BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
Saint Paul, Minnesota 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
121 Seventh Place East, Suite 350
Saint Paul, Minnesota 55101-2147

In the Matter of the Application of Minnesota Power for a Certificate of Need and a High Voltage Transmission Line (HVTL) Route Permit for the HVDC Modernization Project in Hermantown, St. Louis County

OAH Docket No. 5-2500-39600
MPUC Docket Nos. E-015/CN-22-607 and E-015/TL-22-611

PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDATION OF AMERICAN TRANSMISSION COMPANY LLC

May 3, 2024

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The above-entitled matter came for evidentiary hearing before Administrative Law Judge (ALJ) Jim Mortenson on March 19, 2024 in Saint Paul, Minnesota. A virtual public hearing was held on Wednesday, March 13, 2024. An in-person public hearing was held at the Solway Town Hall in Hermantown, Minnesota on Wednesday, March 13, 2024. Post-hearing briefs and proposed findings were filed on May 3, 2024. Parties' replies to proposed findings and reply briefs were filed on May 22, 2024. The hearing record closed upon receipt of the last post-hearing briefs on May 22, 2024.

The parties to this proceeding are Minnesota Power (MP); American Transmission Company, LLC, by and through its corporate manager ATC Management Inc. (collectively, ATC); the Department of Commerce-Division of Energy Resources (DOC-DER); the Department of Commerce-Energy Environmental Analysis Review Unit (DOC-EERA);[1] Large Power Intervenors (LPI); and the International Union of Operating Engineers Local 49 (Local 49) and the North Central States Regional Council of Carpenters (NSRCC).

Appearances were made by the following: for MP, David R. Moeller, Senior Regulatory Counsel, and Kodi J. Verhalen and Valerie Herring, Taft Stettinius & Hollister LLP; for ATC, David R. Zoppo, Husch Blackwell, LLP, Eric F. Swanson, Elizabeth H.

[1] The Commission lists only EERA as a party to this matter. ORDER IDENTIFYING ALTERNATIVE PROPOSAL FOR ENVIRONMENTAL ASSESSMENT SCOPE, GRANTING VARIANCE, AND NOTICE OF AND ORDER FOR HEARING at 8, E-015/CN-22-607, TL-22-611 (Nov. 29, 2023) (hereinafter "NOTICE OF AND ORDER FOR HEARING").

Schmiesing, and Christopher J. Cerny, Winthrop & Weinstine P.A.; for the DOC, Gregory Merz and Katherine Arnold, Assistant Attorneys General; for LPI, Amber Lee and Andrew Moratzka, Stoel Rives, LLP; and for Local 49 and NSRCC, Charles Sutton, Charles Sutton Consulting, LLC.

STATEMENT OF THE ISSUES

On June 1, 2023, MP filed a combined application for a certificate of need and a high voltage transmission line (HVTL) route permit for the High Voltage Direct Current (HVDC) Modernization Project (HVDC Modernization Project or MP Project).[2] On August 8, 2023, the Minnesota Public Utilities Commission (Commission) issued an Order accepting as complete MP's combined application, and r directing the DOC-EERA to prepare an environmental assessment (EA) regarding the certificate of need and HVTL route permit. On August 9, 2023, ATC petitioned to intervene as a party to the proceeding.[3] On September 15, 2023, ATC submitted comments on the EA scope, proposing an alternative (Arrowhead Substation Alternative) to the route and interconnection location of the MP Project.[4] In brief, the Arrowhead Substation Alternative eliminates the need for MP's proposed new St. Louis County 345/230 kV substation and instead connects the HVTL to the alternating current (AC) bulk electric transmission system through ATC's existing 345/230 kilovolt (kV) Arrowhead Substation (ATC Arrowhead Substation).[5] After Public Information and EA Scoping Meetings were held and additional comments on the EA scope were received, the Commission issued an Order on November 29, 2023, requiring the inclusion of the MP Project and the Arrowhead Substation Alternative in the EA scoping decision.

The Notice of and Order for Hearing requested that the ALJ develop a record on the viability of the Arrowhead Substation Alternative and develop a full record addressing issues that are relevant to the Commission's certificate of need and permit decisions.[6] The record that developed in this contested case proceeding was primarily focused on the viability of the Arrowhead Substation Alternative. Issues relevant to the Commission's certificate of need and permit decisions were also addressed and a full record was developed. The issues addressed include:

A. Has Minnesota Power established the need for the HVDC Modernization Project?

[2] Ex. MP-104 (MP Application).
[3] ATC Petition to Intervene (Aug. 9, 2023) (eDocket No. 20238-198112-01).
[4] Ex. DOC EERA-508, ATC Scoping Comments on Environmental Assessment (Sept. 15, 2023) (hereinafter ATC Scoping Comments).
[5] Ex. DOC EERA-508, ATC Scoping Comments at 2.
[6] NOTICE OF AND ORDER FOR HEARING at 6.

B. If so, does a modification to the MP Project to include the ATC Arrowhead Substation Alternative provide a more reasonable and prudent alternative than Minnesota Power's proposal to construct a new St. Louis County Substation and associated new transmission lines?

C. What conditions, if any, should the Commission incorporate in any order approving a Certificate of Need?

D. Should Minnesota Power be granted a Route Permit for the transmission lines necessary for either the MP Proposal or the Arrowhead Substation Alternative?

E. What conditions, if any, should the Commission incorporate in any Route Permit granted for the Project?

SUMMARY OF CONCLUSIONS

The Administrative Law Judge concludes that MP has established the need for the HVDC Modernization Project and should be granted a Certificate of Need.

The Administrative Law Judge also concludes that modification of the MP Project to include the ATC Arrowhead Substation Alternative is a more reasonable and prudent alternative than the MP proposal to construct a new St. Louis County Substation and associated transmission lines.

MP should be granted a Route Permit that incorporates the Arrowhead Substation Alternative.

Based upon the evidence in the hearing record, the Administrative Law Judge makes the following Findings of Fact, Conclusions of Law and Recommendations:

FINDINGS OF FACT

I. BACKGROUND

A. The HVDC Line

1. The focus of this proceeding is MP's 550-megawatt (MW), 250 kV, approximately 465-mile long Square Butte HVDC transmission line, which runs from Center, North Dakota to Hermantown, Minnesota (HVDC Line).[7] This line transmits electricity in direct current (DC) from one end to the other and is connected to the AC transmission system at either endpoint.[8] This allows MP to transfer electricity directly from

[7] Ex. MP-104 at § 1.1 (MP Application); Ex. ATC-243 at 6–8 (Dagenais Rebuttal).
[8] Ex. ATC-243 at 6–7 (Dagenais Rebuttal).

North Dakota to northeastern Minnesota, without any flow moving onto the AC transmission system in between these two points. However, once power from the HVDC Line is injected onto the AC transmission system in northeastern Minnesota, it becomes comingled with network flows of power from other sources.[9]

2. With its application in this proceeding, MP is seeking to upgrade the converter stations on either end of the HVDC Line, which are in need of modernization after being operated for almost 45 years. MP is proposing to interconnect the upgraded converter station in Minnesota to the AC high-voltage transmission system through a proposed new 345 kV St. Louis County Substation.[10] ATC has proposed that MP modify the Project's point-of-interconnection in Minnesota by connecting the upgraded converter station to the Arrowhead Substation, rather than the new 345 kV St. Louis County Substation, which would be located less than a mile away.[11]

B. The Parties

1. MP

3. MP is an investor-owned public utility headquartered in Duluth, Minnesota. MP 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.[12]

4. 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, Minnesota Power is a member of the Midcontinent Independent System Operator, Inc. (MISO) and the Midwest Reliability Organization (MRO).[13]

5. Minnesota Power operates a 1,600-megawatt ("MW") peak demand system with electric power generation in the form of renewable wind, solar, and hydropower generation facilities as well as coal, biomass, and natural gas-fired power plants in Minnesota and additional wind facilities in North Dakota. Minnesota Power also purchases electricity from independent power producers and other public utilities. Minnesota Power was the first utility in the state to deliver 50 percent of its power from renewable resources

[9] Ex. ATC-243 at 6–7 (Dagenais Rebuttal).
[10] Ex. ATC-227 at 7 (Dagenais Direct).
[11] Ex. ATC-227 at 9 (Dagenais Direct).
[12] Ex. MP-104 at §§ 1.1, 1.2 (MP Application).
[13] Ex. MP-104 at § 1.2 (MP Application).

and a significant portion of that carbon-free energy is currently delivered to Minnesota Power's service area by the HVDC Line.

2. ATC

6. ATC is a single-purpose, transmission-only company.[14] ATC is distinct from a traditional vertically integrated "investor-owned utility" (IOU), such as MP, as its sole purpose is to plan, construct, operate, maintain, and expand the high-voltage electric transmission system in portions of Wisconsin, Michigan, Minnesota, and Illinois.[15]

7. ATC owns, operates, and maintains over 10,000 miles of electric transmission lines and more than 580 electric substations across Wisconsin, Minnesota, and Illinois and is a transmission owning member of the Midwest Independent System Operator (MISO).[16]

8. ATC now has 26 member-owners, including several IOUs (including MP), municipal electric utilities, and electric cooperatives.[17]

9. ATC is a Minnesota Transmission Owner and owns the ATC Arrowhead Substation, located near Hermantown, Minnesota.[18] ATC also owns two 230 kV circuit breakers and switches that are physically located in what is generally referred to as MP's 230/115 kV Arrowhead Substation, which is immediately adjacent to ATC's Arrowhead Substation), 12 miles of 345 kV line within Minnesota that connects to the Arrowhead Substation and runs southeast into Wisconsin, and a short jumper line that connects the ATC Arrowhead Substation to MP's 230/115 kV Substation.[19]

C. Regional Transmission Planning And Coordination

10. MISO is the regional transmission grid operator, whose responsibilities include managing the operation of the regional high voltage transmission system to reliably serve customers and planning expansions to that system through open, collaborative, and stakeholder-based processes such as long-range transmission planning (LRTP) and the MISO Transmission Expansion Plan (MTEP) process.[20]

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[14] Ex. ATC-200 at 4 (McKee Direct); *see* Wis. Stat. § 196.485(1)(ge).
[15] Ex. ATC-200 at 4 (McKee Direct). ATC does not and cannot provide retail electric service to end user customers. Ex. ATC-200 at 4 (McKee Direct).
[16] Ex. ATC-200 at 4 (McKee Direct).
[17] Ex. ATC-202 at 8 (McKee Rebuttal).
[18] Ex. ATC-200 at 4 (McKee Direct).
[19] Ex. ATC-200 at 4 (McKee Direct).
[20] Ex. ATC-227 at 21–22 (Dagenais Direct); Ex. ATC-243 at 5 (Dagenais Rebuttal). MISO's LRTP work is an effort to strengthen the electric grid by identifying and including

11. Because the transmission system is an interconnected grid, with multiple entities owning these interconnected assets, transmission owners and operators do not act in isolation. Therefore, ATC regularly interacts with MP and other neighboring transmission owners in the normal course of business on such matters as planning new transmission facilities and real time system operations.[21] Formally, this relationship and the reciprocal obligations between owners are spelled out in transmission-to-transmission (or T-T) interconnection agreements and in ATC's local planning process, as described in MISO's tariff.[22]

12. In addition, ATC interacts with MP and all transmission owning members of MISO on a broad range of matters such as planning, rates and cost recovery, and operational issues through MISO committees, such as the Transmission Owners Committee, and other collaborative efforts.[23] ATC actively participates in these various MISO activities, with Bob McKee, ATC's Strategic Projects and Execution Director having served as chair of MISO's Planning Advisory Committee for seven years.[24]

13. One critical MISO process is the MTEP regional planning process, which MISO describes as "the culmination of a comprehensive, stakeholder-inclusive planning process to build and maintain an electric infrastructure to meet local and regional reliability standards, enable competition among wholesale capacity and energy suppliers in the MISO markets, and allow for competition among transmission developers."[25]

14. This open, transparent and stakeholder-based process is required by Attachment FF of the MISO Tariff, which establishes MISO's transmission expansion planning protocol and requires transmission owners to submit proposed transmission projects for review through the MTEP stakeholder review process.[26] As ATC witness Thomas Dagenais, ATC's Director of System Planning and who previously served as a MISO reliability coordinator, explained:

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in the regional plan new projects that will boost electric reliability for communities and consumers. The first two phases – or "Tranches" – have focused on the central and north areas of MISO. Tranche 1 was approved for inclusion in the regional plan by MISO's board of directors in July of 2022 and includes 18 projects – an investment totaling $10.3 billion. MISO is currently working with stakeholders on developing the Tranche 2 portfolio. Ex. ATC-200 at 7, n.1 (McKee Direct). MTEP is discussed further, below.

[21] Ex. ATC-200 at 4 (McKee Direct).

[22] Ex. ATC-200 at 4–5 (McKee Direct).

[23] Ex. ATC-200 at 5 (McKee Direct).

[24] Ex. ATC-200 at 1-2 (McKee Direct); Ex. ATC-202 at 14 (McKee Rebuttal).

[25] https://www.misoenergy.org/planning/transmission-planning/mtep/#t=10&p=0&s=&sd= (last viewed May 2, 2024).

[26] Ex. ATC-243 at 18 (Dagenais Rebuttal).

> The [MTEP] process begins with the development or refinement of planning models in which new transmission projects will be studied: transmission owners provide MISO with their planning criteria and the models they used to develop new projects, and those models are subject to review and feedback from stakeholders (e.g., other transmission owners; transmission customers; state regulators; consumer advocates; etc.). By September 15 of the year before the plan is released, transmission owners submit new transmission projects for review and evaluation, specifying the type of project and the target Appendix for the project (i.e., A or B). Shortly thereafter, MISO posts all proposed projects and power flow models. MISO and other stakeholders review those projects through a collaborative, open, and transparent process that lasts several months: stakeholders can submit comments and feedback on, and offer alternatives to, the transmission projects that have been proposed. MISO considers this feedback and then evaluates the proposed project within planning models that were developed earlier in the MTEP process. Beginning in the first quarter of the MTEP plan year, MISO holds several subregional planning meetings (SPMs) to present proposed projects, provide the results of its independent evaluation, and address feedback received from stakeholders, including with respect to any alternatives that have been proposed. MISO staff will then present a final list of MTEP projects that will be proposed for Board approval and a draft of the current cycle MTEP report. The MISO Board of Directors then decides whether to approve the set of projects at the end of the calendar year.[27]

D. Summary Of The Application And Alternative

1. MP Project

15. MP has proposed the HVDC Modernization Project to upgrade and modernize the HVDC converter stations on either end of its approximately 465-mile long HVDC Line. The existing HVDC terminals have successfully operated for 45 years, however, in recent years, MP has experienced outages in these HVDC terminals due to failures of various pieces of aging equipment and components and the Project is necessary to continue to position the grid for the clean energy transition, and improve the reliability of regional transmission system.[28]

16. According to MP, this involves constructing: (1) a new HVDC converter station and (2) a new 345 kV St. Louis County Substation in Hermantown, Minnesota; (3) a new less than one-mile 345 kV transmission line to connect the new converter station to the new 230/345 kV St. Louis County Substation; and (4) a new less than one-mile double-circuit 230 kV transmission line to connect the new St. Louis County Substation to MP's

[27] Ex. ATC-243 at 17–18 (Dagenais Rebuttal).
[28] Ex. MP-104 at § 1.2 (MP Application).

existing 230/115 kV Arrowhead Substation, to which the current HVDC converter station is interconnected (MP Proposal).[29]

17. MP stated that the new 345 kV St. Louis County Substation—which would be located less than a mile away from ATC's existing 345/230 kV substation—is required to interconnect the Project to the AC bulk electric transmission system and to accommodate potential future transmission expansion in the future.[30]

18. The HVDC Modernization Project is currently listed in Appendix B of the MISO MTEP, meaning that it has not been formally approved by MISO.[31] The Project is also not included on MISO's list of MP-sponsored projects being reviewed as part of the current MTEP cycle for formal approval and inclusion in MTEP Appendix A.[32] Although MP has provided information regarding this Project to ATC in one-on-one discussions and to MISO during planning meetings, ATC found no mention of the Project being evaluated or studied in documentation from MISO's West Subregional Planning Meeting held during the current MTEP study cycle, or any mention of the MP Project in documentation from MISO's West Subregional Planning Meetings and West Technical Study Task Force Meetings going back to 2021 and 2022.[33]

2. ATC Arrowhead Substation Alternative

19. ATC supports the MP Project generally and is not offering a "system alternative" that fundamentally changes the MP Project. Instead, ATC is proposing a modification to one aspect of the MP Project—the means by which the HVDC assets and converter station interconnect to the high voltage transmission system in Minnesota.[34]

a. Description

20. The only aspect of the MP Project that the Arrowhead Substation Alternative would modify is its point-of-interconnection to the AC high voltage transmission system in Minnesota: instead of connecting the HVDC Line and upgraded converter station to a new 345-kV St. Louis County Substation, ATC proposes connecting these facilities to its

[29] *See* Ex. MP-104 at § 2.1 (MP Application); Ex. MP-120 at 11–12 (McCourtney Direct); Ex. MP-120, Schedule 1 at 5 (McCourtney Direct) (map of the MP Proposal).
[30] *See* Ex. MP-104 at §§ 2.1.1 and 2.1.2.4 (MP Application); Ex. ATC-227 at 7–8 (Dagenais Direct).
[31] Ex. ATC-243 at 19 (Dagenais Rebuttal); Ex. ATC-250, Schedule 5 (Dagenais Rebuttal).
[32] Ex. ATC-243 at 19 and Schedule 6 (Dagenais Rebuttal).
[33] Ex. ATC-243 at 19; Ex. ATC-251, Schedule 6 (Dagenais Rebuttal).
[34] ATC Brief at 32-33.

existing 345/230-kV Arrowhead Substation.[35] This is not a fundamental change or "system alternative" to the MP Project that MP originally proposed—the Arrowhead Substation Alternative simply changes the location at which the MP Project "plugs in" to the AC transmission system in Minnesota.[36]

21. ATC's proposed point-of-interconnection for the MP Project—its 345/230-kV Arrowhead Substation—is located in Hermantown, Minnesota, about a mile from the location of MP's proposed upgraded converter station.[37] It is directly adjacent and connected to MP's 230/115-kV Arrowhead Substation and houses (among other equipment) a 345/230 kV transformer, a 230 kV phase-shifting transformer (PST), and several 345 kV capacitor banks.[38]

22. ATC constructed this substation almost 20 years ago as part of the Arrowhead-Weston 345 kV Transmission Line Project—an approximately 220-mile long 345 kV transmission line that runs from the Arrowhead Substation, generally southwest to the Weston Substation in north-central Wisconsin.[39] Both this Commission and the Public Service Commission of Wisconsin (PSCW) approved that project after two incidents in the late 1990s caused reliability issues revealing substantial weaknesses in the transmission system between Minnesota and Wisconsin.[40] In approving the Arrowhead-Weston project, both commissions recognized that the new transmission line and substation would improve the reliability of the regional transmission system and benefit customers in both Minnesota and Wisconsin.[41]

23. One of the main benefits of ATC's proposal is the ability to interconnect the MP Project to the AC transmission system without the need for an entirely new substation. The Arrowhead Substation is physically and technically capable of interconnecting the MP Project without expanding the existing substation footprint.[42] In fact, when the ATC

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[35] Ex. ATC-205 at 3 (Johanek Direct); Ex. ATC-227 at 8–9 (Dagenais Direct); Ex. DOC DER at 31 (Zajicek Direct); *see also* Ex. ATC-215, Schedule 1 (Bradley Direct) (map depicting Arrowhead Substation Alternative).
[36] Ex. ATC-227 at 8 (Dagenais Direct).
[37] Ex. ATC-218 at 4 (Larsen Direct).
[38] *See* Ex. ATC-219, Schedule 1 (Larsen Direct); Ex. ATC-220, Schedule 2 (Larson Direct) (depicting current layout of ATC 345/230-kV Arrowhead Substation).
[39] Ex. ATC-218 at 4–5 (Larsen Direct); *see also* Ex. ATC-243 at 8, n.8 (Dagenais Rebuttal); Ex. ATC-247, Schedule 2 (Dagenais Rebuttal) (map depicting the Arrowhead-Weston Transmission Project); Ex. ATC-248, Schedule 3 (Dagenais Rebuttal).
[40] *See, e.g.*, Ex. MP-122, Schedule 32 at 13 (Winter Direct); *see also In Re Joint Application of Minnesota Power Co. and Wis. Pub. Serv. Corp.*, Docket No. 05-CE-113, 2001 Wisc. PUC LEXIS 81 at **5–6, Final Decision (Oct. 30, 2001).
[41] Ex. ATC-243 at 8–9 (Dagenais Rebuttal); Ex. ATC-202 at 9–10 (McKee Rebuttal).
[42] Ex. ATC-218 at 5–6 (Larsen Direct).

Arrowhead Substation was initially developed, it was designed to be expanded when a future system need (such as the MP Project) came along.[43]

24. The Arrowhead Substation Alternative would leverage this expandability by adding a third rung to the bus in the southwest corner of the substation, leaving three open bays to accommodate three additional 345 kV transmission lines.[44] Two of those three bays could be used to accommodate a new double-circuited 345 kV transmission line from MP's updated converter station, with one bay available to accommodate additional transmission lines that may be needed in the future.[45]

b. Cost

25. ATC estimates the cost of the Arrowhead Substation Alternative to be approximately $42.0 million, in 2022 dollars.[46] ATC witness and Consultant Project Manager Dustin Johanek, who has over 13 years of experience with ATC leading project teams in executing substation and transmission line projects, developed this cost estimate after consultations with ATC's suppliers and contractors.[47]

26. Mr. Johanek provided a breakdown of those costs, which is shown below in a side-by-side comparison with MP's cost estimate for the Arrowhead Substation Alternative.

