OAH 82-2500-35157
MPUC E-002, ET6675/CN-17-184
MPUC E-002, ET6675/TL-17-185

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Xcel Energy and ITC Midwest LLC for a Certificate of Need and a Route Permit Application for the Huntley-Wilmarth 345-kV Transmission Line Project

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FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATION

INTRODUCTION

On January 17, 2018 Xcel Energy (Xcel) and ITC Midwest (ITC), (collectively, Applicants) filed an Application for a Certificate of Need (CN) to the Minnesota Public Utilities Commission (Commission) to construct an approximately 50-mile 345 kilovolt (kV) transmission line between Xcel's existing Wilmarth substation north of Mankato and ITC's Huntley substation south of Winnebago.[1] The Applicants requested that the Commission combine the Certificate of Need and Route Permit proceedings pursuant to Minn. Stat. § 216B.243, subd. 4. (2018)[2] The Commission accepted the application as complete and referred it to the Office of Administrative Hearings (OAH).[3] On January 22, 2018, the Applicants submitted a Route Permit application for their proposed Huntley-Wilmarth 345-kV Transmission Line with the Commission (Commission).[4] The Commission accepted the route permit application as complete and referred it to OAH for public hearings to be conducted jointly with the hearings for the CN application.

By an Order issued March 28, 2018, the Commission requested that the Office of Administrative Hearings develop a record and prepare a report setting forth factual findings, conclusions, and recommendations on the merits of the Route Permit Application filed by the Applicants.[5] On February 11, 2019, an evidentiary hearing was held before Administrative Law Judge Barbara J. Case in the large hearing room of the Commission's office in St. Paul, Minnesota. Administrative Law Judge Case held public

[1] Exhibit (Ex.) XC-6 at 1 (Certificate of Need Application).
[2] Ex. XC-6 (Filing Letter).
[3] Ex. PUC-2 (Order Finding Applications Complete and Notice of and Order for Hearing).
[4] Ex. XC-7 (Route Permit Application Filing Letter); Ex. XC-7 (Route Permit Application).
[5] Order Finding Applications Complete and Notice of and Order for Hearing (Mar. 28, 2018) (eDocket No. 20183-141450-02).

hearings in this matter on February 27, 2019 in Mankato at 1 p.m. and 6 p.m. and on February 28, 2019 in Delavan at 1 p.m. and in Mapleton at 6 p.m.[6]

Because the Commission determined it was reasonable and efficient to combine the proceedings and requested "the administrative law judge prepare a report" addressing the Project, the ADMINISTRATIVE LAW JUDGE concluded it would be in conformance with the order and reasonable to issue one report on the combined matters. Therefore, this report is organized as two parts, the first relating to need and the second to routes. In its March 28, 2018 Order Finding the Applications Complete and Notice and Order for Hearing, the Commission concurred with the Applicants that it was reasonable "to conduct concurrent review of both applications by combining environmental review and holding joint proceedings."[7]

This report addresses factors required by statute, rule and the Commission's Orders for both the Certificate of Need and the Route Permit. Certain sections of the report, for example the parties, procedural history and description of the project are largely identical for both proceedings. Redundant, or significantly similar, sections are placed where they seemed most logical in terms of chronology and applicableness but are to be applied to both sections where applicable.

APPEARANCES

Mara K. Ascheman, Xcel Energy, and Valerie T. Herring, Briggs and Morgan, P.A., appeared on behalf of Petitioner Northern States Power Company, doing business as Xcel Energy.

Lisa M. Agrimonti, Fredrikson and Byron, P.A., appeared on behalf of ITC Midwest.

Linda S. Jensen, Assistant Attorney General, appeared on behalf of the Department of Commerce, Energy Environmental Review and Analysis (DOC EERA).

Katherine Hinderlie and Peter Madsen, Assistant Attorneys General, appeared on behalf of the Department of Commerce, Division of Energy Resources (DOC DER).

Amelia Vohs, Minnesota Center for Environmental Advocacy (MCEA), appeared for the Clean Grid Alliance (formerly, Wind on the Wires (WOW) and MCEA (the Clean Energy Organizations or CEOs).

Omar Bustami and Debra D. Roby Jennings Strouss & Salmon, P.L.C., and Michael H. Kennedy, Kennedy and Kennedy, appeared on behalf of the City of North Mankato (North Mankato).

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[6] *See* Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. 20192-150242-02).
[7] Order Finding Applications Complete and Notice of and Order for Hearing (Mar. 28, 2018) (eDocket No. 20183-141450-02).

Jeffrey L. Small, attorney, appeared on behalf of Midcontinent Independent System Operator (MISO).

William F. Flynn and Kathryn E. Wendt, Ballard, Spahr, L.L.P., appeared on behalf of Magellan Pipeline Company (Magellan).

Tricia DeBleeckere and Charley Bruce appeared on behalf of the Public Utilities Commission (PUC or Commission).

The hearing record closed following the receipt of all Reply Briefs (only the DOC-DER filed a reply brief) on April 15, 2019.

STATEMENT OF THE ISSUES

I. Certificate of Need

Have Xcel Energy and ITC Midwest satisfied the criteria set forth in Minn. Stat. § 216B.243 (2018) and Minn. R. ch 7849 (2017) and other applicable statutes for a Certificate of Need for the Huntley-Wilmar Project (Project)?

II. Route Permit

Have the Applicants satisfied the factors set forth in Minn. Stat. § 216E.03 (2018) and Minn. R. ch. 7850 (2017) for a route permit for the Huntley-Wilmarth 345 kilovolt (kV) Transmission Project and associated facilities in Blue Earth, Faribault, Martin, and Nicollet counties, Minnesota?

Which proposed route best meets the selection criteria established in Minn. Stat. § 216E.03, subd. 7, and Minn. R. ch. 7850?[8]

What conditions and provisions should be included in the proposed permit?

Have other issues raised by parties, participants, and the public, that are relevant to the Application, been adequately addressed such that this report addresses all issues raised that are relevant to the Commission's decisions?[9]

SUMMARY OF RECOMMENDATIONS

I. Certificate of Need

Based upon the Findings of Fact and Conclusions below, the Administrative Law Judge recommends that the Commission issue Applicants a Certificate of Need for the

[8] Order Finding Applications Complete and Notice of and Order for Hearing (Mar. 28, 2018) (eDocket No. 20183-141450-02).
[9] *Id.*

Project. The Administrative Law Judge concludes that Applicants have satisfied all relevant criteria set forth in Minnesota law for a Certificate of Need for the Project and that there are no statutory or other requirements that preclude granting a Certificate of Need on the record. The Administrative Law Judge finds that no more reasonable and prudent alternative has been identified to alleviate current and potential future transmission congestion in Southern Minnesota; that the Project will enhance the reliability and robustness of the transmission system while providing Minnesota consumers with more access to low cost energy; and that the Project will reduce harmful emissions of CO_2, SO_2, and NO_x by accommodating the retirement of coal generators and their replacement by renewable generation.

II. Route Permit

The Administrative Law Judge concludes that the Applicants have satisfied all relevant criteria set forth in Minnesota law for a route permit for the Huntley-Wilmarth Project and that there are no statutory or other requirements that preclude granting a route permit based on the record.

Based on information in the Certificate of Need and Route Permit Applications to the Commission; the Environmental Impact Statement (EIS) prepared by EERA; the testimony at the public hearings; the written comments received; the exhibits received in the public hearing; and documents filed on eDocket's,[10] the Administrative Law Judge makes the following:

FINDINGS OF FACT: CERTIFICATE OF NEED[11]

I. The Applicants, the Intervenors, and the Project

A. The Parties

1. Northern States Power Company, a Minnesota corporation (NSP-M), doing business as Xcel Energy, provides electric service to 1.3 million customers.[12] With its sister company Northern States Power, a Wisconsin corporation (NSP-W), the vertically integrated utilities own "over 8,000 miles of transmission lines and approximately 550 transmission and distribution substations.[13] Xcel Energy's retail rates for its Minnesota customers are set by the Commission. The electric substation in Wilmarth, Minnesota is owned and operated by Xcel Energy.

[10] eDockets is the electronic filing system utilized by the Minnesota Public Utilities Commission.
[11] Citations to the transcripts or hearing record in these Findings of Fact are not inclusive of all applicable evidentiary support in the record. Findings of Fact from any section of this report may be applicable in another section.
[12] Ex. XC-6 at 3 (Certificate of Need Application).
[13] *Id.*

2. ITC Holdings Corporation is "the largest independent transmission company in the United States."[14] It is the sole member of ITC Midwest, which is a "transmission company" under Minnesota law,[15] owning approximately 6,600 circuit miles of transmission lines and more than 200 transmission substations in Minnesota, Iowa, Illinois, and Missouri."[16] ITC Midwest is a public utility under Section 203 of the Federal Power Act and is subject to regulation by the Federal Energy Regulatory Commission (FERC).[17] ITC Midwest owns and operates the electric substation in Huntley, Minnesota.

3. The Department of Commerce, Division of Energy Resources (DOC- DER) is statutorily authorized to intervene in Certificate of Need proceedings and to participate in Commission matters involving utility rates and the adequacy of utility services.[18]

4. The Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) is statutorily obligated to conduct an environmental review of the Route Permit Application for a high voltage transmission line and to prepare an environmental impact statement (EIS) for the proposed ZProject under the full permitting process.[19]

5. North Mankato is a city situated in Nicollet and Blue Earth counties in Minnesota.[20] North Mankato's city limits and planned development areas are located within or in the immediate vicinity of certain route options proposed by the Applicants for the Huntley – Wilmarth Project.[21]

6. In this proceeding, the Clean Energy Organizations (CEOs) comprise not-for-profit environmental organizations Clean Grid Alliance (formerly Wind on the Wires or WOW) and Minnesota Center for Environmental Advocacy (MCEA).[22] Clean Grid Alliance was founded as WOW in 2001 and currently has 43 members, including environmental organizations, wind/solar/battery developers, tribal interest organizations, and wind industry businesses.[23] Clean Grid Alliance works to overcome barriers to bringing utility-scale wind and solar power to Midwest markets.[24] MCEA works in the courts, the

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[14] *Id.*
[15] Minn. Stat. § 216B.02, subd. 10 (2018) defines "transmission company" to mean entities "engaged in the business of owning, operating, maintaining, or controlling in this state equipment or facilities for furnishing electric transmission service in Minnesota."
[16] Ex. XC-6 at 3 (Certificate of Need Application).
[17] *Id.*
[18] Minn. §§ 216C.09(b), .10(a)(9), 216B.243, subd. 7 (2018).
[19] Minn. Stat. § 216E.03, subd. 5; Minn. R. 7849.1800, subd. 2 (2017).
[20] Minn. R. 7849.1900, subp. 2 (2017).
[20] Petition to Intervene of the City of North Mankato at 2 (Apr. 13, 2018) (eDocket No. 20184-141969-01).
[21] *Id.*
[22] Petition to Intervene of Wind on the Wires and Minnesota Center for Environmental Advocacy at 1 (May 4, 2018) (eDocket No. 20185-142771-02); *see also* Notice of WOW Name Change (Sept. 26, 2018) (eDocket No. 20189-146648-04).
[23] Petition to Intervene of Wind on the Wires and Minnesota Center for Environmental Advocacy at 1 (May 4, 2018) (eDocket No. 20185-142771-02).
[24] *Id.*

legislature, and state agencies to protect Minnesota's wildlife, natural resources, and the health of its people as well as to pursue environmentally-sustainable energy policies. [25] MCEA, on behalf of the CEOs intervened in these proceedings only for the purpose of appearing in the Certificate of Need Docket. On November 16, 2018, the CEOs noticed withdrawal of their Notice of Appearance in the Routing Permit proceedings.[26]

7. Magellan Pipeline Company, L.P. (Magellan) is a federally-regulated interstate pipeline limited partnership.[27] It operates and maintains pipelines and related facilities for the transportation, storage, and distribution of refined petroleum products in fifteen states, including Minnesota.[28] Currently, Magellan's delivery network in Minnesota includes a terminal in Mankato, along with pipelines running from that terminal to Albert Lea.[29] Magellan Ammonia Pipeline, L.P. owns a pipeline that transports anhydrous ammonia from production lines in Oklahoma and Texas to distribution terminals in Kansas, Nebraska, Iowa, and Minnesota.[30] This pipeline terminates at the distribution terminal in Mankato and serves as a primary source of anhydrous ammonia to Minnesota farmers.[31] [32]

8. The Midcontinent Independent System Operator, Inc. (MISO) is a not-for-profit, member-based regional transmission Organization (RTO), which provides reliability and market services over 65,800 miles of transmission in 15 states and one Canadian Province, including throughout the State of Minnesota.[33] MISO is governed by an independent ten-member Board of Directors and responsible for operational oversight and control, market operations, and planning of the transmission systems of its member Transmission Owners.[34] As the reliability and Planning Coordinator for the transmission system in its footprint, MISO's planning process includes the development of the MISO's Transmission Expansion Plan (MTEP), which analyzes and approves transmission

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[25] *Id.*
[26] Notice of MCEA's Withdrawal (Nov. 16, 2018) (eDocket No. 201811-147858-01).
[27] Petition to Intervene of Magellan Pipeline Co., L.P. and Magellan Ammonia Pipeline, L.P. at 2 (June 5, 2018) (eDocket No. 20186-143581-01).
[28] *Id.*
[29] *Id.*
[30] *Id.*
[31] *Id.*
[32] Magellan intervened in the proceeding in accordance with its duty to "monitor and help mitigate" potential corrosive and other ill-effects of potential induced alternate current if a transmission line is built in close proximity to its pipeline. Letter from Jimmy Puckett, Magellan Corrosion Supervisor, to Administrative Law Judge Case (Dec. 18, 2018) (eDocket No. 201812-148559-02). Magellan "prefers that the purple route be selected because it would have no impact on Magellan's facilities." *Id.* at 2. However, if another route is selected, Magellan "has worked with Xcel in the past on other power projects and anticipates that Magellan, Xcel, and ITC Midwest will collaborate on this 345-kV Transmission Line, too, to ensure that both the Line and Magellan's pipelines can operate properly and safely." *Id.* Magellan included a map with its December 18, 2018 letter showing its pipeline and the Applicants' proposed routes. *Id.* at 3. Finding no later filing indicating Magellan's dissatisfaction with Applicants' proposals, the Administrative Law Judge concludes the parties have successfully resolved Magellan's pipeline safety concerns.
[33] Petition to Intervene by MISO at 1 (Apr.16, 2018) (eDocket No. 20184-142025-01).
[34] *Id.*

projects.[35] MISO intervened in these proceedings only for the Certificate of Need portion of the project.[36]

