affect the Arrowhead Project in any way."[24]

The ISA Project will change the configuration of the transmission system such that power flow through the ATC Arrowhead 345/230 kV Substation into Wisconsin will, at times, exceed 800 MVA. Therefore, the Applicants will need to request that the Commission remove the MEQB 800 MVA limit on power flow through the ATC Arrowhead 345/230 kV Substation. Because the information the Commission needs to evaluate the removal of the 800 MVA limit as a result of the Project will be provided with the Certificate of Need Application, the Applicants request that the 800 MVA issue be moved to and resolved in this docket, Docket No. E015/CN-25-111. The Applicants also recommend providing notice of the request to remove the 800 MVA issue via filing summary not only to the persons required under Minn. R. 7849 but also to the parties in Docket Nos. E015/AI-11-75 and E015/PA-04-2020.

V. CONCLUSION

The Applicants respectfully request that the Commission grant the requested exemptions to allow the Applicants to provide information in its application that is relevant and appropriate to determining the need for the ISA Project without imposing unnecessary filing burdens, and to efficiently address the 800 MVA limit in this docket.

[23] *See In the Matter of Minnesota Power's Petition for Review of an Agreement Between Minnesota Power and American Transmission Company*, Docket No. E015/M-04-2020, Order (Dec. 2, 2005).
[24] *In the Matter of Minnesota Power's Petition for Review of an Agreement Between Minnesota Power and American Transmission Company*, Docket No. E015/M-04-2020, Order at 9 (Dec. 2, 2005).

August 7, 2025

Respectfully submitted,

MINNESOTA POWER

/s/ Jackson J. Evans
Jackson J. Evans
FERC Counsel
30 West Superior Street
Duluth, MN 55802
jjevans@allete.com
(218) 723-3963

Kodi Jean Verhalen
Valerie T. Herring
Taft Stettinius & Hollister LLP
2200 IDS Center
80 South 8th Street
Minneapolis, MN 55402-2157
(612) 977-8400
kverhalen@taftlaw.com
vherring@taftlaw.com

AMERICAN TRANSMISSION COMPANY

/s/ Eric F. Swanson
Eric F. Swanson
Winthrop & Weinstine, P.A.
225 South 6th St
Minneapolis, MN 55402
(612) 604-6511
eswanson@winthrop.com

IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION PROJECT
CERTIFICATE OF NEED APPLICATION
COMPLETENESS CHECKLIST

Authority	Required Information	Location in Application
Minn. R. 7829.2500, subp. 2	Brief summary of filing on separate page sufficient to apprise potentially interested parties of its nature and general content	
Minn. R. 7849.0200, subp. 2	Title Page and Table of Contents	
Minn. R. 7849.0200, subp. 4	Cover Letter	
Minn. R. 7849.0220, subp. 3	Joint Ownership and Multiparty use	
Minn. R. 7849.0240	Need summary and additional considerations	
Subp. 1	Summary of the major factors that justify the need for the proposed facility	
Subp. 2	Relationship of the proposed facility to the following socioeconomic considerations:	
A.	Socially beneficial uses of the output of the facility	
B.	Promotional activities that may have given rise to the demand for the facility	EXEMPT as to ATC
C.	Effects of the facility in inducing future development	
Minn. R. 7849.0260	Proposed LHVTL and Alternatives	
A.	A description of the type and general location of the proposed line, including:	
(1)	Design voltage	
(2)	Number, sizes and types of conductors	

Authority	Required Information	Location in Application
(3)	Expected losses under projected maximum loading and under projected average loading in the length of the line and at terminals or substations	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA – Estimated overall system losses	
(4)	Approximate length of the proposed line	
(5)	Approximate locations of DC terminals or AC substations on a map	
(6)	List of likely affected counties	
B.	Discussion of the available alternatives including:	
(1)	New generation	
(2)	Upgrading existing transmission lines	
(3)	Transmission lines with different voltages or conductor arrays	
(4)	Transmission lines with different terminals or substations	EXEMPT
(5)	Double circuiting of existing transmission lines	
(6)	If facility for DC (AC) transmission, an AC (DC) transmission line	
(7)	If proposed facility is for overhead (underground) transmission, an underground (overhead) transmission line	
(8)	Any reasonable combination of alternatives (1) – (7)	EXEMPT
C.	For the facility and each for alternative in B, a discussion of:	
(1)	Total cost in current dollars	
(2)	Service life	
(3)	Estimated average annual availability	

Authority	Required Information	Location in Application
(4)	Estimated annual O&M costs in current dollars	
(5)	Estimate of its effect on rates system wide in Minnesota	EXEMPT as to ATC, provided alternative data is supplied
	ALTERNATIVE DATA (ATC) – Information regarding Project cost, MVP allocation methodology, and share allocated to Minnesota utilities.	
(6)	Efficiency expressed for a transmission facility as the estimated losses under projected maximum loading and under projected average loading in the length of the transmission line and at the terminals or substations	
(7)	Major assumptions made in subitems (1) – (6)	
D.	A map (of appropriate scale) showing the applicant's system or load center to be served by the proposed LHVTL	EXEMPT as to ATC, provided alternative map is supplied
	ALTERNATIVE DATA (ATC) – Map of ATC's network of transmission lines in Minnesota and Wisconsin.	
E.	Such other information about the proposed facility and each alternative as may be relevant to determination of need.	
Minn. R. 7849.0270	Content of Forecast	
Minn. R. 7849.0270, subp. 1	Peak demand and annual consumption data within the applicant's service area and system.	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA – Minnesota Power's most recent Annual Electric Utility Forecast Report	
Minn. R. 7849.0270, subp. 2	Minnesota forecast data; forecast demand data by customer class, peak period, and month; estimated system annual revenue per kilowatt hour; estimated average weekday system load factor by month.	EXEMPT except as noted below and provided alternative data is supplied

Authority	Required Information	Location in Application
	ALTERNATIVE DATA – Minnesota Power's most recent Annual Electric Utility Forecast Report	
	Subp. 2(E) – Alternative explanation of how wholesale electricity costs are spread and general financial effect on Minnesota Power's customers.	
Minn. R. 7849.0270, subp. 3	Detail of the forecast methodology used in subp. 2	EXEMPT provided alternative data is supplied
Minn. R. 7849.2070, subp. 4	Discussion of database used in current forecasting.	EXEMPT provided alternative data is supplied
Minn. R. 7849.0270, subp. 5	Discussion of each essential assumption made in forecast preparation and sensitivity to variations in assumptions.	EXEMPT provided alternative data is supplied
Minn. R. 7849.0270, subp. 6	Coordination of forecasts.	EXEMPT provided alternative data is supplied
	ALTERNATIVE DATA FOR SUBPS. 3-6 – Minnesota Power's most recent Annual Electric Utility Forecast Report and any forecast information used in analyzing the need for the Project.	
Minn. R. 7849.0280	System Capacity	
	Description of ability of existing system to meet demand forecast including:	
A.	Power planning programs	EXEMPT
B.	Seasonal firm purchases and sales	EXEMPT
C.	Seasonal participation purchases and sales	EXEMPT
D.	Load and generation capacity data request in subitems 1-13 for summer and winter seasons for each forecast year, including anticipated purchases, sales, and capacity retirements and additions except those that depend on a not yet issued certificate of need.	EXEMPT

Authority	Required Information	Location in Application
E.	Summer and winter season load generation and capacity in years subsequent to application contingent on proposed facility	EXEMPT
F.	Summer and winter season load generation and capacity including all projected purchases, sales and generation in years subsequent to application	EXEMPT
G.	List of proposed additions and retirements in generating capacity for each forecast year subsequent to application	EXEMPT
H.	Graph of monthly adjusted net demand and capability with difference between capability and maintenance outages plotted	EXEMPT
I.	Appropriateness and method of determining system reserve margins	EXEMPT
Minn. R. 7849.0290	Conservation Programs	
A.	Persons responsible for energy conservation and efficiency programs	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
B.	List of energy conservation and efficiency goals and objectives	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
C.	Description of programs considered, implemented and rejected	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied

Authority	Required Information	Location in Application
D.	Description of major accomplishments in conservation and efficiency	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
E.	Description of future plans with respect to conservation and efficiency	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
F.	Quantification of the manner by which these programs impact the forecast	EXEMPT as to ATC EXEMPT as to Minnesota Power, provided alternative data is supplied
	ALTERNATIVE DATA FOR A-F – Minnesota Power will provide a summary of its most recent Integrated Resource Plan and Conservation Improvement Program filings.	
Minn. R. 7849.0300	Consequence of Delay	EXEMPT from three levels of demand
Minn. R. 7849.0310	Required Environmental Information	
Minn. R. 7849.0330	Transmission Facilities	
	Data for each alternative that would require LHVTL construction including:	
A.	For overhead transmission lines	
(1)	Schematics showing dimensions of support structures	
(2)	Discussion of electric fields	
(3)	Discussion of ozone and nitrogen oxide emissions	
(4)	Discussion of radio and television interference	

Authority	Required Information	Location in Application
(5)	Discussion of audible noise	
B.	For underground transmission facilities:	N/A
(1)	Types and dimensions of cable systems	N/A
(2)	Types and qualities of cable system materials	N/A
(3)	Heat released in kW per foot of cable	N/A
C.	Estimated right-of-way required for the facility	
D.	Description of construction practices	
E.	Description of O&M practices	
F.	Estimated workforce required for construction and O&M	
G.	Description of region between endpoints in likely area for routes emphasizing a three mile radius of endpoints including:	
(1)	Hydrological features	
(2)	Vegetation and wildfire	
(3)	Physiographic regions	
(4)	Land use types	
Minn. R. 7849.0340	No-Facility Alternative	EXEMPT from three levels of demand

IN THE MATTER OF THE APPLICATION FOR A CERTIFICATE OF NEED FOR THE IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION LINE PROJECT.

Docket No. E015/CN-25-111

CERTIFICATE OF SERVICE

Gustav Gerhardson certifies that on the 7th day of August, 2025, on behalf of Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc., he efiled a true and correct copy of the **Request for Exemptions for Certain Certificate of Need Application Content Requirements** by posting the same on eDockets. Said filing is also served as designated on the attached Service List on file with the Minnesota Public Utilities Commission in the above-referenced docket number.