Table 1: Arrowhead Substation Alternative Cost Estimate Comparison ($M)[48]

	Project Component	ATC Estimate			Owner	MP Estimate[49]		
		Low	Med	High		Low	Med	High
1	**Minnesota Land Acquisition**	0.5	0.5	0.5	MP	7	10	13

[43] Ex. ATC-218 at 5–6 (Larsen Direct); *see also* Ex. ATC-220, Schedule 2 (Larsen Direct); Ex. ATC-221, Schedule 3 (Larson Direct).
[44] Ex. ATC-218 at 5–6 (Larsen Direct); *see also* Ex. ATC-220, Schedule 2 (Larsen Direct); Ex. ATC-221, Schedule 3 (Larson Direct).
[45] Ex. ATC-218 at 5–6, 8 (Larsen Direct).
[46] Tr. at 122 (Johanek)
[47] Ex. ATC-205 at 1–2, 4 (Larson Direct); Ex. ATC-206, Schedule 1 (Johanek Direct); Ex. ATC-209 at 7 (Johanek Rebuttal).
[48] Ex. ATC-209 at 8 (Johanek Rebuttal) (modified by corrections Mr. Johanek provided at the evidentiary hearing, to add $500,000 in estimated easement costs for the transmission lines included in the Arrowhead Substation Alternative and $2 million for the HVDC Line Entrance). Tr. at 120–21 (Johanek).
[49] The Total for the MP Estimate includes rounding. *See* Ex. MP-122, Schedule 2 at 2 (Winter Direct).

2	**HVDC Line Entrance**	2	2	2	MP	1.4	2	2.6
3	**HVDC 345 kV Line Entrance for Ckt #2**	2.2	3.1	4.0	MP	2.2	3.1	4
4	**HVDC-Arrowhead 345kV Double Ckt**	7.8	8.7	10.4	MP	4.7	6.7	8.7
5	**Arrowhead 345kV Line Reconfiguration**	Included in line 4			ATC	1	1.4	1.8
6	**Arrowhead 345kV/230 kV Sub Expansion**	24.0	27.7	33.2	ATC	15.4	22	28.6
7	**Arrowhead 230kV Phase Shifting Transformer**	0	0	0	-/ATC	23.5	33.5	43.6
8	**Arrowhead 230 kV Bus Reconfigurations**	Included in line 6			MP	3.4	4.9	6.4
TOTAL		37.4	42.0	50.1		60	85	110

27. As this table demonstrates, the primary driver of the cost difference between these two estimates is MP's inclusion of the cost of a new phase shifting transformer (PST) at ATC's Arrowhead Substation.[50] The Arrowhead PST was initially installed to help manage power flows and support voltage stability between the transmission systems in Wisconsin and Minnesota.[51] However, the significant changes in the operation of the transmission system over the last 20 years have rendered the current PST obsolete and that a new PST is therefore unnecessary.[52]

28. The ATC and MP cost estimates for the Arrowhead Substation Alternative also differ in terms of land acquisition costs. As noted above, Mr. Johanek included $500,000 in land acquisition costs, related to the small expansion of the right-of-way required for 345 kV double circuit line running from the HVDC converter station to the ATC Arrowhead Substation.[53]

29. The ALJ finds that MP's estimate of the cost of the Arrowhead Substation Alternative is overstated because includes MP's land acquisition costs for the MP Proposal,

[50] Ex. ATC-209 at 8 (Johanek Rebuttal).
[51] Ex. ATC-227 at 33, 37–38 (Dagenais Direct); Ex. ATC-243 at 31–33 (Dagenais Rebuttal).
[52] Ex. ATC-227 at 33, 37–38 (Dagenais Direct); Ex. ATC-243 at 31–33 (Dagenais Rebuttal).
[53] Tr. at 120–21 (Johanek).

including MP's costs for all rights-of-way necessary for the new 345 kV line, new St. Louis County Substation, and two new 230 kV lines necessary for the MP Proposal. These costs are not necessary for the Arrowhead Substation Alternative and should be not be included in the cost estimate for the Arrowhead Substation Alternative.

30. The ALJ finds that the appropriate cost estimate for the Arrowhead Substation Alternative is $42 million.[54]

c. Route

31. ATC witness Michael Bradley, Consultant Transmission Line Engineer with ATC for the last 15 years, explained that ATC considered a wide range of factors when determining the proposed route for the double-circuited 345 kV line included as part of the Arrowhead Substation Alternative, including construction access, pulling locations, access points into ATC's 345/230 kV Arrowhead Substation and MP's new converter station, other transmission line crossings, construction and operational safety, and the ability to utilize and share existing easements and ROW to the greatest extent feasible.[55] ATC also considered environmental concerns in developing the route, such as stream crossings and the location of an existing archaeological site.[56]

32. Mr. Bradley also explained that ATC designed its proposed route to allow MP's HVDC Line to remain in-service during construction of the new double-circuited 345 kV line, while limiting environmental and community impacts by siting it in the existing ROW for MP's HVDC Line to the maximum extent possible.[57] Specifically, the east-west segment of the Arrowhead Substation Alternative transmission line runs adjacent to MP's existing HVDC Line and will share 25 feet of that line's existing ROW, minimizing impacts and the clearing of trees and other flora as much as possible, while providing enough clearance for the new line to be safely constructed while the existing transmission line remains in service.[58]

33. Additionally, ATC selected the location of the north-south segment to minimize impacts to forested wetlands, minimize waterway crossings, and avoid impacts to archaeological sites.[59] There are no houses within the proposed route for the Arrowhead Substation Alternative and thus no landowner relocation would be required.[60] In contrast,

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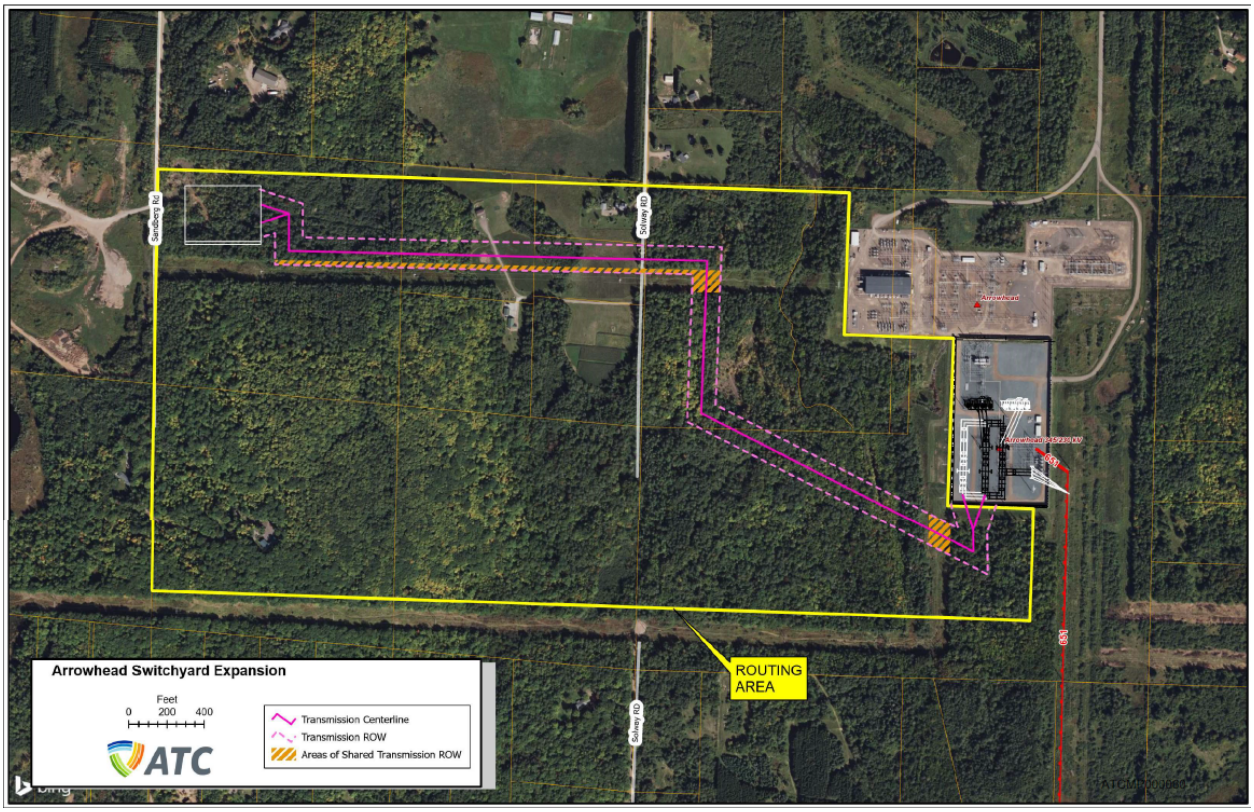
[54] To determine the impact to MP, certain of these costs (the assets that would be owned by ATC) require a tax gross-up to be applied, resulting in a best estimate cost to MP of $45.5 million. Tr. at 130–31 (Johanek).
[55] Ex. ATC-214 at 9 (Bradley Direct).
[56] Ex. ATC-214 at 9 (Bradley Direct).
[57] Ex. ATC-214 at 9 (Bradley Direct).
[58] Ex. ATC-214 at 9 (Bradley Direct).
[59] Ex. ATC-214 at 9–10 (Bradley Direct).
[60] Ex. ATC-214 at 10 (Bradley Direct).

for its proposal, MP acquired parcels including residences and has indicated that those residences will be vacated and demolished by the end of 2025.[61]

34. A map of the Arrowhead Substation Alternative is provided in Figure 1, below.[62]

Figure 11: Arrowhead Substation Alternative



35. Further, the Arrowhead Substation Alternative will not require the construction of a new substation along the route, and will not require an expansion of the footprint for ATC's existing Arrowhead Substation.[63] As a result, the Arrowhead Substation Alternative avoids much of the impact to aesthetics that would occur with the MP Proposal.[64] ATC will further minimize the aesthetic impacts of the Arrowhead Substation Alternative, and specifically the visual impacts of the transmission infrastructure, through the use of weathering steel transmission structures.[65]

[61] Ex. MP-120 at 6–7 (McCourtney Direct).
[62] *See* Ex. ATC-215, Schedule 1 (Bradley Direct).
[63] Ex. ATC-214 at 10 (Bradley Direct).
[64] Ex. ATC-214 at 10 (Bradley Direct).
[65] Ex. ATC-214 at 10 (Bradley Direct).

d. Timing

36. ATC's Project Manager for the Arrowhead Substation Alternative, Mr. Johanek, explained that ATC prepared a high-level schedule for construction of the Arrowhead Substation Alternative to confirm that ATC can meet the April 2030 in-service date (ISD) for the Project indicated by MP in its Certificate of Need Application.[66] As Mr. Johanek explained, procurement of substation materials—including a second new 345/230 kV transformer—has been identified as the critical path long lead time item. ATC contacted its approved vendors and incorporated the lead times communicated by them into this schedule.[67] ATC can reliably serve the Project using the existing 345/230 kV transformer at the Arrowhead Substation until the new transformer is obtained and installed.[68]

37. Mr. Johanek further explained that ATC also discussed procurement matters with its potential suppliers and has added this major equipment to the ATC material forecast sheet to increase visibility to these potential vendors.[69] ATC has built an extended amount of scheduling contingency into the timeline, allowing for flexibility in completing portions of the work prior to the critical path items, allowing for coordination with MP and allowing for acceleration of the ISD if desired.[70]

38. Approval of the Arrowhead Substation Alternative will also require amendment of the ATC-MP T-T interconnection agreement by editing Appendix A, "Points of Interconnection," of the current agreement—a two-page document that describes the various facilities owned, operated, and maintained by either utility at their respective Arrowhead substations.[71] Appendix A would be edited to describe the facilities approved by the Commission in this proceeding, which utility is responsible for owning, operating, and maintaining those facilities, and a "one-line" diagram depicting the updated facilities.[72] ATC witness Mr. McKee stated that this is a straightforward process that should only take a few days to accomplish and would not in any way delay the ISD of the Project.[73]

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[66] Ex. ATC-205 at 8 (Johanek Direct); Ex. ATC-207, Schedule 2 (Johanek Direct); Ex. ATC-209 at 3-4 (Johanek Rebuttal). For the MP indicated in-service date, *see* Ex. MP-104 at §§ 2.2.1 and 2.2.3.
[67] Ex. ATC-205 at 8 (Johanek Direct).
[68] Ex. ATC-227 at 32–33 (Dagenais Direct).
[69] Ex. ATC-209 at 4 (Johanek Rebuttal).
[70] Ex. ATC 209 at 4 (Johanek Rebuttal).
[71] Ex. ATC-200 at 16 (McKee Direct); Ex. ATC-202 at 17 (McKee Rebuttal).
[72] Ex. ATC-200 at 16 (McKee Direct); Ex. ATC-202 at 17 (McKee Rebuttal).
[73] Ex. ATC-200 at 16–17 (McKee Direct); Ex. ATC-202 at (McKee Rebuttal).

E. Procedural Background

39. On June 1, 2023, MP applied to the Commission for a Certificate of Need and a Route Permit for the MP Project.[74]

40. On June 7, 2023, the Commission issued a Notice of Comment Period on Application Completeness, requesting comment on the following topics:[75]

- Does the certificate of need application contain the information required under Minn. R. 7849.0220, subp. 2?
- Should the certificate of need application be evaluated using the Commission's informal process or referred to the Office of Administrative Hearings for a contested case hearing?
- Should the certificate of need and route permit applications be processed jointly (i.e., joint public information meetings, joint environmental review, and joint public hearings)?
- Does the route permit application contain the information required under Minn. R. 7850.3100?
- Are there any contested issues of fact with respect to the representations made in the route permit application?
- Should an advisory task force be appointed?
- Are there any additional procedural requirements that should be considered?

41. The Commission set the following schedule: initial comments by June 20, 2023; reply comments by June 27, 2023; and supplemental comments by June 30, 2023.[76]

42. On June 8, 2023, DOC-DER filed comments concluding that the application was complete.[77]

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[74] Ex. MP-104 (MP Application)
[75] Notice of Comment Period on Application Completeness at 1, E-015/CN-22-607, TL-22-611 , E-015/CN-22-607, TL-22-611 (June 7, 2023) (eDocket No. 20236-196414-02).
[76] Notice of Comment Period on Application Completeness at 1, E-015/CN-22-607, TL-22-611 , E-015/CN-22-607, TL-22-611 (June 7, 2023) (eDocket No. 20236-196414-02).
[77] Comments of the Minnesota Department of Commerce, Division of Energy Resources (June 8, 2023) (eDocket No. 20236-196454-01).

43. On June 20, 2023 LPI filed comments requesting that the Commission require additional record development on certain issues.[78]

44. On June 20, 2023, DOC-EERA filed comments recommending the Commission accept the route permit application as substantially complete, to take no action on an advisory task force, request a full Administrative Law Judge report with recommendations, and process the route permit application jointly with the certificate of need application, including joint environmental review.[79]

45. On June 27, 2023, MP filed reply comments responding to the DOC-DER, LPI, and DOC-EERA.[80]

46. On June 27, 2023, Local 49/NCSRCC filed reply comments recommending the Commission accept the MP's joint application as complete.[81]

47. On June 30, 2023, Laborers' International Union of North America (LiUNA) Minnesota & North Dakota filed supplemental comments recommending the Commission accept the MP's joint application as complete, recommending the applications be processed jointly, and that the certificate of need application be evaluated using the Commission's informal process.[82]

48. On June 30, 2023, LPI filed supplemental comments requesting record development on certain issues.[83]

49. One June 30, 2023, MP filed supplemental comments providing affidavits of compliance with notice requirements.[84]

50. On August 4, 2023, the Commission issued a Notice of Public Information and EA Scoping Meetings to take place in-person at the Solway Town Hall in Cloquet,

[78] LPI Initial Comment (June 20, 2023) (eDocket No. 20236-196686-03).
[79] Ex. DOC EERA500 (Comments and Recommendations on Application Completeness).
[80] MP Reply Comment on Application Completeness (June 27, 2023) (eDocket No. 20236-196939-02).
[81] Local 49/NCSRCC Reply Comment (June 27, 2023) (eDocket No. 20236-196932-01).
[82] LiUNA Supplemental Comment (June 30, 2023) (eDocket No. 20236-197184-01).
[83] LPI Supplemental Comment (June 30, 2023) (eDocket No. 20236-197125-03).
[84] MP Supplemental Comment (June 30, 2023) (eDocket No. 20236-197122-01).

Minnesota on August 29, 2023, and virtually on August 30, 2023.[85] In the Notice, the Commission sought comments on the following questions:[86]

- What potential human and environmental impacts of the proposed project should be considered in the environmental assessment?
- What are the possible methods to minimize, mitigate, or avoid potential impacts of the proposed project?
- Are there any alternative routes or route segments that should be considered to address potential impacts associated with the 345 kV AC, 230 kV AC, and 250 kV DC transmission lines?
- Are there any unique characteristics of the proposed route or the project that should be considered?
- Are there other ways to meet the stated need for the project, for example, a different size project or a different type of facility? If so, what alternatives to the project should be studied in the EA?
- Are there any items missing or mischaracterized in the certificate of need or route permit applications or issues that need further development?

51. The Commission also provided in the Notice that commenters may propose an alternative, and, if proposing an alternative route or route segment, that the commenter consider what impact the alternative addresses and how the alternative mitigates the impacts when compared to the applicant's proposed route.[87]

52. On August 8, 2023, the Commission issued an Order accepting as complete MP's combined application, and directing the DOC-EERA to prepare an EA regarding the certificate of need and HVTL route permit.[88]

[85] Notice of Public Information and EA Scoping Meetings at 1, E-015/CN-22-607, TL-22-611 (August 4, 2023) (eDocket No. 20238-198002-01).
[86] Notice of Public Information and EA Scoping Meetings at 2, E-015/CN-22-607, TL-22-611 (August 4, 2023) (eDocket No. 20238-198002-01).
[87] Notice of Public Information and EA Scoping Meetings at 2, E-015/CN-22-607, TL-22-611 (August 4, 2023) (eDocket No. 20238-198002-01).
[88] ORDER ACCEPTING APPLICATION AS COMPLETE, AUTHORIZING JOINT REVIEW UNDER INFORMAL PROCEDURE, AND REQUESTING SUMMARY PROCEEDING, E-015/CN-22-607, TL-22-611 (Aug. 8, 2023) (eDocket No. 20238-198074-01).

53. On August 9, 2023, ATC petitioned to intervene as a party.[89]

54. On August 29, 2023 the noticed in-person Public Information and EA Scoping Meeting was held, and on August 30, 2023, the noticed virtual Public Information and EA Scoping Meeting was held in accordance with the Commission's Notice of Public Information and EA Scoping Meetings. At these meetings, presentations were made by the Staff of the Commission, MP, and DOC-EERA, which provided details on the Project, the EA to be prepared, and the procedure for reviewing MP's applications. Oral comments were received at the meeting from the public and written comments were submitted after the meeting.

55. On September 13, 2023, MP filed written comments regarding the scope of the EA modifying the originally-filed proposal to expand the Project route width, and provided information in response to public comments received at the Public Information and EA Scoping Meetings.[90]

56. On September 15, 2023, ATC filed written comments regarding the scope of the EA and proposing the ATC Arrowhead Substation Alternative.[91]

57. On September 20, 2023, MP filed a request to respond to scoping alternatives proposed during the public comment and EA scoping period.[92]

58. On September 22, 2023, the Minnesota Department of Natural Resources (DNR) filed comments on the EA scope, noting that MP had not yet engaged DNR staff in early coordination on the MP Project, and proposed that analysis of potential impacts to the West Rocky Run trout stream from both the MP Project and ATC Arrowhead Substation Alternative be included in the EA.[93]

59. On September 29, 2023, MP filed comments in response to the ATC Arrowhead Substation Alternative and conditions proposed to be evaluated in the EA. MP commented that it opposed the ATC Arrowhead Substation Alternative and that it should

[89] ATC Petition to Intervene (Aug. 9, 2023) (eDocket No. 20238-198112-02).
[90] Ex. DOC EERA-508 (MP Scoping Comments on Environmental Assessment (Sept. 13, 2023)).
[91] Ex. DOC EERA-508 (ATC Scoping Comments)..
[92] Ex. DOC EERA-508 (MP's Request to Respond to Scoping Alternatives Pursuant to Minn. R. 7850.3700, subp. 2(B) (Sept. 20, 2023)).
[93] Ex. DOC EERA-508 (Minnesota DNR Comments on EA Scope (Sept. 22, 2023)).

not be evaluated in the EA.[94] On October 2, 2023, MP filed supplemental comments to include comments inadvertently omitted from its September 29, 2023 comments.[95]

60. On October 3, 2023, ATC filed reply comments to MP's response to the Arrowhead Substation Alternative and disagreed with MP's position. ATC again requested that the EA study and consider the Arrowhead Substation Alternative.[96]

61. On October 10, 2023, DOC-EERA filed Comments and Recommendations on the Scoping Process, recommending the inclusion of the Arrowhead Substation Alternative in the EA.[97]

62. On November 7, 2023, LPI petitioned to intervene as a party.[98]

63. On November 29, 2023, the Commission issued an Order requiring that the EA analyze both the MP Project and the Arrowhead Substation Alternative proposed by ATC in the EA and referring the matter to the Office of Administrative Hearings for contested case proceedings to resolve the issues raised in the applications. The Commission requested that the ALJ focus record development on the viability of the Arrowhead Substation Alternative.[99]

64. On December 1, 2023, DOC-EERA issued the EA Scoping Decision.[100]

65. On December 6, 2023, the ALJ issued the Prehearing Order, establishing the following schedule:

Procedural Milestone	**Date**
EERA Scoping Decision	Monday, December 11, 2023
Deadline for Intervention	Tuesday, January 16, 2024
All Parties file Direct Testimony	Wednesday, February 14, 2024

[94] Ex. DOC EERA-508 (MP's Response to Route Alternative and Conditions Proposed to be Evaluated in the EA (Sept. 29, 2023)).
[95] Ex. DOC EERA-508 (MP's Supplemental Response to Route Alternative and Conditions Proposed to be Evaluated in the EA (Oct. 2, 2023)).
[96] Ex. DOC EERA-508 (ATC Reply to MP's Response to Route Alternative and Conditions Proposed to be Evaluate in the EA (Oct. 3, 2023)).
[97]Ex. DOC EERA-510 at 5 (DOC-EERA Comments and Recommendations on Scoping Process (EERA Scoping Recommendations).
[98] LPI Petition to Intervene (Nov. 7, 2023) (eDocket No. 202311-200314-04).
[99] NOTICE AND ORDER FOR HEARING at 6.
[100] Ex. DOC EERA-511 (EA Scoping Decision).