9. Both Xcel Energy and ITC Midwest are transmission-owning members of the Midcontinent Independent System Operator, Inc. (MISO). They provide transmission services under the MISO Open Access Transmission Energy and Operating Reserve Markets Tariff.[37]

II. Procedural Summary

10. On March 3, 2017, the Applicants notified the Commission by letter, pursuant to Minn. Stat. § 216B.246, subd. 3(a) (2018), that they intend to construct, own, and maintain the Huntley – Wilmarth Project to be located in south central Minnesota.[38]

11. On June 30, 2017, the Applicants submitted, for the Commission's approval, a Notice Plan for the Certificate of Need Application to construct the Huntley – Wilmarth Project, pursuant to Minn. R. 7829.2550 (2017).[39]

12. On July 14, 2017, the Applicants submitted a Request for Exemptions from certain Certificate of Need Application requirements, pursuant to Minn. R. 7849.0200, subp. 6 (2017).[40]

13. On July 19, 2017, the Commission issued a Notice of Comment Period on the Applicants' request for exemptions from certain Certificate of Need filing requirements, requesting initial comments by August 3, 2017, and reply comments by August 10, 2017.[41]

14. On July 20, 2017, the DOC-DER filed Comments recommending the Commission approve the Applicants' proposed Notice Plan with modifications.[42] The

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[35] *Id.* at 2.
[36] *See id.* at 1.
[37] Ex. XC-23 at 3 (Petersen Direct); Ex. XC-22 at 3-4 (Neidermire Direct).
[38] Ex. XC-1 (Notice of Intent).
[39] Ex. XC-2 (Notice Plan).
[40] Ex. XC-3 (Exemption Request).
[41] Notice of Comment Period on Request for Exemptions from Certain Filing Requirements (July 19, 2017) (eDocket No. 20177-134016-01). Minnesota Rules 7849.0220, subpart 2 and Minnesota Rules 7849.0260 to .0340 (2017) specify the information an application for a Certificate of Need must contain. Minnesota Rule 7849.0200, subpart 6 (2017) permits an applicant to request exemptions upon a showing a data requirement is unnecessary "to determine the need for the proposed facilities or may be satisfied by submitting another document." The Applicants requested several exemptions specifically for ITC Midwest reflecting its status as a wholesale transmission operator regulated by federal rather than state authorities. The Applicants also requested to submit substitute data for system losses, peak demand and annual consumption forecasts, consequences of delay, and the no-build alternative and full exemption from discussion of generation adequacy because the Project concerns transmission adequacy, not generation adequacy. Ex. XC-3 at 7-8, 12 (Exemption Request).
[42] DOC-DER Comments (July 20, 2017) (eDocket No. 20177-134081-01).

DOC-DER recommended that the Applicants add the *Maple River Messenger* and a statewide newspaper to the list of newspapers through which notification of the Project would be published.[43] The DOC-DER also recommended granting the requested variance to Minn. R. 7829.2550, allowing direct notices to occur no more than 60 days and no less than two weeks prior to the filing of the Certificate of Need Application, and to Minn. R. 7829.2500 (2017), removing the requirement that the notice in the statewide newspaper must be published at the time the Certificate of Need Application is filed.[44]

15. On August 3, 2017, the DOC-DER submitted Comments recommending that the Commission approve all exemptions requested by the Applicants from the Certificate of Need Application requirements.[45]

16. On August 9, 2017, the Applicants submitted Reply Comments to the DOC-DER's Comments on the Notice Plan and Exemption Request, agreeing to add the *Maple River Messenger* and a statewide newspaper (the *Star Tribune*) to the list of newspapers through which notification of the Project will be published.[46]

17. On August 9, 2017, North Mankato submitted a Memorandum[47] outlining concerns regarding certain preliminary route segments for the Project, along with a City Resolution No. 47-17 requesting the Applicants to remove these route segments from their Route Permit Application.[48]

18. On August 11, 2017, the Commission issued a Notice that the Applicants' Notice Plan and Exemption Request petitions will be heard at the Commission's August 24, 2017, agenda meeting.[49]

19. On August 17, 2017, the Commission Staff issued Briefing Papers on the Applicants' Notice Plan and Exemption Request petitions.[50]

20. On September 1, 2017, the Commission issued an Order approving the Notice Plan, as modified and with the requested variance, and the Exemption Request from certain filing requirements for the Certificate of Need Application.[51]

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[43] *Id.*
[44] *Id.*
[45] DOC-DER Comments on the Applicants' Exemption Request (Aug. 3, 2017) (eDocket No. 20178-134493-01).
[46] Ex. XC-4 (Applicants' Reply Comments).
[47] Ex. NM-20 (North Mankato Memorandum).
[48] Ex. NM-19 (North Mankato Resolution No. 47-17).
[49] Notice of Commission Meeting (Aug. 11, 2017) (eDocket No. 20178-134648-03).
[50] Commission Staff Briefing Papers on Notice Plan and Exemption Request from Certain Certificate of Need Filing Requirements (Aug. 17, 2017) (eDocket No. 20178-134789-01).
[51] Commission Order Approving the Notice Plan Petition As Modified With Variance and the Exemption Request Petition (Sept. 1, 2017) (eDocket No. 20179-135212-01).

21. On October 13, 2017, the City of Mankato submitted Comments on certain preliminary route options for the Project with exhibits.[52]

22. On January 5, 2018, the Applicants submitted a Notice Plan Compliance Filing, demonstrating that the Applicants have fulfilled all of the elements under the Commission-approved Notice Plan, including direct mail notices to landowners, mailing addresses, tribal governments, and federal, state, and local government agencies/offices as well as newspaper notices published between December 13, 2017, and December 18, 2017, in local and statewide newspapers.[53]

23. On January 17, 2018, the Applicants filed their Application for a Certificate of Need for the Huntley – Wilmarth Project, requesting that the Commission combine the Certificate of Need and Route Permit proceedings pursuant to Minn. Stat. § 216B.243, subd. 4.[54]

24. On January 19, 2018, the Commission issued a Notice of Comment Period on Certificate of Need Application Completeness, stating that the initial comment period will close on February 2, 2018, and the reply comment period will close on February 14, 2018.[55]

25. On February 2, 2018, the DOC-DER submitted Completeness Comments, recommending that the Commission determine that the Certificate of Need Application is substantially complete and refer the matter to the Office of Administrative Hearings (OAH) for a contested case proceeding.[56]

26. On February 6, 2018, North Mankato submitted Comments on the Completeness of the Certificate of Need and Route Permit Applications, stating North Mankato's objection to all portions of the Red and Green routes that conflict with North Mankato's Comprehensive Development Plan.[57]

27. On February 23, 2018, the Commission issued a Notice of Commission Meeting, scheduling the Certificate of Need Application and the Route Permit Application for the March 8, 2018, agenda meeting.[58]

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[52] City of Mankato's Comments on Preliminary Route Options for the Project (Oct. 13, 2017) (eDocket No. 201710-136468-01); Exs. A-E (Oct. 13, 2017) (eDocket Nos. 201710-136468-02, 201710-136468-03, 201710-136468-04, 201710-136468-05, 201710-136468-06).
[53] Ex. XC-5 (Notice Plan Compliance Filing).
[54] Ex. XC-6 (Filing Letter); *see also* Ex. XC-6 (Certificate of Need Application).
[55] Notice of Comment Period on Certificate of Need Application Completeness (Jan. 19, 2018) (eDocket No. 20181-139101-01).
[56] DOC-DER Comments on Certificate of Need Application Completeness (Feb. 2, 2018) (eDocket No. 20182-139696-01).
[57] Ex. NM-21 (North Mankato Comments on Completeness).
[58] Notice of Commission Meeting (Feb. 23, 2018) (eDocket No. 20182-140425-05).

28. On March 1, 2018, the Commission Staff issued Briefing Papers on the Completeness of the Certificate of Need Application.[59]

29. On March 28, 2018, the Commission issued an Order Finding Applications Complete and Notice of and Order for Hearing, accepting the Certificate of Need and Route Permit applications as substantially complete; authorizing joint hearings and combined environmental review for the Applications; authorizing the DOC-EERA to establish an advisory task force; granting variances to Minn. R. 7849.0200, subp. 5 and 7849.1400, subp 3 (2017); and referring the applications to the OAH for contested case proceedings.[60]

30. On March 29, 2018, the Commission and DOC-EERA issued a Notice of Public Information and Environmental Impact Statement Scoping Meetings, informing that four public meetings will be held in Mankato (two meetings), Winnebago (one meeting), and Mapleton (one meeting) as well as notifying of a public comment period from March 29, 2018, through May 4, 2018.[61] The Notice requested comments on the environmental impacts, mitigation methods, alternative route options, and any other ways to meet the stated need for the Project that should be studied in the EIS.[62]

31. On April 2, 2018, the DOC-EERA published a Notice in the *EQB Monitor* informing that the Commission and DOC-EERA will hold public information and EIS scoping meetings for the Project, including information about the Project, opportunities for participation in the process, and meeting times and locations.[63]

32. On April 6, 2018, Xcel Energy, ITC Midwest, and the DOC-DER filed Notices of Appearance.[64]

33. Between April 13, 2018, and June 5, 2018, North Mankato, MISO, CEOs, and Magellan filed Notices of Appearance and Interventions.[65]

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[59] Commission Staff Briefing Papers on Completeness of the Certificate of Need Application (Mar. 1, 2018) (eDocket No. 20183-140645-01).

[60] Ex. PUC-2 (Order Finding Applications Complete and Notice of and Order for Hearing). The Commission found that the issues in this proceeding "turn on specific facts that are best developed in formal evidentiary hearings." *Id.* at 4. The Administrative Law Judge must hold hearings in which members of the public may participate without intervening and becoming a party to the proceeding. In addition, the Administrative Law Judge must allow parties the opportunity to submit testimony, conduct cross-examination of other parties' witnesses, and file briefs and require parties to respond to discovery requests. *See* Minn. Stat. §§ 14.001-.70 (2018); Minn. Rules 1400.2000-.8613 (2017).

[61] Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings).

[62] *Id.*

[63] *EQB Monitor* Notice of Public Hearing (Aug. 2, 2018) (eDocket No. 20188-145502-01).

[64] ITC Midwest Notice of Appearance (Apr. 6, 2018) (eDocket No. 20184-141747-01); Xcel Energy Notice of Appearance (Apr. 6, 2018) (eDocket No. 20184-141756-02); DOC-DER Notice of Appearance (Apr. 6, 2018) (eDocket No. 20184-141760-01).

[65] North Mankato Notice of Appearance (Apr. 13, 2018) (eDocket No. 20184-141968-01); MISO Notice of Appearance (Apr. 16, 2018) (eDocket No. 20184-142027-01); CEOs Notice of Appearance (Apr. 27, 2018)

34. On April 17, 2018, DOC-EERA issued a Notice that the April 18, 2018, Public Information and Environmental Impact Statement Scoping Meetings to be held in Winnebago and Mapleton were postponed due to a winter weather advisory issued by the National Weather Service.[66]

35. On April 17, 2018, the Commission and the DOC-EERA held two public information and EIS scoping meetings in Mankato, Minnesota.[67]

36. On April 24-25, 2018, the Commission issued a Notice of Rescheduled Public Information and Environmental Impact Statement Scoping Meetings, to be held in Winnebago and Mapleton on May 9, 2018.[68] The Notice also extended the public comment period from March 26, 2018, through May 18, 2018.[69]

37. On May 4, 2018, Administrative Law Judge Case issued Orders Granting Intervention to North Mankato[70] and MISO.[71]

38. On May 9, 2018, the Commission and the DOC-EERA held public information and EIS scoping meetings in Winnebago, Minnesota, and Mapleton, Minnesota.[72]

39. On May 17, 2018, Administrative Law Judge Case issued an Order Granting Intervention to the CEOs.[73]

40. On May 18, 2018, the Applicants submitted their comments on the scope of the EIS being prepared for the Project, proposing four additional route segments to be included in the EIS.[74]

41. Comments on the scope of the EIS were filed by Carol A. Overland on May 18, 2018,[75] and North Mankato on May 21, 2018.[76] On May 24, 2018, the DOC-EERA filed written comments on the scope of the EIS received from governmental

(eDocket No. 20184-142491-01); Magellan Notice of Appearance (May 4, 2018) (eDocket No. 20184-142491-01).

[66] Ex. EERA-4 (Notice of Meeting Postponed).

[67] Ex. EERA-2 (Notice of Public Information and EIS Scoping Meetings).

[68] Ex. EERA-5 (Notice of Rescheduled Public Information and EIS Scoping Meetings).

[69] *Id.*

[70] Order Granting Intervention to the City of North Mankato (May 4, 2018) (eDocket No. 20185-142763-02).

[71] Order Granting Intervention to the Midcontinent Independent System Operator, Inc. (May 4, 2018) (eDocket No. 20185-142763-01).

[72] Ex. EERA-5 (Notice of Rescheduled Public Information and EIS Scoping Meetings).

[73] Order Granting Intervention to the CEOs (May 17, 2018) (eDocket No. 20185-143125-01).