/s/ Gustav Gerhardson
Gustav Gerhardson

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	Michael	Ahern	ahern.michael@dorsey.com	Dorsey & Whitney, LLP		50 S 6th St Ste 1500 Minneapolis MN, 55402-1498 United States	Electronic Service		No	CN-25-111
2	Kristine	Anderson	kanderson@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Lane PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
3	Matthew	Brodin	mbrodin@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
4	Mike	Bull	mike.bull@state.mn.us		Public Utilities Commission	121 7th Place East, Suite 350 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
5	James	Canaday	james.canaday@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Suite 1400 445 Minnesota St. St. Paul MN, 55101 United States	Electronic Service		No	CN-25-111
6	Cody	Chilson	cchilson@greatermngas.com	Greater Minnesota Gas, Inc. & Greater MN Transmission, LLC		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
7	Ray	Choquette	rchoquette@agp.com	Ag Processing Inc.		12700 West Dodge Road PO Box 2047 Omaha NE, 68103-2047 United States	Electronic Service		No	CN-25-111
8	John	Coffman	john@johncoffman.net	AARP		871 Tuxedo Blvd. St, Louis MO, 63119-2044 United States	Electronic Service		No	CN-25-111
9	Generic	Commerce Attorneys	commerce.attorneys@ag.state.mn.us		Office of the Attorney General - Department of Commerce	445 Minnesota Street Suite 1400 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
10	Hillary	Creurer	hcreurer@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
11	George	Crocker	gwillc@nawo.org	North American Water Office		5093 Keats Avenue Lake Elmo MN, 55042 United States	Electronic Service		No	CN-25-111
12	Jackson	Evans	jjevans@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
13	John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance		2720 E. 22nd St Institute for Local Self-	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						Reliance Minneapolis MN, 55406 United States				
14	Eric	Fehlhaber	efehlhaber@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
15	Sharon	Ferguson	sharon.ferguson@state.mn.us		Department of Commerce	85 7th Place E Ste 280 Saint Paul MN, 55101-2198 United States	Electronic Service		No	CN-25-111
16	Daryll	Fuentes	energy@usg.com	USG Corporation		550 W Adams St Chicago IL, 60661 United States	Electronic Service		No	CN-25-111
17	Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP		Suite 1750 220 South Sixth Street Minneapolis MN, 55402-1425 United States	Electronic Service		No	CN-25-111
18	Daniel	Gunderson	dgunderson@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
19	Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
20	Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors		413 Wacouta Street #230 St.Paul MN, 55101 United States	Electronic Service		No	CN-25-111
21	Corey	Hintz	chintz@dakotaelectric.com	Dakota Electric Association		4300 220th Street Farmington MN, 55024-9583 United States	Electronic Service		No	CN-25-111
22	Michael	Hoppe	lu23@ibew23.org	Local Union 23, I.B.E.W.		445 Etna Street Ste. 61 St. Paul MN, 55106 United States	Electronic Service		No	CN-25-111
23	Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
24	Travis	Jacobson	travis.jacobson@mdu.com	Great Plains Natural Gas Company		400 N 4th St Bismarck ND, 58501 United States	Electronic Service		No	CN-25-111
25	Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law		2950 Yellowtail Ave. Marathon FL, 33050 United States	Electronic Service		No	CN-25-111
26	Richard	Johnson	rick.johnson@lawmoss.com	Moss & Barnett		150 S. 5th Street Suite 1200	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						Minneapolis MN, 55402 United States				
27	Sarah	Johnson Phillips	sjphillips@stoel.com	Stoel Rives LLP		33 South Sixth Street Suite 4200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
28	Nick	Kaneski	nick.kaneski@enbridge.com	Enbridge Energy Company, Inc.		11 East Superior St Ste 125 Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
29	Michael	Krikava	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S 8th St Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
30	Nicolle	Kupser	nkupser@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
31	James D.	Larson	james.larson@avantenergy.com	Avant Energy Services		220 S 6th St Ste 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
32	Peder	Larson	plarson@larkinhoffman.com	Larkin Hoffman Daly & Lindgren, Ltd.		8300 Norman Center Drive Suite 1000 Bloomington MN, 55437 United States	Electronic Service		No	CN-25-111
33	Eric	Lipman	eric.lipman@state.mn.us		Office of Administrative Hearings	PO Box 64620 St. Paul MN, 55164-0620 United States	Electronic Service		No	CN-25-111
34	Susan	Ludwig	sludwig@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
35	Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting, LLC		961 N Lost Woods Rd Oconomowoc WI, 53066 United States	Electronic Service		No	CN-25-111
36	Joseph	Meyer	joseph.meyer@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Bremer Tower, Suite 1400 445 Minnesota Street St Paul MN, 55101-2131 United States	Electronic Service		No	CN-25-111
37	Stacy	Miller	stacy.miller@minneapolismn.gov	City of Minneapolis		350 S. 5th Street Room M 301 Minneapolis MN, 55415 United States	Electronic Service		No	CN-25-111
38	David	Moeller	dmoeller@allete.com	Minnesota Power			Electronic Service		No	CN-25-111
39	Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP		33 South Sixth St Ste 4200	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						Minneapolis MN, 55402 United States				
40	David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
41	Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company		200 1st Street SE PO Box 351 Cedar Rapids IA, 52406-0351 United States	Electronic Service		No	CN-25-111
42	Ellen	Nowak	ellen.nowak@wisconsin.gov	Public Service Commission of Wisconsin		4822 Madison Yards Way Madison WI, 53707 United States	Electronic Service		No	CN-25-111
43	Matthew	Olsen	molsen@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
44	Carol A.	Overland	overland@legalectric.org	Legalectric - Overland Law Office		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	CN-25-111
45	Greg	Palmer	gpalmer@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
46	Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
47	Catherine	Phillips	catherine.phillips@wecenergygroup.com	Minnesota Energy Resources		231 West Michigan St Milwaukee WI, 53203 United States	Electronic Service		No	CN-25-111
48	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		Yes	CN-25-111
49	Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy		26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States	Electronic Service		No	CN-25-111
50	Susan	Romans	sromans@allete.com	Minnesota Power		30 West Superior Street Legal Dept Duulth MN, 55802 United States	Electronic Service		No	CN-25-111
51	Elizabeth	Schmiesing	eschmiesing@winthrop.com	Winthrop & Weinstine, P.A.		225 South Sixth Street Suite 3500 Minneapolis	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						MN, 55402 United States				
52	Christine	Schwartz	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall, MN1180-07-MCA Minneapolis MN, 55401-1993 United States	Electronic Service		No	CN-25-111
53	Ken	Smith	ken.smith@districtenergy.com	District Energy St. Paul Inc.		76 W Kellogg Blvd St. Paul MN, 55102 United States	Electronic Service		No	CN-25-111
54	Peggy	Sorum	peggy.sorum@centerpointenergy.com	CenterPoint Energy		505 Nicollet Mall Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
55	Byron E.	Starns	byron.starns@stinson.com	STINSON LLP		50 S 6th St Ste 2600 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
56	Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 South 8th Street Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
57	Cary	Stephenson	cstephenson@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
58	James M	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered		150 S 5th St Ste 700 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
59	Stuart	Tommerdahl	stommerdahl@otpco.com	Otter Tail Power Company		215 S Cascade St PO Box 496 Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
60	Joseph	Windler	jwindler@winthrop.com	Winthrop & Weinstine		225 South Sixth Street, Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
61	Kurt	Zimmerman	kwz@ibew160.org	Local Union #160, IBEW		2909 Anthony Ln St Anthony Village MN, 55418-3238 United States	Electronic Service		No	CN-25-111
62	Patrick	Zomer	pat.zomer@lawmoss.com	Moss & Barnett PA		150 S 5th St #1200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

30 West Superior Street, Duluth, MN 55802
218.864.6059 | www.mnpower.com

P.O. Box 47, Waukesha, WI 53187-0047
866.899.3204 | www.atcllc.com

September 16, 2025

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

Via E-Filing

Re: Reply Comments of Minnesota Power and American Transmission Company LLC – Exemption Request
Docket No. E015/CN-25-111

Dear Ms. Bergman:

Minnesota Power and American Transmission Company LLC by and through its corporate manager ATC Management Inc. ("ATC") (collectively the "Applicants") respectfully submit these Reply Comments to the Initial Comments filed by the Minnesota Department of Commerce, Division of Energy Resources ("Department") and No CapX 2020 and World Organization for Landowner Freedom (collectively, "No CapX") on the Applicants' Exemption Request for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project ("Project").

Department Comments on the Exemption Request

In its Comments on the Exemption Request, the Department recommended approval of the Applicants' proposed exemptions from certain data requirements for Certificate of Need applications, with one modification.[1] Specifically, regarding the Applicants' requested exemption from data required by Minn. R. 7849.0280, the Department recommended that the Commission modify the requested exemption and approve only the requested exemption to Minn. R. 7849.0280, Subps. (B) through (I).[2]

The Applicants appreciate the Department's review. In light of the Department's recommendation, the Applicants modify their request to be exempt from 7849.0280, Subp. (A) and, instead, request that they be allowed to provide alternative data. Minnesota Power proposes to provide a copy of Minnesota Power's Annual Forecast

[1] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, Comments of the Minnesota Department of Commerce (August 27, 2025) (eDocket No. 20258-222450-02).
[2] *Id.* at 7 and 10.

Report ("AFR"). The Commission has previously approved the use of AFRs as substitute information for Minn. R. 7849.0280, Subp. (A).[3] Minnesota Power's AFR will specify its short- and long-term energy demand forecasts and the facilities necessary to meet the demand. ATC proposes to provide load forecast information from its most recent 10-year assessment.[4] The Applicants will also discuss other forecast information used by the Applicants or the Midcontinent Independent System Operator, Inc. ("MISO") in analyzing the need for the Project in the Certificate of Need Application.

No CapX Comments on Applicants' Request for Exemptions

No CapX takes issue with the fact that the Applicants cite as support for their exemption requests the Commission has previously granted such exemption requests in other dockets.[5] First, this is not the only rationale put forth by the Applicants to support these exemption requests. For each exemption request, the Applicants explained why the data required by the rule is unnecessary to determining the need for the Project or would be better satisfied by providing alternative data.[6] Applicants noted that these exemption requests had been granted by the Commission for previous projects to highlight that each of the exemptions have been carefully considered by both the Commission and the Department and both have concluded that full exemptions are appropriate or substitute information is sufficient for purposes of evaluating the need for a high-voltage transmission line project. Finally, No CapX seems to allege that the Applicants are requesting certain exemptions to rely solely on MISO's need analysis to support the need for the Project. This is not the case. The rules that set forth Certificate of Need Application requirements were promulgated at a time when transmission planning was undertaken at the utility level. The Project, instead, is a regional project that has been analyzed by utilities and MISO in great detail. The Applicants are not requesting any of these exemptions on the premise that the authority to analyze the need for a project should be done solely by MISO; instead, the exemptions are requested to ensure that the information provided for the Project are reflective of the Project purpose and need to allow for the Department, the Commission, and other interested persons to complete the full need analysis under Minnesota law.

The Applicants respectfully request that the Commission reject each of No CapX's recommendations with respect to the requested exemptions and grant the Applicants' requested exemptions.

---

[3] *In the Matter of the Application for a Certificate of Need for the 345 kV Northland Reliability Transmission Line Project*, Docket No. E015,ET2/CN-22-416, ORDER APPROVING THE REQUESTED EXEMPTIONS AND NOTICE PLAN at 1 and 8 (June 21, 2023) (eDocket No. 20236-196704-01).
[4] The 2023 information is available on ATC's website at https://www.atc10yearplan.com/about/planning-methodology-and-assumptions/. The Applicants anticipate that this will be updated to the 2024 information by the time the Application is filed.
[5] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, Comments of No CapX at 2-5 (August 27, 2025) (eDocket No. 20258-222486-01).
[6] Minn. R. 7849.0200, subp. 6.

No CapX Comments on Additional Notice Related to the 800 MVA Limitation

No CapX objects to the scope of notice related to the 800 MVA threshold and requests that additional notice lists be served with the filing summary of the Certificate of Need in this proceeding including on dockets E015/CN-22-607, E015/TL-22-611, and MP-HVTL-EA-1-99.[7] First, notice of filing of a Certificate of Need Application must be provided to the Department, the Office of the Attorney General, those persons on the applicable general service list, and those persons who were parties to the utility's last rate case or incentive plan proceeding.[8] The Applicants are proposing to expand the scope of notice to include those persons who are on the service lists maintained for the Commission Dockets that relate to the use and ownership of the particular piece of equipment on which the 800 MVA limitation has been placed.[9]

No CapX's recommendation to provide notice to the Minnesota Environmental Quality Board Docket MP-HVTL-EA-1-99 would not be prudent given that this list is no longer maintained and any information on that service list would be more than 20 years old. However, records show that the parties to that proceeding were the Department of Commerce, the North American Water Office, the World Organization for Landowners Freedom, and Save Our Unique Lands. These parties are already included in the Commission's currently-maintained service list for Commission Docket No. E015/PA-04-2020, which the Applicants have proposed to notify of the filing of the Certificate of Need for this Project by providing a copy of the filing summary.

As to Commission Docket Nos. E015/CN-22-607 and E015/TL-22-611, while the 800 MVA limitation was raised over the course of that proceeding, it was in the context that the parties who would be interested in that issue were not parties to that docket and, therefore, no changes should be made to the 800 MVA limitation on the ATC Arrowhead 345 kV Substation transformer. Further, the rules do not contemplate providing notice of a Certificate of Need Application to a high-voltage transmission line routing docket, such as E015/TL-22-611. As a result, there is no need to include these parties in the required notices for this Project.

The Applicants respectfully request that they not be required to serve the summary of filing on the additional dockets identified by No CapX.

[7] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Docket No. E015/CN-25-111, Comments of No CapX (August 27, 2025) (eDocket No. 20258-222486-01).
[8] Minn. R. 7829.2500, Subps. 2-3.
[9] These are Docket Nos. E015/PA-04-2020 and E015/AI-11-75.

Conclusion

If you have questions or need additional information, please contact Jackson Evans, Minnesota Power's legal counsel at jjevans@allete.com or 612.516.0682, or Eric Swanson, ATC's legal counsel at eswanson@winthrop.com or 612.604.6511.

Sincerely,

/s/ Jackson Evans
Jackson J. Evans
Minnesota Power
FERC Counsel

/s/ Eric F. Swanson
Eric F. Swanson
Winthrop & Weinstine, P.A.
Counsel for ATC

cc: Service List

COMMERCE DEPARTMENT

October 3, 2025

Sasha Bergman
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: Comments of the Minnesota Department of Commerce
Docket No. E015/CN-25-111

Dear Ms. Bergman,

The Department's comment in this matter recommended that the exemption request to the data required by Minn. R. 7849.0280 be limited to subparts (B) through (I) only; data should be provided regarding subpart (A)—a brief discussion of power planning programs.[1] In reply comments Minnesota Power (MP) and American Transmission Company LLC (ATC) agreed with the Department's recommendation and proposed to provide what they consider to be alternative data for subpart (A). MP proposes to provide MP's Annual Forecast Report; ATC proposes to provide load forecast information from its most recent 10-year assessment; and the applicants will also discuss data used by the Midcontinent Independent System Operator, Inc.[2]

The Department concludes that the data proposed by MP and ATC regarding Minn. R. 7849.0280 A is reasonable. The Department considers this issue to have been resolved and the Department's recommendations remain as stated in the Department's initial comments except as follows:

- *C.7. The Department recommends the Commission ~~modify the requested exemption and~~ approve the requested exemption to Minn. R. 7849.0280, subps. (B) through (I) ~~only~~ and approve the proposed alternative data regarding supb. (A).*

Sincerely,

/s/ Dr. SYDNIE LIEB
Assistant Commissioner of Regulatory Analysis

SR/ar

[1] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Department, Comment, August 27, 2025, Docket No. E015/CN-25-111, (eDockets), 20258-222450-02 at 7.
[2] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, MP and ATC, Reply Comment, September 16, 2025, Docket No. E015/CN-25-111, (eDockets), 20259-223087-01 at 1-2.