Combined EA/ER Issued	Thursday, February 29, 2024
Close of Discovery	Thursday, March 7, 2024
All Parties File Rebuttal Testimony, Proposed Exhibits Not Already Filed, and Subpoena Requests	Monday, March 11, 2024
Online Public Hearing	12:00 p.m., Wednesday, March 13, 2024, Streaming from Applicant Offices in Duluth, Minnesota
In-Person Public Hearing	6:00 p.m., Wednesday, March 13, 2024, at a location in or near Hermantown, Minnesota, to be determined by the Applicant
Evidentiary Hearing	9:30 a.m. Tuesday, March 19, 2024, at the Public Utilities Commission facilities in St. Paul, Minnesota
Public Comment Period Closes	Thursday, March 28, 2024
Transcripts of the Public and Evidentiary Hearing	Tuesday, April 2, 2024
EERA Responses to Comments on the EA/ER	Monday, April 15, 2024
All Parties File Initial Briefs; Applicant's Proposed Findings of Fact Due	Friday, May 3, 2024
Other Parties' Reply to Proposed Findings; All Parties' File Reply Briefs	Wednesday, May 22, 2024
Judge's Report	Friday, June 21, 2024
Exceptions to Judge's Report	Monday, July 1, 2024
Commission Consideration of Matter and Certificate of Need and Route Permit Issuance	Late July 2024, subject to Commission Agenda Calendar

66. On December 7, 2023, ATC requested a modification of the route alignment for the Arrowhead Substation Alternative to avoid multiple crossings of the West Rocky Run Creek.[101]

67. On December 27, 2023, DOC-EERA issued the Revised Scoping Decision incorporating the modified route alignment proposed by ATC.[102]

68. On January 9, 2024, World Organization for Landowner Freedom (W.O.L.F.) petitioned to intervene,[103] and on January 16, 2024, ATC filed its Objection to W.O.L.F.'s Petition to Intervene.[104]

69. Also on January 16, 2024, Local 49/NCSRCC petitioned for intervention.[105]

70. On January 17, 2024, LiUNA untimely filed its Petition for Intervention.[106]

71. On January 22, 2024, the ALJ denied W.O.L.F.'s Petition to Intervene for failing to make a showing of how its legal rights, duties, or privileges may be determined in this contested case, and for failing to show how it may be directly affected by this case.[107]

72. On January 26, 2024, the ALJ granted Local 49/NSCRCC's Petition to Intervene.[108]

73. On January 29, 2024, W.O.L.F. moved for certification of its Petition to Intervene to the Commission.[109]

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[101] Ex. DOC EERA-511 at 1 (EA Scoping Decision).
[102] Ex. DOC EERA-514 (EA Revised Scoping Decision).
[103] W.O.L.F. Petition for Intervention (Jan. 9, 2024) (eDocket No. 20241-201998-04).
[104] ATC Objection to W.O.L.F.'s Petition to Intervene (Jan. 16, 2024) (eDocket No. 20241-202225-02).
[105] Local 49/NCSRCC Petition for Intervention (Jan. 16, 2024) (eDocket No. 20241-202215-01).
[106] LiUNA Petition for Intervention (Jan. 17, 2024) (eDocket No. 20241-202232-04).
[107] ORDER DENYING W.O.L.F.'S PETITION TO INTERVENE AS A FULL PARTY (Jan. 22, 2024) (eDocket No. 20241-202442-01).
[108] ORDER GRANTING THE LABOR INTERVENORS' PETITION TO INTERVENE AS A FULL PARTY (Jan. 26, 2024) (eDocket No. 20241-202712-01).
[109] W.O.L.F. Motion for Certification of Motion for Intervention (Jan. 29, 2024) (eDocket No. 20241-202773-02).

74. On February 8, 2024, the ALJ denied LiUNA's Petition to Intervene as not timely filed, and because LiUNA's interests are not unique among the existing parties due to the intervention of Local49/NCSRCC.[110]

75. On February 12, 2024, the ALJ denied W.O.L.F.'s Motion to Certify its Petition to Intervene as not eligible for certification under Minnesota Rule 1400.7600.[111]

76. On February 14, 2024, the parties filed Direct Testimony.

77. On February 29, 2024, DOC-EERA issued the EA.[112]

78. On March 11, 2024, the parties filed Rebuttal Testimony.

79. On March 19, 2024, the Evidentiary Hearing was held at the Public Utilities Commission in Saint Paul, MN. During the Evidentiary Hearing, the schedule was modified to provide that ATC would file its Initial Brief and Proposed Findings concurrently with MP on Friday, May 3, 2024.

80. On March 28, 2024, MP and ATC filed comments on the EA.[113]

81. On April 15, 2024, DOC-EERA filed its reply to MP's and ATC's comments on the EA.[114]

82. On May 3, 2024, MP and ATC filed Initial Briefs and Proposed Findings.

83. On May 22, 2024, all parties filed Reply Briefs, and DOC-DER and LPI filed Proposed Findings.

II. Environmental Assessment Scoping Process and The Environmental Assessment

A. Scoping Process

84. Under Minnesota Rules 7849.1200 and 7850.3700, DOC-EERA is responsible for conducting environmental review for the MP Project, including any

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[110] ORDER DENYING LIUNA'S PETITION TO INTERVENE AS A FULL PARTY (Feb. 8, 2024) eDocket No. 20242-203206-01).
[111] ORDER DENYING W.O.L.F.'S MOTION TO CERTIFY ITS PETITION TO INTERVENE (Feb. 12, 2024) (eDocket No. 20242-203304-02).
[112] Ex. DOC EERA-515 (Environmental Assessment (EA)).
[113] ATC Comments to EA (Mar. 28, 2024) (eDocket No. 20243-204747-01); MP Comments on the EA (Mar. 28, 2024 (eDocket No. 20243-204709-01).
[114] DOC-EERA Hearing Comments (Apr. 15, 2024) (eDocket No. 20244-205360-01).

proposed alternatives. The Commission authorized DOC-EERA to combine the environmental review in its August 8 Order.[115]

85. An EA is a form of environmental review that contains an overview of affected resources and discusses potential human and environmental impacts and mitigation measures. Scoping is the first step of the EA process, and provides opportunities to provide comments on the content of the EA, suggest alternatives, and to mitigate potential impacts.[116]

86. The Scoping Process has two primary purposes: (1) to gather public information as to the impacts and mitigation measures to study in the EA and (2) to focus the EA on those impacts and mitigation measures that will aid in the Commission's decisions on the Certificate of Need and route permit applications.[117]

87. Approximately 15 people attended the in-person public meeting on August 29, 2023, in Cloquet, Minnesota. Six attendees provided public comments, all but one expressing concerns with and requesting mitigation measures for the MP Project.[118]

88. The commenters generally had concerns related to:[119]

- the space the project will take up along with the number of trees to be removed, impacting a rural sense of place;
- impacts to humans and property bordering the project area;
- mitigating impacts to nearby federally list species, wetlands, water bodies, and the trout stream;
- MP's facility lifespan, future plans for expansion, rate increases, decommissioning of an existing terminal, allowance for public use of project lad, assurance for maintaining a natural buffer for neighbors, construction work timing, and project road access; and

[115] ORDER ACCEPTING APPLICATION AS COMPLETE, AUTHORIZING JOINT REVIEW UNDER INFORMAL PROCEDURE, AND REQUESTING SUMMARY PROCEEDING (Aug. 8, 2023) (eDocket No. 20238-198074-01).
[116] Ex. DOC EERA-515 at 17 (EA).
[117] Ex. DOC EERA-515 at 16 (EA).
[118] Ex. DOC EERA-510 at 3 (EERA Scoping Recommendations); *see also* Ex. DOC EERA-503 (Oral Public Comments 8.29.23 Public Meeting).
[119] Ex. DOC EERA-510 at 3 (EERA Scoping Recommendations); *see also* Ex. DOC EERA-503 (Oral Public Comments 8.29.23 Public Meeting).

- generally: aesthetics, noise, light pollution, native revegetation, historic artifacts, dust abatement, and flora and fauna impacts.

89. Approximately four people attended the virtual public meeting on August 30, 2024. No one made an official comment and one person asked several questions on the record.[120]

90. In DOC-EERA's October 10, 2023 Comments and Recommendations on Scoping Process, DOC-EERA stated that ATC's proposal to include the Arrowhead Substation Alternative in the EA process was timely, and that the Arrowhead Substation Alternative avoids prohibited areas, meets the stated need for the project, and appears feasible. DOC-EERA concluded that the ATC Arrowhead Substation Alternative would aid the Commission's decision on the route permit application. DOC-EERA recommended studying the ATC Arrowhead Substation Alternative to develop a more robust record for the Commission's decisions.[121]

91. In the Commission's November 29, 2023 Order Identifying Alternative Proposal for Environmental Assessment, the Commission required the EA to include:[122]

- MP's Proposal, as modified by MP's September 13, 2023 comments;
- discussion of the DNR's comments filed on September 22, 2023; and
- ATC's Arrowhead Substation Alternative.

92. In the December 1, 2023 Scoping Decision, DOC-EERA noted that the EA will include a description and analysis of the human and environmental impacts of the MP Project and the Arrowhead Substation Alternative that would have otherwise been required by Minnesota Rule 7849.1500 in an Environmental Report, including evaluating matters of size, type, and timing that would normally be excluded in an EA for a route permit application. DOC-EERA also noted that the EA will describe and analyze the availability and feasibility of system alternatives.[123]

93. In the December 27, 2023 Revised Scoping Decision, DOC-EERA accepted ATC's December 7, 2023 request to modify the route alignment. ATC proposed the

[120]Ex. DOC EERA-510 at 3 (EERA Scoping Recommendations); *see also* Ex. DOC EERA-504 (Oral Public Comments 8.30.23 Public Meeting).
[121] Ex. DOC EERA-510 at 5 (EERA Scoping Recommendations).
[122] NOTICE AND ORDER FOR HEARING at 5.
[123] Ex. DOC EERA-511 at 5 (EA Scoping Decision).

modified route alignment to reduce stream crossings of West Rocky Run Creek in response to DNR comments regarding impacts to the creek.[124]

B. EA

94. DOC-EERA issued the EA on February 29, 2024. The EA described the MP Project and the ATC Arrowhead Substation Alternative, evaluated potential human and environmental impacts of the MP Project and Arrowhead Substation Alternative, proposed possible mitigation measures, and stated DOC-EERA's conclusions of the environmental review of the MP Project and the ATC Alternative.[125]

95. The EA evaluated key issues that had been raised during the scoping process, such as:

- the space the project will take up along with the number of trees to be removed, impacting a rural sense of place;
- impacts to humans and property bordering the project area;
- mitigation of impacts to nearby federally list species, wetlands, water bodies, and the trout stream;
- MP's facility lifespan, future expansion plans, rate increases, decommissioning of an existing terminal, allowance for public use of project land, assurance for maintenance of a natural buffer for neighbors, construction work timing, and project road access; and
- generally, aesthetics, noise, light pollution, native revegetation, historic artifacts, dust abatement, and flora and fauna impacts.[126]

96. As it relates to the MP Project as proposed by MP, DOC-EERA stated in the EA that:

> Project-related impacts to human settlement are anticipated to be minimal. Impacts range from short-term and positive, such as increased local expenditures during construction, to long-term and negative, such as changes to viewsheds. Project-related aesthetic impacts are unavoidable, with landscape changes anticipated to be moderate; however, individual reactions to these changes will vary widely as visual impacts are subjective and unique to the individual. Anticipated impacts on property values are expected to be minimal because all properties for the project will be owned by Minnesota

[124] Ex. DOC EERA-514 at 1 (EA Revised Scoping Decision).
[125] Ex. DOC EERA-515 (EA).
[126] Ex. DOC EERA-515 at 16–17 (EA).

> Power. The following impacts to human settlement are anticipated to be minimal: public health and safety, public services, socioeconomics, known archaeological and historic resources, operational noise, cultural values, environmental justice, land use and zoning, public services, and recreation.
>
> Impacts to land-based economies, including mining, are anticipated to be minimal. The project is sited in an area where the land has metallic mineral and aggregate potential. The DNR indicated that terms included in a future lease would include requirements that preserve access to minerals in case of future exploration and/or development. Because all properties for the project will be owned by Minnesota Power, impacts to prime farmland or farmland of statewide importance will be minimal. Project areas have not been used for agriculture for many years.
>
> Impacts to natural resources such as air quality and climate change are expected to be short-term and minimal during construction, but beneficial over time because the project will reduce the need for carbon-based electric generation processes and additional transmission infrastructure. Impacts to groundwater, soils, and topography are anticipated to be minimal; such impacts can be mitigated by construction best management practices or through a vegetation management plan. Potential impacts to wildlife and habitat may be positive or negative and are species dependent but are expected to be minimal. Negative impacts to individuals would be highest during construction but would improve once the project is restored. Due to the presence of an impaired trout stream in the area that will experience increased warming from tree clearing for a new right-of-way regardless of routing options, impacts are expected to be moderate.[127]

97. As it relates to the Arrowhead Substation Alternative, DOC-EERA stated in the EA that:

> Impacts of the route alternative analyzed in this EA are similar to those of the proposed project and to each other. In some instances, the ATC Alternative offers a means to avoid or mitigate potential impacts, such as with aesthetics due to a [substation][128] not being required, however, tradeoffs exist. For instance, although the ATC Alternative utilizes 25 feet of existing right-of-way, it would require a new clearing to cross the trout stream near

[127] Ex. DOC EERA-515 at 8–9 (EA)

[128] The EA consistently referred to MP's proposed St. Louis County substation as the "Switchyard," but agreed in its Hearing Comments that it should have been referring to a "Substation." DOC-EERA Hearing Comments at 4 (Apr. 15, 2024) (eDocket No. 20244-205360-01).

> an already cleared ROW for 230 kV transmission, which could exacerbate impacts.
>
> The ATC Alternative would have less GHG emissions during construction and would cost less. Its infrastructure would also be near less residences, be less noisy during construction, not create new access points off Morris Thomas Road, and be more screened from view. These benefits are incrementally greater than that of the proposed project but are comparable. For instance, operational noise for the proposed project is still expected to be minimal with the [substation] nearest to residences, whereas construction noise will be a minimal impact.
>
> The ATC Alternative would also require one crossing to the trout stream, creating a similar moderate impact. The infrastructure would be closer to an identified archeological site but would still comply with a 100-meter buffer requested by SHPO. Tree clearing impacts to construct the proposed project and the ATC Alternative are moderate at 34.25 acres and 34.72 acres, respectively. All other impacts are expected to be similar except for aesthetics and cultural values.[129]

98. The EA demonstrates that the ATC Arrowhead Substation Alternative would have less impact than the MP Project with respect to the issues of most concern to residents who made comments during the scoping process, including to aesthetics and the impact of cultural values, the space that the project will take up, maintenance of a natural buffer, and impacts to humans and property bordering the project area.

III. Legal Standard

99. The Commission and the Administrative Law Judge have jurisdiction over the route permit applied for by MP for the Project pursuant to Minn. Stat. § 216E.03. The Commission and the Administrative Law Judge have jurisdiction over the certificate of need applied for by MP for the Project pursuant to Minn. Stat. § 216B.243.

100. Minnesota Statutes and Rules govern this proceeding and provide the criteria the ALJ and Commission must apply in determining whether to grant MP and Certificate of Need and Route Permit for the Project and, if so, whether any conditions should be included in those approvals.

A. Certificate Of Need

101. Minnesota Statutes Section 216B.243 (the CN Statute) requires the Commission to issue a Certificate of Need prior to the siting or construction of a "large

[129] Ex. DOC EERA-515 at 9 (EA).

energy facility," which includes "any high-voltage transmission line with a capacity of 200 kilovolts or more and greater than 1,500 feet in length."[130] Since the MP Project – either as proposed by MP or as modified by the Arrowhead Substation Alternative – requires such new HVTLs to connect the new HVDC converter station to the transmission system, Minnesota law requires the Commission to issue a Certificate of Need for the Project to move forward.

102. MP, as the project proposer, bears the burden of proving the need for the Project and demonstrating that the statutory criteria have been met.[131]

103. The CN Statute establishes the statutory requirements for granting a Certificate of Need for a large energy facility. In assessing the need for a large energy facility, the Commission must evaluate:

1. the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;

2. the effect of existing or possible energy conservation programs or other federal or state legislation on long-term energy demand;

3. the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18, or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;

4. promotional activities that may have given rise to the demand for the facility;

5. benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;

6. 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;

7. the policies, rules, and regulations of other state and federal agencies and local governments;

[130] Minn. Stat. § 216B.2421, subd. 2 (2).
[131] Minn. Stat. § 216B.243, subd. 3.

8. any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be provided by the proposed facility, and (ii) compete with it economically;

9. with respect to a HVTL, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota;

10. whether the applicant is in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subd. 7, and have filed or will file by a date certain an application for certificate of need under this section or for certification as a priority electric transmission project under section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subd. 7;

11. whether the applicant has made the demonstrations required under subdivision 3a; and,

12. if the applicant is proposing a nonrenewable generating plant, the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk.

104. Recognizing the interconnectedness of the transmission system, the criteria specific to assessing need for a HVTL, as indicated above, the CN Statute specifically requires the Commission to consider:

- "the relationship of the proposed line to *regional* energy needs;"[132]
- possible alternatives for satisfying the transmission needs including but not limited to potential for upgrading of existing transmission facilities;[133] and
- "the benefits of enhanced *regional* reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota."[134]

105. The Commission has also adopted rules regarding Certificates of Need which provide the criteria the Commission applies to determine whether such a certificate should

[132] Minn. Stat. § 216B.243, subd. 3 (3) (emphasis added). In contrast, this same section of the statute focuses exclusively on state energy needs when examining the need for other large energy projects.
[133] Minn. Stat. § 216B.243, subd. 3 (6) (emphasis added).
[134] Minn. Stat. § 216B.243, subd. 3 (6) (emphasis added).

be granted.[135] The rules focus on the need for any new large energy facility to assure "the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states" and specifically require consideration of "the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources" to meet the identified need.[136]

106. Minnesota Rule 7849.0120 provides that a Certificate of Need must be granted if it is determined that specific criteria are met:

> A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:
>
> 1. the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;
>
> 2. the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;
>
> 3. the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;
>
> 4. the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and
>
> 5. the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;
>
> B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:
>
> 1. the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;
>
> 2. the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of

[135] Minn. R. Chapter 7849.
[136] *See* Minn. R. 7849.0120(A).

reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;

3. the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and,

4. the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:

1. the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

2. the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;

3. the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and

4. the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and

D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

107. There is sufficient evidence in the record for the ALJ and the Commission to assess the MP Project and the Arrowhead Substation Alternative using the criteria set out above.

B. Route Permit

108. Minnesota Statutes also require a Route Permit from the Commission prior to constructing a HVTL.[137] The Commission's Route Permit determination "must be guided by the state's goals to conserve resources, minimize environmental impacts,

[137] Minn. Stat. § 216E.03, subd. 2.

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."[138]

109. Minnesota Statutes Section 216E.03, subd. 7 provides that the ALJ and the Commission must be guided by the following considerations:

1. evaluation of research and investigations relating to the effects on land, water and air resources of large electric power facilities and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;

2. environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;

3. evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;

4. evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;

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

6. evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;

7. evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2;

8. evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;

9. evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

[138] Minn. Stat. § 216E.03, subd. 7.

10. evaluation of the future needs for additional high-voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;

11. evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved;

12. when appropriate, consideration of problems raised by other state and federal agencies and local entities;

13. evaluation of 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. (evaluation of the proposed facility's impact on socioeconomic factors; and

15. evaluation of the proposed facility's employment and economic impacts in the vicinity of the facility site and throughout Minnesota, including the quantity and quality of construction and permanent jobs and their compensation levels. 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.