[74] Ex. XC-12 (Applicants' Comments on the Scope of the EIS).

[75] Carol A. Overland's Comments on Scope of EIS (May 18, 2018) (eDocket No. 20185-143209-02).

[76] Ex. NM-22 (City of North Mankato's Comments on the Scope of the EIS).

agencies,[77] the Applicants,[78] local government units,[79] and public citizens.[80] The DOC-EERA also filed oral citizen comments received during the public information and EIS scoping meetings held on April 17, 2018, in Mankato and on May 9, 2018, in Winnebago and Mapleton.[81]

42. On May 23, 2018, the Commission filed the Speak Up report of comments received through that venue, including two written comments.[82]

43. On May 25, 2018, Administrative Law Judge Case issued the First Prehearing Order, establishing procedural timelines and the schedule of proceedings.[83]

44. On July 17, 2018, the DOC-EERA issued its Decision on the Scope of the EIS, including one new route (Purple-E-Red), thirteen new segment alternatives, and three new alignment alternatives for consideration.[84] One of the six segment alternatives proposed by the Applicants in the Route Permit Application (Segment C) was not carried forward for analysis in the EIS.[85]

45. On July 18, 2018, the DOC-EERA issued a Notice of its EIS Scoping Decision[86] and mailed letters to landowners who may be affected by a routing alternative for the proposed Project, providing information on the Project, the route permitting process, and future opportunities for participation in the process.[87]

46. On July 20, 2018, Administrative Law Judge Case issued an Order granting intervention to Magellan,[88] a Protective Order,[89] and a Second Prehearing Order[90] detailing procedural requirements and modifying the schedule of proceedings.

47. On July 24, 2018, Administrative Law Judge Case issued an Amended Second Prehearing Order.[91]

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[77] Ex. EERA-6A (Agency Comments on Scope of EIS).
[78] Ex. EERA-6B (Applicants' Comments on the Scope of the EIS).
[79] Ex. EERA-6C (Written Comments Received from Local Units of Government on the Scope of the EIS).
[80] Ex. EERA-6E (Written Comments Received from Citizens on the Scope of the EIS, A-L); Ex. EERA-6F (Written Comments Received from Citizens on the Scope of the EIS, M-Z).
[81] Ex. EERA-6D (Oral Comments Received from Citizens on the Scope of the EIS).
[82] Speak Up Report of Comments Received Through Speak Up (May 23, 2018) (eDocket No. 20185-143279-01).
[83] First Prehearing Order (May 25, 2018) (eDocket No. 20185-143342-01).
[84] Ex. EERA-10 (DOC-EERA Decision on the Scope of the EIS).
[85] *Id.*
[86] Ex. EERA-11 (DOC-EERA Notice of EIS Scoping Decision).
[87] Ex. EERA-12 (DOC-EERA Mailed Notice of Scoping Decision to New Landowners).
[88] Order Granting Intervention to Magellan Pipeline Company, L.P. and Magellan Ammonia Pipeline, L.P. (July 20, 2018) (eDocket No. 20187-145058-01).
[89] Protective Order (July 20, 2018) (eDocket No. 20187-145058-03).
[90] Second Prehearing Order (July 20, 2018) (eDocket No. 20187-145058-02).
[91] Amended Second Prehearing Order (July 24, 2018) (eDocket No. 20187-145151-01).

48. On July 30, 2018, the DOC-EERA published a Notice in the *EQB Monitor* that it had made a scoping decision on the EIS for the Project.[92]

49. On August 2, 2018, the DOC-EERACommission submitted a template of a Route Permit for a High-Voltage Transmission Line and Associated Facilities.[93]

50. On August 6, 2018, the Applicants submitted proof of publication of the Notice of Public Information and Environmental Impacts Scoping Meeting in the *Fairmont Sentinel* on April 5, 2018, in the *Faribault County Register* on April 2, 2018, in *The Lake Crystal Tribune* on April 4, 2018, in *The Mankato Free Press* on April 5, 2018, in *The Maple River Messenger* on April 5, 2018, in the *Minnesota Lake Tribune* on April 5, 2018, and in the *St. Peter Herald* on April 5, 2018.[94]

51. On August 6, 2018, the Applicants submitted proof of publication of the Notice of Rescheduled Public Information and Environmental ImpactStatement Scoping Meeting in the *Fairmont Sentinel* on April 26, 2018, in the *Blue Earth Faribault County Register* on April 30, 2018, in the *Lake Crystal Tribune* on April 25, 2018, in *The Mankato Free Press* on April 26, 2018, in *The Maple River Messenger* on April 26, 2018, and in the *Minnesota Lake Tribune* on April 26, 2018.[95]

52. On August 6, 2018, the Applicants submitted a proof of mailing on April 2, 2018, of the Notice of Public Information and Environmental Impact Statement Scoping Meeting to residents and landowners who may be impacted by the Project.[96]

53. On August 6, 2018, the Applicants submitted proof of mailing on May 1, 2018, of a Notice that the Public Information and Environmental Impact Statement Scoping Meetings originally scheduled for April 18, 2018 in Winnebago, Minnesota, and Mapleton, Minnesota, were rescheduled for May 9, 2018.[97]

54. On August 7, 2018, the Applicants submitted proof of mailing of the complete Certificate of Need and Route Permit applications for the Project on April 3, 2018, to the Martin County Library.[98]

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[92] Notice of EIS Scoping Decision for the Huntley to Wilmarth 345 kV Transmission Line Project (Aug. 1, 2018) (eDocket No. 20188-145453-02).
[93] Template of a Route Permit for a High-Voltage Transmission Line and Associated Facilities (Aug. 2, 2018) (eDocket No. 20188-145486-01).
[94] Ex. XC-13 (Affidavits of Publication).
[95] *Id.*
[96] Ex. XC-14 (Affidavit of Mailing).
[97] *Id.*
[98] Ex. XC-15 (Affidavit of Mailing to the Library).

55. On September 6, 2018, the Applicants filed the Direct Testimony and Schedules of Thomas G. Hillstrom, Kyle S. Neidermire, Andrew Siebenaler, Grant D. Stevenson, Benjamin Abing, and Thomas C. Petersen.[99]

56. On September 6, 2018, MISO filed the Direct Testimony of Dr. Zheng Zhou.[100]

57. On September 6, 2018, the CEOs filed the Direct Testimony and Schedules of Michael Goggin.[101]

58. On September 26, 2018, CEOs filed a Notice that, as of September 11, 2018, Wind on the Wires had changed its name to Clean Grid Alliance.[102]

59. On November 7, 2018, the DOC-DER filed the Direct Testimony and Schedules of Mark A. Johnson, Matthew Landi, and Dr. Steve Rakow.[103]

60. On November 7, 2018, North Mankato fild the Direct Testimony and Schedules of Michael Fischer.[104]

61. On November 8, 2018, North Mankato filed an Errata to Mr. Fischer's Direct Testimony, correcting the OAH docket number.[105]

62. On November 16, 2018, the Clean Energy Organizations withdrew their Notice of Appearance in this docket.[106]

63. On December 7, 2018, the DOC-EERA filed the Draft EIS for the Project, noting that the report was issued in draft form so that it may be improved by public comment and indicating that comments on the Draft EIS would be accepted through January 28, 2019.[107] On December 10, 2018, the DOC-EERA filed a revised summary and amended Table S-5 for the Draft EIS.[108]

64. On December 10, 2018, the DOC-EERA issued a Notice of Availability of Draft EIS and Public Information Meetings, informing that four public meetings would be held in Mankato (two meetings), Delavan (one meeting), and Mapleton (one meeting) as well as stating that comments on the Draft EIS will be accepted through January 28,

[99] Ex. XC-19 (Hillstrom Direct); Ex. XC-22 (Neidermire Direct); Ex. XC-24 (Siebenaler Direct); Ex. XC-25 (Stevenson Direct); Ex. XC-18 (Abing Direct); Ex. XC-23 (Petersen Direct).
[100] Ex. MISO-1 (Zhou Direct).
[101] Ex. CEOS-1 (Goggin Direct).
[102] Notice of WOW Name Change (Sept. 26, 2018) (eDocket No. 20189-146648-04).
[103] Ex. DER-1 (Johnson Direct); Ex. DER-3 (Landi Direct); Ex. DER-5 (Rakow Direct).
[104] Ex. NM-1 (Fischer Direct).
[105] Fisher Direct Errata Filing (Nov. 8, 2018) (eDocket No. 201811-147681-01).
[106] Notice of MCEA's Withdrawal (Nov. 16, 2018) (eDocket No. 201811-147858-01).
[107] Ex. EERA-13 (Draft EIS).
[108] Ex. EERA-14 (Revised Draft EIS).

2019.[109] The Notice requested that comments focus on what information needs to be clarified or included in the Draft EIS to ensure that the Final EIS is complete and accurate.[110]

65. On December 12, 2018, Administrative Law Judge Case issued the Third Prehearing Order, detailing procedural requirements and modifying the schedule of proceedings.[111]

66. On December 18, 2018, the Applicants filed the Rebuttal Testimony and Schedules of Grant D. Stevenson and Thomas G. Hillstrom.[112]

67. On December 18, 2018, Magellan filed comments providing additional information regarding the proposed routes for the Project.[113]

68. On December 18, 2018, the DOC-DER filed the Rebuttal Testimony and Attachments of Matthew Landi.[114]

69. On December 20, 2018, the DOC-EERA submitted a proof of publication of the Notice of Availability of Draft EIS and Public Information Meetings in the *Fairmont Sentinel* on December 10, 2018; in the *Faribault County Register* on December 10, 2018; in *The Lake Crystal Tribune* on December 12, 2018; in *The Mankato Free Press* on December 9, 2018; and in the *Minnesota Lake Tribune* on December 13, 2018.[115]

70. On December 20, 2018, the DOC-EERA published a Notice in the *EQB Monitor* that it had released the Draft EIS for the Project.[116]

71. On January 9, 2019, the Commission issued a Notice of Public Hearings, informing that public hearings would be held in Mankato (two hearings) on January 30, 2019, Delavan (one hearing) on January 31, 2019, and Mapleton (one hearing) on January 31, 2019.[117] The Notice also stated that the public comment period was open from January 9, 2019, through February 21, 2019.[118]

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[109] Ex. EERA-15 (Mailed Notice of Draft EIS Availability and Public Information Meetings to Project Mailing List); Ex. EERA-16 (Mailed Notice of Draft EIS Availability and Public Information Meetings to Landowners).
[110] Ex. EERA-15 (Mailed Notice of Draft EIS Availability and Public Information Meetings to Project Mailing List); Ex. EERA-16 (Mailed Notice of Draft EIS Availability and Public Information Meetings to Landowners).
[111] Third Prehearing Order (Dec. 12, 2018) (eDocket No. 201812-148413-01).
[112] Ex. XC-26 (Stevenson Rebuttal); Ex. XC-20 (Hillstrom Rebuttal).
[113] Letter from Jimmy Puckett, Magellan Corrosion Supervisor, to Administrative Law Judge Case (Dec. 18, 2018) (eDocket No. 201812-148559-02).
[114] Ex. DER-4 (Landi Rebuttal).
[115] Ex. EERA-17 (Affidavit of Publication).
[116] Ex. EERA-18 (Notice of Availability of Draft EIS and Public Information Meetings).
[117] Ex. PUC-5 (Notice of Public Hearings).
[118] *Id.*

72. On January 15, 2019, the Commission submitted proof of mailing on January 9, 2019 the Notice of Public Hearing to residents and landowners who may be impacted by the Project.[119]

73. On January 15, 2019, the DOC-EERA submitted materials that were used in the January 2019 public information meetings regarding the Draft EIS.[120]

74. On January 23, 2019, the Commission submitted a memorandum issued to State Agencies on January 15, 2019, requesting participation in record development and attendance at the January 2019 public hearings.[121]

75. On January 25, 2019, the Applicants submitted comments on the Draft EIS.[122]

76. On January 28, 2019, the Applicants filed the Surrebuttal Testimony and Schedules of Thomas G. Hillstrom.[123]

77. On January 28, 2019, the DOC-DER filed the Surrebuttal Testimony of Mark A. Johnson.[124]

78. On January 28, 2019, North Mankato filed the Surrebuttal Testimony of Michael Fischer.[125]

79. On January 24, 2019, MISO submitted its proposed exhibit list, and on January 28, 2019, the Applicants, North Mankato, the CEOs, and the DOC-DER submitted proposed exhibit lists as well.[126]

80. On January 28, 2019, the MnDNR submitted comments on the Draft EIS, recommending that the Final EIS include potential impacts of route segments H, J, K, L, and M on grassland/restored prairie and a bald eagle nest, as well as an additional alternative route segment to minimize the Purple Route's number of crossings of Willow Creek.[127]

81. On January 28, 2019, MnDOT submitted comments on the Draft EIS, stating that MnDOT will work to accommodate the Project within or as near as feasible to

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[119] Ex. PUC-5 (Certified Mail Receipts for Public Hearing Notice).
[120] Meeting Materials (Jan. 15, 2019) (eDocket No. 20191-149224-01).
[121] Letter to State Agencies (Jan. 23, 2019) (eDocket No. 20191-149500-01).
[122] Applicants' Comments on Draft EIS (Jan. 25, 2019) (eDocket No. 20191-149611-02).
[123] Ex. XC-21 (Hillstrom Surrebuttal).
[124] Ex. DER-2 (Johnson Surrebuttal).
[125] Ex. NM-17 (Fischer Surrebuttal).
[126] MISO's Exhibit List (Jan. 24, 2019) (eDocket No. 20191-149527-01); Applicants' Exhibit List (Jan. 28, 2019) (eDocket No. 20191-149684-04); North Mankato's Exhibit List (Jan. 28, 2019) (eDocket No. 20191-149704-01); CEOs Exhibit List (Jan. 28, 2019) (eDocket No. 20191-149677-02); DOC-DER Exhibit List (Jan. 28, 2019) (eDocket No. 20191-149664-01).
[127] Ex. EERA-20A at 2-3 (Agency Comments on Draft EIS).