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Letter

Docket No. E015/CN-25-111

Dated this **6th** day of **October 2025**

/s/Sharon Ferguson

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	Michael	Ahern	ahern.michael@dorsey.com	Dorsey & Whitney, LLP		50 S 6th St Ste 1500 Minneapolis MN, 55402-1498 United States	Electronic Service		No	CN-25-111
2	Kristine	Anderson	kanderson@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Lane PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
3	Sasha	Bergman	sasha.bergman@state.mn.us		Public Utilities Commission		Electronic Service		Yes	CN-25-111
4	Matthew	Brodin	mbrodin@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
5	Mike	Bull	mike.bull@state.mn.us		Public Utilities Commission	121 7th Place East, Suite 350 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
6	James	Canaday	james.canaday@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Suite 1400 445 Minnesota St. St. Paul MN, 55101 United States	Electronic Service		No	CN-25-111
7	Christopher	Cerny	ccerny@winthrop.com	Winthrop & Weinstine, P.A.			Electronic Service		No	CN-25-111
8	Cody	Chilson	cchilson@greatermngas.com	Greater Minnesota Gas, Inc. & Greater MN Transmission, LLC		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
9	Ray	Choquette	rchoquette@agp.com	Ag Processing Inc.		12700 West Dodge Road PO Box 2047 Omaha NE, 68103-2047 United States	Electronic Service		No	CN-25-111
10	John	Coffman	john@johncoffman.net	AARP		871 Tuxedo Blvd. St, Louis MO, 63119-2044 United States	Electronic Service		No	CN-25-111
11	Generic	Commerce Attorneys	commerce.attorneys@ag.state.mn.us		Office of the Attorney General - Department of Commerce	445 Minnesota Street Suite 1400 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
12	Hillary	Creurer	hcreurer@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
13	George	Crocker	gwillc@nawo.org	North American Water Office		5093 Keats Avenue Lake Elmo MN, 55042 United States	Electronic Service		No	CN-25-111
14	Jackson	Evans	jjevans@allete.com	Minnesota Power		30 West Superior Street Duluth MN,	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						55802 United States				
15	John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance		2720 E. 22nd St Institute for Local Self-Reliance Minneapolis MN, 55406 United States	Electronic Service		No	CN-25-111
16	Eric	Fehlhaber	efehlhaber@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
17	Sharon	Ferguson	sharon.ferguson@state.mn.us		Department of Commerce	85 7th Place E Ste 280 Saint Paul MN, 55101-2198 United States	Electronic Service		No	CN-25-111
18	Daryll	Fuentes	energy@usg.com	USG Corporation		550 W Adams St Chicago IL, 60661 United States	Electronic Service		No	CN-25-111
19	Zachary	Golkowski	zgolkowski@mnpower.com	Minnesota Power		30 W. Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
20	Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP		Suite 1750 220 South Sixth Street Minneapolis MN, 55402-1425 United States	Electronic Service		No	CN-25-111
21	Daniel	Gunderson	dgunderson@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
22	Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
23	Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors		413 Wacouta Street #230 St.Paul MN, 55101 United States	Electronic Service		No	CN-25-111
24	Valerie	Herring	vherring@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S. Eighth Street Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
25	Corey	Hintz	chintz@dakotaelectric.com	Dakota Electric Association		4300 220th Street Farmington MN, 55024-9583 United States	Electronic Service		No	CN-25-111
26	Michael	Hoppe	lu23@ibew23.org	Local Union 23, I.B.E.W.		445 Etna Street Ste. 61 St. Paul MN, 55106 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
27	Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
28	Travis	Jacobson	travis.jacobson@mdu.com	Great Plains Natural Gas Company		400 N 4th St Bismarck ND, 58501 United States	Electronic Service		No	CN-25-111
29	Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law		2950 Yellowtail Ave. Marathon FL, 33050 United States	Electronic Service		No	CN-25-111
30	Richard	Johnson	rick.johnson@lawmoss.com	Moss & Barnett		150 S. 5th Street Suite 1200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
31	Sarah	Johnson Phillips	sjphillips@stoel.com	Stoel Rives LLP		33 South Sixth Street Suite 4200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
32	Nick	Kaneski	nick.kaneski@enbridge.com	Enbridge Energy Company, Inc.		11 East Superior St Ste 125 Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
33	Michael	Krikava	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S 8th St Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
34	Nicolle	Kupser	nkupser@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
35	James D.	Larson	james.larson@avantenergy.com	Avant Energy Services		220 S 6th St Ste 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
36	Peder	Larson	plarson@larkinhoffman.com	Larkin Hoffman Daly & Lindgren, Ltd.		8300 Norman Center Drive Suite 1000 Bloomington MN, 55437 United States	Electronic Service		No	CN-25-111
37	Eric	Lipman	eric.lipman@state.mn.us		Office of Administrative Hearings	PO Box 64620 St. Paul MN, 55164-0620 United States	Electronic Service		No	CN-25-111
38	Susan	Ludwig	sludwig@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
39	Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting, LLC		961 N Lost Woods Rd Oconomowoc WI, 53066 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
40	Christine	Marquis	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall MN1180-07-MCA Minneapolis MN, 55401 United States	Electronic Service		No	CN-25-111
41	Joseph	Meyer	joseph.meyer@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Bremer Tower, Suite 1400 445 Minnesota Street St Paul MN, 55101-2131 United States	Electronic Service		No	CN-25-111
42	Stacy	Miller	stacy.miller@minneapolismn.gov	City of Minneapolis		350 S. 5th Street Room M 301 Minneapolis MN, 55415 United States	Electronic Service		No	CN-25-111
43	David	Moeller	dmoeller@allete.com	Minnesota Power			Electronic Service		No	CN-25-111
44	Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP		33 South Sixth St Ste 4200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
45	David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
46	Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company		200 1st Street SE PO Box 351 Cedar Rapids IA, 52406-0351 United States	Electronic Service		No	CN-25-111
47	Ellen	Nowak	ellen.nowak@wisconsin.gov	Public Service Commission of Wisconsin		4822 Madison Yards Way Madison WI, 53707 United States	Electronic Service		No	CN-25-111
48	Matthew	Olsen	molsen@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
49	Carol A.	Overland	overland@legalectric.org	Legalectric - Overland Law Office		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	CN-25-111
50	Greg	Palmer	gpalmer@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
51	Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
52	Catherine	Phillips	catherine.phillips@wecenergygroup.com	Minnesota Energy		231 West Michigan St	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
				Resources		Milwaukee WI, 53203 United States				
53	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		Yes	CN-25-111
54	Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy		26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States	Electronic Service		No	CN-25-111
55	Susan	Romans	sromans@allete.com	Minnesota Power		30 West Superior Street Legal Dept Duulth MN, 55802 United States	Electronic Service		No	CN-25-111
56	John	Sagone	jsagone@atcllc.com	American Transmission Company		W234 N2000 Ridgeview Pkwy Ct. Waukesha WI, 53188 United States	Electronic Service		No	CN-25-111
57	Elizabeth	Schmiesing	eschmiesing@winthrop.com	Winthrop & Weinstine, P.A.		225 South Sixth Street Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
58	Ken	Smith	ken.smith@districtenergy.com	District Energy St. Paul Inc.		76 W Kellogg Blvd St. Paul MN, 55102 United States	Electronic Service		No	CN-25-111
59	Peggy	Sorum	peggy.sorum@centerpointenergy.com	CenterPoint Energy		505 Nicollet Mall Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
60	Byron E.	Starns	byron.starns@stinson.com	STINSON LLP		50 S 6th St Ste 2600 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
61	Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 South 8th Street Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
62	Cary	Stephenson	cstephenson@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
63	Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine, P.A.		225 6th St Ste 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
64	Stuart	Tommerdahl	stommerdahl@otpco.com	Otter Tail Power Company		215 S Cascade St PO Box 496 Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
65	Kodi	Verhalen	kverhalen@taftlaw.com	Taft Stettinius & Hollister LLP		80 S 8th St Ste 2200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
66	Joseph	Windler	jwindler@winthrop.com	Winthrop & Weinstine		225 South Sixth Street, Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
67	Kurt	Zimmerman	kwz@ibew160.org	Local Union #160, IBEW		2909 Anthony Ln St Anthony Village MN, 55418-3238 United States	Electronic Service		No	CN-25-111
68	Patrick	Zomer	pat.zomer@lawmoss.com	Moss & Barnett PA		150 S 5th St #1200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	David	Bell	david.bell@state.mn.us		Department of Health	POB 64975 St. Paul MN, 55164 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
2	Water Programs	Coordinator	waterprograms.bwsr@state.mn.us		Minnesota Board of Water and Soil Resources	520 Lafayette Road N St. Paul MN, 55155 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
3	Randall	Doneen	randall.doneen@state.mn.us		Department of Natural Resources	500 Lafayette Rd, PO Box 25 Saint Paul MN, 55155 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
4	Kate	Fairman	kate.fairman@state.mn.us		Department of Natural Resources	Box 32 500 Lafayette Rd St. Paul MN, 55155-4032 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
5	Annie	Felix Gerth	annie.felix-gerth@state.mn.us			Board of Water & Soil Resources 520 Lafayette Rd Saint Paul MN, 55155 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
6	Kari	Howe	kari.howe@state.mn.us		DEED	332 Minnesota St, #E200 1ST National Bank Bldg St. Paul MN, 55101 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
7	Dean	Hunter	dean.hunter@state.mn.us		Minnesota Department of Labor & Industry	443 Lafayette Rd N St. Paul MN, 55155-4341 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
8	Raymond	Kirsch	raymond.kirsch@state.mn.us		Department of Commerce	85 7th Place E Ste 500 St. Paul MN, 55101 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
9	Chad	Konickson	chad.konickson@usace.army.mil	U.S.Army Corps of Engineers		332 Minnesota St. Suite E1500 Saint Paul MN, 55101 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
10	Stacy	Kotch Egstad	stacy.kotch@state.mn.us		MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd. St. Paul MN, 55155 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
11	Dawn S	Marsh	dawn_marsh@fws.gov	U.S. Fish & Wildlife Service		Minnesota-Wisconsin Field Offices 4101 American Blvd E Bloomington MN, 55425 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
12	Stephan	Roos	stephan.roos@state.mn.us		Minnesota Department of Agriculture	625 Robert St N Saint Paul MN, 55155-2538 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
13	Jayme	Trusty	execdir@swrdc.org	SWRDC		2401 Broadway Ave #1 Slayton MN, 56172 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
14	Jen	Tyler	tyler.jennifer@epa.gov	US Environmental Protection Agency		Environmental Planning & Evaluation Unit 77 W Jackson Blvd. Mailstop B-19J Chicago IL, 60604-3590 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
15	Cynthia	Warzecha	cynthia.warzecha@state.mn.us	Minnesota Department of Natural Resources		500 Lafayette Road Box 25 St. Paul MN, 55155-4040 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
16	Alan	Whipple	sa.property@state.mn.us		Minnesota Department Of Revenue	Property Tax Division 600 N. Robert Street St. Paul MN, 55146-3340 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS
17	Jonathan	Wolfgram	jonathan.wolfgram@state.mn.us		Office of Pipeline Safety	445 Minnesota St Ste 147 Woodbury MN, 55125 United States	Electronic Service		No	CN - CERTIFICATE OF NEEDS

APPENDIX C

IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION LINE PROJECT

COMMISSION ORDER ON EXEMPTION REQUEST AND NOTICE PLAN PETITION

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 Iron Range - St. Louis County - Arrowhead 345 kV Transmission Line Project	SERVICE DATE: November 18, 2025 DOCKET NO. E-015/CN-25-111

The above-entitled matter was considered by the Commission on October 30, 2025, and the following disposition made:

1. **Approved the proposed notice plan.**

2. **Delegated authority to the Executive Secretary to review and approve the updated project notice area map.**

3. **Granted a variance from the newspaper notice requirement in Minn. R. 7829.2500, subp. 5.**

4. **Granted a variance from the 30-day implementation of the notice plan in Minn. R., 7829.2550, subp. 6. and required the Applicants to issue the notices no more than 90 days and no less than two weeks prior to the filing of the certificate of need application.**

5. **Granted the requested exemptions from Minnesota R. ch. 7849 as described in the Applicants' August 7, 2025 filing, with the exemption to Minn. R. 7849.0280 as proposed by the Applicants in their September 16, 2025 reply comments requiring them to provide the alternative data regarding subp. (A).**

6. **Required the applicants to reevaluate the 800 MVA limit on the Arrowhead Substation in this docket. Required Applicants to provide notice via a filing summary not only to the persons required under Minn. R. ch. 7849 but also to the parties in Docket Nos. E-015/AI-11-75 and E-015/PA-04-2020.**

The Commission agrees with and adopts the recommendations of the Department of Commerce, which are attached and hereby incorporated into the Order. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Sasha Bergman
Executive Secretary

To request this document in another format such as large print or audio, call 651.296.0406 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

COMMERCE DEPARTMENT

August 27, 2025

Mike Bull
Interim Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: Comments of the Minnesota Department of Commerce
Docket No. E015/CN-25-111

Dear Mr. Bull:
Attached are the comments of the Minnesota Department of Commerce (Department) in the following matter:

> *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project: Notice Plan Petition.*

The Petition was filed by ALLETE, Inc. d/b/a Minnesota Power and American Transmission Company LLC on August 7, 2025.

The Department recommends **approval** and is available to answer any questions the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ Dr. SYDNIE LIEB
Assistant Commissioner of Regulatory Analysis

SR/ar
Attachment

Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce

Docket No. E015/CN-25-111

I. INTRODUCTION

ALLETE, Inc. d/b/a Minnesota Power (MP) and American Transmission Company LLC by and through its corporate manager ATC Management Inc. (ATC) (collectively, the Applicants) submitted a notice plan petition for approval by the Minnesota Public Utilities Commission (Commission) pursuant to Minn. R. 7829.2550.[1] The Notice Petition is intended to provide notice to all persons reasonably likely to be affected by the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project (ISA Project). The Applicants intend to submit a combined application for a Certificate of Need and a Route Permit to construct and maintain the ISA Project pursuant to Minn. Stat. §§ 216B.243 and 216I.05 in the fourth quarter of 2025.