110. Similar to a Certificate of Need, Commission Rules set forth the factors to be considering in issuing a Route Permit, including: [139]

1. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

2. effects on public health and safety;

3. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

4. effects on archaeological and historic resources;

5. effects on the natural environment, including effects on air and water quality resources and flora and fauna;

6. effects on rare and unique natural resources;

[139] Minn. R. 7850.4100.

7. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

8. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

9. use of existing large electric power generating plant sites;[140]

10. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

11. electrical system reliability;

12. costs of constructing, operating, and maintaining the facility which are dependent on design and route;

13. adverse human and natural environmental effects which cannot be avoided; and

14. irreversible and irretrievable commitments of resources.

111. There is sufficient evidence in the record for the ALJ and the Commission to assess the MP Project and the Arrowhead Substation Alternative using the criteria set out above.

IV. VIABILITY OF THE ATC ARROWHEAD SUBSTATION ALTERNATIVE

112. In its November 29, 2023 Order, the Commission referred this matter to the Office of Administrative Hearings for contested case proceedings to resolve the issues raised in the applications. The Commission requested that the ALJ focus record development on the viability of the Arrowhead Substation Alternative.[141]

113. The central question before the ALJ and Commission with respect to the viability of the Arrowhead Substation Alternative is straightforward: will implementation of the Arrowhead Substation Alternative as part of the MP Project be more reliable, make more efficient use of existing resources, cost less and lead to fewer impacts to the natural and human environments, as opposed to approval of the MP Proposal?

114. The following Findings apply the statutory and rule criteria above to the MP Proposal and the Arrowhead Substation Alternative to (i) develop the record on the viability of the Arrowhead Substation Alternative and (ii) develop a full record addressing

[140] This criteria is not applicable here because it only applies to power plant siting.
[141] NOTICE AND ORDER FOR HEARING at 6.

issues that are relevant to the Commission's Certificate of Need and route permit decisions, as requested by the Commission.[142]

115. The record demonstrates that the ATC Arrowhead Substation Alternative is viable and will better provide adequate, reliable, and efficient energy supply for MP, the State, and the region than the MP Proposal, while having less human and environmental impacts and making more efficient use of existing resources.

A. APPLICATION OF CERTIFICATE OF NEED STATUTORY AND RULE CRITERIA

116. No parties to the proceeding dispute that a Certificate of Need for the MP Project should be issued. Thus, the remaining question to be evaluated under the Certificate of Need criteria is whether the MP Proposal or the Arrowhead Substation Alternative better complies with these considerations.

1. The Probable Result of Denial Would be an Adverse Effect on the Future Adequacy, Reliability, or Efficiency of Energy Supply to the Applicant, to the Applicant's Customers, or to the People of Minnesota and Neighboring States, Considering Minn. R. 7849.0120(A)

a. the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;

117. DOC-DER witness Mr. Michael Zajicek explained that since the Project is replacing existing facilities to allow them to maintain service, the existence of demand for the Project is not in doubt. Mr. Zajicek further stated that a more appropriate analysis would be to consider whether MP has demonstrated that the facilities need to be replaced.[143]

118. Mr. Zajicek's review of the data provided by MP led him to conclude that the HVDC line is experiencing increasing outages which are likely to continue in the future, and that MP has provided adequate evidence that its forecast is accurate and demonstrated the need for the project.[144]

119. No other party raised the issue or disputed MP's forecast of demand or the need for the replacement of the HVDC Line assets.

120. The ALJ finds that the existing use of the HVDC Line and the likelihood of increasing future failures on the HVDC Line demonstrates the need for the Project.

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[142] NOTICE AND ORDER FOR HEARING at 6.
[143] Ex. DOC DER-600 at 13 (Zajicek Direct).
[144] Ex. DOC DER-600 at 13 (Zajicek Direct).

b. the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;

121. Mr. Zajicek explained that the Commission granted MP an exemption from Minnesota Rule 7849.0290 requiring the applicant to provide conservation program information and quantification of the impact of conservation programs on forecast data. The DOC-DER reviewed the information MP provided for its integrated resource planning process, and ultimately concluded that because the Project is replacing existing infrastructure due to age, MP's conservation programs do not affect the need for the Project. DOC-DER further concluded that MP provided adequate information regarding conservation programs.[145]

122. No other party raised the issue or disputed the relevance of conservation program information as it relates to the replacement of the HVDC Line assets.

123. The ALJ finds that the because the Project's purpose is to replacing aging infrastructure, MP's conservation programs are not relevant to determining the need for the Project.

c. the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;

124. MP stated that it did not engage in promotional activities that could give rise to the need for the Project.[146]

125. Mr. Zajicek noted that the Project is driven by the need to replace aging infrastructure that have been operational for 45 years, and not serve new demand.[147]

126. No other party raised the issue or disputed the relevance of promotion practices as it relates to the replacement of the HVDC Line.

127. The ALJ finds that the because the Project's purpose is to replacing aging infrastructure, MP's promotional practices are not relevant to determining the need for the Project.

[145] Ex. DOC-DER-600 at 14 (Zajicek Direct).
[146] Ex. MP-104 at § 4.3.2 (MP Application).
[147] Ex. DOC DER-600 at 15 (Zajicek Direct).

d. the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and

128. Mr. Zajicek explained that MP provided significant discussion regarding the impact of not implementing the Project, and how the HVDC Line would eventually fail. DOC-DER concluded that MP has provided the required information regarding the ability of the current facilities to meet future demand.[148]

129. No other party raised the issue or dispute the need for the Project to replace the aging infrastructure.

130. The ALJ finds that MP has demonstrated the need for the Project to upgrade and replace current facilities that cannot meet future demand.

e. the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

131. ATC argued that the MP Project as proposed by MP does not make efficient use of existing resources. ATC does not take the position that the MP Project does not meet this criteria, but that the MP Project should be modified to incorporate the Arrowhead Substation Alternative .

132. ATC conducted a planning analysis that demonstrates that ATC's existing 345/230 kV Arrowhead Substation is capable of supporting the Project's interconnection to the AC transmission system.

133. There is substantial conceptual similarity between the Arrowhead Substation Alternative and MP's proposed configuration of the Project. The record demonstrates that although MP initially considered interconnecting the Project at 230 kV through its existing substation, MP rejected that alternative because "[a]s the regional transmission system continues to develop to support the clean energy transition . . . it will become increasingly important for the HVDC system to be directly connected to the regional 345 kV network, rather than the underlying 230 kV network."[149] Ultimately, MP decided to change the Project's point-of-interconnection from the 230 kV transmission network to the 345 kV transmission network.[150]

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[148] Ex. DOC DER-600 at 15 (Zajicek Direct).

[149] Ex. MP-104 at § 4.3.2 (MP Application); *see also* Ex. MP-122 at 14 (Winter Direct) ("[T]he best long-term solution for the HVDC Modernization Project would be to purchase 345 kV converter transformers for the HVDC converter stations and establish a separate transformation to 230 kV at the proposed new St. Louis County 345 kV/230 kV Substation.").

[150] Ex. ATC-243 at 31 (Dagenais Rebuttal).

134. The Arrowhead Substation Alternative utilizes the same configuration. The only difference is that ATC's alternative would interconnect the Project to ATC's existing 345/230 kV Arrowhead Substation, rather than through the new 345/230 kV St. Louis County Substation that would be built less than a mile away.[151] ATC argued that MP's preferred configuration of the Project results in an unnecessary overbuild of transmission infrastructure—at additional expense to Minnesota Power customers and resulting in impacts to landowners and the environment.

135. ATC explained that its 345/230 kV Arrowhead Substation was designed and built with future needs in mind, so that it could accommodate the kind of transmission expansion being contemplated here. ATC argued that it would not be prudent to require Minnesota customers to fund construction of a new substation when the existing Arrowhead substation that is more than adequate to accommodate the Project.[152]

136. MP argued that the new 345 kV St. Louis County Substation was MISO's idea and is needed to accommodate future transmission development that MISO is contemplating as part of the LRTP Tranche 2 planning process.[153]

137. ATC disputed this characterization, stating first that the St. Louis County Substation that MISO proposed was and always has been a conceptual proposal; MISO has never endorsed the specific iteration or location of the St. Louis County Substation that MP has offered up in this proceeding.[154] Additionally, ATC noted that, in early March, MISO released its initial draft portfolio for LRTP Tranche 2, which does not include any new transmission projects in northeastern Minnesota, and argued that this demonstrates that MISO's approval of a new St. Louis County Substation is not a foregone conclusion.[155]

138. ATC stated that, after the Project is interconnected to ATC's 345/230 kV Arrowhead Substation, sufficient space would remain within ATC's Arrowhead Substation to accommodate additional 345 kV transmission development that could occur in the area as part of future regional transmission planning efforts.[156]

139. ATC further explained that both MISO and its member transmission owners—including MP—have emphasized the need to leverage existing transmission infrastructure, to the extent feasible, when developing new regional transmission projects

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[151] Ex. ATC-243 at 11–13 (Dagenais Rebuttal).
[152] Ex. ATC-218 at 5–6 (Larsen Direct); Ex. ATC-243 at 31 (Dagenais Rebuttal); Ex. ATC-218 at 5-6 (Larsen Direct).
[153] *See generally* Ex. MP-122 at 84–87 (Winter Direct).
[154] Ex. ATC-243 at 29–30 (Dagenais Rebuttal).
[155] *See* Ex. ATC-243 at 29–30 (Dagenais Rebuttal); Ex. ATC-261, Schedule 14 (Dagenais Rebuttal).
[156] Ex. ATC-243 at 32 (Dagenais Rebuttal).

as part of the LRTP process.[157] The clean energy transition will require significant investment in new transmission assets, and utilizing existing transmission infrastructure—when it is technically feasible and cost effective to do so—will limit the environmental, social, and financial costs and impacts of the substantial transmission buildout that will be needed to support the ongoing transformation of the grid.[158]

140. DOC-DER focused on the congestion of wind energy resources in North Dakota if the HVDC Line were not replaced and concluded that MP provided the required information regarding the efficient use of resources.[159]

141. The ALJ finds that it is consistent with prudent transmission planning to utilize the existing ATC Arrowhead Substation to interconnect the Project, rather than to construct an entirely new substation.[160]

142. The ALJ finds that the Arrowhead Substation Alternative is a suitable modification that to the MP Project that makes efficient use of ATC's Arrowhead Substation as an existing resource. By leveraging the ATC Arrowhead Substation, the Arrowhead Substation Alternative is more consistent with Minnesota Rule 7849.0120(A)(5) than MP's Proposal. Addressing the concerns raise regarding North Dakota wind resources, the inclusion of the Arrowhead Substation Alternative as a modification of the MP Project would achieve the same goal of utilizing these resources.

2. A More Reasonable and Prudent Alternative to the Proposed Facility Has Not Been Demonstrated by a Preponderance of the Evidence on the Record. Minn. R. 7849.0120(B)

143. The ATC Arrowhead Substation Alternative is not a true alternative to the MP Project in that it would not obviate the need or replace the MP Project in its entirety. Instead, the Arrowhead Substation Alternative proposed a different route and point-of-interconnection. As such, this section of the Findings addresses the MP Project and the Arrowhead Substation Alternative individually, but with the understanding that selection of the Arrowhead Substation Alternative does not result in the denial a Certificate of Need for the Project. To the contrary, these Findings address whether the Arrowhead Substation Alternative meets the requirements of Minnesota Rule 7849.0120(B), and thus would serve as a modification of the MP Project .

[157] Ex. ATC-243 at 31–32 (Dagenais Rebuttal).
[158] Ex. ATC-243 at 31-32 (Dagenais Rebuttal).
[159] Ex. DOC DER-600 at 16 (Zajicek Direct).
[160] Ex. ATC-243 at 31 (Dagenais Rebuttal).

a. the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;

144. When it considers a Certificate of Need for a project, or any alternative to or modification to that project, the Commission considers the appropriateness of the size, type and timing of the project and any such alternative or modification.[161] The record demonstrates that both the Arrowhead Substation Alternative and the MP Proposal meet MP's size, type and timing needs for the Project. Both options would interconnect the HVDC converter station to a 345/230 kV substation and then interconnect that 345/230 kV substation to MP's 230 kV Arrowhead Substation.

145. The difference between these two options is that the Arrowhead Substation Alternative does not require construction of a new substation nor does it require a 230kV double-circuit transmission line from this new substation to the MP Arrowhead Substation. Rather, the Arrowhead Substation Alternative leverages existing assets in the form of the ATC Arrowhead Substation, which is immediately adjacent to and already interconnected with the MP Arrowhead Substation.[162]

146. MP's Certificate of Need Application indicated an April 2030 in-service date (ISD) for the Project.[163] ATC prepared a high-level schedule for construction of the Arrowhead Substation Alternative to confirm that ATC can meet this ISD.[164] As ATC witness Mr. Johanek explained, procurement of substation materials—including a second 345/230 kV transformer—has been identified as the critical path long lead time item.[165] However, MP has subsequently indicated a desire to bring the Project on-line earlier, if possible. If the Project is brought on-line earlier, ATC stated that it can reliably serve the Project using the existing 345/230 kV transformer at the Arrowhead Substation until the new transformer is obtained and installed.[166] ATC has also discussed procurement matters with its potential suppliers and has added the necessary major equipment to the ATC material forecast sheet.[167] ATC further noted that it has built an extended amount of scheduling contingency into the timeline, allowing for flexibility in completing portions of the work prior to the critical path items, allowing for coordination with MP and allowing for acceleration of the ISD if desired.[168]

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[161] Minn. R. 7849.0120 (B) (1).
[162] Ex. ATC-200 at 4 (McKee Direct).
[163] S*ee* Ex. MP-104 at §§ 2.2.1 and 2.2.3 (MP Application).
[164] Ex. ATC-205 at 8 (Johanek Direct); Ex. ATC-207, Schedule 2 (Johanek Direct); Ex. ATC-209 at 3-4 (Johanek Rebuttal).
[165] Ex. ATC-205 at 8 (Johanek Direct).
[166] Ex. ATC-227 at 32–33 (Dagenais Direct).
[167] Ex. ATC-209 at 4 (Johanek Rebuttal).
[168] Ex. ATC 209 at 4 (Johanek Rebuttal).

147. Approval of the Arrowhead Substation Alternative will also require amendment of the ATC-MP T-T interconnection agreement on file at FERC by editing Appendix A, "Points of Interconnection," of the current agreement—a two-page document that describes the various facilities owned, operated, and maintained by either utility at their respective Arrowhead substations.[169] This appendix would be edited to describe the facilities approved by the Commission in this proceeding, which utility is responsible for owning, operating, and maintaining those facilities, and a "one-line" diagram depicting the updated facilities.[170]

148. MP argued that negotiating this amendment could be over a year long process.[171] ATC countered that this is a straightforward process that should only take a few days to accomplish and would not in any way delay the ISD of the Project.[172] ATC proposed that the Commission include a condition in its Order granting the Certificate of Need, requiring MP and ATC to file the necessary revisions to the transmission-to-transmission interconnection agreement with FERC within 90 days of the order, or once updated one-line diagrams are available.[173]

149. The ALJ finds that the MP Project and the ATC Arrowhead Substation Alternative both meet MP's size, type and timing needs for the Project.

b. the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by rea-sonable alternatives;

150. In considering a Certificate of Need for a project, or any alternative to or modification to that project, the Commission also considers the relative costs of the various options.[174] The record demonstrates that the Arrowhead Substation Alternative imposes lower costs and provides additional benefits, when compared to the MP Proposal.

(a) Direct Costs

151. The record establishes the best estimate of the cost of the Arrowhead Substation Alternative, developed by ATC after direct consultation with its suppliers and contractors, to be approximately $42.0 million in 2022 dollars.[175] ATC developed its estimate in this way to present a more representative and accurate picture of cost, as

[169] Ex. ATC-200 at 16 (McKee Direct); Ex. ATC-202 at 17 (McKee Rebuttal).
[170] Ex. ATC-200 at 16 (McKee Direct); Ex. ATC-202 at 17 (McKee Rebuttal).
[171] Ex. MP-109 at 28 (Gunderson).
[172] Ex. ATC-200 at 16-17 (McKee Direct); Ex. ATC-202 at (McKee Rebuttal).
[173] Ex. ATC-202 at 18 (McKee Rebuttal).
[174] Minn. R. 7849.0120 (B) (2).
[175] Tr. at 122 (Johanek).

opposed to using a generic cost estimating guide.[176] Because MP would reimburse ATC for the portion of this alternative that would be ATC-owned, the cost of those assets also require a tax gross-up to be applied, resulting in a best estimate cost to MP of $45.5 million for the Arrowhead Substation Alternative.[177]

152. MP estimates the cost of the Minnesota interconnection facilities for the MP Proposal (i.e., the new St. Louis County Substation and associated 345 kV and 230 kV transmission line) to be as much as $70 million in 2022 dollars, with a "mid-range estimate of $55 million and stating that this estimate "is generally based on the 2022 MISO Transmission Expansion Planning Cost Estimating Guide," not on any specific discussions with suppliers and contractors.[178] MP's mid-range generic estimate suggests increased costs of over 20 percent for the MP Proposal, as compared to the Arrowhead Substation Alternative.

153. MP's calculations of the cost of the ATC Arrowhead Substation Alternative allocated over $33 million of costs related to a new PST at the Arrowhead Substation. ATC disputed these costs and asserted that the PST is no longer required. The record supports ATC's position and demonstrates that the transmission system is operated far differently in 2024 than it was in the early 2000s, when the current PST was planned and incorporated into ATC's Arrowhead Substation.[179] Although the Arrowhead PST was initially installed to help manage power flows and support voltage stability between the transmission systems in Wisconsin and Minnesota, the significant changes in the operation of the transmission system over the last 20 years have rendered the current PST obsolete, meaning that a new PST is unnecessary. The record shows that there is no support for including these costs in the Arrowhead Substation Alternative.[180]

154. ATC also disputes MP's inclusion of the entirety of the $10 million in land acquisition costs MP incurred to acquire all necessary land rights for new 345 kV line, new St. Louis County Substation, and new 230 kV lines necessary for the MP Proposal. ATC explained that since the Arrowhead Substation Alternative does not require acquisition of these rights, MP's costs incurred in pursuit of the MP Proposal are not properly included in any reasonable estimate of the cost of implementing the Arrowhead Substation Alternative. Therefore, the record demonstrates that implementation of the Arrowhead Substation Alternative saves millions of dollars in costs that will ultimately be borne by MP customers.

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[176] Ex. ATC-205 at 6 (Johanek Direct).
[177] Tr. at 130-131 (Johanek).
[178] *See* Ex. MP-104 at § 2.2.1 (MP Application).
[179] Ex. ATC-227 at 33, 37–38 (Dagenais Direct); Ex. ATC-243 at 31–33 (Dagenais Rebuttal).
[180] Ex. ATC-227 at 33, 37–38 (Dagenais Direct); Ex. ATC-243 at 31–33 (Dagenais Rebuttal).

155. MP argued that the Arrowhead Substation Alternative puts potential federal funding for portions of the Project at risk and argued that MP has secured or is in the process of attempting to secure several sources of state and federal funding for the Project.[181] MP notes that the State of Minnesota has appropriated or reserved a total of $25 million for MP to implement the Project.[182] MP has also applied for or is applying for a total of $100 million from the Department of Energy's (DOE) Grid Resilience and Innovation Partnerships (GRIP) program.[183] MP applied for $50 million from the first round of DOE GRIP funding, which would be used to cover costs associated with upgrading the converter stations for the HVDC Line and in October 2023, the DOE notified MP that this application had been recommended for negotiation of a financial award, although a contract must still be negotiated.[184] In January 2024, MP submitted a concept paper for an additional $50 million from the second round of DOE GRIP funding that would be used to cover costs associated with the Project's interconnection facilities, including the new 345 kV St. Louis County Substation and associated transmission infrastructure.[185] In February 2024, DOE encouraged MP to submit a full application for the GRIP round two funding, which is due in May 2024.[186]

156. ATC argued that implementation of the Arrowhead Substation Alternative should not threaten any of these potential sources of funding for the Project. The record supports ATC's position, as MP acknowledged that it "does not believe that any funding dollars for the state grants . . . would be withheld in total in the event the Commission orders the company to proceed with the ATC Arrowhead [Substation] Alternative."[187]

157. With respect to the $50 million in DOE GRIP round one funding, MP admits that this funding also "has a low probability of being impacted" by the Arrowhead Substation Alternative. Specifically, MP states that it does not believe that such funds, if awarded, will be "at risk or delayed" unless ATC fails to "deliver on all aspects" of the Arrowhead Substation Alternative within 60 months from the date of the award, which MP hopes to receive in the second quarter of 2024.[188] As ATC witness Mr. Johanek discussed, ATC is confident that it can meet the April 2030 ISD for the Project indicated in MP's Certificate of Need Application and can serve the Project through the existing 345/230 kV transformer in ATC's Arrowhead Substation prior to that time, so can meet the 60-month

[181] Ex. MP-120 at 13–21 (Gunderson Direct).
[182] Ex. MP-119 at 17 (Gunderson Direct).
[183] Ex. MP-119 at 14–15 (Gunderson Direct).
[184] Ex. MP-119 at 15 (Gunderson Direct).
[185] *See* Ex. ATC-207 at 12-13 (Johanek Rebuttal); Ex. ATC-208, Schedule 1 (Johanek Rebuttal).
[186] *See* Ex. ATC-207 at 13 (Johanek Rebuttal); Ex. ATC-209, Schedule 2 (Johanek Rebuttal).
[187] Ex. MP-119 at 20 (Gunderson Direct).
[188] Ex. MP-119 at 20 (Gunderson Direct).

timeframe DOE requires.[189] The record demonstrates that implementation of the Arrowhead Substation Alternative will not delay or jeopardize the DOE GRIP round one funding, should such funding be awarded.