the highway rights-of-way, based on an evaluation of appropriate clearances, safety requirements, and effective operations.[128]

82. On January 28, 2019, North Mankato filed the Surrebuttal Testimony of Michael Fischer, restating that the Red and Green routes, including Segment Alternatives A and B, are incompatible with the City's growth plans outlined in the Comprehensive Development Plan.[129]

83. On January 28, 2019, North Mankato submitted comments on the Draft EIS, urging DOC-EERA to conclude that the Green and Red Routes, including Segment Alternatives A and B, will have significant adverse impacts on North Mankato's future development plans and human settlements.[130]

84. On January 28, 2019, Mankato submitted Comments on the Draft EIS, stating that the Blue Route is in direct conflict with the adopted land use and growth plans of Mankato, future expansion of the Mankato Regional Airport, and forested wetland areas located between Mankato and the City of Eagle Lake.[131]

85. On January 28, 2019, the Applicants and North Mankato submitted proposed exhibit lists.[132]

86. On January 29, 2019, the Commission issued a press release postponing the public hearings scheduled for January 30 and 31, 2019, due to extreme weather and rescheduling the meetings for February 6 and 7, 2019, pursuant to the January 9, 2019, Notice of Public Hearings.[133]

87. On February 1, 2019, the Applicants submitted a letter requesting that the Final EIS include analysis of two additional route segment alternatives for the Project.[134] The Applicants proposed Segment Alternative BB for the Purple Route and Segment Alternative CC for the Blue Route in response to comments filed by the MnDNR on January 28, 2019, regarding the Draft EIS and a landowner.[135]

88. On February 4, 2019, Administrative Law Judge Case issued the Fourth Prehearing Order, stating that the public hearings will be held on February 6 and 7, 2019, at the times and places set forth in the Commission's January 29, 2019, Notice.[136]

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[128] *Id.* at 4-8.
[129] Ex. NM-17 (Fischer Surrebuttal).
[130] Ex. NM-18 (North Mankato Comments on Draft EIS).
[131] Ex. EERA-20C at 4-14 (Mankato Comments on Draft EIS).
[132] Applicants' Exhibit List (eDocket No. 20191-149684-04); North Mankato's Exhibit List (eDocket No. 20191-149704-01).
[133] Press Release (Jan. 29, 2019) (eDocket No. 20191-149768-01).
[134] Ex. XC-27 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[135] *Id.*
[136] Fourth Prehearing Order (Feb. 4, 2019) (eDocket No. 20192-149979-01).

89. On February 5, 2019, the Commission issued a press release postponing the February 6 and 7, 2019, public hearings due to dangerous driving conditions.[137]

90. On February 5, 2019, the DOC-EERA filed written comments on the Draft EIS received from governmental agencies,[138] the Applicants,[139] local government units,[140] and public citizens.[141] The DOC-EERA also filed oral citizen comments received during public Draft EIS meetings held on January 9, 2019, in Mankato (two meetings); January 10, 2019, in Delavan (one meeting); and January 10, 2019, in Mapleton (one meeting).[142]

91. On February 8, 2019, Administrative Law Judge Case issued the Fifth Prehearing Order, stating that the postponed public hearings would be held on February 27 and 28, 2019, and the evidentiary hearing would be held on February 11, 2019, and requesting supplemental testimony from the Applicants, the DOC-DER, and MISO in response to questions in Appendix A of the Order.[143]

92. On February 8, 2019, the Applicants submitted a Letter providing information in advance of the evidentiary hearing regarding the four witnesses that Applicants intended to offer to respond to questions included in Appendix A of the Fifth Prehearing Order.[144]

93. On February 11, 2019, the Commission submitted proof of publication of public hearings that were scheduled for January 30 and 31, 2019.[145]

94. On February 11, 2019, an evidentiary hearing was held before Administrative Law Judge Case in the large hearing room of the Commission's office in St. Paul, Minnesota.

95. On February 11, 2019, Administrative Law Judge Case issued the Sixth Prehearing Order, modifying the schedule of proceedings, including extending the deadline for public comments to March 15, 2019.[146]

96. On February 13, 2019, the Commission issued a Notice of Rescheduled Public Hearings, stating that the public hearings will be held in Mankato (two meetings)

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[137] Press Release (Feb. 5, 2019) (eDocket No. 20192-150013-01).
[138] Ex. EERA-20A (Agency Comments on Draft EIS).
[139] Ex. EERA-20B (Applicants' Comments on Draft EIS).
[140] Ex. EERA-20C (Local Units of Government Comments on Draft EIS).
[141] Ex. EERA-20D (Written Citizens' Comments on Draft EIS).
[142] Ex. EERA-20E (Oral Citizens' Comments on Draft EIS).
[143] Fifth Prehearing Order (Feb. 8, 2019) (eDocket No. 20192-150117-01).
[144] Letter from Valerie T. Herring to Administrative Law Judge Case (Feb. 8, 2019) (eDocket No. 20192-150137-01).
[145] Affidavit of Publication (Feb. 11, 2019) (eDocket No. 20192-150181-02).
[146] Sixth Prehearing Order (Feb. 11, 2019) (eDocket No. 20192-150163-01).

on February 27, 2019; in Delavan (one meeting) on February 28, 2019; and in Mapleton (one meeting) on February 28, 2019.[147]

97. On February 21, 2019, the Commission filed public comments it received on the Project.[148]

98. On February 22, 2019, the Commission filed public comments it received through the Speak Up platform.[149]

99. Public hearings were held at the AmericInn in Mankato at 1:00 p.m. and 6:00 p.m. on February 27, 2019.[150] Public hearings were held at the Delavan High School in Delavan at 1:00 p.m. and at the Maple River High School in Mapleton at 6:00 p.m. on February 28, 2019.[151]

100. On March 4, 2019, the City of Mankato filed a Resolution dated January 28, 2019, requesting that the Commission reject the Blue Route.[152]

101. On March 5 and 12, 2019, the Commission filed additional public comments it received on the Project.[153]

102. On March 7, 2019, the DOC-DER filed the Sur-surrebuttal Testimony of Mr. Johnson addressing the questions posed in the Appendix A to the Fifth Prehearing Order.[154]

103. On March 7, 2019, MISO filed the Supplemental Testimony of Dr. Zhou addressing the questions posed in the Appendix A to the Fifth Prehearing Order.[155]

104. On March 15, 2019, the Commission filed additional public comments it received on the Project.[156]

105. On March 18 and 19, 2019, the Commission filed public comments it received on the Project.[157]

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[147] Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. 20192-150163-01).
[148] Public Comments Batch Two (eDocket No. 20192-150495-02).
[149] Reply Comments – Speak Up (eDocket No. 20192-150531-01).
[150] Notice of Rescheduled Public Hearings (Feb. 13, 2019) (eDocket No. 20192-150242-02).
[151] *Id.*
[152] Resolution of the Mankato City Council (Jan. 28, 2019) (eDocket No. 20193-150821-01).
[153] Comment by Russell Sonneck (Mar. 5, 2019) (eDocket No. 20193-150861-01); Comment by Vernon and Gary Peterson (Mar. 12, 2019) (eDocket No. 20193-151023-01).
[154] Ex. DER-6 (Johnson Sur-Surrebuttal).
[155] Zhou Supplemental Testimony (Mar. 7, 2019) (eDocket No. 20193-150905-01).
[156] Public Comments (Mar. 15, 2019) (eDocket No. 20193-151163-02).
[157] Comment by Howard Reynolds (Mar. 18, 2019) (eDocket No. 20193-151164-02); Comment by Ashley Eimer (Mar. 18, 2019) (eDocket No. 20193-151185-02); Comment by Pat Duncanson (Mar. 19, 2019) (eDocket No. 20193-151201-01).

106. On March 20, 2019, the Commission filed public comments it received through the Speak Up platform.[158] An additional public comment received by the Commission was filed on March 21, 2019.[159]

107. On April 19, 2019, Administrative Law Judge Case filed an Order Receiving certain exhibits.[160]

III. The Proposed Project

A. Purpose and Proposed Route Alternatives

108. The Applicants state, and no party disagrees, that building a 345 kV transmission line that would connect upgraded substations at Huntley and Wilmarth will reduce electrical system congestion, strengthen the resilience of the regional grid, reduce curtailments of wind generation, and allow additional wind generation to reduce thermal generation.[161] This Report will examine these claims for the Project in detail in subsequent sections.

109. The Applicants proposed four route alternatives in their Route Permit Application: the Purple, Green, Red and Blue Routes.[162] The Applicants further included six route segment alternatives: Segment Alternatives A-F.[163]

110. Public comments as well as input from federal and state agencies made during the scoping process for the EIS generated additional route, segment, and alternatives for the Project. Each potential route configuration differs in cost and in human, agricultural, environmental, and aesthetic consequences. The details of these alternatives are presented in the routing section of this report.

B. Transmission Line Construction and Substation Upgrades

111. The Applicants seek to construct a 345 kilovolt (kV) transmission line running from the Huntley substation in southern Minnesota roughly 50 miles due north to the Wilmarth Substation as well as upgrade substations to accommodate the high voltage transmission line (the Project). Xcel Energy and ITC Midwest will own the transmission line jointly as tenants in common.[164] Each Applicant will be responsible for the necessary modifications and maintenance of its substation.[165] Xcel Energy will manage all

[158] Public Comments – Speak Up (Mar. 20, 2019) (eDocket No. 20193-151223-01).
[159] Comment by Doug Elkin (Mar. 21, 2019) (eDocket No. 20193-151253-02).
[160] Order Receiving Exhibits (Apr. 19, 2019) (eDocket No. 20194-152169-01).
[161] Ex. XC-24 at 5, 23, 93 (Siebenaler Direct).
[162] *See* Ex. XC-7 at ES-3 (Route Permit Application).
[163] Ex. XC-6 at 4-5, 18 (Certificate of Need Application).
[164] *Id.*
[165] *Id.* at 3.

construction apart from ITC Midwest's Huntley substation upgrades. Xcel Energy will also maintain and operate the line.[166]

112. The equipment and improvements inside the Wilmarth Substation, located on the northern edge of the City of Mankato, will be owned solely by Xcel Energy.[167] The equipment and improvements inside the Huntley Substation, located approximately three miles south of the City of Winnebago, will be owned solely by ITC Midwest.[168] The facilities for the Project include the following:

- An approximately 50 mile-long, new 345 kV transmission line, connecting the Wilmarth Substation to the Huntley Substation, including steel pole structures and double-bundled, twisted pair conductors.[169]

- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Huntley Substation, including a 345 kV circuit breaker, potential transformers for relays, switches, dead-end structurs, relay and equipment panels, a bus, and concrete foundations. The Project will not require expansion of the fenced area of the Huntley Substation.[170]

- New substation equipment and modifications necessary to accommodate the 345 kV transmission line at the Wilmarth Substation, including a dead-end structure; five new steel stands; three new relay and equipment panels; a new 345 kV bus, and new circuit breaker control cables, ground rods, and couplings, plus miscellaneous other equipment, and concrete foundations for various items. The Project will not require expansion of the fenced area of the Wilmarth Substation.[171]

113. The Applicants propose to principally use steel pole structures, in a single-pole (monopole) design.[172] The monopole structures will be a single-circuit design if used for only the new 345 kV line.[173] The monopole structures can also support double-circuit designs where a proposed route follows an existing transmission line corridor, so that the structure accommodates both the new and an existing transmission line.[174]

114. In general, H-frame structures are the least expensive type of structure, followed by single-pole, single-circuit structures, and then single-pole, double-circuit

[166] Ex. XC-23 at 6 (Petersen Direct).
[167] Ex. XC-6 at 2 (Certificate of Need Application).
[168] *Id.* at 2-3.
[169] *Id.* at 21-22; Ex. XC-24 at 4-6, 9 (Stevenson Direct).
[170] Ex. XC-6 at 23 (Certificate of Need Application); Ex. XC-23 at 6-7 (Petersen Direct).
[171] Ex. XC-6 at 23 (Certificate of Need Application); Ex. XC-23 at 6-7, 13-14 (Petersen Direct); Ex. XC-25 at 13-14 (Stevenson Direct).
[172] Ex. XC-6 at 20 (Certificate of Need Application); Ex. XC-25 at 4 (Stevenson Direct).
[173] Ex. XC-6 at 20 (Certificate of Need Application); Ex. XC-25 at 4 (Stevenson Direct).
[174] Ex. XC-6 at 20 (Certificate of Need Application); Ex. XC-25 at 4 (Stevenson Direct).

structures. Although H-frame structures are generally the least expensive, they have greater impacts on agricultural and other land use due to the two-pole design.[175] The Applicants had originally proposed H-frame structures as an option for use in the project but have withdrawn them as an option in response to public comments about their negative effect on farming.[176]

115. In addition to cost and agricultural impacts, the type of structure chosen may influence the incidences of birds colliding with and being electrocuted by transmission lines. The incidence of birds colliding with transmission lines is 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 ROW. A single horizontal plane, however, generally requires a wider structure (e.g., H-frame structure). Conversely, stringing the conductor wires in two or more planes creates a greater barrier to birds attempting to fly, not only across the lines, but over and potentially between them (e.g., monopole structure).[177]

116. The heights of the proposed structures will range from 75 to 170 feet, depending upon the structure type and where it is placed.[178] Structures will typically be placed between 900 and 1,000 feet apart, but may be placed closer or farther apart as particular circumstances require.[179]

117. The Applicants intend to have the Project placed in service in December 2021, immediately before MISO's planned in-service date of January 1, 2022.[180] The proposed schedule Applicants provided is discussed further in the route section. Applicants have noted the schedule is subject to change.[181]

IV. Development of Project

A. Minnesota's Changing Energy Generation Mix

118. In recent decades, Minnesota has increasingly reduced its dependence upon coal and nuclear generation and developed renewable generation. Wind generation in particular has grown dramatically from nothing in 1996 to 3,509 MW (megawatts) in

[175] Ex. XC-22 at 6 (Neidermire Direct).
[176] Applicants' Route Permit Brief at 22-23 (Mar. 22, 2019) (eDocket No. 20193-151312-02).
[177] Ex. EERA-13 at 5-78 (Draft EIS); *see also* Ex. XC-7 at 13 (Route Permit Application) (photos of typical 345 kV structures).
[178] Ex. XC-6 at 20 (Certificate of Need Application); Ex. XC-25 at 8 (Stevenson Direct).
[179] Ex. XC-6 at 20 (Certificate of Need Application); Ex. XC-25 at 8 (Stevenson Direct).
[180] Ex. XC-6 at 39-40 (Certificate of Need Application); Ex. XC-25 at 13 (Stevenson Direct).
[181] Ex. XC-6 at 39-40 (Certificate of Need Application); Ex. XC-25 at 13 (Stevenson Direct).