The proposed ISA Project was studied, reviewed, and approved by the Midcontinent Independent System Operator, Inc. (MISO) as part of its Long-Range Transmission Planning (LRTP) Tranche 2.1 portfolio of projects included in the 2024 MISO Transmission Expansion Plan (MTEP24). The Applicants state that the proposed ISA Project is needed to enhance grid reliability in the Upper Midwest

II. PROCEDURAL BACKGROUND

August 7, 2025	MP and ATC filed the Notice Petition, seeking approval of a notice plan for the ISA Project.
December 8, 2023	The Public Utilities Commission (Commission) posted a notice of comment period for the petition.

III. DEPARTMENT ANALYSIS

A. GOVERNING STATUTES AND RULES

The Applicants filed the Notice Petition pursuant to Minnesota Rules 7829.2550 subp. 1 which states, in part "[t]hree months before filing a certificate of need application for a high-voltage transmission line as defined by Minnesota Statutes, section 216B.2421, the applicant shall file a proposed plan for providing notice to all persons reasonably likely to be affected by the proposed line."[2]

[1] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project,* MP and ATC, Notice Petition, August 7, 2025, Docket No. E015/CN-25-111, (eDockets) 20258-221885-01, (hereinafter "Notice Petition").

[2] Minnesota Rules 7829.2550

Minnesota Statutes § 216B.2421 includes in its definition of a Large Energy Facility (LEF) "any high-voltage transmission line with a capacity of 200 kilovolts or more and greater than 1,500 feet in length." Given that the proposed ISA Project is a 345 kV transmission line substantially longer than 1,500 feet, the proposed ISA Project falls within the definition of "large energy facility" and, therefore, requires a notice plan.

B. TYPES OF NOTICE

Minnesota Rules 7829.2550, subp. 3, requires types of notice as follows:

- direct mail notice, based on county tax assessment rolls, to landowners reasonably likely to be affected by the proposed transmission line;
- direct mail notice to all mailing addresses within the area reasonably likely to be affected by the proposed transmission line;
- direct mail notice to tribal governments and to the governments of towns, statutory cities, home rule charter cities, and counties whose jurisdictions are reasonably likely to be affected by the proposed transmission line; and
- newspaper notice to members of the public in areas reasonably likely to be affected by the proposed transmission line.

The area proposed to be included in notices (Notice Area) is shown in Attachment A of the Notice Petition. The Notice Petition further states that the Notice Area:

> is generally 1.5 miles wide centered on existing high voltage transmission lines. The Notice Area expands up to 2.25 miles wide in some areas to provide routing flexibility.

The list of individuals and entities to be provided notice is to be complied by Applicants is as follows:

- Regarding landowner notice—Applicants have obtained tax landowner names and addresses within the Notice Area using geographic information system (GIS) county parcel records.
- Regarding notice to mailing addresses—Applicants have obtained a list of mailing addresses in the Notice Area from St. Louis and Itasca Counties.
- Regarding notice to tribal governments—Applicants will provide direct mail notice to each of the 11 federally recognized Tribal Nations in Minnesota, as well as the Minnesota Indian Affairs Counsel.[3]

[3] See Attachment B-1 of the Notice Petition for detailed information.

- Regarding notice to local governmental jurisdictions—Applicants propose to provide direct mail notice to lead administration personnel and elected officials in local governments and to those state senators and state representatives whose districts are within the Notice Area.[4]
- Regarding newspaper notice—Applicants propose to place notice advertisements in four newspapers listed in Table 1 of the Notice Petition.

After reviewing the Petition's Table 1, Figure 1 of Attachment A, Attachment B-1 and Attachment B-2, the Department concludes that the Applicants' general process for identification of individuals and local governmental organizations that should receive notice meets the required notice in Minn. R. 7829.2550, subp. 3.

Note that the Applicants propose to submit an updated map that will show the routes the Applicants are likely to propose the Route Permit filing. The Applicants will provide a copy of this updated map to Commission staff for review prior to mailing. The Department concludes that this is a reasonable process for arranging specifics of an updated map.

The Department recommends the Commission approve the Applicants' proposed list of notice recipients. The Department also recommends the Commission delegate to the Executive Secretary authority to review and approve an updated map.

C. CONTENT OF NOTICE

Minnesota Rules 7829.2550, subp. 4 require the notices to provide the following information:

- a map showing the end points of the line and existing transmission facilities in the area;
- a description of general right-of-way requirements for a line of the size and voltage proposed and a statement that the applicant intends to acquire property rights for the right-of-way that the proposed line will require;
- a notice that the line cannot be constructed unless the Minnesota Public Utilities Commission (Commission) certifies that it is needed;
- the Commission's mailing address, telephone number, and website;
- if the applicant is a utility subject to chapter 7848, the address of the website on which the utility applicant will post or has posted its biennial transmission projects report required under that chapter;
- a statement that the Environmental Quality Board[5] will be preparing an environmental report on each high-voltage transmission line for which certification is requested;
- a brief explanation of how to get on the mailing list for the Environmental Quality Board's proceeding; and

[4] See Attachment B-2 of the Notice Petition for detailed information.
[5] This function has since been transferred to the Commission.

- a statement that requests for certification of high-voltage transmission lines are governed by Minnesota law, including specifically chapter 4410, parts 7849.0010 to 7849.0400, and 7849.1000 to 7849.2100, and Minnesota Statutes, section 216B.243.

The Department reviewed the text of the proposed landowner/resident/governmental official notice provided in Attachment A of the Notice Petition and concludes that the proposal contains the required information.

The Department notes two items. First, the text of the notice discusses environmental review but does not specifically mention that an environmental report is prepared as part of the certificate of need proceeding. However, the Applicants' discussion clearly communicates the essentials of environmental review. Second, the Notice Petition did not include a separate sample newspaper notice. The Department confirmed with the Applicants that the text of the newspaper notice will be the same as the text in Attachment A of the Notice Petition.

The Department recommends the Commission approve the Applicants' proposed notice text.

D. DUPLICATIVE NOTICE

Table 1 of the Notice Petition shows that the Applicants propose to publish notice in the Star Tribune, a paper of statewide circulation. This notice will be published shortly before the Certificate of Need application is filed. Thus, the Applicants request that the Commission vary the requirement under Minn. R. 7829.2500, subp. 5 and remove the additional requirement to publish notice of the application in a statewide paper after the Certificate of Need application is filed with the Commission.

Minnesota Rules, part 7829.3200 governs such variance requests and establishes the following 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.

The Applicants conclude that the requirements for a variance are met as follows:

1. The requirement would be an excessive burden as it requires duplicate notice and associated expense without an offsetting benefit;
2. the public interest would not be adversely affected because the public will receive the pre-application notice; and
3. the Commission has previously granted such a variance and there is no conflict with any standards imposed by law.

The Department agrees with the Applicants' assessment and recommends that the Commission approve the proposed rule variance regarding duplicative notice.

E. NOTICE TIMING

Minnesota Rules 7829.2550, subp. 6, requires an applicant to implement the notice plan within 30 days of its approval by the Commission. In this case the Applicants request that the Commission grant a variance and direct the notices occur no more than 90 days and no less than two weeks prior to the filing of the certificate of need application.

The Applicants conclude that the requirements for a variance are met as follows:

1. the notice requirements would burden all parties by separating notice provided to interested stakeholders from the start of the proceeding;
2. granting the variance would not adversely affect the public interest; and
3. granting a variance would not conflict with standards imposed by law.

The Department agrees with the Applicants assessment and recommends that the Commission approve the proposed rule variance regarding notice timing.

IV. DEPARTMENT RECOMMENDATIONS

Based on analysis of the information in the record, the Department has prepared recommendations, which are provided below. The recommendations correspond to the subheadings of Section III above.

B. TYPES OF NOTICE

- The Department recommends the Commission approve the Applicants' proposed list of notice recipients.
- The Department recommends the Commission delegate to the Executive Secretary authority to review and approve an updated map.

C. CONTENT OF NOTICE

- The Department recommends the Commission approve the Applicants' proposed notice text.

D. DUPLICATIVE NOTICE

- The Department recommends that the Commission approve the proposed rule variance regarding duplicative notice.

E. NOTICE TIMING

- The Department recommends that the Commission approve the proposed rule variance regarding notice timing.

COMMERCE DEPARTMENT

August 27, 2025

Mike Bull
Interim Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: Comments of the Minnesota Department of Commerce
Docket No. E015/CN-25-111

Dear Mr. Bull:
Attached are the comments of the Minnesota Department of Commerce (Department) in the following matter:

> *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project: Request for Exemptions.*

The Petition was filed by ALLETE, Inc. d/b/a Minnesota Power and American Transmission Company LLC on August 7, 2025.

The Department recommends **approval with modifications** and is available to answer any questions the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ Dr. SYDNIE LIEB
Assistant Commissioner of Regulatory Analysis

SR/ar
Attachment

Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce

Docket No. E015/CN-25-111

I. INTRODUCTION

ALLETE, Inc. d/b/a Minnesota Power (MP) and American Transmission Company LLC by and through its corporate manager ATC Management Inc. (ATC) (collectively, the Applicants) submitted a petition requesting certain exemptions to data requirements be approved by the Minnesota Public Utilities Commission (Commission) pursuant to Minn. R. 7849.0200, subp. 6.[1] The Exemption Petition is intended to tailor the data provided by the Applicants in a future certificate of need petition they intend to make.

In a future filing the Applicants will be requesting a certificate of need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Project (ISA Project). The Applicants intend to submit a combined application for a Certificate of Need and a Route Permit to construct the ISA Project pursuant to Minn. Stat. §§ 216B.243 and 216I.05 in the fourth quarter of 2025.

The proposed ISA Project was studied, reviewed, and approved by the Midcontinent Independent System Operator, Inc. (MISO) as part of its Long-Range Transmission Planning (LRTP) Tranche 2.1 portfolio of projects included in the 2024 MISO Transmission Expansion Plan (MTEP24). The Applicants state that the proposed ISA Project is needed to enhance grid reliability in the Upper Midwest.

II. PROCEDURAL BACKGROUND

August 7, 2025	MP and ATC filed the Exemption Petition, seeking approval of a data exemptions for a future certificate of need (CN) petition for the ISA Project.
August 19, 2025	The Commission issued a Notice of Comment Periods.[2]

[1] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project,* MP and ATC, Exemption Petition, August 7, 2025, Docket No. E015/CN-25-111, (eDockets), 20258-221879-01, (hereinafter "Exemption Petition").

[2] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project,* Commission, Notice of Comment Periods, August 19, 2025, Docket No. E015/CN-25-111, (eDockets), 20258-222214-01, (hereinafter "Notice").

According to the Notice, the following topic is open for comment:

- *Should the Commission grant the exemptions to the certificate of need application content requirements as requested by the Applicants' in their August 7, 2025 filing?*

III. DEPARTMENT ANALYSIS

A. GOVERNING STATUES AND RULES

The Applicants filed the Exemption Petition pursuant to Minn. R. 7849.0200, subp. 6, which states, in part:

> Before submitting an application, a person is exempted from any data requirement of parts 7849.0010 to 7849.0400 if the person (1) requests an exemption from specified rules, in writing to the commission, and (2) shows that the data requirement is unnecessary to determine the need for the proposed facility or may be satisfied by submitting another document. A request for exemption must be filed at least 45 days before submitting an application.

Based on this standard, the Commission may grant exemptions when the data requirements are shown to be unnecessary to determine need or can be satisfied by submitting alternative information. In the Petition, the Applicants request to be exempted from certain data requirements of Minn. R. 7849.0010 to 7849.0400.

B. REQUESTED EXEMPTIONS

The Exemption Petition requests exemptions from the following requirements:

- Minn. R. 7849.0240 subp. 2(B)—Promotional Activities;
- Minn. R. 7849.0260 C(5)—Effect of Project on Rates Systemwide;
- Minn. R. 7849.0260 A(3) and C(6)—Losses;
- Minn. R. 7849.0260 D—System Map;
- Minn. R. 7849.0260 B(4) and (8)—Transmission Lines with Different Terminals or Substations;
- Minn. R. 7849.0270, subps. 1-6—Peak Demand and Annual Consumption Forecast and System Revenue Requirements;
- Minn. R. 7849.0280—System Capacity;
- Minn. R. 7849.0290—Conservation;
- Minn. R. 7849.0300—Consequences of Delay; and
- Minn. R. 7849.0340—No Facility Alternative.