158. With respect to the $50 million in DOE GRIP round two funding, MP claims that, if it is selected for this award, it could lose out on this funding "because Minnesota Power's DOE GRIP round two application will only support interconnection components of Minnesota Power's Project configuration, including the St. Louis County 345 kV/230 kV Substation."[190] MP claims that the January 2024 concept paper it submitted to DOE includes "a specific project configuration" (i.e., presumably, construction of the 345 kV St. Louis County Substation), that the full application due in May 2024 "must also present the same specific project configuration," and that it "does not believe that the DOE will provide funding for a project that differs from that submitted in the full application."[191] However, MP provides no support for these claims.

159. Recent guidance from the DOE demonstrates that applicants for DOE GRIP round two funding may update or alter proposed project technical details that were submitted at the concept paper stage and that changes in scopes of work between the concept paper and full application stages, an applicant would still be eligible for an award.[192]

(b) Power Costs

160. ATC argued that in addition to having lower overall capital costs than MP's Proposal, the Arrowhead Substation Alternative will create a stronger regional transmission tie between Minnesota and Wisconsin, which will ultimately benefit MP and its customers. This stronger transmission tie will enable MP to import or export power depending on system needs and operating conditions, which can help maintain system reliability and create a better functioning bulk electric market that can more cost effectively meet customer demand.[193] For example, during times when MP is transmitting excess energy over its HVDC Line, it can take advantage of market signals to sell that excess generation into the market, obtaining additional revenue that will allow it to offset costs to customers.[194] And as noted earlier, the Arrowhead Substation Alternative results in lower overall system losses compared to MP's preferred method of interconnection, meaning MP

[189] Ex. ATC-209 at 13–14 (Johanek Rebuttal).
[190] Ex. MP-119 at 21 (Gunderson Direct).
[191] Ex. ATC-211, Schedule 2 (Johanek Rebuttal).
[192] Ex. ATC-211, Schedule 2 at 3 (Johanek Rebuttal).
[193] Ex. ATC-243 at 38–39 (Dagenais Rebuttal).
[194] Tr. at 116–17 (Dagenais).

will not need to generate as much power to serve customers, creating a negative overall cost impact.[195]

161. MP claimed that implementation of the Arrowhead Substation Alternative would impose millions of dollars in replacement power costs on its customers.[196] Based on its steady state reliability analysis, MP concluded that "seven to 10 percent more of the power delivered by the HVDC System flows into Wisconsin and away from Minnesota Power's customers."[197] MP's calculations assume that MP would have to procure replacement power to make up "the lost energy to Wisconsin if the Commission were to order construction of the ATC Arrowhead Alternative."[198]

162. ATC argued that this is not a valid assumption. Although MP's analysis may show increased electrical flows on the Arrowhead-Weston 345 kV line with the Arrowhead Substation in-service, MP ultimately conceded that those flows are offset by lower power flows along other, less efficient transmission lines running from Minnesota into Wisconsin.[199] In other words, while power may flow differently across the system depending on what alternative is implemented, neither alternative materially impacts the availability of electric supply to meet the needs of MP's customers. In either case, there will be a sufficient supply of energy to meet the demands of MP's customers.[200]

163. In rebuttal testimony, MP witness Mr. Christian Winter stated that MP is not concerned about "energy adequacy" for its customers if the ATC Arrowhead Substation Alternative is implemented.[201] The record is conclusive that MP will not incur any replacement power costs to MP's customers under the Arrowhead Substation Alternative.[202]

164. The ALJ finds that MP's replacement power cost analysis overstates the financial impact to its customers if the Arrowhead Substation Alternative is implemented. The ALJ further finds that there will be an adequate supply of electric energy to meet the needs of MP's customers, regardless of which alternative the Commission selects. ATC has also demonstrated that the Arrowhead Substation Alternative may actually result in financial benefits for MP's customers, because it creates a stronger regional transmission

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[195] Tr. at 85 (Dagenais).
[196] Ex. MP-127 at 11–12 and Schedule 12 (Gunderson Rebuttal).
[197] Ex. MP-122 at 63 (Winter Direct).
[198] Ex. MP-127, Schedule 12 (Gunderson Rebuttal).
[199] Tr. at 84–85, 109–110 (Dagenais); Ex. MP-131 at 73 (Winter Rebuttal).
[200] Tr. at 84–85, 109–110 (Dagenais); Ex. MP-131 at 73 (Winter Rebuttal); *see also* Ex. ATC-243 at 16, 39–40 (Dagenais Rebuttal).
[201] Ex. MP-131 at 73 (Winter Rebuttal).
[202] Tr. at 85–86 (Dagenais).

tie that reduces system losses and better enables MP to opportunistically sell excess power into Wisconsin to offset costs to its customers.

c. the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and,

165. DOC-EERA conducted an Environmental Assessment ("EA") of the MP Proposal and the Arrowhead Substation Alternative and published its findings on February 29, 2024. The EA evaluates the impacts of the MP Proposal and the Arrowhead Substation Alternative on natural and socioeconomic environments. [203]

166. As the EA demonstrates, the primary distinguishing factor relevant to a comparison of the impacts to natural and socioeconomic environments of the MP Proposal and the Arrowhead Substation Alternative is that the Arrowhead Substation Alternative does not require the construction of an entirely new substation, and does not require any expansion of the footprint of the existing ATC Arrowhead Substation.[204] As a result, the Arrowhead Alternative Substation will impact less acreage and would result in both fewer acres disturbed during construction and less new permanent infrastructure.[205]

167. In the EA, DOC-EERA determined that

> [t]he ATC Alternative would have less GHG emissions during construction and would cost less. Its infrastructure would also be near fewer residences, be less noisy during construction, not create new access points off Morris Thomas Road, and be more screened from view.[206]

168. The EA also determined that the new substation is the feature most likely to impact nearby residents and travelers because it would be located within 300 feet of Morris Thomas Road.[207]

169. As DOC-EERA explained, maintaining and utilizing the HVDC Line's existing ROW as part of ATC's proposal mitigates potential impacts.[208] The Arrowhead Substation Alternative would re-use a portion of the existing right-of-way ("ROW") that is currently used for MP's HVDC Line.[209] This results in the establishment of less new

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[203] Ex. DOC EERA-515 at 7 (EA).
[204] Ex. ATC-226 at 2, 5 (Lee Rebuttal).
[205] Ex. ATC-226 at 2–3 (Lee Rebuttal); *see also* Ex. MP-120, Schedule 1 (McCourtney Direct); Ex. DOC EERA-515 at 76, Table 14 (EA).
[206] Ex. DOC EERA-515 at 9 (EA).
[207] Ex. DOC EERA-515 at 112 (EA).
[208] Ex. DOC EERA-515 at 42 (EA).
[209] Ex. ATC-214 at 4 (Bradley Direct).

ROW, and fewer ROW-related impacts.[210] DOC-EERA also concluded that the Arrowhead Substation Alternative resulted in fewer impacts to aesthetics and cultural values;[211] fewer impacts to wetlands;[212] requires less HVTL; and would requires less land overall and therefore relatively fewer impacts on forested land use because less tree clearing would be required.[213]

170. Ultimately, although impacts to natural and socioeconomic environments are similar in some respects, the DOC-EERA determined that the Arrowhead Substation Alternative results in fewer impacts.[214]

171. The MP Proposal includes infrastructure, such as the new substation, that is nearer to the closest residences, and is ultimately nearer to more residences than the Arrowhead Substation Alternative.[215] DOC-EERA explained that the proximity of infrastructure to residences impacts various natural and socioeconomic environmental criteria, such as noise, aesthetics, and cultural values.[216]

172. MP witness Mr. McCourtney claimed that the proposed HVTL for the Arrowhead Substation Alternative would be located closer to local residences to the south of the Project Study Area than the HVTL contemplated by the MP Proposal.[217] This inapt comparison of the two proposed route alignments focuses on residences in only one cardinal direction and does not address the fact that the MP Project is substantially closer to residences overall, and to Morris Thomas Road.[218] DOC-EERA determined this proximity had the potential for greater impacts to cultural values and noise.[219]

173. Impacts to aesthetics and cultural values are often intertwined, such that visual aesthetic impacts can affect the "rural character" or "sense of place" within and near a project area.[220] For nearby residents that place high value on these factors, DOC-EERA determined that the MP Proposal will have moderate impacts to cultural values, due in part to the proximity and visibility of the new substation to Morris Thomas Road that will

[210] Ex. DOC EERA at 113 (EA).
[211] Ex. DOC EERA-515 at 9 (EA).
[212] Ex DOC EERA-515 at 114 (EA); Response to Substantive Comments on the Environmental Assessment, Department of Commerce, Energy Environmental Review and Analysis Unit at 2 (April 15, 2024).
[213] Ex. DOC EERA-515 at 42, 76, 113 (EA).
[214] Ex. DOC EERA-515 at 128-29 (EA).
[215] Ex. DOC EERA-515 at 45, Figure 4 (EA).
[216] *See* Ex. DOC EERA-151 at 37, 45 (EA).
[217] Ex. MP-120 at 16–18 (McCourtney Direct).
[218] Ex. DOC EERA-515 at 9 and 45, Figure 4 (EA).
[219] Ex. DOC EERA-151 at 37, 45 (EA).
[220] Ex. DOC EERA-515 at 37 (EA).

introduce new industrial structures and lighting that are visible in the otherwise rural forested space, and that may thus affect the rural character of the surrounding area.[221]

174. In comparison, the Arrowhead Substation Alternative will have minimal impacts, as the infrastructure involved and clearing required is generally sited further away from residents and less visible.[222] DOC-EERA noted that the Arrowhead Substation Alternative would have less aesthetic impact because the new substation is not required, less new ROW would need to be established, and fewer residences are located near the south of the project area.[223] Further, DOC-EERA explained that the Arrowhead Substation is already well screened by the forested landscape.[224] Due to DOC-EERA's determination that the Arrowhead Substation Alternative's impacts to cultural values were minimal, the EA did not impose any mitigation.[225]

175. DOC-EERA determined that although the noise created by construction activities are anticipated to be moderate for both projects, the Arrowhead Substation Alternative will produce less noise during construction.[226] Again, this is due to the MP Proposal's inclusion of a new substation within 500 feet of the nearest residence—the closest of any residence to any proposed construction activity in either the MP Proposal or the Arrowhead Substation Alternative.[227] Construction activities required for the new substation include site tree clearing, grading, ground grid installation, and control house construction.[228] Construction of the new substation would exceed state L10[229] noise standards at a residence within less than 800 feet using the most conservative estimate.[230]

176. With respect to operational noise, although MP committed to perform a noise study during the in-person public meeting,[231] MP has not completed a full noise study and will not do so until the final project configuration is known.[232] MP has only undertaken a

[221] Ex. DOC EERA-515 at 37, 112 (EA).
[222] Ex. DOC EERA-151 at 37 and 127, Table 24 (EA).
[223] Ex. DOC-EERA-151 at 113 (EA).
[224] Ex. DOC EERA-151 at 112 (EA).
[225] Ex. DOC EERA-151 at 38 (EA).
[226] Ex. DOC EERA-515 at 9, 42-43 (EA).
[227] Ex. DOC EERA-515 at 45 (EA).
[228] Ex. ATC-205 at 9–10 (Johanek Direct).
[229] Noise standards are expressed as a range of permissible dBA over a one-hour period. Ex. DOC EERA-515 at 43 (EA). L10 noise standards may be exceeded 10 percent of the time, or six minutes per hour. Ex. DOC EERA-515 at 43 (EA).
[230] Ex. DOC EERA-515 at 45 (EA).
[231] Ex. DOC EERA-503 at 30 (Oral Public Comments 8.29.23 Public Meeting).
[232] ATC Comments to EA at 1.

cursory noise study consisting solely of drawing a 50 A-weighted decibel (dBA)[233] line around project features.[234] Simply put, MP's contribution to the record does not provide sufficient information to determine the differences in operations-related noise generation between the MP Proposal and the Arrowhead Substation Alternative.

d. the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

177. Generally speaking, some of the electricity that is transmitted across high-voltage transmission lines is lost as waste heat: the greater the amount of impedance (i.e., resistance to electrical current) on a transmission line, the greater amount of heat losses.[235]

178. If implemented, the Arrowhead Substation Alternative would reduce impedance between MP's 230 kV transmission system and ATC's 345 kV transmission network in Wisconsin, compared to the MP Proposal.[236] As such, about one MW less of electricity will be lost during the summer peak, relative to MP's proposed configuration of the Project.[237] Practically speaking, this means more energy from the HVDC Line will be available to serve MP's customers under ATC's proposal.[238] This is a clear advantage to the Arrowhead Substation Alternative, as it defers the need for MP to dispatch more generation from existing resources or to construct new generating resources to meet customer demand.[239]

179. The Arrowhead Substation Alternative also provides a more reliable method of interconnecting the MP Project to the transmission system. ATC's 345/230 kV Arrowhead Substation currently contains one 345/230 kV transformer, which has historically been highly reliable. Between January 1, 2014 and December 31, 2023, the transformer has only been forced out of service for a total of 39 hours, meaning it has been available better than 99 percent of the time.[240] The Arrowhead Substation Alternative would add a second, parallel 345/230 kV transformer to this substation. If one of these transformers were forced out-of-service, the second would be available to continue serving the Project.[241]

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[233] Noise is measured in units of decibels on a logarithmic scale. The A-weighted decibel scale is used to duplicate the sensitivity of the human ear. Ex. DOC EERA-515 at 43 (EA).
[234] *See* Ex. MP-129, Schedule 4 (McCourtney Rebuttal).
[235] *See* Ex. MP-104 at § 3.74 (MP Application); Ex. ATC-243 at 17–18 (Dagenais Rebuttal).
[236] Ex. ATC-247 at 11–13 (Dagenais Direct); Ex. ATC-243 at 17–18 (Dagenais Rebuttal).
[237] Ex. ATC-247 at 11–13 (Dagenais Direct); Ex. ATC-243 at 17–18 (Dagenais Rebuttal)
[238] Ex. ATC-247 at 11–13 (Dagenais Direct); Ex. ATC-243 at 17–18 (Dagenais Rebuttal)
[239] Tr. at 85 (Dagenais).
[240] Ex. ATC-227 at 13–14 (Dagenais Direct); Ex. MP-131, Schedule 35 (Winter Rebuttal).
[241] Ex. ATC-227 at 13–15 (Dagenais Direct).

180. The ALJ is convinced that this is a notable advantage over MP's proposed configuration of the Project, which calls for installation of a single transformer at the new St. Louis County Substation. If that transformer were forced out of service, then the HVDC Line would be completely unable to transfer power to MP's customers, resulting in significant replacement power costs to its customers.[242] ATC's proposal avoids this outcome by having two parallel transformers available to serve the MP Project.

181. The Arrowhead Substation Alternative also provides for more reliable operation of the local and regional transmission system. ATC conducted a comprehensive planning analysis to compare the performance of the Arrowhead Substation Alternative to the MP Proposal to interconnect the Project through the new St. Louis County Substation.[243] Grid operators and utility planners commonly conduct these studies using software that simulates how the transmission system will react to the addition of new transmission projects; generally speaking, the purpose of these analyses is to evaluate how the addition of such projects will impact the overall system's ability to reliably deliver power to customers.[244] ATC's planning analysis demonstrated that the Arrowhead Station Alternative performs as well or better than the MP Proposal to interconnect the Project through the new St. Louis County Substation.[245]

182. For these analyses, ATC conducted three different studies to compare the performance of its and MP's proposed method of interconnecting the MP Project: a steady state reliability analysis, a dynamic stability analysis, and a voltage stability analysis.[246] The steady state analysis evaluated whether and to what extent either alternative would result in thermal or voltage overloads on various transmission facilities at a single point in time, under various contingencies. The dynamic stability analysis evaluated whether either alternative would create unstable conditions on the transmission system in the presence of either alternative, under various contingencies. The voltage stability analysis evaluated whether and to what extent each alternative would maintain acceptable voltage levels under normal operating conditions and after a contingency.[247]

183. ATC conducted each study using a model that contains varying assumptions about how the transmission system will operate under certain conditions.[248] Because no model can perfectly simulate future conditions on the system or how it will react to changes

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[242] Ex. ATC-227 at 13–14 (Dagenais Direct).; Ex. DOC DER-600 at 10 (Zajicek Direct).
[243] *See generally* Ex. ATC-227 at 15–29 (Dagenais Direct).
[244] Ex. ATC-227 at 16 (Dagenais Direct).
[245] Ex. ATC-227 at 15 (Dagenais Direct).
[246] Ex. ATC-227 at 15–16 (Dagenais Direct).
[247] Ex. ATC-227 at 15–16 (Dagenais Direct). In this context, a "contingency" refers to the failure of a key piece of equipment (e.g., transmission line, transformer, or generating unit) on the high-voltage transmission system. Ex. ATC-227 at 15–16 (Dagenais Direct).
[248] Ex. ATC-227 at 16 (Dagenais Direct).

in transmission topology, ATC sought to conduct each study using a broad but realistic range of assumptions to ensure its analysis was as robust as possible. Specifically, ATC conducted the steady state and dynamic stability analysis across multiple different model sets and scenarios, which were initially developed by MP and MISO.[249] For all three studies, ATC also evaluated a sensitivity to examine whether a single 345/230 kV transformer at its 345/230 kV Arrowhead Substation could reliably serve the MP Project up to the HVDC Line's existing capacity (550 MW) and planned future capacity (900 MW).[250] In total, ATC conducted over 75 different modeling runs as part of these studies.[251]

184. The results of these analyses demonstrate that, from a system reliability perspective, the Arrowhead Substation Alternative performs better than MP's proposal.[252] While both alternatives performed similarly in the steady state and dynamic stability analyses, the Arrowhead Substation Alternative provides better voltage support to the surrounding transmission system than the MP Proposal. This is because it enables larger power transfers across the system under system intact conditions and under the worst contingency, before voltage instability sets in.[253] The ability of the Arrowhead Substation Alternative to provide volage support on the surrounding transmission system is a significant benefit, given that voltage stability was one of the primary drivers prompting construction of the Arrowhead-Weston Project to maintain local and regional reliability.[254]

185. The Arrowhead Substation Alternative will also simplify and streamline the operation of the regional transmission system.[255] In modeling the Arrowhead Substation Alternative, ATC assumed that the existing phase shifting transformer (PST) and 345 kV capacitor banks at its 345/230 kV Arrowhead Substation would be removed from ATC's 345/230 kV Arrowhead Substation.[256] The results show that there are no adverse reliability impacts associated with retiring these facilities, since the Arrowhead Substation Alternative performs as well as (if not better than) MP's proposal in all three studies.[257]

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[249] *See generally* Ex. ATC-227 at 18–27 (Dagenais Direct).
[250] *See generally* Ex. ATC-227 at 20–21, 27, 29 (Dagenais Direct).
[251] Ex. ATC-227 at 15 (Dagenais Direct).
[252] *See generally* Ex. ATC-234, Schedule 4 (Dagenais Direct); Ex. ATC-236, Schedule 5 (Dagenais Direct); Ex. ATC-238, Schedule 6 (Dagenais Direct); Ex. ATC-240, Schedule 7 (Dagenais Direct) (detailed results of ATC planning analyses).
[253] Ex. ATC-227 at 31–33 (Dagenais Direct); Tr. at 80 (Dagenais).
[254] *See, e.g.*, Ex. MP-122, Schedule 32 at 13 (Winter Direct); *see also In Re Joint Application of Minnesota Power Co. and Wis. Pub. Serv. Corp.*, Docket No. 05-CE-113, 2001 Wisc. PUC LEXIS 81 at **5–6, Final Decision (Oct. 30, 2001).
[255] Ex. ATC-243 at 15, 35 (Dagenais Rebuttal).
[256] Ex. ATC-227 at 19, 25, 28 (Dagenais Direct).
[257] Ex. ATC-227 at 33 (Dagenais Direct).

186. ATC witness Mr. Dagenais explained that the Arrowhead PST has never been used to regulate power flows from Minnesota into Wisconsin, and the technology MP is using for its upgraded converter station will provide the same voltage support that the existing 345 kV capacitor banks have historically provided, rendering them unnecessary.[258] Mr. Dagenais further stated that MISO has been considering removing and retiring the existing Arrowhead PST as part of its ongoing LRTP Tranche 2 planning process.[259]

187. Finally, ATC's planning analysis shows that, even without adding a second transformer to its 345/230 kV Substation, the Arrowhead Substation Alternative can reliably meet MP's immediate need to transfer up to 550-900 MW of power over the HVDC Line, from west-to-east.[260] MP is considering targeted upgrades to the HVDC Line that would increase its capacity from 550 MW to 900 MW, but those upgrades are not expected to be in place until the fourth quarter of 2028.[261] Until that happens, the line will be limited to its current capacity (550 MW), and ATC's proposal is more than sufficient to reliably serve the line up to that capacity, even without the addition of a second 345/230 kV transformer.[262]

188. The ALJ finds that ATC has demonstrated that the Arrowhead Substation Alternative is a more reliable alternative than the MP Proposal. The Arrowhead Substation Alternative enables larger power transfers across the system under system intact conditions and under the worst contingency, before voltage instability sets in, and thus provides better voltage support to the surrounding transmission system than the MP Proposal.