2016.[182] In 2000, wind generation accounted for one percent of Minnesota's generation mix.[183] In 2016, the percentage of wind generation had increased to 18 percent.[184]

119. The growth in wind generation may be partly attributable to governmental incentives,[185] but wind generation technologies have improved so substantially that nationally, the average weighted[186] cost of wind generation is approximately $37 per MWh (megawatt hour) and $48 per MWh unweighted.[187] Coal, nuclear, gas, wind, and solar energy technologies all have different generation costs.[188] At $37 per MWh, wind generation is the cheapest generation technology and roughly $10 per MWh cheaper than the combined-cycle natural gas technology.[189]

120. Ideally, an Xcel Energy or ITC Midwest customer would always be supplied electricity produced at the lowest cost possible at the time. For this to occur, the output of the lowest cost generator, which may not be one of Xcel Energy's generators, must be transmitted to Xcel Energy substations and from there to its customers. Transmission lines have finite capacities to deliver electricity. As new generators are constructed and as economic development and growth change the quantities and locations where electricity is consumed, the existing transmission system may be unable to deliver all of the low-cost power available; that is, the transmission system is congested. [190]

121. Since 2008, transmission planners at MISO have identified increasing transmission system congestion along the Minnesota and Iowa border, principally caused by the increase in wind and solar generation in that area.[191] The unique geographic conditions in southwestern and southern Minnesota as well as most of Iowa, North Dakota, and South Dakota have further promoted growth of new wind generation.[192] These areas are ideal locations for wind generation as they have higher-than-average wind speeds combined with vast areas of land suitable for accommodating new wind

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[182] Ex. EERA-13 at 4-2 to 4-4, Figure 4-3 (Draft EIS).
[183] Ex. XC-6 at 48 (Certificate of Need Application).
[184] *Id.*
[185] Federal production tax credits and investment tax credits have also spurred the growth of wind generation by providing meaningful tax incentives for qualified wind projects and expenditures. Ex. XC-24 at 6 (Siebenaler Direct).
[186] "The capacity-weighted average is the average levelized cost per technology, weighted by the new capacity coming online in each region." EERA-13 at Table 3 (Draft EIS).
[187] *Id.* at 4-2 to 4-4, Table 3. A competitive bidding process in 2017 in Minnesota resulted in several hundred MW of wind energy at a levelized cost of $22/MW. *Id.* at 4-4.
[188] *Id.* at Table 4-1 (showing coal is the most expensive generation sources and wind and geothermal the least expensive sources).
[189] *Id.* at 4-2 (noting a recent competitive bidding process held by Xcel Energy received bids for less than $22/MWh); Ex. CEOs-1 at 3 (Goggin Direct).
[190] Ex. CEOs-1 at 4 (Goggin Direct); Ex. XC-6 at 6 (Certificate of Need Application).
[191] DOC-DER witness Landi summarizes MISO's documentation of congestion at the Minnesota Iowa border beginning in 2008. Ex. DOC-DER 3 at 4 (Landi Direct). "Southwestern Minnesota, northwestern Iowa, North Dakota, and South Dakota are known for having some of the highest quality wind resources in the nation." Ex. CEOs-1 at 10 (Goggin Direct).
[192] Ex. XC-24 at 6 (Siebenaler Direct).

turbines.[193]

122. Favorable geography and improvements in wind generation technology have made wind power the most economical option for generation electricity in Minnesota and has led to an unprecedented level of interconnection requests for wind generators in the area of the Project.[194]

123. The increase in renewable generation in southern Minnesota and northern Iowa has resulted in intervals where some renewable generation must be curtailed to avoid overloading the transmission system.[195]

124. There is demand for this inexpensive and clean power in the Twin Cities metropolitan region, but no way to deliver it to customers. Instead, customers are supplied with higher-cost energy from elsewhere.[196] Congestion of the transmission system thus imposes costs on end users while also depriving wind and solar generators of a market for their power.[197] To the extent that congestion is causing renewable generation to be curtailed and consumers are served with power generated from coal, congestion is also causing higher emissions of harmful CO_2 (carbon dioxide), SO_2 (sulfur dioxide), and NOx (nitrogen oxides).[198]

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[193] *Id.*

[194] *Id.* at 6-7; Ex. XC-6 at 95 (Certificate of Need Application).

[195] Ex. CEOs-1 at 4, 6 (Goggin Direct). Curtailing means reducing the energy generation of a given wind turbine from its full capability to something less.

[196] Ex. EERA-13 at 4-6 (Draft EIS); Ex. CEOs-1 at 4 (Goggin Direct). "Adding wind and solar generation to the MISO wholesale electricity market always reduces the market clearing price. Wind and solar generation are the lowest-cost resource available in the market, due to its zero fuel and other variable costs . . . The impact on market prices can be significant because the most expensive power plant that is needed to meet electricity demand sets the market clearing price for all generation bought and sold in the wholesale market." Ex. CEOs-1 at 11 (Goggin Direct).

[197] *Id.* at 8-9. Mr. Goggin explains that when curtailment occurs, all the "wind generation sold into the market would receive a zero or negative electricity market clearing price that effectively reduces [the wind generators'] profit margin to zero." *Id.* at 9.

[198] *Id.* at 4, 27-29. MISO notes "the large amount of wind capacity and low-cost coal generation in northern Iowa." Ex. MISO-1 at Schedule 1 at 100 (Zhou Direct). Because some of the generation in northern Iowa is coal, it seems reasonable to assume that the Project will enhance the deliverability of this nonrenewable generation as well as new wind generation. The Commission may query whether some of the environmental benefits from expanded wind generation enabled by the Project are not offset as a result of the stimulus the Project will also afford to coal generation. However, there is no evidence in the record of generation interconnection agreements being sought by new coal generators in the Project area in contrast to the large numbers of wind generation projects documented by the Applicants, Dr. Rakow, and Mr. Goggin. DOC-EERA documents the very low cost of wind generation relative to coal generation. Ex. EERA-13 at Table 4-1 (Draft EIS) (showing coal at an average cost of $119.1 per MW is a much more expensive generation source than wind at an average cost of $48 per MW). Instead of increased coal generation, each of the future scenarios developed by MISO in MTEP16 assumes at least 12.6 GW in coal generation retirements. Ex. MISO-1 at Schedule 1 at 88-89 (Zhou Direct). As of August 1, 2018, the MISO interconnection queue contained 536 interconnection requests, with over 85 percent of the requests being for renewable generation. Ex. DER-5 at 20 (Rakow Direct). The Administrative Law Judge concludes that the Project will facilitate much larger increases in wind generation than in coal generation, but to the extent

125. Transmission system congestion also reduces the reliability of the electric system.[199] The Applicants, as well as MISO and the CEOs, assert that the Project will "relieve congestion on the electrical transmission grid in southern Minnesota and northern Iowa" and "increase market access to lower-cost energy, provide economic benefits, strengthen the regional grid, and reduce curtailments of wind generators in the region."[200]

126. Without the Project, congestion in the electrical system in southern Minnesota will surely worsen as additional wind generation is developed. There are 9,130 MW of additional wind generation "currently under construction or in advanced development in Iowa, Minnesota, South Dakota, and North Dakota."[201]

127. The need to accommodate the growth in renewable generation in southern Minnesota and northern Iowa will increase if the retirements of coal generation (Sherco 1 and 2, and Clay Boswell Units 1 and 2) occur, as anticipated, soon. These retirements will "increase the need for power to flow from northern Iowa to the Twin Cities on the currently congested Huntley-Blue Earth 161 kV line."[202] Without the Project, Xcel Energy will need to purchase or itself generate electricity to meet its customers' demands at costs that exceed the costs of power from the additional wind generation the Project will enable.

128. MISO regards the Project as an important asset for the further development of the electrical system. The Project is included in all the economic, reliability, and interconnection models that have been developed since MISO approved the Project in 2016.[203]

B. MISO's Transmission Planning Process

i. MISO's Role

129. MISO's transmission system planning objectives are to ensure the reliability of the electrical system, make a competitive supply of electric power available, and support federal, state, and local energy policy mandates.[204] MISO also seeks to "reduce consumer costs by providing access to new low-cost resources that are consistent with and required by evolving legislative energy policies."[205]

130. MISO's members have given MISO responsibility "for ensuring that the transmission system is planned to reliably and efficiently provide for existing and

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the Project permits increases in coal generation, a portion of the Project's environmental benefits may be thereby offset.

[199] Ex. XC-6 at Appendix G at 1 (Applicants Summary of MISO Study Process).

[200] Ex. EERA-13 at 4-1 (Draft EIS); s*ee also* Ex. XC-6 at 1-2 (Certificate of Need Application); CEOs-1 at 2-4, 11-12 (Goggin Direct).

[201] Ex. CEOs-1 at 3 (Goggin Direct). Mr. Goggin discusses the likely future additions of wind and solar generation since 2016 when MISO proposed the Project. *Id.* at 13-18.

[202] Ex. XC-6 at 13 (Certificate of Need Application).

[203] *Id.* at 95.

[204] Ex. MISO-1 at 6 (Zhou Direct).

[205] *Id.* at 7.

forecasted electric usage."[206] MISO's members include not only 48 transmission owners but also 128 non-transmission-owning members including independent power generators, power marketers, and municipal and cooperative companies that depend on others for transmission services, state regulatory authorities, consumer advocates, end-use customers, and environmental representatives.[207] This large stakeholder group gives MISO a view on the region's transmission needs that does not necessarily reflect the views or interests of any particular member transmission owner.

131. Both Xcel Energy and ITC Midwest are members of MISO. Dr. Zheng Zhou provided testimony on behalf of MISO and is the MISO engineer who supervised the "planning studies and stakeholder engagement" for the Project.[208]

132. MISO's members have given it operational oversight and control of its transmission lines. MISO conducts real-time and day ahead markets for its members and administers their Open Access Transmission, Energy and Operating Reserve Markets Tariffs.[209] MISO is also responsible for the development of the MISO Transmission Expansion Plan (MTEP) in collaboration with transmission owners and stakeholders based upon local, state, and federal (NERC) planning criteria.[210] As the Commission has explained, MISO seeks to "dispatch generators with lower operating costs to meet the aggregate demand of all customers without regard to which utility owns a given generator or transmission line, or which utility has an obligation to serve a given customer. . . . Sometimes MISO will be unable to use the system's lowest-cost generators because doing so would require moving electricity through a transmission line that is already full."[211]

133. In performing these functions, MISO is well positioned to understand where transmission inefficiencies are occurring in its region, such as where low-cost generators are not always able to operate at their full capacities. Where there is no congestion, load is served by the lowest-cost generator, regardless of fuel cost.[212]

ii. MISO's 2016 Market Congestion Planning Study (MCPS)

134. In executing its transmission system planning duties, MISO has developed the MISO MTEP, following planning criteria promulgated by the Federal Energy Regulatory Commission (FERC). These criteria require MISO to develop an open and transparent regional transmission planning process that includes planning for public

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[206] *Id.* at 2.
[207] *Id.* at 7; Ex. XC-6 at Appendix G at 2 (Applicants Summary of MISO Study Process).
[208] Ex. MISO-1 at 3 (Zhou Direct).
[209] *Id.* at 1-2; Ex. XC-6 at Appendix G at 3 (Applicants Summary of MISO Study Process).
[210] Ex. MISO-1 at 5 (Zhou Direct).
[211] *In re Xcel Energy's Petition for Affirmation*, MPUC Docket No. E-002/M-04-1970, Order Establishing Second Interim Accounting for MISO Day 2 Costs, Providing for Refunds, and Initiating Investigation, at 4 (Dec. 21, 2005).
[212] Ex. XC-6 at Appendix G at 4 (Applicants Summary of MISO Study Process).

policy objectives and for interregional planning and cost allocation.[213] The MTEP process evaluates transmission needs, identifies presently congested transmission lines, anticipates future congestion development, and devises solutions through MCPS.[214] The MTEP is developed from the expansion plans of transmission owners, which are reviewed and revised to ensure overall system reliability and efficiency. MISO engages its member stakeholders to develop scenarios for forecasting demand under various possible energy policy regimes.[215] In addition to long-term future scenarios, MISO uses short-run simulations to determine how power flow patterns in the system vary with load, fuel price fluctuations, and outages.[216]

135. With this information, MISO staff develop recommendations for specific transmission projects. MTEP16 consists of all the transmission projects that MISO staff has recommended and that have been approved by its Board of Directors, in 2016.[217] The Project was developed and approved as part of the 2016 MTEP Report.[218]

136. To estimate a transmission project's benefits and costs, it is necessary to make predictions about future energy needs, resources, and governmental policies. Because the future is uncertain, the MCPS utilize multiple scenarios, each with different values for key variables. MCPS identifies areas of congestion and opportunities for improving the transmission system's efficiency under each scenario and considers possible solutions or projects that are then evaluated for their economic impacts and effects on system reliability.[219]

137. MTEP16 developed five future scenarios and assigned each a weight "as a reflection of the perceived probability of each future being actualized. . . .[220] The MTEP16 scenarios are:[221]

- (1) *Business as Usual (BAU):* captures all current policies and trends in place at the time of Futures development and assumes they continue, unchanged, throughout the duration of the study period. All applicable United States Environmental Protection Agency (EPA) regulations are

[213] Ex. MISO-1 at 5-6 (Zhou Direct); Ex. XC-6 at 67 (Certificate of Need Application); *see also Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241, *order on reh'g*, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g and clarification*, Order No. 890- B, 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228 (2009), *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009) (collectively, "FERC Order No. 890").
[214] *See* Ex. XC-6 at Appendix F at 105-23 (MISO Transmission Expansion Plan 2016).
[215] The useful life of transmission facilities can exceed forty or fifty years. Constructing long-term future scenarios is an important technique for the evaluating uncertainties inherent in transmission system expansion planning given the long lives of facilities. Ex. XC-24 at Schedule 5 at 14 (Siebenaler Direct).
[216] *Id.*; Ex. XC-6 at Appendix F at 107 (MISO Transmission Expansion Plan 2016).
[217] Ex. MISO-1 at 7-8 (Zhou Direct).
[218] *Id.* at 9.
[219] Ex. XC-6 at Appendix F at 97-105 (MISO Transmission Expansion Plan 2016).
[220] *Id.* at 107.
[221] *Id.*; Ex. DER-3 at 11-12 (Rakow Direct).

modeled. Demand and energy growth are modeled at 0.9 percent. All current state-level renewable portfolio standards (RPS) and Energy Efficiency Resource Standard (EERS) mandates are modeled. Assumes retirement of 12.6 GW of coal generation. Weighted at 19 percent.