In addition, the Applicants note that the ATC Arrowhead 345 kV/230 kV Substation is subject to an 800 megavolt-amp (MVA) limitation per a Minnesota Environmental Quality Board (MEQB) permitting exception issued in March 2001. The Applicants claim this limitation would need to be removed to facilitate the ISA Project as developed by MISO. Therefore, the Applicants request that the 800 MVA issue be moved to and resolved in this docket.[3]

The Department examines each exemption request separately. The required criterion is whether the Applicants have shown that "the data requirement is unnecessary to determine the need for the proposed facility or may be satisfied by submitting another document" as discussed above. The Department notes that similar exemptions were approved recently by the Commission in proceedings for other transmission lines resulting from the MISO's LRTP process, which is also the source of the proposed ISA Project.[4]

C. ANALYSIS OF EXEMPTION REQUESTS

C.1. 7849.0240 subp. 2(B)

Minn. R. 7849.0240, subp. 2(B) requires that a Certificate of Need application contain "an explanation of the relationship of the proposed facility to . . . promotional activities that may have given rise to the demand for the facility." Minn. R. 7849.0010, subp. 24 defines promotional practices as meaning "any action or policies by an applicant, except those actions or policies that are permitted or mandated by statute or rule, which directly or indirectly give rise to the demand for the facility, including but not limited to advertising, billing practices, promotion of increased use of electrical energy, and other marketing activities."

The Applicants request that the Commission grant ATC an exemption from this data requirement. In this case ATC does not directly serve end-users of electric service and does not engage in promotional activities that could give rise to the need for the proposed Project. MP would provide its relevant data. The Applicants also note that this request is consistent with several prior exemption requests approved by the Commission.[5]

---

[3] As part of this request the Applicants propose to provide notice of this issue to parties in Docket Nos. E015/AI-11-75 and E015/PA-04-2020.

[4] For examples *see*: *In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, *Order Approving Requested Exemptions and Notice Plan*, June 21, 2023, Docket No. E015, ET2/CN-22-416, (eDockets) 20236-196704-01; *In the Matter of the Application for a Certificate of Need for the Big Stone South – Alexandria – Big Oaks Transmission Project*, *Order*, April 19, 2023, Docket No. E017, ET2, E002, ET10, E015/CN-22-538, (eDockets) 20234-194943-01.

[5] The Applicants cite the following precedents: *In the Matter of Application of Xcel Energy and ITC Midwest, LLC for the Huntley-Wilmarth 345 kV Transmission Line Project*, Commission, Order on Exemption Request, September 1, 2017, Docket No. E002, E6675/CN-17-184, (eDockets) 20179-135212-01. *In the Matter of the Application of Prairie Rose Wind, LLC for*

The Department agrees with the Applicants that the Commission's past practice is to exempt non-load serving entities from the data requirement regarding promotional practices. Therefore, the Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0240, subp. 2(B) for ATC.

C.2. Minn. R. 7849.0260 C(5)

Minn. R. 7849.0260 C(5) requires that an application for a CN for a transmission line must include data regarding the "effect on rates systemwide and in Minnesota, assuming a test year beginning with the proposed in-service date."

The Applicants request that the Commission grant ATC an exemption from this data requirement. MP would provide its relevant data. ATC requests an exemption from this requirement because it is not a Minnesota public utility whose rates are regulated by the Commission. As a transmission-only utility, ATC's rates are regulated by the Federal Energy Regulatory Commission and the prices for providing transmission service are governed by the MISO tariff. The Applicants state that information regarding the expected Project cost, the multi-value project (MVP) cost allocation methodology, and the share that will be allocated to Minnesota utilities' load would be more useful in evaluating the Project, and as such, ATC will provide its relevant data as substitute information.

The Department agrees with the Applicants that, for ATC, the data most closely approximating the required information would be the alternative data proposed by ATC. Therefore, the Department recommends that the Commission approve the requested exemption from Minn. R. 7849. 0260 C(5) for ATC with provision of the proposed alternative data.

C.3. Minn. R. 7849.0260 A(3) and C(6)

Minn. R. 7849.0260 A(3) requires an applicant to provide "the expected losses under projected maximum loading and under projected average loading in the length of the transmission line and at the terminals or substations." Minn. R. 7849.0260 C(6) requires an applicant to provide "its efficiency, expressed for a transmission facility as the estimated losses under projected maximum loading and under projected average loading in the length of the transmission line and at the terminals or substations."

Certificate of Need for up to 200 MW wind project in Rock and Pipestone Counties, Commission, Order Approving Exemption Petition, May 14, 2010, Docket No. IP6838/CN-10-80, (eDockets) 20105-50463-01. *In the Matter of the Application of Goodhue Wind for a Certificate of Need for a 78 MW Wind Project and Associated Facilities in Goodhue County,* Commission, Order Finding Application Complete and Initiating Informal Review Process, December 30, 2009, Docket No. IP6701 /CN-09-1186, (eDockets) 200912-45523-01.

The Applicants request an exemption from Minn. R. 7849.0260 A(3) and C(6). The Applicants propose to provide system losses information in lieu of line-specific losses required by the rules.

The Department agrees with the Applicants that the requested exemptions are consistent with several prior exemption requests approved by the Commission in other Certificate of Need transmission line dockets and is more relevant to the analysis.[6] Therefore, the Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0260 A(3) and C(6) with the provision of the proposed alternative data.

C.4. Minn. R. 7849.0260 D

Minn. R. 7849.0260 D requires a map showing the applicant's system or load center to be served by the proposed project.

The Applicants request an exemption from Minn. R. 7849.0260 D for ATC only. ATC requests an exemption because a transmission-only company such as ATC does not directly serve load. ATC proposes to submit a map showing ATC's network of transmission lines in Minnesota and Wisconsin.

The Department agrees that a map showing ATC's transmission network is the relevant information. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0260 D for ATC with the provision of the proposed alternative data.

C.5. Minn. R. 7849.0260 B(4) and (8)

Minn. R. 7849.0260 B(4) requires the Applicants provide "a discussion of the availability of alternatives to the facility, including but not limited to: […] transmission lines with different terminals or substations." Minn. R. 7849.0260 B(8) requires the Applicants provide "a discussion of the availability of alternatives to the facility, including but not limited to: […] any reasonable combinations of the alternatives listed in subitems (1) to (7)."

The Applicants note that Minn. Stat. § 216B.243, subd. 3(6) states in part that "the commission must not require evaluation of alternative end points for a high-voltage transmission line qualifying as a large energy facility unless the alternative end points are (i) consistent with end points identified in a

[6] The Applicants cite the following examples; *In the Matter of the Application of Minnesota Power and Great River Energy for a Certificate of Need for the Northland Reliability Project 345 kV Transmission Line*, Commission, Order Approving Requested Exemptions and Notice Plan, June 21, 2023, Docket No. E015, ET2/CN-22-416, (eDockets) 20236-196704-01. *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.*, Commission, Order Approving Notice Plan and Granting Variances and Exemptions, May 17, 2021, Docket No. E015/CN-21-140, (eDockets) 20215-174194-01.

federally registered planning authority transmission plan, or (ii) otherwise agreed to for further evaluation by the applicant." In this case the Applicants have proposed end points that are consistent with MISO's and do not consent to alternative end points.

The Department agrees with the Applicants that Minnesota Statutes limit the consideration of alternative end points in this matter and, therefore, an exemption is appropriate. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0260 B(4) and (8).

C.6. Minn. R. 7849.0270, subps. 1-6

Minn. R. 7849.0270 subps. 1-6 contains data requirements related to forecasting peak demand and annual electrical consumption. In general, the rule requires forecast data regarding an applicant's entire service area and system.

The Applicants state that the proposed Project is intended to:

- support the reliability of the regional transmission system, particularly in northern Minnesota and northwest Wisconsin;
- provide additional transmission capacity and regional transfer capacity to reliably integrate new renewable generation;
- meet growing electrical demand across the region; and
- strengthen the regional transmission grid.

Based upon these needs the Applicants propose to provide MP's "most recent AFR (advanced forecast report) filed on July 1, 2025 in Docket No. E999/PR-25-11."[7] In addition, the Applicants propose to provide a "discussion of the different regional demand scenarios evaluated in the analysis used by MISO to justify the Project."[8] The Applicants' claim is that the substitute information is better tailored to the need for the ISA Project. Throughout the discussion the Applicants note numerous dockets where the Commission has approved similar exemptions.[9]

The Department agrees that the information used by MISO when assessing the proposed Project would be more appropriate to assess need in this case than the information required by the rule. Therefore, the Department recommends that the Commission approve the requested exemption to Minnesota Rules 7849.0270 subparts 1 to 6 with the provision of the proposed alternative data.

[7] Exemption Petition at 8.
[8] Exemption Petition at 9.
[9] Exemption Petition at 8-10.

C.7. Minn. R. 7849.0280

Minnesota Rules 7849.0280 requires an applicant for a CN to provide information that describes the ability of its existing system to meet forecasted demand; in essence, load and capability information.

The Applicants request that the Commission grant an exemption from Minn. R. 7849.0280. The Applicants note that the Commission has previously granted exemption requests from parts of Minn. R. 7849.0280 in several other transmission line Certificate of Need dockets where issues of transmission adequacy, rather than generation adequacy, were at issue.[10]

The Department agrees with the Applicants that the Commission has approved exemptions to Minn. R. 7849.0280, subps. (B) through (I) in similar circumstances. In essence, the Applicant's request the addition of Minn. R. 7849.0280, subp. (A) to the exemptions granted in the past. Minn. R. 7849.0280, subp. (A) requires "a brief discussion of power planning programs, including criteria, applied to the applicant's system and to the power pool or area within which the applicant's planning studies are based."

The information regarding power pool planning criteria could be of value in evaluating the proposed ISA Project. Therefore, the Department recommends that the Commission modify the requested exemption and approve the requested exemption to Minn. R. 7849.0280, subps. (B) through (I) only.[11]

C.8. Minn. R. 7849.0290

Minn. R. 7849.0290 requires various information be provided on an applicant's energy conservation and efficiency programs.

MP proposes to provide a summary of MP's Integrated Resource Plan and Conservation Improvement Plan filings. ATC requests a full exemption from Minn. R. 7849.0290. In addition to MP's information, the Applicants will also provide information regarding how conservation and energy efficiency was considered by MISO in its evaluation of the proposed ISA Project.

---

[10] The Applicants cite the following examples; *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Commission, Order Approving Notice Plan and Granting Variances and Exemptions, May 17, 2021, Docket No. E015/CN-21-140, (eDockets) 20215-174194-01; *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Commission, Order Approving Exemption Request, December 3, 2014, Docket No. E015/CN-14-787, 201412-105142-01; *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for a 115 kV High Voltage Transmission Line in St. Louis and Carlton Counties*, Commission, Order Approving Exemptions and Proposed Provision of Alternative Data, November 2, 2010, Docket No. E015, ET2/CN-10-973, 201011-56126-01.

[11] Note that the Commission did not grant a requested exemption to subpart A of the rule in Docket No. E015/CN-21-140, the Department's recommendation here is consistent with the precedent.

The Department agrees with the Applicants that, as ATC does not have end-use customers, a full exemption is appropriate for ATC. The Department also agrees with the Applicants that the Commission has approved exemptions to Minn. R. 7849.0290 for MP. The most relevant data is how MISO considered energy efficiency in determining the need for the proposed ISA Project. This information will better inform the record as to the need for the proposed ISA Project than the required information.

The Department recommends that the Commission approved the requested exemption to Minn. R. 7849.0290 with provision of the proposed alternative data.

C.9. Minn. R. 7849.0300 and 7849.0340

Minn. R. 7849.0300 requires an applicant for a CN to provide detailed information regarding the consequences of delay at three specific, statistically-based levels of demand and energy consumption. Minn. R. 7849.0340 requires an applicant for a CN to provide detailed information regarding the no build alternative at the same three statistically-based levels of demand and energy consumption.

The Applicants state they "will discuss the consequences of delay and a no build alternative in its application, there is no need to discuss these items in terms of three levels of demand." In addition, the Applicants note that the Commission has approved similar partial exemption requests from the requirements of Minn. R. 7849.0300 and 7849.0340 in other transmission line Certificate of Need dockets.[12]

The Department agrees with the Applicants that information on the consequences of delay and a no build alternative tied to three specific, statistically-based levels of demand and energy consumption is not likely to be a useful part of the analysis for the proposed ISA Project and that a general discussion is appropriate; as noted in the Exemption Petition, similar exemptions were approved in other transmission CNs. Therefore, the Department recommends that the Commission approve the requested exemption to Minnesota Rules 7849.0300 and 7849.0340 with the provision of the proposed alternative data.

---

[12] The Applicants cite the following examples; *In re Application of Minnesota Power for a Certificate of Need for the Duluth Loop Reliability Project in St. Louis Cnty.,* Commission, Order Approving Notice Plan and Granting Variances and Exemptions, May 17, 2021, Docket No. E015/CN-21-140, (eDockets) 20215-174194-01; *In re Application of Great River Energy and Minnesota Power for a Certificate of Need for the Menahga Area 115 kV Transmission Line Project in Hubbard, Wadena and Becker Counties, Minnesota*, Commission, Order Approving Exemption Request, December 3, 2014, Docket No. E015/CN-14-787, 201412-105142-01; *In re Request of Minnesota Power for a Certificate of Need for the Great Northern Transmission Line*, Commission, Order Approving Notice Plan, Granting Variance Request, and Approving Exemption Request, February 28, 2013, Docket No. E015/CN-12-1163, (eDockets) 20132-84248-01; *In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy and Great River Energy for a Certificate of Need for the Upgrade of the Southwest Twin Cities (SWTC) Chaska Area 69 kV Transmission Line to 115 kV Capacity,* Commission, Order Granting the Company's Exemption Request, November 4, 2011, Docket No. E002/CN-11-826, 201111-68102-01.