3. By A Preponderance Of Evidence on the Record, the Proposed Facility Will Provide Benefits to Society in a Manner Compatible With Protecting the Natural and Socioeconomic Environments, Including Human Health, Considering Minn. R. 7849.0120(C)

a. the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

189. MP stated that denial of a Certificate of Need for the Project would adversely affect the future adequacy, reliability, or efficiency of energy supply to Minnesota Power and its customers in the region, which includes a unique mix of industrial customers vital to Minnesota and the regional economy. The existing HVDC Converter Station is reaching the end of its anticipated operational life and many of the original equipment is falling into obsolescence with replacement or refurbished parts no longer readily available in the event

[258] Ex. ATC-227 at 10, 37 (Dagenais Direct); Ex. ATC-242, Schedule 8 (Dagenais Direct); Ex. ATC-243 at 33–37, 40–41 (Dagenais Rebuttal).
[259] Ex. ATC-243 at 41 (Dagenais Rebuttal).
[260] Ex. ATC-227 at 32 (Dagenais Direct).
[261] Ex. ATC-227 at 32–33 (Dagenais Direct).
[262] Ex. ATC-227 at 32–33 (Dagenais Direct).

of failure. The HVDC Modernization Project includes the construction of major transmission and system upgrades that will enhance reliability and provide the continued operation of an important renewable resource connection between Minnesota and North Dakota.[263]

190. MP further explained that the Project is a critical component of Minnesota Power's efforts to leverage existing infrastructure to efficiently maintain the current load, gain additional access to renewable resources for customers, and keep momentum for reaching the state's goal of 100 percent carbon-free energy by 2040.[264]

191. DOC-DER witness Mr. Zajicek believed that the Commission could conclude that the Project would provide societal benefits for Minnesota.[265]

192. ATC explained that the Arrowhead Substation Alternative is not a fundamental change or system alternative to the Project, but simply changes the location of interconnection to the AC transmission system in Minnesota. As discussed above, the Arrowhead Substation Alternative achieves the same purpose as the MP Project with at least the same reliability, at lower cost, and with less impacts to human and socioeconomic environments. If included as a modification of the MP Project, the Arrowhead Substation Alternative would address the same needs and similarly enhance reliability, maintain the current load, and gain additional access to renewable energy resources for MP's customers.[266]

193. The ALJ finds that the MP Project supports overall Minnesota energy needs by enhancing the reliability of the transmission system and capturing important renewable resources. The ALJ also finds that the inclusion of the Arrowhead Substation Alternative better leverages existing infrastructure to efficiently maintain the current load and to access additional renewable energy resources. These are issues MP specifically identified in its Application as important considerations. The Arrowhead Substation Alternative is a suitable modification of the MP Project to address this criteria.

b. the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;

194. MP explained that, should the Commission deny Minnesota Power's Certificate of Need Application for the Project, failure rates of the existing HVDC Converter Station equipment are anticipated to increase, resulting in outages that impact the reliable and efficient delivery of Minnesota Power's North Dakota wind energy and

[263] Ex. MP-104 at § 10.1.1 (MP Application).
[264] Ex. MP-104 at § 1.1 (MP Application).
[265] Ex. Doc DER-600 at 25 (Zajicek Direct).
[266] Ex. ATC-227 at 8 (Dagenais Direct).

result in direct cost impacts to Minnesota Power's customers and reliability impacts to the regional transmission system. As these outages increase in frequency and duration, the cost and reliability impacts will continue to grow. With no viable plan to modernize the existing HVDC converters, Minnesota Power would immediately need to determine if it was prudent to invest in relatively short-term fixes to keep the HVDC Line operating on a limited basis or to move on from the HVDC Line entirely and begin to develop alternative AC transmission solutions.[267]

195. MP asserted that the alternative transmission solutions required to facilitate continued delivery of Minnesota Power's zero fuel cost North Dakota wind energy, mitigate system impacts caused by the retirement of the HVDC Line, and replace the grid support provided by the Voltage Source Converter (VSC) HVDC converters would come at a substantially higher cost and with greater human and environmental impacts than the HVDC Modernization Project. Given that the alternative AC transmission solutions include multiple regional-scale 345 kV transmission lines, there would likely be prolonged exposure to outages of the HVDC Line during the 10 or more years it would take to develop these projects. At some point during that time, it may become impossible to continue operating the HVDC Line at its full capacity, leading to extended outages and associated impacts to Minnesota Power's customers and regional reliability.[268]

196. ATC explained that the Arrowhead Substation Alternative is not a fundamental change or system alternative to the Project, but simply changes the location of interconnection to the AC transmission system in Minnesota. As discussed above, the Arrowhead Substation Alternative achieves the same purpose as the MP Project with at least the same reliability, at lower cost, and with less impacts to human and socioeconomic environments. If included as a modification of the MP Project, the Arrowhead Substation Alternative would address the same needs by similarly facilitating delivery of North Dakota wind energy, mitigate impacts caused by the retirement of the existing HVDC Line, and would do so at a lower cost.[269]

197. As discussed above, and in the subsequent analysis of the criteria for a route permit, DOC-EERA determined that most impacts will be minimal for both the MP Proposal and the Arrowhead Substation Alternative. Yet, the Arrowhead Alternative Substation will impact less acreage and would result in both fewer acres disturbed during construction and less new permanent infrastructure, would be near less residences, be less noisy during construction, not create new access points off Morris Thomas Road, and have fewer impacts to aesthetics and cultural values.[270]

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[267] Ex. MP-104 at § 3.5 (MP Application).
[268] Ex. MP-104 at § 3.5 (MP Application).
[269] Ex. ATC-227 at 8 (Dagenais Direct).
[270] Ex. ATC-226 at 2–3 (Lee Rebuttal); *see also* Ex. MP-120, Schedule 1 (McCourtney Direct), Schedule 1; Ex. DOC EERA-515 at 9, 37, 109 (EA).

198. The ALJ finds that the MP Project avoids negative impacts to the natural and socioeconomic environments that would occur if the HVDC Line were not replaced. The ALJ also finds that the Arrowhead Substation Alternative achieves the same purpose with fewer negative impacts to the natural and socioeconomic environments.

c. the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and

199. MP stated that the Project is not intended to induce future development, but may support future economic development that otherwise would not be possible if the exiting HVDC Line is not upgraded to current technology and operational standards.[271]

200. DOC-DER witness Mr. Zajicek generally stated that he believed that the Commission could conclude that the Project would provide societal benefits for Minnesota.[272]

201. ATC explained that the Arrowhead Substation Alternative is not a fundamental change or system alternative to the Project, but simply changes the location of interconnection to the AC transmission system in Minnesota. As discussed above, the Arrowhead Substation Alternative achieves the same purpose as the MP Project with at least the same reliability, at lower cost, and with less impacts to human and socioeconomic environments. If included as a modification of the MP Project, the Arrowhead Substation Alternative would address the same needs by similarly supporting future economic development, but it would likewise not induce such development.[273]

202. The ALJ finds that the MP Project would not induce future development, but that the replacement of the HVDC Line would continue the delivery of the energy into the area. The ALJ also finds that the Arrowhead Substation Alternative would achieve the same goals and similarly continue to deliver energy into the area.

d. the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and

203. MP stated that the purpose of the Project is to replace aging infrastructure and, thus, improve the HVDC Line reliability and availability for socially beneficial use.[274]

204. No parties disputed MP's assessment of the socially beneficial use of the Project.

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[271] Ex. MP-104 at § 3.10 (MP Application).
[272] Ex. DOC-600 at 25 (Zajicek Direct).
[273] Ex. ATC-227 at 8 (Dagenais Direct).
[274] Ex. MP-104 at § 3.11 (MP Application).

205. ATC explained that the Arrowhead Substation Alternative is not a fundamental change or system alternative to the Project, but simply changes the location of interconnection to the AC transmission system in Minnesota. As discussed above, the Arrowhead Substation Alternative achieves the same purpose as the MP Project with at least the same reliability, at lower cost, and with less impacts to human and socioeconomic environments. If included as a modification of the MP Project, the Arrowhead Substation Alternative would provide the same socially beneficial use.[275]

206. For the reasons discussed in the assessment of the Certificate of Need criteria, such as the delivery of carbon-free wind energy to Minnesota, the ALJ finds that the MP Project would provide socially beneficial uses. The ALJ also finds that the Arrowhead Substation Alternative would achieve the same goals and similarly provide socially beneficial uses.

4. The Record Does Not Demonstrate that the Design, Construction, or Operation of The Proposed Facility Will Fail to Comply with Relevant Policies, Rules, and Regulations of Other State and Federal Agencies and Local Governments. Minn. R. 7849.0120(D).

207. The MP Project, modified to include the Arrowhead Substation Alternative, will meet or exceed the requirements of all applicable federal, state and local environmental laws and regulations.

208. The record does not demonstrate that the design, construction, or operation of the MP Project, modified to include the Arrowhead Substation Alternative, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

B. APPLICATION OF ROUTE PERMIT STATUTORY AND RULE CRITERIA

209. The EA evaluated two route alternatives: the MP Proposal and the Arrowhead Substation Alternative. This section of the Findings analyzes both potential routes under the criteria for issuing a route permit.

1. Effects on Human Settlement

210. Minnesota statutory and rule criteria require consideration of the effect on human settlement from any proposed transmission line route.[276] The evidence in the record

[275] Ex. ATC-227 at 8 (Dagenais Direct).
[276] Minn. Stat. § 216E.03, subd. 7(b); Minn. R. 7850.4100(A).

demonstrates that the Arrowhead Substation Alternative will result in fewer impacts of a lesser degree than the MP Proposal.

a. Displacement

211. There are no residences or businesses within the proposed route for the Arrowhead Substation Alternative and thus no landowner relocation is required.[277]

212. For the MP Proposal, there were residences within the proposed route. However, as of January 30, 2024, MP has acquired all parcels within the route of the MP Proposal and DOC-EERA concluded that no residences or businesses are expected to be removed.[278]

213. The ALJ finds the impacts related to displacement are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

b. Noise

214. The MP Project is located in a rural area. Ambient noise levels in rural areas are estimated to be 45 dBA. Potential impacts from the MP Project and the Arrowhead Substation Alternative include both construction and operation noise. The primary noise receptors within the vicinity are residences and farmsteads, and are assigned the most stringent noise standards.[279]

215. During the in-person public meeting, multiple residents near the project area raised concerns regarding impacts from noise.[280]

216. Construction related noise impacts will result from heavy equipment and increased vehicle traffic, will be intermittent and occur during daytime hours, and are expected to range between 72-85 dBA. As discussed above, DOC-EERA determined that although the noise created by construction activities are anticipated to be moderate for both projects, the Arrowhead Substation Alternative will produce less noise during construction than the MP Proposal. The primary causal factor of increased noise from the MP Proposal is a result of the construction of the new substation, which will be within 500 feet of the nearest residence.[281]

217. Operation related noise impacts will result from transformers with integrated cooling fans, valve cooling systems, and smoothing reactors. The main source of noise during operation will be the from the converter station, which is required under both the

[277] Ex. DOC EERA-515 at 103 (EA); Ex. ATC-214 at 10 (Bradley Direct).
[278] Ex. DOC EERA-515 at 103 (EA).
[279] Ex. DOC EERA-515 at 44 (EA).
[280] Ex. DOC EERA-503 (Oral Public Comments 8.29.23 Public Meeting).
[281] Ex. DOC EERA-515 at 9, 44–45 (EA).

MP Proposal and the Arrowhead Substation Alternative. The converter station will be designed to ensure that it does not exceed noise standards during operation at the nearest receptor locations, approximately 1,500 feet from the converter station.[282]

218. MP stated at the in-person public meeting that it intends to perform a noise study of the facility, but a completed noise study was not made part of the record.[283]

219. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have less construction related noise impacts and substantially similar operation related noise impacts weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

c. Aesthetics

220. Aesthetics refers to the visual quality of an area as perceived by the viewer and forms the impression a viewer has on an area. Aesthetics are unique to the human subject or population, meaning their relative value depends on several factors, such as perception, the strength of values, history, and memory.[284]

221. A viewshed includes both the natural and built landscape with features visible from a specific location. Natural landscapes can include wetlands, surface waters, distinctive landforms, and vegetation patterns. Homes, businesses, roads, bridges, cell towers, and power lines are examples of built features. Generally, an intact and harmonious viewshed is considered by many to be more aesthetically pleasing.[285]

222. The project will introduce 40 acres of new terminal facilities and HVTLs to connect those facilities to each other and the existing electrical grid on the landscape. These features will create aesthetic impacts. Right-of-way clearing and building construction will have the most visual impacts in areas close to roads and residents. To the extent these impacts can be quantified depends on the presence of several on-the-ground factors linked to the concepts of viewer quality, sensitivity, and exposure.[286]

223. During the in-person public meeting, multiple residents near the project area raised concerns regarding impacts to aesthetics and the impact of the MP Project to viewsheds.[287]

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[282] Ex. DOC EERA-515 at 46–47 (EA).
[283] Ex. DOC EERA-515 at 46 (EA).
[284] Ex. DOC EERA-515 at 109–10 (EA).
[285] Ex. DOC EERA-515 at 109 (EA).
[286] Ex. DOC EERA-515 at 110 (EA).
[287] Ex. DOC EERA-503 (Oral Public Comments 8.29.23 Public Meeting).

224. DOC-EERA determined that the new substation is the feature most likely to impact nearby residents and travelers due to its siting within 300 feet of Morris Thomas Road. Conversely, the Arrowhead Substation is well screened by the forested landscape. DOC-EERA noted that screening—the use of terrain or vegetation to obstruct the visibility of infrastructure or lighting—helps to limit clear views of the proposed developments.[288]

225. Although DOC-EERA determined that impacts are anticipated to be moderate for both the MP Proposal and the Arrowhead Substation Alternative, it concluded that the Arrowhead Substation Alternative is expected to have less aesthetic impact than the MP Proposal because the new substation would not be constructed near the most frequently used road and cluster of residences on developed land, less new right-of-way would need to be established, and less residents are nearby the south of the project area where the Arrowhead Substation Alternative route is proposed to be located.[289]

226. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have less aesthetic impacts weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

d. Cultural Values

227. Cultural values are community beliefs or attitudes that define what is important to the group. Infrastructure believed to be inconsistent with these values can deteriorate community character. Impacts to cultural values include impacts associated with rural character and sense of place. Construction of the MP Project might change residents' perception of the area's character and erode their sense of place.[290]

228. During the in-person public meeting, multiple residents near the project area raised concerns regarding impacts to the rural character of the area.[291]

229. DOC-EERA stated that the development of the project may change the character of the area, at least where it is visible. DOC-EERA determined that impacts related to the Arrowhead Substation Alternative are expected to be minimal due to the infrastructure being sited farther away from residents and from view, as a result of not requiring the construction of a new substation and due to proposing a route width that lacks nearby residents to the south by the proposed transmission lines. DOC-EERA determined that impacts related to the MP Proposal would be moderate as a result of the new substation near Morris Thomas Road that may affect the rural character of the surrounding area.[292]

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[288] Ex. DOC EERA-515 at 112 (EA).
[289] Ex. DOC EERA at 113 (EA).
[290] Ex. DOC EERA at 37–38 (EA).
[291] Ex. DOC EERA-503 (Oral Public Comments 8.29.23 Public Meeting).
[292] Ex. DOC EERA-515 at 37–38 (EA).

230. As a result, DOC-EERA proposed no mitigation for the Arrowhead Substation Alternative. Conversely, for the MP Proposal, DOC-EERA proposed additional mitigation measures, including: (i) coloring the converter station and new substation a more natural color to blend with the surroundings; (ii) placing structures the maximum feasible distance from roads and residents, or shielded from view by terrain or existing vegetation; (iii) maintaining the surrounding forested landscape to the extent possible; and (iv) planting a border of trees, installing privacy fencing, or using more decorative fencing along Morris Thomas Road.[293]

231. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have less impacts to cultural values without the need for additional mitigation weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

e. Recreation

232. Multiple recreational opportunities exist in the local vicinity of the MP Project, including bird watching, biking, fishing, camping, hunting, canoeing and kayaking, hiking, skiing, and snowmobiling. The most notable recreation resource in the area is the West Rocky Run Creek trout stream, but the stream is inaccessible to the public in the project area due to being surrounded by private land.[294]

233. All proposed facilities would be constructed on private lands and therefore no public recreation would affected be within. Recreationalists using the area for hiking or fishing may see the infrastructure in certain places, and recreationalists in neighboring properties that use the surrounding area for outdoor activities would likely be the most impacted.[295]

234. Although DOC-EERA stated that both the MP Proposal and the Arrowhead Substation Alternative would have minimal and temporary impacts on recreation, DOC-EERA determined that the Arrowhead Substation Alternative would generally be more hidden from the public, and thus would have less recreational impacts.[296]

235. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have less recreational impacts weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

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[293] Ex. DOC EERA-515 at 38–39 (EA).
[294] Ex. DOC EERA-515 at 51 (EA).
[295] Ex. DOC EERA-515 at 52 (EA).
[296] Ex. DOC EERA-515 at 52 (EA).

f. Public Service and Infrastructure

236. Public services are services provided by a government or regulated private utility for public health, safety, and welfare, and infrastructure refers to the physical facilities that provide these services. Public services may be impacted by large energy projects.[297]

237. Impacts to public services for the MP Proposal and the Arrowhead Substation Alternative are expected to be similar, minimal, and are associated with short electrical outages and traffic delays.[298]

2. Effects on Human Health and Safety

238. Minnesota Rule 7850.4100(B) requires consideration of a transmission project's effect on public health and safety. The evidence in the record demonstrates that the impacts to public health and safety are substantially similar for both the Arrowhead Substation Alternative and the MP Proposal.

a. Construction and Operation of the Project

239. Construction crews must comply with local, state, and federal regulations when installing the Project, including standard construction-relation health and safety practices such as safety orientation and training, and routine safety meetings.[299]

240. Worker safety issues are primarily associated with construction. The Project will be designed and constructed in compliance with applicable electrical codes, and electrical inspections will ensure proper installation of all components. Electrical work will be completed by trained technicians.[300]

241. ATC has explained that whether the Arrowhead Substation Alternative is selected or not, the MP Project will be constructed by MP.[301] Thus, construction will follow MP's established safety procedures and industry safety procedures, including clear signage during construction activities. DOC-EERA determined that potential impacts are anticipated to be minimal.[302]

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[297] Ex. DOC EERA-515 at 52 (EA).
[298] Ex. DOC EERA-515 at 52 (EA).
[299] Ex. DOC EERA-515 at 65 (EA) at 65.
[300] Ex. DOC EERA-515 at 66 (EA).
[301] Ex. ATC-226 at 4 (Lee Rebuttal).
[302] Ex. DOC EERA-515 at 65–66 (EA).

242. The ALJ finds the impacts related to construction and operation of the Project are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

b. EMFs

243. Electric and magnetic fields (EMFs) are invisible forces resulting from the presence of electricity that occur naturally and are caused by weather or the geomagnetic field. Voltage on a conductor creates an electric field that surrounds and extends from the wire. Current moving through a conductor creates a magnetic field that surrounds and extends from the wire.[303]

244. The Department of Health concluded that the current body of evidence is insufficient to establish a cause and effect relationship between EMFs and adverse health effects.[304]

245. DOC-EERA determined that potential impacts related to EMFs are anticipated to be negligible and are not expected to negatively affect human health under either the MP Proposal or the Arrowhead Substation Alternative.[305]

246. The ALJ finds the impacts related to EMFs are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

c. Stray Voltage

247. Stray voltage is voltage caused by an electric current in the earth, or in groundwater, resulting from the grounding of electrical equipment on an electrical distribution system. Stray voltage includes two phenomena: neutral-to-earth voltage (NEV) and induced voltage.[306]

248. NEV is a type of stray voltage that can occur where distribution lines enter structures. Induced voltage results from the electric field from a transmission line extending to nearby conductive objects and "inducing" a voltage upon them.[307]

249. As it relates to NEV, neither the MP Proposal or the Arrowhead Substation Alternative interconnect to businesses and residences, and thus impacts to residences or farming operations from NEV are not anticipated.[308]

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[303] Ex. DOC EERA-515 at 58–59 (EA).
[304] Ex. DOC EERA-515 at 60 (EA).
[305] Ex. DOC EERA-515 at 61 (EA).
[306] Ex. DOC EERA-515 at 67 (EA).
[307] Ex. DOC EERA-515 at 67–68 (EA).
[308] Ex. DOC EERA-515 at 68 (EA).