- (2) *High Demand (HD):* captures the effects of increased economic growth resulting in higher energy costs and medium gas prices. Demand and energy growth are modeled at 1.6 percent. All applicable EPA regulations are modeled. All current state-level RPS and EERS mandates are modeled. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Weighted at 10 percent.

- (3) *Low Demand (LD):* captures the effects of reduced economic growth resulting in low energy costs and medium-low gas prices. Demand and energy growth are modeled at 0.2 percent. All applicable EPA regulations are modeled. All current state-level RPS and EERS mandates are modeled. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Weighted at 16 percent.

- (4) Regional Clean Power Plan (CPP) Compliance (RCPP): assumes a MISO footprint-wide plan to comply with the CPP that will result in a significant reduction in carbon emissions. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Also assumes 14 GW of additional coal unit retirements, coupled with $25/ton carbon costs, and state mandates for renewables. Includes declining costs for wind and solar generation. Demand and energy growth are modeled at 0.9 percent. Weighted at 30 percent.

- (5) Sub-regional CPP Compliance (SRCPP): assumes zonal or state-level compliance with the CPP that will result in significant reductions in carbon emissions. Assumes retirement of 12.6 GW of coal generation as well as age-related generation retirements. Also assumes 20 GW of additional coal unit retirements, coupled with $40/ton carbon costs, and state mandates for renewables. Demand and energy growth are modeled at 0.9 percent. Weighted at 25 percent.[222]

138. Each scenario's benefit and cost results are weighted to reflect the likelihood of that particular scenario occurring. The MCPS adds the weighted benefits and costs for each scenario for each proposed project and identifies the projects that pass a preliminary benefit-to-cost test.[223] These projects are then subject to a more

[222] Ex. XC-6 at 72-79 (Certificate of Need Application); Ex. XC-24 at 14-15 (Siebenaler Direct); Ex. MISO-1 at 10-12 (Zhou Direct).

[223] The test is whether the present value of 15 years of future weighted APC savings divided by the present value of the Project's costs multiplied by MISO's assumed carrying charge. Ex. XC-6 at 99 (Certificate of Need Application).

comprehensive economic analysis under each scenario. The weighted cost/benefit results for the first 20 years of project life for each scenario are calculated, and any project whose benefits exceed costs becomes a "Project Candidate."[224]

139. Project Candidates are then screened for their "robustness." MISO's Robustness Analysis phase analyzes all Project candidates "to ensure that the study assumptions, such as the generation siting assumptions for future generation without signed Generation Interconnection Agreements and age-related retirement assumptions have no significant impact on the benefits delivered by the transmission plan. Further, a reliability analysis is performed to ensure that any reliability harm caused by the transmission plan is addressed.[225] To be considered for further analysis, a Project Candidate's weighted benefit-to-cost ratio must not be significantly reduced by any unmet study assumption.[226]

140. MISO measures the economic benefit the Project provides by the reduction in Adjusted Production Cost (APC savings) that the Project is expected to bring about in MISO's North/Central Region.[227] APC savings are calculated as the difference in total production costs of the generation fleet adjusted for import costs and export revenues with and without the proposed transmission project.[228]

141. PROMOD IV is a computer program that performs an hourly economic dispatch to simulate the electric market. The data from these PROMOD IV simulations are used to calculate APC savings. Hourly APC values are summed for the entire 8,760 hours in a year to produce a yearly APC for each future, with the Project and without it, for three nonconsecutive years in the future.[229]

142. The present value of 20 years of APC cost reductions (or APC savings) is calculated for each future scenario, weighted, and added together to provide the quantity of benefit to be used in the Project's benefit-to-cost ratio. [230] To determine the benefits for the 17 years that are not simulated by PROMOD IV, the years between the three years

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[224] Ex. MISO-1 at 13-14 (Zhou Direct).
[225] *Id.* at 14.
[226] *Id.*
[227] The APC is "'the total production costs of a generation Fleet including fuel, variable operations and maintenance, startup cost, and emissions, adjusted for import costs and export revenue." Ex. DER-5 at 30 (Rakow Direct). "The APC for an entity is defined as the sum of generation production cost of all generation resources owned by the entity and cost of energy imported by the entity less the revenue generated from energy exports from the entity." Ex. MISO-1 at 15 (Zhou Direct).
[228] Ex. DER-3 at Schedule ML-7 (Landi Direct). APC savings is calculated as "the difference in total production costs of a generation fleet adjusted for import costs and export revenues with and without the proposed transmission project." Ex. DER-5 at 30 (Rakow Direct).
[229] Ex. XC-6 at 64 (Certificate of Need Application); Ex. DER-3 at Schedule ML-7 (Landi Direct).
[230] Ex. DER-3 at Schedule ML-7 (Landi Direct).

of modeled values are interpolated and the out years are extrapolated from the input data. These yearly benefit values are then converted to present values. [231]

143. The present values of the weighted[232] cost savings provides the benefit to be compared to the present value of a project's cost. The cost portion of the ratio are the estimated capital costs for the transmission project multiplied by the inflation rate, and the revenue requirements for that year is the present value of the estimated annual carrying charge in each scenario, again appropriately weighted and combined.[233] A benefit-to-cost ratio that exceeds one indicates a project is expected to result in saving more in energy costs than the project cost to construct and operate.

144. It should be noted that APC Savings is not the only benefit that will result from the Project. FERC Order No. 1000 "requires RTO regions . . . consider reliability, economic, and public policy drivers in their regional and interregional transmission planning processes."[234] Mr. Andrew Siebenaler, senior engineer in regional transmission planning for Xcel Energy Services Inc. cites a 2013 Brattle Group study that commented upon other benefits from transmission upgrades in addition to lower electric costs, such as "including increased system reliability, lower generation capacity costs, reduction of overall environmental impacts, achievement of public policy objectives, and increased localized employment and tax revenues."[235] Among other benefits the study identified were mitigation of weather and load uncertainty, reduced operating reserves, avoided or deferred reliability projects, reduced planning reserve margin, and increased load serving capacity.[236] However valuable these potential benefits are, they are not taken into account in MISO's determination of a project's benefits – only its estimates of APC savings.[237]

iii. MISO Market Efficiency Project (MEP)

145. MCPS classifies certain projects as Market Efficiency Projects (MEPs).[238] A MEP "is designed to address congestion to basically level the playing field for all

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[231] *Id.*

[232] The weights are the probabilities or percentage likelihoods of each future scenario occurring and sum to one or one hundred percent. In some future scenarios, the savings from the Project are large, in other scenarios, small. In forming an expectation of the savings to be expected from the Project, the savings amount for each scenario should be adjusted for (or weighted by) the likelihood of the scenario occurring. Multiplying the savings amount resulting from each future scenario by the likelihood of it occurring and adding the results yields the expected or weighted cost savings of a project.

[233] Evidentiary Hearing Transcript (Tr.) at 28 (Siebenaler).

[234] Ex. XC-24 at Schedule 5 at iii (Siebenaler Direct).

[235] *Id.* at 1, 33 (referring to Schedule 5).

[236] *Id.* at Schedule 5 at Table ES-1.

[237] Ex. DER-3 at Schedule ML-7 (Landi Direct).

[238] A MEP is one of six different project classifications in the MISO tariff, each with its own cost-allocation methodology. Ex. XC-21 at Schedule 1 at 2 (Hillstrom Surrebuttal).

generators to deliver their energy based on supply and demand, which in turn ensures that the energy market operates in the most efficient and cost-effective manner."[239]

146. To qualify as an MEP, a transmission project must meet the following criteria at the time of designation: (1) greater than 50 percent of the total cost of the candidate project must be attributed to facilities that operate at a 345 kV voltage level or higher, (2) the benefit-to-cost ratio of the candidate project must meet or exceed 1.25, and (3) the total project cost must exceed $5 million.[240]

147. Projects with a benefit-to-cost ratio of 1.25 or higher are subject to much additional analysis before they will be approved as MEPs.[241]

148. One of the transmission problems identified in the MCPS MTEP16 study was the Huntley-Blue Earth 161 kV line in Xcel Energy's and ITC Midwest's service areas. A significant amount of congestion was identified on this line, which is near the Minnesota and Iowa border.[242]

149. The MTEP16 identified the congestion as resulting from three main factors: (1) the existing wind capacity and low-cost coal generation in northern Iowa, (2) the increase in wind capacity in Iowa forecast for the next 15 years; and (3) the expected coal retirements near the Twin Cities.[243] The study determined that this additional power will flow to serve load in the Twin Cities area via the Lakefield to Wilmarth 345 kV line. Should the Lakefield to Wilmarth line fail, the Huntley to Blue Earth 161 kV line will become congested.[244]

150. MTEP16 identified four transmission projects, including the Project, as cost-effective solutions to this congestion problem in southern Minnesota. However, the three alternatives to the Project either did not completely resolve congestion or were not economically justifiable.[245]

151. MISO staff conducted an engineering evaluation of the Project to ensure the transmission system would not be disrupted under normal conditions nor under stress when one or more system components are in an out-of-service condition. Power flows were modeled under different assumptions for wind generation flows as well as to ensure

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[239] Ex. XC-6 at Appendix G at 67 (Applicants Summary of MISO Study Process).
[240] *Id.* at 5-6 (Certificate of Need Application); Ex. XC-22 at 5 (Neidermire Direct).
[241] Ex. MISO-1 at 15-16, Schedule 1 at 100 (Zhou Direct); *see also* Ex. XC-6 at Appendix G at 68 (Applicants Summary of MISO Study Process). The Applicants explain: "MISO selected the 1.25 threshold as the appropriate ratio to capture the uncertainties associated with calculating future economic benefits of a transmission project while not setting the thresholds so high that projects with net benefits are not approved." Ex. XC-6 at 6-7. However, FERC Order 100 "requires that the benefit-cost threshold applied to evaluate the desirability of regional transmission projects must not exceed 1.25." Ex. XC-24 at Schedule 5 at 15 (Siebenaler Direct).
[242] Ex. XC-6 at Appendix F at 110 (MISO Transmission Expansion Plan 2016).
[243] *Id.*; Ex. DER-5 at 12-13 (Rakow Direct).
[244] Ex. XC-6 at Appendix F at 110 (MISO Transmission Expansion Plan 2016).
[245] *Id.*; Ex. MISO-1 at 23-25 (Zhou Direct).

the rated capacities of major components were not exceeded and voltage levels were maintained within system limits.[246]

152. Through a process described in detail below, the Project was studied, reviewed, and approved by the MISO Board of Directors as an MEP in December 2016 as a component of MISO's annual Transmission Expansion Plan (MTEP16) report.[247]

153. The Project is the first MEP approved by MISO that has been brought forward in Minnesota for the Commission's consideration.[248] As a MEP, the primary need for this Project differs from other transmission projects in Minnesota that have improved system reliability or provided outlets for generation plant.[249] One method by which a MEP may increase efficiency in electrical energy generation and delivery is to reduce transmission system congestion, which will improve the efficiency of MISO's energy market operations, thereby lowering wholesale energy costs.[250] As a MEP, the Project will benefit not just Xcel Energy's or ITC-Midwest's customers but also consumers across MISO's northern region.[251]

154. In support of the Project, the Applicants developed route- and design-specific cost estimates for the numerous routes, route alternatives, and alignment alternatives. These detailed estimates provide the Commission cost and benefit information needed to evaluate each of the Project options in conjunction with consideration of the Project's impacts on the human and natural environments.[252]

iv. MISO's Cost Estimates

155. MISO initially developed its "planning level" cost estimates for the Project by consulting with stakeholders:

> After the transmission issues were identified, MISO engaged in a collaboration process with its stakeholders – including the local

[246] Ex. MISO-1 at 20, 22, Schedule 1 at 100-102 (Zhou Direct).
[247] Ex. XC-6 at 1 (Certificate of Need Application); Ex. XC-22 at 5 (Neidermire Direct).
[248] Ex. XC-6 at 1 (Certificate of Need Application).
[249] *Id.*
[250] *Id.*
[251] *Id.* at 105.
[252] *Id.* at 27-29; Ex. XC-22 at 5 (Neidermire Direct); Ex. XC-25 at 5 (Stevenson Direct).