D. 800 MVA LIMIT

The final issue in the Exemption Petition regards the 800 MVA limit placed by the MEQB in a March 2001 order granting a permitting exemption to MP for the construction of the Arrowhead – Weston 345 kV transmission line and the ATC Arrowhead 345 kV/230 kV Substation. The Applicants note that the permissions were later transferred to ATC in 2005 in Docket No. E015/PA-04-2020.[13]

As designed by MISO, the ISA Project would result in power flowing through the ATC Arrowhead 345/230 kV Substation into Wisconsin that would exceed 800 MVA. Therefore, the Applicants intend to request that the Commission remove the MEQB 800 MVA limit on power flow through the ATC Arrowhead 345/230 kV Substation. Regarding this future request, the Applicants recommend providing notice of the request to remove the 800 MVA limit via filing summary not only to the persons required under Minn. R. 7849 but also to the parties in Docket Nos. E015/AI-11-75 and E015/PA-04-2020.

The Department agrees with the Applicants that, since siting energy facilities has been moved to the Commission and the information regarding the impact of the ISA Project on the 800 MVA limit will be available in this docket, this docket is the correct place to review any issues regarding modifying or eliminating the 800 MVA limit. However, no Commission action is necessary; the Applicants can make any requests in their forthcoming CN petition that they deem advisable. The Department also agrees with the Applicants that, if a request to modify or eliminate the 800 MVA limit is made, the Commission should require additional notice.

The Department recommends that the Commission require the Applicants to provide notice of the request to change or remove the 800 MVA limit via filing summary not only to the persons required under Minn. R. 7849 but also to the parties in Docket Nos. E015/AI-11-75 and E015/PA-04-2020.

IV. DEPARTMENT RECOMMENDATIONS

Based on analysis of the information in the record, the Department has prepared recommendations, which are provided below. The recommendations correspond to the subheadings of Section III above.

[13] *See In the Matter of Minnesota Power's Petition for Review of an Agreement Between Minnesota Power and American Transmission Company*, Commission, Order Approving Transfer Subject to Conditions, Requiring Further Filings, and Denying Reconsideration of Earlier Order on the Merits, December 2, 2005, Docket No. E015/M-04-2020, (eDockets) 2542187.

C. ANALYSIS OF EXEMPTION REQUESTS

- *C.1. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0240, subp. 2(B) for ATC.*
- *C.2. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849. 0260 C(5) for ATC with provision of the proposed alternative data.*
- *C.3. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0260 A(3) and C(6) with the provision of the proposed alternative.*
- *C.4. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0260 D for ATC with the provision of the proposed alternative data.*
- *C.5. The Department recommends that the Commission approve the requested exemption from Minn. R. 7849.0260 B(4) and (8).*
- *C.6. The Department recommends that the Commission approve the requested exemption to Minnesota Rules 7849.0270 subparts 1 to 6 with the provision of the proposed alternative data.*
- *C.7. The Department recommends the Commission modify the requested exemption and approve the requested exemption to Minn. R. 7849.0280, subps. (B) through (I) only.*
- *C.8. The Department recommends that the Commission approved the requested exemption to Minn. R. 7849.0290 with provision of the proposed alternative data.*
- *C.9. The Department recommends that the Commission approve the requested exemption to Minnesota Rules 7849.0300 and 7849.0340 with the provision of the proposed alternative data.*

D. 800 MVA LIMIT

- *The Department recommends that the Commission require the Applicants to provide notice of the request to change or remove the 800 MVA limit via filing summary not only to the persons required under Minn. R. 7849 but also to the parties in Docket Nos. E015/AI-11-75 and E015/PA-04-2020.*

COMMERCE DEPARTMENT

October 3, 2025

Sasha Bergman
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: Comments of the Minnesota Department of Commerce
Docket No. E015/CN-25-111

Dear Ms. Bergman,

The Department's comment in this matter recommended that the exemption request to the data required by Minn. R. 7849.0280 be limited to subparts (B) through (I) only; data should be provided regarding subpart (A)—a brief discussion of power planning programs.[1] In reply comments Minnesota Power (MP) and American Transmission Company LLC (ATC) agreed with the Department's recommendation and proposed to provide what they consider to be alternative data for subpart (A). MP proposes to provide MP's Annual Forecast Report; ATC proposes to provide load forecast information from its most recent 10-year assessment; and the applicants will also discuss data used by the Midcontinent Independent System Operator, Inc.[2]

The Department concludes that the data proposed by MP and ATC regarding Minn. R. 7849.0280 A is reasonable. The Department considers this issue to have been resolved and the Department's recommendations remain as stated in the Department's initial comments except as follows:

- *C.7. The Department recommends the Commission ~~modify the requested exemption and~~ approve the requested exemption to Minn. R. 7849.0280, subps. (B) through (I) ~~only~~ and approve the proposed alternative data regarding supb. (A).*

Sincerely,

/s/ Dr. SYDNIE LIEB
Assistant Commissioner of Regulatory Analysis

SR/ar

[1] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, Department, Comment, August 27, 2025, Docket No. E015/CN-25-111, (eDockets), 20258-222450-02 at 7.
[2] *In the Matter of the Application for a Certificate of Need for the Iron Range – St. Louis County – Arrowhead 345 kV Transmission Line Project*, MP and ATC, Reply Comment, September 16, 2025, Docket No. E015/CN-25-111, (eDockets), 20259-223087-01 at 1-2.

CERTIFICATE OF SERVICE

I, Robin Benson, hereby certify that I have this day, served a true and correct copy of the following document to all persons at the addresses indicated below or on the attached list by electronic filing, electronic mail, courier, interoffice mail or by depositing the same enveloped with postage paid in the United States mail at St. Paul, Minnesota.

Minnesota Public Utilities Commission
ORDER

Docket Numbers: **E-015/CN-25-111**

Dated this **18th** day of **November, 2025**

/s/ Robin Benson

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	Michael	Ahern	ahern.michael@dorsey.com	Dorsey & Whitney, LLP		50 S 6th St Ste 1500 Minneapolis MN, 55402-1498 United States	Electronic Service		No	CN-25-111
2	Kristine	Anderson	kanderson@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Lane PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
3	Sasha	Bergman	sasha.bergman@state.mn.us		Public Utilities Commission		Electronic Service		Yes	CN-25-111
4	Matthew	Brodin	mbrodin@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
5	Mike	Bull	mike.bull@state.mn.us		Public Utilities Commission	121 7th Place East, Suite 350 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
6	James	Canaday	james.canaday@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Suite 1400 445 Minnesota St. St. Paul MN, 55101 United States	Electronic Service		No	CN-25-111
7	Christopher	Cerny	ccerny@winthrop.com	Winthrop & Weinstine, P.A.			Electronic Service		No	CN-25-111
8	Cody	Chilson	cchilson@greatermngas.com	Greater Minnesota Gas, Inc. & Greater MN Transmission, LLC		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
9	Ray	Choquette	rchoquette@agp.com	Ag Processing Inc.		12700 West Dodge Road PO Box 2047 Omaha NE, 68103-2047 United States	Electronic Service		No	CN-25-111
10	John	Coffman	john@johncoffman.net	AARP		871 Tuxedo Blvd. St, Louis MO, 63119-2044 United States	Electronic Service		No	CN-25-111
11	Generic	Commerce Attorneys	commerce.attorneys@ag.state.mn.us		Office of the Attorney General - Department of Commerce	445 Minnesota Street Suite 1400 St. Paul MN, 55101 United States	Electronic Service		Yes	CN-25-111
12	Hillary	Creurer	hcreurer@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
13	George	Crocker	gwillc@nawo.org	North American Water Office		5093 Keats Avenue Lake Elmo MN, 55042 United States	Electronic Service		No	CN-25-111
14	Jackson	Evans	jjevans@allete.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
15	John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance		2720 E. 22nd St Institute for Local Self-Reliance Minneapolis MN, 55406 United States	Electronic Service		No	CN-25-111
16	Eric	Fehlhaber	efehlhaber@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
17	Sharon	Ferguson	sharon.ferguson@state.mn.us		Department of Commerce	85 7th Place E Ste 280 Saint Paul MN, 55101-2198 United States	Electronic Service		No	CN-25-111
18	Daryll	Fuentes	energy@usg.com	USG Corporation		550 W Adams St Chicago IL, 60661 United States	Electronic Service		No	CN-25-111
19	Zachary	Golkowski	zgolkowski@mnpower.com	Minnesota Power		30 W. Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
20	Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP		Suite 1750 220 South Sixth Street Minneapolis MN, 55402-1425 United States	Electronic Service		No	CN-25-111
21	Daniel	Gunderson	dgunderson@allete.com	Minnesota Power		30 W Superior St Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
22	Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association		4300 220th St W Farmington MN, 55024 United States	Electronic Service		No	CN-25-111
23	Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors		413 Wacouta Street #230 St.Paul MN, 55101 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
24	Valerie	Herring	vherring@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S. Eighth Street Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
25	Corey	Hintz	chintz@dakotaelectric.com	Dakota Electric Association		4300 220th Street Farmington MN, 55024-9583 United States	Electronic Service		No	CN-25-111
26	Michael	Hoppe	lu23@ibew 23.org	Local Union 23, I.B.E.W.		445 Etna Street Ste. 61 St. Paul MN, 55106 United States	Electronic Service		No	CN-25-111
27	Lori	Hoyum	lhoyum@mnpow er.com	Minnesota Pow er		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
28	Travis	Jacobson	travis.jacobson@mdu.com	Great Plains Natural Gas Company		400 N 4th St Bismarck ND, 58501 United States	Electronic Service		No	CN-25-111
29	Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law		2950 Yellow tail Ave. Marathon FL, 33050 United States	Electronic Service		No	CN-25-111
30	Richard	Johnson	rick.johnson@law moss.com	Moss & Barnett		150 S. 5th Street Suite 1200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
31	Sarah	Johnson Phillips	sjphillips@stoel.com	Stoel Rives LLP		33 South Sixth Street Suite 4200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
32	Nick	Kaneski	nick.kaneski@enbridge.com	Enbridge Energy Company, Inc.		11 East Superior St Ste 125 Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
33	Michael	Krikava	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 S 8th St Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
34	Nicolle	Kupser	nkupser@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
35	James D.	Larson	james.larson@avantenergy.com	Avant Energy Services		220 S 6th St Ste 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
36	Peder	Larson	plarson@larkinhoffman.com	Larkin Hoffman Daly & Lindgren, Ltd.		8300 Norman Center Drive Suite 1000 Bloomington MN, 55437 United States	Electronic Service		No	CN-25-111
37	Eric	Lipman	eric.lipman@state.mn.us		Office of Administrative Hearings	PO Box 64620 St. Paul MN, 55164-0620 United States	Electronic Service		No	CN-25-111
38	Susan	Ludwig	sludwig@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
39	Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting, LLC		961 N Lost Woods Rd Oconomowoc WI, 53066 United States	Electronic Service		No	CN-25-111
40	Christine	Marquis	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall MN1180-07-MCA Minneapolis MN, 55401 United States	Electronic Service		No	CN-25-111
41	Joseph	Meyer	joseph.meyer@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	Bremer Tower, Suite 1400 445 Minnesota Street St Paul MN, 55101-2131 United States	Electronic Service		No	CN-25-111
42	Stacy	Miller	stacy.miller@minneapolismn.gov	City of Minneapolis		350 S. 5th Street Room M 301 Minneapolis MN, 55415 United States	Electronic Service		No	CN-25-111
43	David	Moeller	dmoeller@allete.com	Minnesota Power			Electronic Service		No	CN-25-111
44	Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP		33 South Sixth St Ste 4200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
45	David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
46	Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company		200 1st Street SE PO Box 351 Cedar Rapids IA, 52406-0351 United States	Electronic Service		No	CN-25-111
47	Ellen	Nowak	ellen.nowak@wisconsin.gov	Public Service Commission of Wisconsin		4822 Madison Yards Way Madison WI, 53707 United States	Electronic Service		No	CN-25-111
48	Matthew	Olsen	molsen@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
49	Carol A.	Overland	overland@legalectric.org	Legalectric - Overland Law Office		1110 West Avenue Red Wing MN, 55066 United States	Electronic Service		No	CN-25-111
50	Greg	Palmer	gpalmer@greatermngas.com	Greater Minnesota Gas, Inc.		1900 Cardinal Ln PO Box 798 Faribault MN, 55021 United States	Electronic Service		No	CN-25-111
51	Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	CN-25-111
52	Catherine	Phillips	catherine.phillips@wecenergygroup.com	Minnesota Energy Resources		231 West Michigan St Milwaukee WI, 53203 United States	Electronic Service		No	CN-25-111
53	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		Yes	CN-25-111
54	Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy		26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States	Electronic Service		No	CN-25-111
55	Susan	Romans	sromans@allete.com	Minnesota Power		30 West Superior Street Legal Dept Duulth MN,	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						55802 United States				
56	John	Sagone	jsagone@atcllc.com	American Transmission Company		W234 N2000 Ridgeview Pkwy Ct. Waukesha WI, 53188 United States	Electronic Service		No	CN-25-111
57	Elizabeth	Schmiesing	eschmiesing@winthrop.com	Winthrop & Weinstine, P.A.		225 South Sixth Street Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
58	Ken	Smith	ken.smith@districtenergy.com	District Energy St. Paul Inc.		76 W Kellogg Blvd St. Paul MN, 55102 United States	Electronic Service		No	CN-25-111
59	Peggy	Sorum	peggy.sorum@centerpointenergy.com	CenterPoint Energy		505 Nicollet Mall Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
60	Byron E.	Starns	byron.starns@stinson.com	STINSON LLP		50 S 6th St Ste 2600 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
61	Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 South 8th Street Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
62	Cary	Stephenson	cstephenson@otpco.com	Otter Tail Power Company		215 South Cascade Street Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
63	Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine, P.A.		225 6th St Ste 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
64	Stuart	Tommerdahl	stommerdahl@otpco.com	Otter Tail Power Company		215 S Cascade St PO Box 496 Fergus Falls MN, 56537 United States	Electronic Service		No	CN-25-111
65	Kodi	Verhalen	kverhalen@taftlaw.com	Taft Stettinius & Hollister LLP		80 S 8th St Ste 2200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111
66	Joseph	Windler	jwindler@winthrop.com	Winthrop & Weinstine		225 South Sixth Street, Suite 3500 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
67	Kurt	Zimmerman	kwz@ibew160.org	Local Union #160, IBEW		2909 Anthony Ln St Anthony Village MN, 55418-3238 United States	Electronic Service		No	CN-25-111
68	Patrick	Zomer	pat.zomer@lawmoss.com	Moss & Barnett PA		150 S 5th St #1200 Minneapolis MN, 55402 United States	Electronic Service		No	CN-25-111