250. As it relates to induced voltage, the MP Project might induce a voltage on insulated metal objects within the final right away under either the MP Proposal or the Arrowhead Substation Alternative. Yet, the Commission requires that transmission lines be constructed and operated to meet NESC standards, as well as the Commission's own electric field limit of 8 kV/m, reducing these impacts. Additionally, rights-of-way for either route option will be on private property and not accessible to the public. [309]

251. DOC-EERA determined that impacts due to induced voltage are not anticipated to occur.[310]

252. The ALJ finds the impacts related to stray voltage and not anticipated to occur and are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

3. Effects on Land-Based Economies

253. Minnesota Rule 7850.4100(C) requires consideration of the Project's effects on land-based economies.

a. Mining

254. Mineral resources are resources that have a concentration or occurrence of natural, solid, inorganic, or fossilized organic material in such form, quantity, grade, and quality that it has reasonable prospects for commercial extraction.[311]

255. *The Aggregate Source Information System* maintained by MnDOT revealed no aggregate resources in either the proposed project or ATC Alternative route widths, one aggregate pit within the project study area, and two within the project area. DNR submitted comments about these aggregate resources during scoping. Although no mining operations currently exist at this location, the DNR asked that the EA discuss how future mining exploration and/or development would be addressed.[312]

256. The applicant's proposed route, along with new buildings and electrical infrastructure, are sited in an area where the land has metallic mineral potential. The DNR recommended that the applicant collect geophysical data before project development. Minnesota Power stated in their reply comments that the property is not state or federal land, and such survey would increase project costs. The DNR has underground mineral rights but no surface mineral rights. Since the DNR does not have surface ownership in the

[309] Ex. DOC EERA-515 at 68–69 (EA).
[310] Ex. DOC EERA-515 at 68–69 (EA).
[311] Ex. DOC EERA-515 at 69 (EA).
[312] Ex. DOC EERA-515 at 69 (EA).

project area, they cannot require geophysical survey of the below-ground minerals on private lands.[313]

257. DOC-EERA determined that impacts to lands with metallic mineral potential are anticipated to be minimal, as the only resource identified within the project area is outside the routes proposed for the MP Proposal and the Arrowhead Substation Alternative.[314]

258. The ALJ finds the impacts to land based economies are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

4. Effects on Archaeological and Historic Resources

259. Archaeological resources are locations where objects or other evidence of archaeological interest exist, and can include aboriginal mounds and earthworks, ancient burial grounds, prehistoric ruins, or historical remains. Sites not included in state agency datasets may include locations known to Minnesota Indian Tribes to have cultural importance. Coordination with Tribal Historic Preservation Offices (THPOs) prevents impacts from the project to known traditional cultural properties. Historic resources are sites, buildings, structures or other antiquities of state or national significance.[315]

260. MP gathered information on known archaeological and historic resources in August 2022 from the State Historic Preservation Office (SHPO) and the Minnesota Office of the State Archaeologist (OSA). The investigation included a desktop review that addressed the area within one mile of the project study area. On November 17, 2022, MP met with and asked for comments of the Fond du Lac Band of Lake Superior Chippewa THPO. They indicated that a potential, unconfirmed trail may be present in the very southwest of the project study area, but outside of the route widths of the MP Proposal and Arrowhead Substation Alternative, which is wholly within the applicant's study area.[316]

261. The Upper Sioux Community THPO also responded to DOC-EERA's notification of application receipt for the project on June 22, 2023, indicating that while the Dakota lived, prayed, hunted, gathered, battled, and buried their relatives in the project area, no adverse effect to any known Tribal Cultural Properties was found.[317]

262. MP submitted an updated survey to SHPO, and SHPO confirmed that one archaeological site existed in the project area. SHPO requested avoidance of the site and recommended a 100-meter buffer during all construction activity. The MP Proposal has

[313] Ex. DOC EERA-515 at 69 (EA).
[314] Ex. DOC EERA-515 at 70 (EA).
[315] Ex. DOC EERA-515 at 70 (EA).
[316] Ex. DOC EERA-515 at 71 (EA).
[317] Ex. DOC EERA-515 at 71 (EA).

designed a 150-meter buffer around the site, and the Arrowhead Substation Alternative will avoid this feature by complying with the 100-meter buffer.[318]

263. DOC-EERA determined that impacts to the archaeological resource are not anticipated due to the buffers imposed by the MP Proposal and Arrowhead Substation Alternative. Further, because the project review encompassed the entire study area, and the Arrowhead Substation Alternative is entirely within that study area, the conclusion that there are no other known or suspected archaeological properties in the area applies to both the MP Proposal and the Arrowhead Substation Alternative.[319]

264. The ALJ finds the impacts to archaeological and historic resources are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

5. Effects on Natural Environment

a. Air Quality

265. Air quality is a measure of how pollution-free the ambient air is and how healthy it is for humans, other animals, and plants. Emissions of air pollutants will occur during construction and operation of new infrastructure for the project. Air quality in the project area is relatively better than more populated areas of the state such as the Twin Cities metro region, and is in the lowest 20% of all air emission scores in Minnesota.[320]

266. Minimal intermittent air emissions are expected during construction of the project, and are highly dependent on weather conditions and the construction activity occurring. All projects that involve movement of soil, or exposure of erodible surfaces, generate some type of fugitive dust emissions. Construction activities will generate fugitive dust from travel on unpaved roads, grading, foundation excavation, and setting structures.[321]

267. DOC-EERA determined that both the MP Proposal and the Arrowhead Substation Alternative would generally use paved roads to access construction sites, but that both may also use unpaved roads that would generate more negative impacts to air quality than paved roads.[322]

268. During operation, power lines produce ozone and nitrous oxide through the corona effect—the ionization of air molecules surrounding the conductor. Ozone

[318] Ex. DOC EERA-515 at 71 (EA).
[319] Ex. DOC EERA-515 at 71 (EA).
[320] Ex. DOC EERA-515 at 72 (EA).
[321] Ex. DOC EERA-515 at 73–74 (EA).
[322] Ex. DOC EERA-515 at 74 (EA).

production from a conductor is proportional to temperature and sunlight and inversely proportional to humidity. Nitrogen oxides can react to form ground-level ozone. Ozone is one of the most impactful pollutants in Minnesota and can contribute to health issues even as the State continues to meet all current federal standards. Ozone and nitrous oxide are reactive compounds that contribute to smog and can have adverse impacts on human respiratory systems.[323]

269. The State of Minnesota has an ozone standard of 0.07 parts per million (ppm) through an 8-hour averaging time which conforms to the federal ozone standard. Nitrous oxide is regulated indirectly through the state and federal standards for nitrogen dioxide (NO_2). Nitrogen oxides are a criteria pollutant under the Clean Air Act, and the standards for them are set by using NO_2 as the indicator of the larger group of nitrogen oxides.[324] Air emissions associated with maintenance of the HVTL are, like construction emissions, dependent upon weather conditions and the specific activity occurring.

270. DOC-EERA determined that air quality impacts would be slightly less for the ATC Alternative as less infrastructure would be constructed and operated, and would have a further decreased impact if ATC commits to the same mitigation as MP, such as dust mitigation and control measures.[325]

271. As discussed, MP would be construct the Project, including the Arrowhead Substation Alternative if it is selected. As such, MP could implement the mitigation measures it has committed to for the MP Proposal.[326]

272. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have slightly less air quality impacts, and that such impacts would be further decreased through mitigation MP has previously committed to, weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

b. Greenhouse Gases

273. Greenhouse gases (GHG) are gaseous emissions that trap heat in the atmosphere and contribute to climate change. These emissions occur from natural processes and human activities. The most common GHGs emitted from human activities include carbon dioxide, methane, and nitrous oxide.[327]

274. Deforestation is a source of carbon dioxide to the atmosphere, as trees and forest land act as a carbon sink, absorbing carbon dioxide from the atmosphere and storing

[323] Ex. DOC EERA-515 at 74 (EA).
[324] Ex. DOC EERA-515 at 74–75 (EA).
[325] Ex. DOC EERA-515 at 75 (EA).
[326] Ex. ATC-226 at 4 (Lee Rebuttal).
[327]Ex. DOC EERA-515 at 75 (EA).

it. Removing forests releases most of the stored carbon stock, either through burning or decay. [328]

275. Both the MP Proposal and the Arrowhead Substation Alternative will require clearing of forested land, at 34.25 acres and 34.72 acres, respectively.[329]

276. Construction activities will result in short-term increases in GHG emissions because of the combustion of fossil fuels in construction equipment and vehicles. Sulfur hexafluoride (SF6), a potent GHG, will be used at the converter station and MP's proposed substation. SF6 is a common gas used in high voltage circuit breakers to extinguish arcs formed when the circuit breaker opens. Small releases will occur as part of regular breaker operation and maintenance.[330]

277. DOC-EERA determined that construction-related GHG emissions for the Arrowhead Substation Alternative would be less than the MP Proposal, and SF6 impacts would also be less, as the Arrowhead Substation Alternative does not require the construction a new substation.[331]

278. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have less GHG emissions weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

c. Water Quality and Resources

(a) Surface Water

279. In the project area, the main surface water feature is West Rocky Run which is a tributary to the Midway River, which flows to the St. Louis River and Lake Superior. Other surface water in the project area includes a small ephemeral stream channel connecting a shallow marsh and an open pond, the pond located approximately 75 feet east of West Rocky Run and 300 feet west of Arrowhead Substation. Utilities are required to obtain a license to cross state lands and waters. Both the MP Proposal and the Arrowhead Substation Alternative routes cross West Rocky Run, neither cross the pond.[332]

280. Minnesota water quality standards protect lakes, rivers, streams, and wetlands by defining how much of a pollutant (bacteria, nutrients, turbidity, mercury, etc.) can be in the water before it is no longer drinkable, swimmable, fishable, or useable in other, designated ways. An impaired water fails to meet one or more water quality

[328] Ex. DOC EERA-515 at 75 (EA).
[329] Ex. DOC EERA-515 at 76 (EA).
[330] Ex. DOC EERA-515 at 77 (EA).
[331] Ex. DOC EERA-515 at 77 (EA).
[332] Ex. DOC EERA-515 at 86–87 (EA).

standards. West Rocky Run is classified by the MPCA as an impaired waterbody due to concentrations of *E. coli* exceeding water quality standards. A Total Maximum Daily Load plan has been approved by the EPA for this impairment.[333]

281. Potential impacts to surface water related to the project include soil disturbance from construction, stormwater runoff, dewatering of foundation borings, and transmission lines crossing West Rocky Run for both the MP Proposal and the Arrowhead Substation Alternative. Direct impacts to West Rocky Run cannot be avoided by the project, primarily derived from tree clearing for the new transmission line right-of-way (Figure 6). Potential impacts to surface waters are anticipated to be moderate for both the MP Proposal and the Arrowhead Substation Alternative routing options, both of which will clear one additional right-of-way in a part of the trout stream that is already impaired and experiencing warming from previous right-of-way clearing that will remain.[334]

282. There are presently two crossings of West Rocky Run in the project area. Both the MP Proposal and the Arrowhead Substation Alternative would be crossing near existing ROW that is cleared – however, the ROW nearest the MP Proposal will regrow over time, whereas the ROW nearest the Arrowhead Substation Alternative will remain cleared, which could exacerbate warming impacts.[335]

283. MP stated that it will maintain a minimum 50-foot natural vegetative buffer on both banks of the stream crossing to maintain habitat and bank stability. Similarly, ATC stated that it will leave a 75-foot buffer of low-growing vegetation adjacent to the waterway.[336]

284. DOC-EERA determined that potential impacts to surface waters are anticipated to be moderate for both the MP Proposal and the Arrowhead Substation Alternative due to each route proposal requiring clearing of additional ROW crossing West Rocky Run.[337]

285. The ALJ finds the impacts to surface waters are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

(b) Groundwater

286. The project is within the Central Groundwater Province, which is "characterized by buried sand aquifers and relatively extensive surficial sand plains, part of a thick layer of sediment deposited by glaciers overlying the bedrock," because of this

[333] Ex. DOC EERA-515 at 87 (EA).
[334] Ex. DOC EERA-515 at 87–88 (EA).
[335] Ex. DOC EERA-515 at 88–89 (EA).
[336] Ex. DOC EERA-515 at 90 (EA).
[337] Ex. DOC EERA-515 at 86 (EA).

"thick glacial sediment, sand and gravel aquifers are common, and the deeper fractured crystalline bedrock has poor aquifer properties and limited use as an aquifer." The water table is relatively deep within the route width as it ranges from zero feet to over 50 feet depending on the location.[338]

287. MP will not need to connect to city water for the project but will need to install a domestic sized well for sanitary facilities at the Converter Station and/or Switchyard. This type of well is not expected to appropriate more water than a typical residence and would need to comply with applicable MDH permitting regulations. Thus, water appropriation for the project is not expected to affect wells in the area outside of the route width, and in fact the area should have an overall decrease.[339]

288. Transmission pole foundations that will be imbedded into the ground may be up to 60 feet deep for either routing option and range down to 25 feet. All foundation materials will be non-hazardous, preventing leaching into groundwater. Structures might come into direct contact with groundwater because portions of the project area have a depth to groundwater that is less than 60 feet. Prior to construction, geotechnical investigations will be completed to help identify shallow depth to groundwater resource areas, which may require special foundation designs and ultimately is expected to minimize impacts.[340]

289. The Arrowhead Substation Alternative would have less impact on groundwater due to grading, changed drainage patterns, and increased impervious surface to water, soils, and wetland's ability to handle runoff because under the Arrowhead Substation Alternative, only the Converter Station would likely contribute to such impacts.[341]

290. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will have less impact to groundwater due to less grading, less changing of drainage patters, and a smaller increase of impervious surfaces weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

(c) Wetlands

291. Wetlands are areas with hydric (wetland) soils, hydrophilic (water-loving) vegetation, and wetland hydrology (inundated or saturated during much of the growing season). Wetland types include marshes, swamps, bogs, and fens. Wetlands vary widely due to differences in soils, topography, climate, hydrology, water chemistry, vegetation, season, and other factors. Wetlands are important to the health of waterways and communities that are downstream. Wetlands can be one source of hydrology in

[338] Ex. DOC EERA-515 at 80 (EA).
[339] Ex. DOC EERA-515 at 81 (EA).
[340] Ex. DOC EERA-515 at 81 (EA).
[341] Ex. DOC EERA-515 at 82 (EA).

downstream watercourses and water bodies, detain floodwaters, recharge groundwater supplies, remove pollution, serve as a "natural filter" by trapping and absorbing sedimentation, and provide fish and wildlife habitat.[342]

292. A Wetlands and Waterbody Delineation Report was prepared a third party in October 2023 that covers 276 acres of the project study area, which excluded the southwest corner. Field surveys were conducted August 22-24, 2022, September 23, 2022, and July 31-August 2, 2023. The survey identified 29 discrete wetlands totaling 55.92 acres within the survey area.[343]

293. The proposed location for the new substation required for the MP Proposal would entirely cover one 0.04-acre fresh (wet) meadow PEM wetland and might occupy small portions (<0.5-acre total) of two wetlands (mostly shrub-carr PSS, some fresh (wet) meadow PEM) on the eastern boundary. The proposed location for the Converter Station, which would be required for both the MP Proposal and the Arrowhead Substation Alternative, would cover half or more of one 4.8-acre alder thicket PSS wetland.[344]

294. Transmission lines and their new right-of-ways would mostly span wetlands and not require wetland vegetation clearing for both routing options. When a wetland cannot be avoided, construction must occur within the wetland under permit by the U.S. Army Corps of Engineers, which may include mitigation ratios as a condition. MP has stated that structures will be sited outside of wetlands. For the Arrowhead Substation Alternative, one structure is expected to be placed in wetlands resulting in 70 square feet of permanent fill.[345]

295. The MP Proposal and the Arrowhead Substation Alternative would result in 7.04 acres or 6.6 acres of permanent impacts to wetlands, respectively.[346]

296. Wetland conversion is distinct from permanent wetland fill. Whereas permanent wetland fill eliminates the wetland, conversion is a process where the wetland changes from one wetland type to another. The wetland itself is not eliminated, however, it is still considered a permanent impact because it changes functionality of the wetland.[347]

297. The Arrowhead Substation Alternative is estimated to convert 4.2 acres of forested wetland, whereas the MP Proposal is estimated to convert 4.56 acres.[348]

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[342] Ex. DOC EERA-515 at 115–15 (EA).
[343] Ex. DOC EERA-515 at 116 (EA).
[344] Ex. DOC EERA-515 at 116 (EA).
[345] Ex. DOC EERA-515 at 117 (EA).
[346] Ex. DOC EERA-515 at 117 (EA).
[347] Ex. DOC EERA-515 at 119 (EA).
[348] Ex. DOC EERA-515 at 119 (EA).

298. Temporary impacts are associated with access to wetlands with construction equipment. While use of construction mats during construction in wetlands reduce soil compaction, it has potential to disturb or kill the underlying vegetation based on the amount of time these mats are in use. Vegetation would be expected to regenerate relatively quickly; however, disturbed areas would be more susceptible to invasive plant species, which, if established, could lead to long-term adverse impacts to wetland function. Commission route permits require use of construction mats when winter construction is not possible.[349]

299. Temporary impacts from the MP Proposal could amount to 1.04 acres and temporary impacts from the Arrowhead Substation Alternative are estimated at 0.24 acres.[350]

300. Based on the results of delineation and wetlands identified, mitigation would be required in accordance with the Clean Water Act, DNR Public Waters and Wetlands Work Permit, and WCA requirements. Mitigation developed on the route and final ROW would include wetland replacement as necessary for long-term impacts and location-specific wetland avoidance measures.[351]

301. The ALJ finds the impacts to wetlands are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

d. Flora

302. The current landscape is rural open space and forested areas. The project area is relatively more developed to the south, and rural to the north. Land cover types within proposed route are approximately 64% forest and shrubs, 21% rural developed land, 14% cropland, and 1% grassland.[352]

303. Construction activities will cause both short- and long-term impacts to vegetation. Short-term impacts will result from grading and other physical disturbances. Site preparation and structure installation might remove, disturb, or compact vegetation. Establishing and using access roads and staging and stringing areas will concentrate surface disturbance and equipment use causing short-term impacts to vegetation.[353]

304. DOC-EERA determined that tree clearing impacts to construct the MP Proposal or the Arrowhead Substation Alternative are similar at 34.25 acres and 34.72 acres, respectively, including construction of the converter station—required for both the

[349] Ex. DOC EERA-515 at 119 (EA).
[350] Ex. DOC EERA-515 at 119 (EA).
[351] Ex. DOC EERA-515 at 120 (EA).
[352] Ex. DOC EERA-515 at 121 (EA).
[353] Ex. DOC EERA-515 at 121 (EA).

MP Proposal and the Arrowhead Substation Alternative— that will permanently remove approximately 21.65 acres of vegetation.[354]

305. The ALJ finds the impacts to flora are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

e. Fauna

306. Most wildlife using the local vicinity are common species associated with disturbed habitats and are accustomed to human activities occurring in the area, for example, agriculture, roads, and rural homesteads.[355]

307. Construction and operation of the proposed project or the ATC Alternative may cause short-term and long-term impacts to wildlife and habitat. Impacts on wildlife are assessed by evaluating the vegetation cover/habitat in the project area, and the proximity of the project to wildlife habitat. During construction, wildlife in the project area may be displaced due to equipment noise, increased human activity, and other disturbance of habitat. The distance animals are displaced depends on the species and the tolerance level of each animal. Most wildlife would likely return to the area after construction; however, others might be permanently displaced. Because other suitable habitat is available in and near the project area, potential temporary impacts to wildlife are not expected to cause permanent changes to local populations. Although streams will be spanned, and no structures will be placed directly in the trout stream, the increased vegetation clearing for new right-of-way will directly impact cold water fish and/or their habitat along this stretch.[356]

308. Potential impacts to avian species include electrocution from, and collision with, HVTLs during operation. The risk of collision is influenced by several factors including habitat, flyways, foraging areas, and bird size. The frequency of collisions increases when a transmission line is placed between agricultural fields that serve as feeding areas and wetlands or open water, which serve as resting areas. In these areas, it is likely that waterfowl and other birds would be traveling between different habitats, increasing the likelihood of collision. [357]

309. The incidence of birds colliding with transmission lines is also influenced by the number of horizontal planes in which the conductors are strung. Stringing the conductors in a single horizontal plane presents less of a barrier to birds crossing the transmission line right-of-way. A single horizontal plane, however, generally requires a wider structure (H-frame structure). Conversely, stringing the conductor wires in two or

[354] Ex. DOC EERA-515 at 121 (EA).
[355] Ex. DOC EERA-515 at 91 (EA).
[356] Ex. DOC EERA-515 at 91, 93 (EA).
[357] Ex. DOC EERA-515 at 94 (EA).

more planes creates a greater barrier to birds attempting to fly, not only across the lines, but over and potentially between them (monopole structure). Both the MP Proposal and the Arrowhead Substation Alternative propose to use H-frame structures and monopole structures, however MP has offered to route one double-circuited monopole 230 kV line instead of two parallel H-frame lines.[358]

310. Bird diverters are placed on top of the shield wire and could reduce impacts because of the natural tendency for birds to avoid obstacles in flight by increasing altitude. MP states that because the water features in the area are too small or narrow, and habitat conditions would not concentrate waterfowl in the area, bird flight diverters are not being considered on the HVTLs at this time. ATC stated that where the new double-circuit line crosses the existing 230 kV line, there will be visual marker balls. They also suggest that ATC's proposed transmission line design will meet Avian Power Line Interaction Committee Avian Protection Guidelines including spacing guidelines to avoid electrocutions. Lastly, ATC reports that there are no indicators that the proposed route would be at high risk for avian collisions, therefore, bird flight diverters are not planned but could be added at a later date if problems are identified.[359]

311. DOC-EERA determined that potential impacts to avian species are expected to be minimal for both the MP Proposal and the Arrowhead Substation Alternative. Impacts to terrestrial species are also expected to be minimal for both proposals.[360]

312. The ALJ finds the impacts to fauna are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

6. Effects on Rare and Unique Natural Resources

313. Minnesota Rule 7850.4100(F) requires consideration of the Project's effects on rare and unique resources.

314. Rare and unique resources include assemblages of species or habitat that are designated for special care and conservation by state and federal agencies because loss of habitat and small or shrinking population is cause for concern.[361]

315. MP submitted a request to the U.S. Fish and Wildlife Service (USFWA) Information for Planning and Consultation (IPaC) website, as well as the DNR's Natural

[358] Ex. DOC EERA-515 at 94 (EA).
[359] Ex. DOC EERA-515 at 95 (EA)..
[360] Ex. DOC EERA-515 at 91 (EA).
[361] Ex. DOC EERA-515 at 95 (EA).