> transmission owning members, transmission developers, and other entities – to develop transmission solutions to address these issues.[253]
>
> MISO staff and stakeholders collaborated on the development of several solutions to mitigate congestion in various parts of the footprint.[254]

156. MISO thus relies upon the different economic interests of its stakeholders to avoid under- or overestimating the Project's costs at the initial planning stage. The MTEP16 document does not explain how the stakeholders themselves estimated costs. Soliciting input from stakeholders could well assist in identifying cost estimate that are unrealistically high or low. However, without undertaking detailed ownership, land usage, topography, and soil information to estimate structure placement and easement costs, these planning level cost estimates must be understood as being done at very high levels.

157. MISO subsequently refined its stakeholders' cost estimates to establish a "scoping level" cost estimate using a route for the transmission line identified by a "Google Earth program."[255] MISO's scoping level cost estimate assumptions included the costs of "a parallel, single-circuit, tubular steel structures and double bundled, twisted pair (T-2) conductors."[256] In addition,

> [r]ight-of-way costs were calculated on a per mile basis with costs based on United States Department of Agriculture (USDA) pasture land prices. The scoping level cost estimates also include AFUDC of 7.5 percent of the construction cost estimate, overhead costs of 10 percent of the construction cost estimate to account for non-material costs such as engineering, permitting, and regulatory costs, as well as a contingency addition of 15 percent of the construction cost estimate. MISO then assumed standard costs, outlined in the MISO Transmission and Substation Project Cost Estimation Data document to accommodate this new 345 kV line at both the Huntley and Wilmarth substations.[257]

158. MISO initially estimated that it would cost $75.9 million to construct the 345 kV line and $2.47 million for the modifications to each substation.[258] However, the estimate for the line wrongly assumed that an existing right-of-way could accommodate a 345 kV line. On being informed of this by Xcel Energy, MISO increased the length of the transmission line to permit alternative routing. The alternative routes ranged in cost

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[253] Ex. MISO-1 at 17 (Zhou Direct).
[254] Ex. XC-6 at Appendix F at 105 (MTEP16 MISO Transmission Expansion Plan).
[255] *Id.* at 30 (Certificate of Need Application).
[256] *Id.*
[257] *Id.* at 30-31.
[258] *Id.* at 30.

from $83 million to $103 million.[259] The costs of upgrading the substations at each end of the line then added $5 million for a total project cost of between $88 and $108 million.[260]

v. MISO's Benefit-to-Cost Estimates

159. MISO estimates the quantitative benefits from the Project by estimating how much the Project will reduce the cost of meeting the projected demand for electricity after the Project is placed in service. Specifically, MISO calculates the Net Present Value of the Adjusted Production Cost (APC) savings under the MTEP16 future scenarios.[261]

160. MISO estimated that over 20 years, the Project will provide $210 million (2016 dollars) in benefits and "reduce curtailment of wind generators by approximately 8 to 28 percent."[262] The benefit-to-cost ratios for the Project varied from 1.51 to 2.28, with the highest ratio corresponding to the lowest cost routing across the scenarios.[263]

161. The Huntley-Wilmarth Project had the "highest benefit to cost ratio, highest 20-year present value benefit, and was the only Project Candidate to fully relieve the transmission issue."[264]

162. The Project was then subject to further analysis to gauge its sensitivity to the retirement of Sherco Units 1 and 2 and Clay Boswell Units 1&2, as well as to different amounts of future wind generation. The Project maintained a high benefit-to-cost ratio under each assumption.[265]

163. MCPS identified the Project as a Market Efficiency Project (MEP). The MISO Board approved the Project as part of the 2016 MTEP.[266] It is the first MEP project to be proposed in Minnesota.[267]

V. The Applicants' Analysis

A. Applicants' Cost Estimates

164. In the Route Permit Application, the Applicants proposed four route alternatives identified from west to east as the Purple, Green, Red, and Blue Routes.[268] In addition, the Applicants included six route segment alternatives, labeled as Segment

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[259] *Id.* at 31.
[260] *Id.* at 30; Ex. MISO-1 at Schedule 1 at 95 (Zhou Direct).
[261] Ex. XC-6 at 30-31 (Certificate of Need Application).
[262] Ex. EERA-13 at 4-9 (Draft EIS).
[263] Ex. MISO-1 at 20 (Zhou Direct).
[264] *Id.* at 18.
[265] *Id.* at 19; Ex. XC-6 at 13 at Appendix F at 112 (MISO Transmission Expansion Plan 2016).
[266] Ex. MISO-1 at 21 (Zhou Direct).
[267] Ex. EERA-13 at 4-8 (Draft EIS).
[268] Ex. XC-7 at ES-3 (Route Permit Application).

Alternatives A-F.[269] Based upon the route and segment alternatives proposed during the EIS scoping process, which differ from the route MISO used to estimate Project costs, the Applicants estimated the Project's costs as ranging from $105.8 million to $138.0 million (2016 dollars).[270] These costs include all transmission line and substation upgrade costs, right-of-way costs, and risk contingencies as well as Allowance for Funds Used During Construction.

Table S-6: Estimated Costs of Route Alternatives by Structure Type and Configuration (2016 dollars in millions)[271]

Design Option	Route Option			
	Purple Route (West Route) (Millions)	Green Route (Middle Route) (Millions)	Red Route (Middle Route) (Millions)	Blue Route (East Route) (Millions)
Single-Circuit H-frame		$109.0		
Single-Circuit Monopole		$121.3		
Single-Circuit Parallel H-frame	$105.8			
Single-Circuit Parallel Monopole	$121.7			
Double-Circuit Monopole and Single-Circuit H-frame			$135.2	$123.7
Double-Circuit Monopole and Single-Circuit Monopole	$137.9		$138.0	$135.8

165. The Applicants also developed cost estimates for the new route alternative, segment alternatives, and alignment alternatives proposed during scoping and included in the Draft EIS.[272] Of these alternatives, the lowest-cost alternative is the Purple Route, single-circuit H-frame design with Segment Alternatives F and J at $104.8 million, 2016

[269] Ex. XC-6 at 4-5, 18 (Certificate of Need Application).
[270] Ex. DER-5 at 4 (Rakow Direct); Ex. XC-25 at 9 (Stevenson Direct); Ex. DER-1 at 5 (Johnson Direct).
[271] Ex. EERA-21 at S-12 (EIS).
[272] *Id.* at 11, Schedule 2.

dollars).[273] The highest-cost alternative is the Purple-E-Red Route, double-circuit design with Segment Alternatives E, Y, and Q at $160.7 million (2016$).[274]

Table 2: Revised Total Project Cost Estimates (2016$)[275]

Purple		Green		Red		Blue		Purple-E-Red	
Low	High	Low	High	Low	High	Low	High	Low	High
$ 104.8	$ 147.3	$ 108.2	$ 124.8	$ 134.4	$ 143.8	$ 123.7	$ 142.5	$ 157.0	$ 160.7

Table 3: Cost Estimates for Applicants' Recommended Route Configurations[276]

Route Alternative	Cost (Millions) (2016$)[277]	Cost (Millions) (Escalated to anticipated year spend $)[278]
Purple-BB-L Route *Purple Route Modified to Use Segment Alternatives BB and L Double-Circuit* *Monopole Design*	$140.1	$155.8
Green Route *Single-Circuit* *Monopole Design*	$121.3	$134.9
Red-Q Route *Red Route Modified to Use Segment Alternative Q* *Double-Circuit* *Monopole Design*	$141.2	$157.1
Blue-CC-Q Route *Blue Route Modified to Use Segment Alternative Q Double-Circuit* *Monopole Design*	$138.6	$154.1

[273] *Id.*
[274] *Id.*
[275] Ex. DER-1 at 5 (Johnson Direct).
[276] Ex. XC-25 at 11, Schedule 2 (Stevenson Direct) (eDocket No. 20189-146251-08); Ex. XC-27 (Applicants' Feb. 1, 2019 Letter) (eDocket No. 20192-149943-02).
[277] "2016 dollars" or "(2016$)" assumes that the Project would have been constructed (and dollars spent) in 2016.
[278] The escalated dollar figures account for inflationary pressures from 2016 until the dollars are actually spent. The majority of costs for this Project will be spent in 2020 and 2021.

Purple-E-AA1-Red-Q Route *Purple-E-Red Route Modified to Use Segment Alternative Q and Alignment AlternativeAA1 Double-Circuit Monopole Design*	$159.7	$178.2

166. In briefing, the Applicants proposed recommended route configurations for the five route alternatives by including certain segment alternatives and specific designs. These revisions were made to reduce the environmental and human impacts.[279] The costs for each of the Applicants' recommended route configurations are shown in Table 3.

167. Table 3 as presented in the Applicants' Proposed Findings of Fact contained an additional column where Applicants estimated how the costs of each alternative would increase from 2016 to when the costs were actually incurred; for example, in 2021. The Administrative Law Judge, however, agrees with DOC-DER that the Commission should approve costs as stated only in 2016 dollars.[280] The record provides no basis for inflating the many calculations done in 2016 dollars to equivalent future values – we do not know when the spending will actually occur nor how relevant prices may change by then. Thus, the Administrative Law Judge chose not to reproduce Applicants' estimates of costs in future years in Table 3. The Commission can determine the appropriate adjustments to the 2016 dollars when it considers the eligibility of Project costs for recovery under Xcel Energy's Transmission Cost Recovery Rider.

168. All of the Applicants' 2016 dollars cost estimates are significantly higher than MISO's similar estimates, but as Mr. Siebenaler explains "MISO does not perform a detailed cost estimation process as part of the MTEP analysis."[281] Applicants point to their "extensive, recent experience in constructing high voltage transmission infrastructure in the Midwest region. . . ."[282] and explain that their estimate also includes costs that MISO's do not. Applicants' cost estimates are specific route costs, rather than the average costs that MISO uses.[283] Applicants sought:

> [T]o minimize impacts to the human and natural environment by proposing longer route options in certain instances to avoid populated areas, state parks, or wetlands. This additional route length for certain routes resulted in increased costs. Applicants also sought to minimize impacts by proposing different design options such as double-circuit structures that allow the new 345 kV line to be co-located with existing lines. Double-circuit structures

[279] *See* Applicants' Route Permit Brief at 22-31 (Mar. 22, 2019) (eDocket No. 20193-151312-02).
[280] DOC-DER Reply Brief at 4-5 (Apr. 15, 2019) (eDocket No. 20194-151996-01).
[281] Ex. XC-24 at 1, 19 (Siebenaler Direct).
[282] Ex. XC-25 at 11 (Stevenson Direct).
[283] Ex. DER-1 at 4-5 (Johnson Direct). DOC-EERA points out that the Project will also involve costs that are not easily quantified: "costs resulting from impacts to human and environmental resources as a result of the transmission line." Ex. EERA-13 at 4-9 (Draft EIS).

> are, however, more expensive than single-circuit structures and thus resulted in increased cost as compared to MISO's estimate.[284]

169. Witness Grant Stevenson has been a project manager for Xcel Energy for the last 18 years. Mr. Stevenson worked with a team of experts to develop the Applicants' cost estimates for the Project.[285] The team did preliminary design work using a topographical survey to determine how many structures would be required, how much conductor needed, and the like.[286] The Applicants' cost estimates include "all transmission line costs, right-of-way costs, risk contingencies[287] for the transmission line and cost for substation modifications . . . and Allowance for Funds used During Construction (AFUDC)."[288]

170. The Applicants propose to "mainly use steel pole structure, in either a single-pole (monopole) or a two-pole (H-frame) design."[289] The structures will vary in height from 75 to 170 feet. The Project's typical right-of-way width will be 150 feet with span lengths between structures of 900 to 1,000 feet.[290] After the quantities of inputs that would be required for each alternative route were determined, the team "reached out to the industry obtained up-to-date prices for the major inputs, conductor, [and] steel poles." For real estate costs, Xcel Energy's lead real estate agent did route specific estimates, classifying each parcel as agricultural, residential, or commercial and then used "market-based information on the value of those parcels."[291]

171. DER witness Mr. Johnson, a Public Utilities Analyst Coordinator Financial for the Department of Commerce, Division of Energy Resources (DOC-DER), reviewed the Applicants' cost estimates for the Project.[292] He found the costs shown in Table 2 to:

> reflect the best information available to decide whether the proposed Project is reasonable comparted to alternatives, including any other proposed

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[284] Ex. XC-6 at 36 (Certificate of Need Application).
[285] Tr. at 19-20 (Stevenson).
[286] *Id.* at 21. Offering a further check on the reliability of the Applicants' cost estimates, Mr. Stevenson testified that the costs per mile estimated for the Project were very close to the actual costs per mile of other recent projects. *Id.* at 21-22.
[287] "Risk contingencies" are "an industry practice . . . to cover unknowns because we know at the time these estimates were done we don't have all the factors known." *Id.* at 23. As Mr. Stevenson explains, the Applicants "didn't add just a percentage to the estimate, but on a project this size we employed something called a risk register, where the team of experts sits together and identifies risks that may happen, their likelihood, and if they occur, what we think that particular risk would add to the project cost." *Id.* at 24. The Applicants weight the estimated costs they would incur if a certain risk materialized by their experts' assessment of the likelihood of that risk. *Id.* at 25.
[288] Ex. XC-25 at 4 (Stevenson Direct).
[289] *Id.*
[290] *Id.* at 8.
[291] Tr. at 21 (Stevenson).
[292] Ex. DER-1 at 1 (Johnson Direct).

project since this process explicitly allowed other projects to file alternative proposals, per the May 25 First Prehearing Order.[293]

172. The Applicants "are proposing several structure design options for each route to enable the Commission to select an option that provides the appropriate balance between the economic based need for the Project and the goal of minimizing the Project's potential impacts to human and natural environments."[294] Applicants point out that the many options proposed involve trade-offs; for example, "the double-circuit monopole design option minimizes agricultural impacts by placing two lines on a single pole but also has a higher cost that lowers the net economic benefit of the Project."[295]

173. Alternative project proposals by other stakeholders were permitted in this proceeding, but none have been made.[296] This fact suggests other stakeholders either have not found major problems with Applicants' cost estimates or that their economic interest in the Project is insufficient to justify contesting their estimates.