APPENDIX D

IRON RANGE – ST. LOUIS COUNTY – ARROWHEAD 345 KV TRANSMISSION LINE PROJECT

MINN. STAT. § 216I.05, SUBD. 5 NOTICE LETTERS

AFFIDAVIT OF MAILING

In the Matter of the Application for a Certificate of Need and Route Permit for the ISA Transmission Project in Itasca and St. Louis Counties

MPUC Docket No. E015/CN-25-111
MPUC Docket No. E015/TL-25-112

STATE OF ARIZONA)
) SS.
COUNTY OF MARICOPA)

I, Jo Render, hereby certify that on the 19th day of September 2025, I directed to be sent via U.S. Mail a true and correct copy of the Pre-Application Notice Letter attached hereto as Exhibit 1 to all Tribal Nation, Agency, and Local Government Unit Representatives on the mailing list attached hereto as Exhibit 2.

Jo Render

Subscribed and sworn to before me
this 22 day of September 2025.

Notary Public

Amy S Greening
Notary Public - ARIZONA
PINAL COUNTY
Commission No. 653815
My Commission Expires 07/31/2027

AN ALLETE COMPANY

30 West Superior Street, Duluth, MN 55802
218.864.6059 | www.mnpower.com

P.O. Box 47, Waukesha, WI 53187-0047
866.899.3204 | www.atcllc.com

September 19, 2025

Re: Notice of Availability for Pre-Application Coordination: Minn. Stat. § 216I.05, subd. 5

In the Matter of the Application of Minnesota Power and American Transmission Company for a Certificate of Need for the Iron Range—St. Louis County—Arrowhead 345 kV Transmission Project. MPUC Docket No. E015/CN-25-111

In the Matter of the Application of Minnesota Power and American Transmission Company for a Route Permit for the Iron Range—St. Louis County—Arrowhead 345 kV Transmission Project. MPUC Docket No. E015/TL-25-112

Dear Tribal Nation, State, or Local Government Representative,

Minnesota Power and American Transmission Company LLC ("ATC") by and through its corporate manager ATC Management Inc. ("ATC") (collectively, the "Applicants") are writing to ensure you are aware of the proposed Iron Range – St. Louis County – Arrowhead 345 kilovolt ("kV") Transmission Project (also the "Project" or "ISA Transmission Project") and provide relevant contact information if you are interested in scheduling a coordination meeting or providing feedback on the Project prior to the submission of the Combined Certificate of Need and Route Permit Application to the Minnesota Public Utilities Commission ("Commission"). The Applicants plan to submit the Combined Application to the Commission in accordance with Minn. Stat. ch. 216I by December 1, 2025. This letter is provided in compliance with Minn. Stat. § 216I.05, subd. 5.

The Project involves constructing a new, approximately 62-mile-long, single-circuit 345 kV transmission line on double-circuit capable structures from Minnesota Power's Iron Range Substation in Itasca County, Minnesota to Minnesota Power's St. Louis County Substation. The Project also involves constructing a new, approximately one-mile long, double-circuit 345 kV transmission line from Minnesota Power's St. Louis County Substation to ATC's Arrowhead Substation in St. Louis County, Minnesota. A map of the proposed Project is enclosed.

On December 12, 2024, the Midcontinent Independent System Operator, Inc. ("MISO"), a federally registered planning authority, approved its Long-Range Transmission Planning ("LRTP") Tranche 2.1 portfolio of projects as part of MISO's 2024 Transmission Expansion Plan ("MTEP24"). The LRTP Tranche 2.1 portfolio is made up of 24 projects, including project no. 21, the ISA Transmission Project. The Project, as part of the LRTP Tranche 2.1 portfolio, is needed to support the reliability of the regional transmission system, particularly in northern Minnesota and northwest Wisconsin to provide additional transmission capacity and regional transfer capability to reliably integrate new renewable generation, meet growing electrical demand, and strengthen the regional transmission grid.

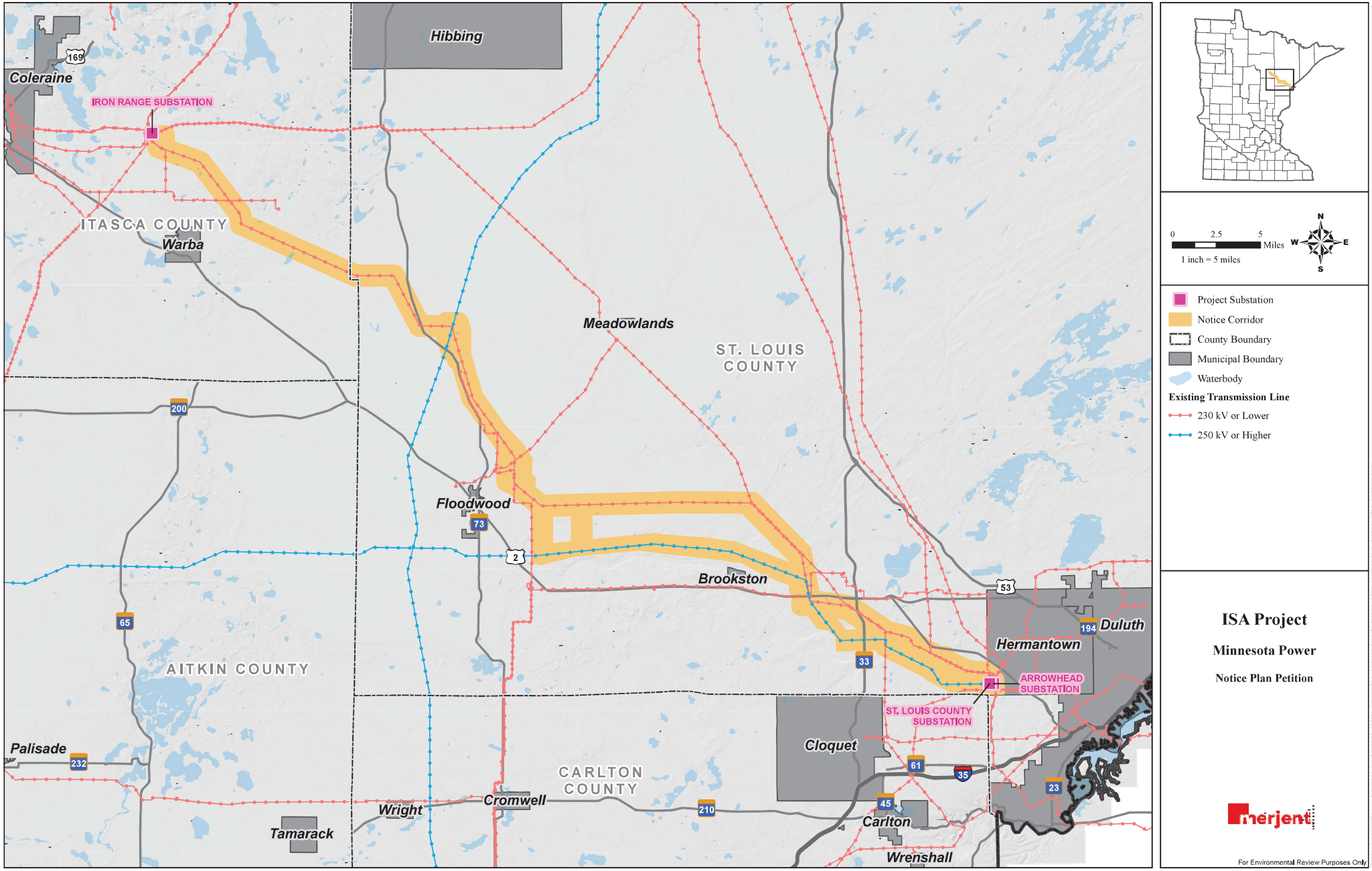
Minn. Stat. § 216I.05, subd. 5 requires the Applicants to provide local units of government, Minnesota Tribal governments, and state technical resource agencies the opportunity to request a coordination meeting with the Applicants regarding the proposed Project no less than 30 days prior to the filing of a Route Permit Application with the Commission. If you would like to request a meeting, please call 218-355-3569 or send an email to connect@ISATransmissionProject.com.

We are happy to discuss any questions that you may have about the Project. Additional information about the Project can also be found on the Project's website: https://ISATransmissionProject.com.

Sincerely,

Drew Janke
Project Manager – Environmental
Strategic Initiatives
ALLETE Inc.

Enclosures Project Map


Hibbing
Coleraine
169
IRON RANGE SUBSTATION
ITASCA COUNTY
Warba
Meadowlands
ST. LOUIS COUNTY
200
Floodwood
73
2
Brookston
53
65
Duluth
194
Hermantown
AITKIN COUNTY
33
ARROWHEAD SUBSTATION
ST. LOUIS COUNTY SUBSTATION
Cloquet
Palisade
232
61
35
23
CARLTON COUNTY
Cromwell
Wright
210
45
Carlton
Tamarack
Wrenshall
0
2.5
5
Miles
1 inch = 5 miles
N
W
E
S
Project Substation
Notice Corridor
County Boundary
Municipal Boundary
Waterbody
Existing Transmission Line
230 kV or Lower
250 kV or Higher
ISA Project
Minnesota Power
Notice Plan Petition
Enerjent
For Environmental Review Purposes Only

Federal, State, and Local Government Unit Representatives

Agency	Name	Position	Street Address	City	State	Zip
U.S. Army Corps of Engineers	Chad Konickson	St. Paul District	332 Minnesota St., Ste. E1500	St. Paul	MN	55101
U.S. Fish and Wildlife Service		Minnesota-Wisconsin Ecological Services Field Office	3815 American Blvd E	Bloomington	MN	55425
Arrowhead Township	Angela Irvine	Clerk	4192 Brandon Rd	Brookston	MN	55711
Brevator Township	Brenda Pallin	Clerk	P.O. Box 623	Cloquet	MN	55720
Cedar Valley Township	Barb Peterson	Clerk	7826 Hwy 73	Floodwood	MN	55736
City of Deer River	Steven Geving	Mayor	60 2nd Street SE, PO Box 70	Deer River	MN	56636
Culver Township	Catherine Elder	Clerk	5292 Hwy 31	Brookston	MN	55711
Elmer Township	Patricia Bernsdorf	Clerk	7982 Goldfinch Rd	Meadowlands	MN	55765
Feeley Township	Lori Gill	Clerk	21738 Shallow Lake Rd	Warba	MN	55793
Floodwood Township	Rhonda Lundstrom	Clerk	11765 Clark Rd	Floodwood	MN	55736
Goodland Township	Holly Henrickson	Clerk	13485 E County Rd 578	Goodland	MN	55742
Hermantown City	Alissa McClure	Clerk	5105 Maple Grove Rd	Hermantown	MN	55811
Industrial Township	Amy Skluzacek	Clerk	P.O. Box 4	Saginaw	MN	55779
Itasca County	Brett Skyles	County Administrator	123 NE 4th St	Grand Rapids	MN	55744
Itasca Economic Development Corporation	Tamara Lowney	President & CEO	1201 SE 7th Ave	Grand Rapids	MN	55744
Little Sand Lake Unorganized Territory	Christine Hobrough	President, Little Sand Lake Association				

Agency	Name	Position	Street Address	City	State	Zip
Solway Township	Tami McGregor	Clerk	4029 Munger Shaw Rd	Cloquet	MN	55720
St. Louis County	Phil Chapman	Clerk	100 N 5th Ave W, Room 202	Duluth	MN	55802
St. Louis County Economic & Community Development	Darren Jablonsky	Interim Director	320 West 2nd Street, Suite 301	Duluth	MN	55802
Van Buren Township	Susan Hutchinson	Clerk	11792 Parantala Rd	Floodwood	MN	55736
Wawina Township	Hjalmer Aho	Clerk	13589 Twp Rd B	Wawina	MN	55736
Minnesota Board of Soil and Water Resources		Water Programs Coordinator	1601 Minnesota Dr	Brainerd	MN	56401
Minnesota Department of Agriculture	Stephan Roos	Planner	625 Robert St N	St. Paul	MN	55155
Minnesota Department of Health	Christopher Parthun	Principal Planner	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	Nick Budde	Hydrologist	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	Dereck Richter	Principal Planner	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	Danielle Luzinski	Statewide Surface Water Hydrologist	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Health	David Bell	Research Scientist	P.O. Box 64975	St. Paul	MN	55164
Minnesota Department of Natural Resources	Shelly Patten	Regional Director	1201 E Hwy 2	Grand Rapids	MN	55744
Minnesota Department of Natural Resources	Grant Wilson	Regional Director	1200 Warner Rd	St. Paul	MN	55106
Minnesota Department of Natural Resources	Kate Fairman	Environmental Review Operations Lead	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Becky Horton	EIS Project Manager	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Diane Johnson	Realty Specialist, Utility License Crossing	2115 Birchmont Beach Rd, NE	Bemidji	MN	56601