Heritage Information System (NHIS) for documented occurrences of federally listed species, state-listed species, and designated critical habitat.[362]

316. Power lines can impact rare and unique resources during construction and operation. Adverse impacts include the taking or displacement of individual plants or animals, invasive species introduction, habitat loss, reduced community size, and, for avian species, collision with conductors or electrocution. Impacts to rare and unique resources are not necessarily adverse. The determination of impact hinges on tree clearing for the project. MP states that tree clearing will occur based on consultation with USFWS.[363]

317. There is one state listed species of special concern, the Northern Goshawk, with the potential to occur in the area because they have been observed nesting within the project boundary. Because suitable habitat remains in the area, undocumented nests may be present within the project impact area for both the MP Proposal and the Arrowhead Substation Alternative. Impacts to the northern goshawk can be minimized by removing trees outside of the nesting season (approximately February through August), and properly managing food and trash during construction as not to attract the northern goshawk's prey to the area.[364]

318. The range of the northern long-eared bat stretches across much of the eastern and Midwestern United States. Even if there are no bat records listed in the Natural Heritage Information System, all seven of Minnesota's bats can be found throughout Minnesota. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. Under the USFWS Final 4(d) Rule for the Northern long-eared bat, purposeful take of the species is prohibited with limited exception. Incidental take from tree removal is also prohibited if it occurs within one-quarter mile of a known hibernacula; or cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from a known maternity tree during the pup season (June 1 and July 31). These prohibitions focus on protecting the bat's sensitive life stages (that is, hibernation and raising young) in areas affected by white nose-syndrome. No hibernacula or maternity roosts trees are identified in the NHIS database within the project area.[365]

319. MP will construct the project and perform the tree clearing and other construction activities.[366] As such, MP's proposed mitigation measures will apply to both the MP Proposal and the Arrowhead Substation Alternative. Minnesota Power has committed to schedule the project's tree clearing activities to occur during the northern

[362] Ex. DOC EERA-515 at 96 (EA).
[363] Ex. DOC EERA-515 at 99 (EA).
[364] Ex. DOC EERA-515 at 97 (EA).
[365] Ex. DOC EERA-515 at 97, 100 (EA).
[366] Ex. ATC-226 at 4 (Lee Rebuttal).

goshawk's inactive season which should avoid direct impacts to the birds or their eggs due to tree clearing. The northern goshawks inactive season will also overlap with avoiding impacts to the Northern Long-eared Bat.[367]

320. The ALJ finds the impacts to rare and unique natural resources are substantially the same between the MP Proposal and the Arrowhead Substation Alternative.

7. Application of Various Design Considerations

321. Minnesota Rule 7850.4100(G) requires consideration of whether the applied design consideration maximizes energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity.

322. MP stated that the Project is scheduled to be placed in service between 2028 and 2030 and is a critical component of Minnesota Power's efforts to leverage existing infrastructure to efficiently maintain the current load, gain additional access to renewable resources for customers, and keep momentum for reaching the state's goal of 100 percent carbon-free energy by 2040. The Project also innovatively proposes flexible design options to allow for future expansion and additional renewable energy transfer capability, leveraging the unique attributes of HVDC technology—the most efficient way to transfer power over long distances.[368]

323. ATC explained that Modifying MP's proposal to interconnect the Project to ATC's 345/230 kV Arrowhead Substation—rather than a new St. Louis County Substation, located less than a mile away—will still enable MP to modernize the aging converter stations for the HVDC Line, to continue serving its customers with carbon-free renewable energy from that line, to connect the HVDC System to the 345 kV transmission network, and to accommodate future 345 kV transmission development in the area, should the need to do so arise.[369]

324. The ALJ finds that ATC's design configurations, discussed at length in these Findings, maximizes energy efficiencies, mitigates adverse environmental effects, and could accommodate expansion of transmission or generating capacity. This weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative

[367] Ex. DOC EERA-515 at 101 (EA).
[368] Ex. MP-104 at § 1.1 (MP Application).
[369] Ex. ATC-227 at 41–42 (Dagenais Direct).

8. Use or Paralleling of Existing Right-of-Way, Survey Lines, Natural Division Lines and Agricultural Field Boundaries

325. Minnesota Rule 7850.4100(H) requires consideration of the use or paralleling of existing ROW, survey lines, natural division lines, and agricultural field boundaries.

326. The Arrowhead Substation Alternative will parallel existing ROW for the west to east extent of its length, sharing 25 feet of ROW with the existing HVDC line. The MP Proposal does not parallel existing ROW. Neither option follows state or county highway ROW.[370]

327. The ALJ finds that DOC-EERA's conclusion that the Arrowhead Substation Alternative will parallel existing utility ROW in compliance with Minnesota Statute Section 216E.03, subd. 7(8) and Minnesota Rule 7850.4100(H) weighs in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

9. Use of Existing Transportation, Pipeline, and Electrical System Right-of-Way

328. Minnesota Rule 7850.4100(J) requires consideration of use or paralleling of existing transportation, pipeline, and electrical transmission system rights-of-way.

329. As detailed above, the Arrowhead Substation Alternative will parallel the existing HVDC line ROW for the west to east extent of its length.[371]

330. The ALJ finds that considerations of use or paralleling of existing ROW weigh in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

10. Electrical System Reliability

331. Minnesota Rule 7850.4100(K) requires the consideration of electrical system reliability when selection a route for a HVTL.

332. As discussed in detail in section IV.A.2.d. of these Findings, ATC conducted three reliability studies which demonstrated that, from a system reliability perspective, the Arrowhead Substation Alternative performs better than MP's proposal.[372]

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[370] Ex. DOC EERA-515 at 129 (EA).
[371] Ex. DOC EERA-515 at 129 (EA).
[372] *See generally* Ex. ATC-234, Schedule 4 (Dagenais Direct); Ex. ATC-236, Schedule 5 (Dagenais Direct); Ex. ATC-238, Schedule 6 (Dagenais Direct); Ex. ATC-240, Schedule 7 (Dagenais Direct) (detailed results of ATC planning analyses).

333. The ALJ finds, for the reasons discussed in section IV.A.2.d. of these Findings, that considerations of electrical system reliability weigh in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

11. Costs of Constructing, Operating and Maintaining the Facility

334. Minnesota Rule 7850.4100(L) requires consideration of the cost to construct proposed routes and the cost of operation and maintenance.

335. As discussed in detail in section IV.A.2.b. of the Findings, the Arrowhead Substation Alternative results in lower costs and provides additional benefits as compared to the MP Proposal.

336. The ALJ finds, for the reasons discussed in section IV.A.2.b. of these Findings, that considerations of costs weigh in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

12. Adverse Human and Natural Environmental Effects that Cannot be Avoided

337. Minnesota Rule 7850.4100(M) requires consideration of unavoidable human and environmental impacts. Transmission lines are infrastructure projects that have unavoidable adverse human and environmental impacts. [373]

338. Unavoidable adverse impacts associated with construction of the proposed project include:[374]

- Possible traffic delays and fugitive dust on roadways.
- Visual and noise disturbances.
- Soil compaction and erosion.
- Vegetative clearing; removal or changes to wetland type and function.
- Disturbance and temporary displacement of wildlife, as well as direct impacts to wildlife inadvertently struck or crushed during structure placement or other activities.
- Minor amounts of habitat loss.

[373] Ex. DOC EERA-515 at 101 (EA).
[374] Ex. DOC EERA-515 at 102 (EA).

- Converting the underlying land use to an industrial use.

- GHG emissions.

339. The ALJ finds that the unavoidable adverse impacts associated with construction of the Project are largely similar with respect to the MP Proposal and the Arrowhead Substation Alternative with the exception of the following, where impacts from the Arrowhead Substation are less than those from the MP Proposal:

- conversion of underlying land use to industrial, because the Arrowhead Substation Alternative does not require construction of a new substation;[375]

- GHG emissions due to because the Arrowhead Substation Alternative does not require construction of a new substation[376]

340. Unavoidable adverse impacts associated with the operation of the MP Proposal include:[377]

- Visual impact of structures and conductors..

- Change in landscape character and any subsequent impact to cultural values.

- Loss of land use for other purposes, such as the removal of prime farmland, where structures are placed.

- Injury or death of avian species that collide with, or are electrocuted by, conductors.

- Interference with AM radio signals.

- Potential decrease to property values.

- Continued maintenance of tall-growing vegetation.

- GHG emissions.

- Increased EMF on the landscape (potential impacts from EMF are minimal and are not expected to impact human health.)

339. The ALJ finds that the unavoidable adverse impacts associated with operation of the Project are largely similar with respect to the MP Proposal and the

[375] Ex. DOC EERA-515 at 40–41 (EA).
[376] Ex. DOC EERA-515 at 9 (EA).
[377] Ex. DOC EERA-515 at 102 (EA).

Arrowhead Substation Alternative with the exception of the following, where impacts from the Arrowhead Substation are less than those from the MP Proposal:[378]

- Visual impact of structures and conductors because the Arrowhead Substation Alternative does not require construction of a new substation.[379]

- Change in landscape character and any subsequent impact to cultural values because the Arrowhead Substation Alternative does not require construction of a new substation.[380]

13. Irreversible and Irretrievable Commitments of Resources

340. Minnesota Rule 7850.4100(N) requires consideration of the irreversible and irretrievable commitments of resources that are necessary for the Project.

341. An irretrievable commitment of resources means the resource is not recoverable for later use by future generations. These impacts are primarily related to project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources. The commitment of labor and fiscal resources is also considered irretrievable.[381]

342. Irreversible impacts include the land required to construct the transmission line. While it is possible that the structures, conductors, and buildings could be removed and the right-of-way restored to previous conditions, this is unlikely to happen in the reasonably foreseeable future (~50 years). The loss of wetlands is considered irreversible, because replacing these wetlands would take a significant amount of time. Certain land uses within the right-of-way will no longer be able to occur, especially at the converter station and new substation.[382]

343. DOC-EERA did not separately identify the irretrievable and irreversible impacts for the MP Proposal and the Arrowhead Substation Alternative. However, the Arrowhead Substation Alternative avoids the need for construction of a new substation and shares existing ROW with the existing HVDC Line. This results in less construction, less land use, less labor and fiscal resources expenditures, and less use of construction-related resources, such as water, aggregate, hydrocarbons, steel, and concrete.

344. Due to these factors, the ALJ finds that the Arrowhead Substation Alternative will have fewer irretrievable and irreversible impacts than the MP Proposal. This weighs

[378] Ex. DOC EERA-515 at 102 (EA).
[379] Ex. DOC EERA-515 at 112 (EA).
[380] Ex. DOC EERA-515 at 37 (EA).
[381] Ex. DOC EERA-515 at 102 (EA).
[382] Ex. DOC EERA-515 at 102 (EA).

in favor of requiring modification of the MP Project to include the Arrowhead Substation Alternative.

14. Recommended Route

345. There is considerable disagreement between MP and ATC over which route is best, the MP Proposal or the Arrowhead Substation Alternative. As demonstrated in the Findings, above, DOC-EERA's EA indicates that the Arrowhead Substation Alternative will overall result in fewer impacts of a lesser degree when considering the criteria established in Minnesota Rules.

346. The evidence in the record shows that the Arrowhead Substation Alternative:

- will produce less noise during construction than the MP Proposal; [383]
- is expected to have less aesthetic impact than the MP Proposal;[384]
- will have less impacts to cultural values without the need for additional mitigation;[385]
- will have less impacts to recreation and recreational activities;[386]
- will have slightly less air quality impacts, and that such impacts would be further decreased through the same mitigation MP has previously committed to and could employ during construction of the Arrowhead Substation Alternative; [387]
- will result in less GHG emissions;[388]
- will have less impact to groundwater due to less grading, less changing of drainage patters, and a smaller increase of impervious surfaces;[389] and
- will parallel existing utility ROW as recommended by Minnesota Statutes and Rule.[390]

[383] Ex. DOC EERA-515 at 9, 44–45 (EA).
[384] Ex. DOC EERA at 113 (EA).
[385] Ex. DOC EERA-515 at 37–38 (EA).
[386] Ex. DOC EERA-515 at 52 (EA).
[387] Ex. DOC EERA-515 at 75 (EA).
[388] Ex. DOC EERA-515 at 77 (EA).
[389] Ex. DOC EERA-515 at 82 (EA).
[390] Ex. DOC EERA-515 at 129 (EA).

347. Further, the evidence in the record demonstrates that the Arrowhead Substation Alternative (i) is a more reliable and efficient alternative to the MP Proposal,[391] (ii) costs less while providing additional fiscal benefits and opportunities to MP and its ratepayers,[392] and (iii) meets the size, type, and timing requirements of the Project.[393]

348. The ALJ finds that ATC has demonstrated that the Arrowhead Substation Alternative provides a preferable alternative to the MP Proposal. In aggregate, the criteria evaluated for the issuance of a route permit weigh heavily in favor of the Arrowhead Substation Alternative. The MP Project should be granted a route permit, as modified by the Arrowhead Substation Alternative.

V. REMOVAL OF THE 800 MVA LIMIT ON THE ATC ARROWHEAD SUSBTATION

349. When construction of ATC's 345/230 kV Arrowhead Substation was initially authorized in 2001 as part of the Arrowhead-Weston 345 kV Transmission Project, the EQB (which had jurisdiction over that project at that time) imposed the following condition in its order granting the project an exemption from the Minnesota Power Plant Siting Act:

> Minnesota Power shall apply to the [EQB] . . . to make any changes in the Arrowhead substation that would allow Minnesota Power to increase the capability of the substation to transmit power over the [Arrowhead-Weston] transmission line beyond 800 MVA.[394]

350. In 2005, the Minnesota legislature transferred all authority over siting issues from the EQB to the Commission. As such, this limitation is now the subject of Commission authority to continue or remove. [395]

351. ATC requested in briefing that the Commission remove the 800 MVA limit, whether or not is authorizes construction of the Arrowhead Substation Alternative.[396]

352. ATC stated that it understood the 800 MVA limit as a proxy for mitigating potential noise impacts from its 345/230 kV Arrowhead Substation. MP claimed that the limit was the product of EQB concerns related to power flow and bulk power transfers of

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[391] Ex. ATC-227 at 11–16 (Dagenais Direct); Ex. ATC-243 at 17–18 (Dagenais Rebuttal).
[392] Ex. ATC-209 at 8 (Johanek Rebuttal); Tr. at 122 (Johanek); Ex. ATC-243 at 38–39 (Dagenais Rebuttal); Tr. at 85 (Dagenais).
[393] Ex. ATC-205 at 8 (Johanek Direct); Ex. ATC-209 at 4 (Johanek Rebuttal); Ex. ATC-227 at 32–33 (Dagenais Direct).
[394] Ex. MP-122, Schedule 31 at 5 (Winter Direct).
[395] Minnesota Session Laws 2005 (Regular Session), Chapter 97, Article 3, viewable at https://www.revisor.mn.gov/laws/2005/0/97/#laws.3.3.0.
[396] ATC Initial Br. at 71.

coal-fired generation from North Dakota to Wisconsin. ATC argued that, irrespective of the reason the limit was imposed, there is no reasonable engineering basis for it to remain in place.[397]

353. To the extent that sound was a factor, ATC explained that it recently installed a 24-foot concrete wall around the perimeter of the substation and would retire its existing Arrowhead PST as part of the Arrowhead Substation Alternative, which will help mitigate noise in the future.[398] Further, if the Arrowhead Substation Alternative is implemented, ATC stated that noise studies can be conducted during detailed project design to determine whether applicable limits may be exceeded and identify potential mitigation measures, to the extent necessary and feasible.[399]

354. To the extent that bulk power flows were the animating concern around this limit, ATC explained that changes in the industry over the last 15 render this concern obsolete. ATC showed that there has been a rapid increase in the retirement of coal-fired generation and a significant increase in the amount of renewable generation coming online. Market forces, climate change concerns, and state renewable portfolio standards make it unlikely that any new coal generation will be constructed in the future.[400]

355. ATC argued that the 800 MVA limit clearly violates the Dormant Commerce Clause and intrudes upon the Federal Energy Regulatory Commission's (FERC) exclusive authority to regulate the transmission of electricity in interstate commerce.[401]

356. The ALJ finds that the 800 MVA limit no longer serves a legitimate basis. Significant changes to transmission system over the last twenty years has rendered the 800 MVA limit obsolete. ATC also raises appropriate concerns about the State's authority to enforce such a limit under the Dormant Commerce Clause. The ALJ finds that the 800 MVA limit should be removed.

CONCLUSIONS OF LAW

1. The Commission and the Administrative Law Judge have jurisdiction over the route permit applied for by MP for the Project pursuant to Minn. Stat. § 216E.03. The Commission and the Administrative Law Judge have juris-diction over the certificate of need applied for by MP for the Project pursuant to Minn. Stat. § 216B.243.

[397] Ex. ATC-227 at 38–39 (Dagenais Direct); Ex. ATC-243 at 45–47 (Dagenais Rebuttal); Ex. MP-122 at 67–69 (Winter Direct).
[398] Ex. ATC-227 at 38–39 (Dagenais Direct); Ex. ATC-218 at 8 (Larsen Direct).
[399] Ex. ATC-227 at 38–39 (Dagenais Direct); Ex. ATC-218 at 8 (Larsen Direct).
[400] Ex. ATC-243 at 46–47 (Dagenais Rebuttal).
[401] ATC Initial Br. at 74.

2. The Commission determined that the Applications were substantially complete and accepted on August 8, 2023.

3. MP, the Commission, and DOC-EERA provided all notices required under Minnesota Statutes and Rules for the Applications and have substantially complied with the procedural requirements of Minnesota Statutes Chapters 216B and 216E, and Minnesota Rules Chapters 7829, 7849, and 7850.

4. DOC-EERA has conducted an appropriate environmental analysis of the Project and the Arrowhead Substation Alternative, and the EA satisfies Minnesota Rules 7850.3700, 7849.1800, subp. 2, and 7850.3900, subp. 2. The EA and the record address the issues identified in the Scoping Decision and the Revised Scoping Decision to a reasonable extent considering the availability of information, the EA includes the items required by Minnesota Rule 7850.3700, subp. 4, and was prepared in compliance with the procedures in Minnesota Rules 7849.1900 and 7850.3700.

5. The Project, including as modified by the Arrowhead Substation Alternative, does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Act or the Minnesota Environmental Policy Act.

6. Public hearings were held on August 29 and 30, 2023. Proper notice of the public hearings was provided. The public was given the opportunity to speak at the hearings and to submit written comments. All procedural requirements for the Certificate of Need and route permit were met.

7. The evidence in the record demonstrates that the MP Project, as modified by the Arrowhead Substation Alternative provides the most suitable route. The Commission has the authority under Minnesota Statutes Section 216E.03 to place conditions on or require modification of a HVTL route permit.

8. The evidence in the record demonstrates that the MP Project should be modified by including the Arrowhead Substation Alternative. ATC has demonstrated the Arrowhead Substation Alternative is viable, less costly, more reliable, and results in fewer and/or lower intensity impacts to natural and socioeconomic environments.

9. The evidence in the record demonstrates that the MP project, as modified by the Arrowhead Substation Alternative, satisfies the criteria for a route permit set forth in Minnesota Statutes Section 216E.03, subd. 7 and Minnesota Rule 7850.4100 and all other legal requirements.

10. The evidence in the record demonstrates that MP has satisfied the criteria for a Certificate of Need set forth in Minnesota Statutes Section 216B.243 and Minnesota Rule 7849.0120, except as follows:

11. The evidence in the record demonstrates that ATC has demonstrated by a preponderance of the evidence that the Arrowhead Substation Alternative is a more reasonable and prudent alternative to address the needs met by the Project. However, the Arrowhead Substation Alternative is not a separate or distinct project alternative, but is a modification of the MP Project. As such, the MP Project as modified by the Arrowhead Substation Alternative satisfies the criteria of Minnesota Rule 7849.0120.

Based in the Findings of Fact and Conclusions of Law contained herein and the entire record of the proceeding, the ALJ hereby makes the following recommendation:

RECOMMENDATION

The minimum legal requirements have been met for issuance of a Certificate of Need and a route permit to construct and operate the MP Project, as modified by the Arrowhead Substation Alternative. If the Commission approves the Applications, the MP Project should be modified to include the Arrowhead Substation Alternative as set forth in the foregoing Findings of Fact and Conclusions of Law. Further, irrespective of whether the Commission approves the Arrowhead Substation Alternative, the Commission should remove the 800 MVA limit imposed by the EQB.

Dated: _____

_____
JAMES MORTENSON
Administrative Law Judge

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