Agency	Name	Position	Street Address	City	State	Zip
Minnesota Department of Natural Resources	Jessica Parson	NE Region Ecologist	1201 E Hwy 2	Grand Rapids	MN	55744
Minnesota Department of Natural Resources	Patty Thielen	NE Region Director	1601 Minnesota Dr	Brainerd	MN	56401
Minnesota Department of Natural Resources	Brianna Speldrich	Hydrologist	525 Lake Ave. S, Suite 415	Duluth	MN	55802
Minnesota Department of Natural Resources	Molly Barrett	Natural Heritage Review Specialist	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Jim Drake	Natural Heritage Review Specialist	500 Lafayette Rd	St. Paul	MN	55155
Minnesota Department of Natural Resources	Chuck Carpenter	Northeast Regional Manager	1201 E Hwy 2	Grand Rapids	MN	55744
Minnesota Department of Transportation	Joe Pignato	Land Management Office Director	395 John Ireland Blvd, Mailstop 630	St. Paul	MN	55155
Minnesota Department of Transportation	Stacy Kotch Egstad	Utility Routing and Siting Coordinator	395 John Ireland Blvd, Mailstop 630	St. Paul	MN	55155
Minnesota Department of Transportation	Matt Meyer	Hydrologist	1123 Mesaba Ave	Duluth	MN	55811
Minnesota Department of Transportation	Tom Lee	Hydrologist	1123 Mesaba Ave	Duluth	MN	55811
Minnesota Department of Transportation	Shane Gries	Right of Way Permits	1123 Mesaba Ave	Duluth	MN	55811
Minnesota Indian Affairs Council	Shannon Geshick	Executive Director	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Indian Affairs Council	George Goggleye Jr.	Cultural Resources Manager	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Indian Affairs Council	Lilly Geraghty	Cultural Resources Manager	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Indian Affairs Council	Isaac Weston	Cultural Resources Manager	161 St. Anthony Ave, Ste. 919	St. Paul	MN	55103
Minnesota Pollution Control Agency	Jim Dexter	Environmental Review Specialist	520 Lafayette Rd, Box 25	St. Paul	MN	55155
Minnesota Pollution Control Agency	Kirsten Barta	Regional General Permits	520 Lafayette Rd, Box 25	St. Paul	MN	55155

Agency	Name	Position	Street Address	City	State	Zip
Minnesota Pollution Control Agency	Chris Green		520 Lafayette Rd, Box 25	St. Paul	MN	55155
Minnesota State Historic Preservation Office	Leslie Coburn	Manager, Environmental Review Specialist	50 Sherburne Ave, Suite 203	St. Paul	MN	55155
Minnesota State Historic Preservation Office	Kelly Gragg-Johnson	Environmental Review Specialist	50 Sherburne Ave, Suite 203	St. Paul	MN	55155
Office of the State Archaeologist	Amanda Gronhovd	MN State Archaeologist	328 W Kellogg Blvd	St. Paul	MN	55102
Public Utilities Commission	Bret Eknes	Supervisor	121 7th Place E, Suite 350	St. Paul	MN	55101
Southwest Regional Development Commission	Jayme Trusty	Executive Director	2401 Broadway Ave	Slayton	MN	56172
Minnesota Department of Revenue	Alan Whipple		600 N. Robert St.	St. Paul	MN	55146
Minnesota Department of Public Safety	Jonathan Wolfgram	Deputy Director	445 Minnesota St.,	St. Paul	MN	55101
Minnesota Association of Townships	Kevin Comnick	Director	P.O. Box 267	St. Michael	MN	55376
Minnesota Board of Soil and Water Resources	Ryan Hughes	Manager	525 S Lake Ave, #400	Duluth	MN	55802
Minnesota Board of Soil and Water Resources	Matt Johnson	Wetland Specialist	2532 Hannah Ave NW	Bemidji	MN	56601
Minnesota Board of Soil and Water Resources	Waylon Glienke	Wetland Specialist	1889 E Hwy 2	Grand Rapids	MN	55744
Minnesota Board of Soil and Water Resources	Dave Demmer	Wetland Specialist	525 S Lake Ave, #400	Duluth	MN	55802
Minnesota Board of Soil and Water Resources	Mark Lindhorst	Wetland Specialist	100 N 5th Ave W	Duluth	MN	55802
Minnesota Department of Labor & Industry	Dean Hunter	Chief Electrical Inspector	443 Lafayette Road N.	St. Paul	MN	55155

Tribal Nation Representatives and Tribal Organizations

Tribal Government	Contact Full Name	Position	Street Address	City	State	Zip Code
1854 Treaty Authority	Sonny Myers	Executive Director	4428 Haines Rd	Duluth	MN	55811
Bois Forte Band of Chippewa	Carlos Hernandez	Chairperson	5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Cathy Chavers		5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Amy Mason		5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Perry Drift		5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Shane Drift		5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Miranda Lilya	Tribal Historic Preservation Officer	5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Robert Moyer, Jr.		5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Tara Geshick		5344 Lake Shore Dr	Nett Lake	MN	55772
Bois Forte Band of Chippewa	Jaylen Strong	Tribal Historic Preservation Officer	5344 Lake Shore Dr	Nett Lake	MN	55772
Fond du Lac Band of Lake Superior Chippewa	Robert Abramowski		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Scott Buchanan		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Caleb Dunlap		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Wally Dupuis		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Earl Otis		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Bruce Savage	Chairman	1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Bill Thompson		1720 Big Lake Rd	Cloquet	MN	55720

Tribal Government	Contact Full Name	Position	Street Address	City	State	Zip Code
Fond du Lac Band of Lake Superior Chippewa	Ian Young		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Brad Blacketter		1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa	Evan Schroeder	Tribal Historic Preservation Officer	1720 Big Lake Rd	Cloquet	MN	55720
Fond du Lac Band of Lake Superior Chippewa			1720 Big Lake Rd	Cloquet	MN	55720
Grand Portage Band of Lake Superior Chippewa	Bobby Deschampe	Chair	83 Stevens Rd	Grand Portage	MN	55605
Grand Portage Band of Lake Superior Chippewa	April McCormick		83 Stevens Rd	Grand Portage	MN	55605
Grand Portage Band of Lake Superior Chippewa	Toby Stephens		83 Stevens Rd	Grand Portage	MN	55605
Grand Portage Bank of Lake Superior Chippewa	Agatha Armstrong		83 Stevens Rd	Grand Portage	MN	55605
Grand Portage Bank of Lake Superior Chippewa	Krishna Woerheide		83 Stevens Rd	Grand Portage	MN	55605
Grand Portage Bank of Lake Superior Chippewa	Marie Spry		83 Stevens Rd	Grand Portage	MN	55605
Grand Portage Bank of Lake Superior Chippewa	Rob Hull	Tribal Historic Preservation Officer	83 Stevens Rd	Grand Portage	MN	55605
Leech Lake Band of Ojibwe	Mike Chosa		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Band of Ojibwe	Kyle Fairbanks		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Band of Ojibwe	Gov Relations		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Band of Ojibwe	LeRoy Staples Fairbanks III		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Band of Ojibwe	Steve White		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Bank of Ojibwe	Leonard Fineday		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Bank of Ojibwe	Brandy Tofte		190 Sailstar Drive NW	Cass Lake	MN	56633

Tribal Government	Contact Full Name	Position	Street Address	City	State	Zip Code
Leech Lake Bank of Ojibwe	Faron Jackson, Sr.	Chairman	190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Band of Ojibwe	Craig Tangren		190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Bank of Ojibwe	Ashley Harrison	Tribal Historic Preservation Officer	190 Sailstar Drive NW	Cass Lake	MN	56633
Leech Lake Bank of Ojibwe	Gina Lemon	Tribal Historic Preservation Officer	190 Sailstar Drive NW	Cass Lake	MN	56633
Lower Sioux Indian Community	Deb Dirlam		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Robert L Larsen	President	39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Robert Prescott		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Tyler Prescott		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Miranda Sam		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Nizhoni Smith		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Jospeh O'Brien		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Kristi Schoen		39527 Reservation Hwy 1	Morton	MN	56270
Lower Sioux Indian Community	Cheyanne St. John	Tribal Historic Preservation Officer	39527 Reservation Hwy 1	Morton	MN	56270
Mille Lacs Band of Ojibwe	Melanie Benjamin	Chief Executive	43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Carolyn Beaulieu		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Sheldon Boyd		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Harry Davis		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Jamie Edwards		43408 Oodena Dr	Onamia	MN	56359

Tribal Government	Contact Full Name	Position	Street Address	City	State	Zip Code
Mille Lacs Band of Ojibwe	Shena Matrious		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Wendy Merrill		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Virgil Wind		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Kelly Applegate		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Charles Lippert		43408 Oodena Dr	Onamia	MN	56359
Mille Lacs Band of Ojibwe	Mike Wilson	Tribal Historic Preservation Officer	43408 Oodena Dr	Onamia	MN	56359
Minnesota Chippewa Tribe	Michael LaRoque	President	15542 State Hwy 371 NW	Cass Lake	MN	56633
Minnesota Chippewa Tribe	Joel Smith		15542 State Hwy 371 NW	Cass Lake	MN	56633
Prairie Island Indian Community	Constance Campbell		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Michael Childs, Jr.		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Blake Johnson		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Grant Johnson	President	5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Jody Johnson		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Ronald Johnson		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Valentina Mgeni		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Jessie Seim		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Heather Westra		5636 Sturgeon Lake Rd	Welch	MN	55089
Prairie Island Indian Community	Noah White	Tribal Historic Preservation Officer	5636 Sturgeon Lake Rd	Welch	MN	55089

Tribal Government	Contact Full Name	Position	Street Address	City	State	Zip Code
Red Lake Nation	Jason Defoe		15484 Migizi Dr	Red Lake	MN	56671
Red Lake Nation	Vernelle Lussier		15484 Migizi Dr	Red Lake	MN	56671
Red Lake Nation	Joe Plumer		15484 Migizi Dr	Red Lake	MN	56671
Red Lake Nation	Samuel Strong		15484 Migizi Dr	Red Lake	MN	56671
Red Lake Nation	Darrell Seki, Sr.	Chairman	15484 Migizi Dr	Red Lake	MN	56671
Red Lake Nation	Kade Ferris	Tribal Historic Preservation Officer	15484 Migizi Dr	Red Lake	MN	56671
Shakopee Mdewakanton Sioux Community	Steve Albrecht		1905 Mystic Lake Dr S	Shakopee	MN	55379
Shakopee Mdewakanton Sioux Community	Cole W. Miller	Chairman	1905 Mystic Lake Dr S	Shakopee	MN	55379
Shakopee Mdewakanton Sioux Community	Bill Rudnicki		1905 Mystic Lake Dr S	Shakopee	MN	55379
Shakopee Mdewakanton Sioux Community	Leonard Wabasha	Tribal Historic Preservation Officer	1905 Mystic Lake Dr S	Shakopee	MN	55379
Shakopee Mdewakanton Sioux Community	Joe Bathel		1905 Mystic Lake Dr S	Shakopee	MN	55379
Upper Sioux Community	Jeremy Hamilton		5722 Travers Ln	Granite Falls	MN	56241
Upper Sioux Community	Kevin Jensvold	Chairman	5722 Travers Ln	Granite Falls	MN	56241
Upper Sioux Community	Samantha Odegaard	Tribal Historic Preservation Officer	5722 Travers Ln	Granite Falls	MN	56241
Upper Sioux Community	Adam Savariego		5722 Travers Ln	Granite Falls	MN	56241
Upper Sioux Community	Camille Tanhoff		5722 Travers Ln	Granite Falls	MN	56241
Upper Sioux Community	Caralyn Trutna		5722 Travers Ln	Granite Falls	MN	56241
Upper Sioux Community			5722 Travers Ln	Granite Falls	MN	56241
White Earth Nation	Laura Erickson		35500 Eagle View Rd	Ogema	MN	56569

Tribal Government	Contact Full Name	Position	Street Address	City	State	Zip Code
White Earth Nation	Henry Fox		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Christie Haverkamp		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Mike Laroque		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Nate Mathews		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Jacob McArthur		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Mike Smith		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Eugene Sommers		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Joe Tonihka		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Michael Fairbanks	Chairman	35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Laurie York		35500 Eagle View Rd	Ogema	MN	56569
White Earth Nation	Jaime Arsenault	Tribal Historic Preservation Officer	35500 Eagle View Rd	Ogema	MN	56569
Minnesota Department of Commerce	Chase Christopher	Tribal Liaison	85 7th Place E, Suite 280	Saint Paul	MN	55101