174. DOC-DER witness Mark Johnson, a financial analyst with an accounting background, reviewed the Applicants' cost estimates and identified no concerns with the Applicants' cost estimates.[297]

175. Based upon the evidence in the record, the Administrative Law Judge finds that the Applicants' cost estimates for the routes and segment alternatives as set out in Tables 2 and 3 are more accurate than MISO's estimates because the Applicants used detailed, Project-area specific data and current market values of required inputs to develop their estimates. In contrast, MISO used aggregate average historical costs and only estimated a single route and structure design.

176. Applicants have requested they be allowed to revise their cost estimate should the Commission's final route order differ from the route and design options they have analyzed and presented, or if the Route Permit Order imposes additional mitigation measures.[298]

177. The Administrative Law Judge agrees with Applicants that the final route and structure design that the Commission approves will affect the Project's costs. The Applicants have committed to provide a detailed explanation of any changes to their cost estimate. Because the Administrative Law Judge agrees with Applicants that the Project's

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[293] *Id.* at 5-6.
[294] Ex. XC-25 at 5 (Stevenson Direct).
[295] *Id.* at 10.
[296] Ex. DER-6 at 2 (Johnson Sur-surrebuttal).
[297] Ex. DER-1 at 5 (Johnson Direct); Ex. DER-2 at 3 (Johnson Surrebuttal).
[298] Ex. XC-26 at 2-3 (Stevenson Rebuttal) (explaining that the Applicants propose that the Project's baseline costs would be established after the Commission issued its final route and design order. The Applicants would file an updated cost estimate that accounted for any route changes or mitigation measures the Commission might order. The Applicants would explain any changes from their prior cost estimates.).

costs are necessarily highly dependent on the exact routing, structure, and design details, it is reasonable to grant this request.

B. Applicants' Analysis of Project Benefits and Costs

178. MTEP16 found that the Project would alleviate congestion and increase market access to low-cost energy as well as "strengthen the resilience of the regional grid" and "make the transmission system more robust" and better able to respond to outages in the system.[299] Since MTEP16, MISO has also examined transmission planning in MTEP17 and MTEP18. To lend additional support to the Project, the Applicants examined its benefits using the assumptions developed for MISO's MTEP17 and MTEP18 transmission planning analyses.[300]

179. MTEP17 models assume three rather than five futures: Existing Fleet (EF), Policy Regulations (PR), and Accelerated Alternative Technologies (AAT):

- *EF:* a baseline future in which the existing generation fleet is mostly unchanged, with the exception of age-related retirements. This Future has no carbon regulations, uses the low-point gas price forecast, and has low demand (0.3 percent) and energy (0.3 percent) growth rates. Sufficient renewable resources are added to meet all current state-level RPSs. This Future assumes that renewable tax credits continue until 2022. Nuclear units are assumed to have license renewals granted and remain online. Weighted at 31 percent.

- *PR:* has a carbon-reduction target of 25 percent. This carbon reduction target is met through increased renewable resources as well as age- and economic-related coal retirements. The midpoint gas price forecast was used in this Future, along with a 50/50 forecast for demand and energy growth rates (0.7 percent). This Future assumes that renewable tax credits continue until 2022. Nuclear units are assumed to have license renewals granted and remain online. Weighted at 43 percent.

- *AAT:* a high-renewable Future with a carbon-reduction target of 35 percent. Coal units are economically retired to meet this carbon-reduction target. High renewable development has been implemented using a maturity cost curve reflecting technological advancement and economies of scale associated with a large renewable build out. Demand and energy growth rates are the highest in this Future (1.0 percent). The high-point gas price forecast is used. This Future assumes that renewable tax credits continue

[299] Ex. XC-24 at 5 (Siebenaler Direct).
[300] *Id.* at 2.

until 2022. Nuclear units are assumed to have license renewals granted and remain online. Weighted at 26 percent.[301]

180. Using the MTEP17 transmission expansion plan scenarios and weightings, the Project's benefits over 20 years are estimated to be $276 million (2016$) resulting in benefit-to-cost ratios ranging from 1.66 to 2.16 depending upon the routing and design alternatives.[302] The Project will reduce wind curtailments in Minnesota, Iowa, and North and South Dakota by 9 to 23 percent in 2031.[303] Mr. Siebenaler testified that the increase in benefits from MTEP16 to MTEP17:

> [I]s likely due to the increased reliance on wind generation in the MTEP17 Futures, as well as the increased weight placed on the two Futures (PR and AAT) with higher wind penetration levels. There are increased congestion costs in the MTEP17 Futures due to the higher average cost of natural gas present in the MTEP17 assumptions as compared to MTEP16. In turn, the increased congestion costs present in the MTEP17 Futures increases the economic benefits of the proposed Project because the 345 kV line has sufficient capacity to transport additional low cost wind generation to customers resulting in lower energy costs. [304]

181. The Applicants also analyzed the Project using the MTEP18 models, which have four futures: (1) Limited Fleet Change (LFC), (2) Continued Fleet Change (CFC), (3) Accelerated Fleet Change (AFC), and (4) Distributed & Emerging Technologies (DET).

- LFC: predicts few changes to the current generation fleet with only a slight increase in renewable generation.
- CFC: predicts continued additions of renewable generators and coal generation retirements at the same pace as the past decade.
- AFC: predicts renewable additions and coal retirements at a rate above historical trends with renewables accounting for 30 percent of the generation fleet by 2032.
- DET: predicts that new renewable additions will largely be distributed and storage resources that are colocated at the substation serving the most load.[305]

182. Under these assumptions, the 20-year present value of the Project has a weighted benefit-to-cost rate ranging from 1.30 to 1.69 with the present value of benefits

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[301] Ex. XC-6 at 87-92 (Certificate of Need Application); Ex. XC-24 at 19-20 (Siebenaler Direct).
[302] Ex. EERA-13 at 4-9 (Draft EIS); Ex. XC-24 at 22 (Siebenaler Direct).
[303] Ex. XC-24 at 23 (Siebenaler Direct).
[304] *Id.* at 22.
[305] *Id.* at 24.

expected to be $217.97 million (2016$).[306] Using the MTEP18 models with the alternate route and segment alternatives proposed during the scoping phase of this proceeding, the Applicants calculated the benefit-to-cost ratio for the Project and its various route alternatives range from 1.11 to 1.71.[307]

183. The MTEP16 benefit-to-cost ratio range was 1.51 to 2.28, and MTEP17's benefit-to-cost ratio range was 1.66 to 2.16. MTEP18 results, which incorporate the route and segment alternatives of the scoping phase, yield benefit-to-cost ratios ranging from 1.11 to 1.71. The MTEP18 results appear to be significantly lower than the earlier estimates. However, the benefit-to-cost ratio remains positive under all MTEP modeling assumptions.[308]

184. Although the APC benefits of the Project declined slightly in MTEP18 as compared to MTEP17 due to changes to the number and type of Futures as well as the weightings of the Futures, the Applicants noted that none of the reasons for the decline call into question the need for the Project.[309] Even for the highest-cost route/design from the scoping process (Purple-E-Red), the benefit-to-cost ratio remains well above 1.0 under MTEP18.[310]

185. More specifically, unlike MTEP17, which included only three different Futures and two of which assumed high wind penetration across the MISO footprint, the MTEP18 models expanded to four Futures.[311] Of these four Futures in MTEP18, only one assumed high wind penetration (AFC), and this Future received the lowest weighting (20 percent) of the four Futures.[312] The other Future in MTEP18 that assumed increased reliance on renewable generation was the DET Future, but this Future assumed this additional renewable generation would be in the form of distributed solar generation added near load centers. The two remaining Futures, with a combined weight of 55 percent, are the LFC and the CFC.[313] These two heavily weighted Futures assume that wind and solar will only serve between 10 to 15 percent of MISO's energy needs by 2032.[314]

186. MTEP Futures are intended to encompass a broad range of different policy and economic outcomes.[315] This allows MISO to develop plans for the transmission system that account for a wide variety of generation assumptions.[316]This broad array of

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[306] *Id.* at 27, 34.
[307] Ex. XC-22 at 8 (Neidermire Direct).
[308] Mr. Hillstrom pointed out that once MISO determines a project is MEP, it does not lose that designation if subsequently the benefit-to-cost ratio drops below 1.25 – once a project is designated a MEP, it remains a MEP. Ex. XC-21 at Schedule 1 at 2 (Hillstrom Surrebuttal).
[309] Ex. XC-24 at 27 (Siebenaler Direct).
[310] *Id.*
[311] *Id.* at 28.
[312] *Id.*
[313] *Id.*
[314] *Id.*
[315] *Id.*
[316] *Id.* at 28-29.

Futures is also important considering MISO's large footprint that reaches from Louisiana to Canada, Montana to Indiana.[317] The MISO footprint includes a variety of topology as well as varying amounts of renewable generation development.[318] The southern region of MISO has experienced considerably less wind generation development in recent years than the MISO North Central region.[319] Thus, the two Futures in MTEP18 with limited wind generation expansion do not represent realistic views of the future of renewable generation in Minnesota, Iowa, North Dakota, and South Dakota.[320]

187. Less than a month before the Applicants submitted their Certificate of Need Application, the Tax Cuts and Jobs Act (TCJA) of 2017 was passed, reducing the corporate tax rate from 35 percent to 21 percent.[321] The Applicants' MTEP18 analysis was performed using a 35 percent tax rate to ensure consistency when comparing results from MTEP16, MTEP17, and MTEP18. [322]

188. The reduction in the corporate tax rate would not impact the capital costs of the Project or other transmission alternatives.[323] However, the reduction would slightly reduce the costs that are recovered from customers because the revenue requirements for the Project and all other transmission alternatives assume a particular tax rate. The reduction in the corporate tax rate would decrease the cost portion of the benefit-to-cost ratio.[324] This change would impact the Project and all transmission alternatives similarly and would not change Applicants' conclusion that among the alternatives considered, the Huntley-Wilmarth Project provides the highest benefit-to-cost ratio while also relieving 100 percent of the identified congestion throughout the study period.[325]

189. The Applicants provided benefit-to-cost ratios for their five recommended route configurations under MTEP17 and MTEP18. These benefit-to-cost ratios are detailed in Table 10:

[317] *Id.* at 29.
[318] *Id.*
[319] *Id.*
[320] *Id.*
[321] The official title of the TCJA is "[a]n Act to provide for reconciliation pursuant to titles 11 and V. of the concurrent resolution on the budget for fiscal year 2018." Pub. L. No. 115-97 (2017).
[322] *See* Ex. XC-6 at Appendix J (Cost Allocation Information).
[323] Tr. at 22 (Stevenson).
[324] *Id.* at 31 (Siebenaler).
[325] *Id.* at 32. The "study period" refers to 2030 for MTEP16, 2031 for MTEP17, and 2031 for MTEP18.

Table 10: Benefit-to-Cost Ratio for the Applicants' Recommended Route Configurations under MTEP17 and MTEP18

Route Alternative	Cost ($Millions) (2016$)	Weighted Benefit-to-Cost Ratio (MTEP17) [326]	Weighted Benefit-to-Cost Ratio (MTEP18)
Purple-BB-L Double-Circuit, Monopole Design	$140.1	1.63	1.28
Green Single-Circuit, Monopole Design	$121.3	1.88	1.47
Red-Q Double-Circuit, Monopole Design	$141.2	1.62	1.27
Blue-CC-Q Double-Circuit, Monopole Design	$138.6	1.65	1.29
Purple-E-AA1-Red-Q Double-Circuit, Monopole Design	$160.2	1.43	1.12

190. As shown, each of Applicants' recommended routes for the Project will provide benefits in excess of costs under the various future scenarios contemplated in MTEP17 and MTEP18.

191. The Administrative Law Judge concludes that the Applicants have demonstrated the Project's benefits can reasonably be expected to exceed its costs as both are measured by MISO under a wide range of possible future conditions. The Applicants, DOC-DER, and the CEOs provide strong evidence for the continued growth of wind generation in the area the Project will serve. No party disputes that the cost of the Project will be exceeded by the amounts consumers will save due to the enhanced access to low-cost wind energy the Project will provide.

VI. Cost Recovery

A. MISO's Tariff and Xcel Energy's Transmission Cost Recovery Rider

192. A MEP project reduces energy costs throughout a region. Accordingly, MISO allocates the costs of a MEP project such that the more an area benefits from a

[326] Applicants provided benefit-to-cost ratios under MTEP17 and MTEP18 for the highest- and lowest-cost routes included in the Draft EIS. *See* Ex. XC-24 at 35 and Schedule 6 (Siebenaler Direct) (eDocket No. 20189-146251-05). The Applicants utilized the same methodology to calculate the benefit-to-cost ratios for the Applicants' recommended route configurations.

project, the larger is its share of the project's costs. MISO first determines what specific areas or local resource zones (LRZ) will benefit from the MEP and assigns utilities operating in LRZ proportionate shares of the costs of the MEP. Under Attachment FF of the MISO Tariff, recovery of MEP project costs will be governed by Attachment GG and Schedules 26 of the MISO Tariff.[327]

193. Mr. Johnson explains that MISO would allocate the Project's costs "to the northern half of the MISO footprint," specifically Local Resource Zones (LRZ) (or Cost Allocation Zones) 1 through 7.[328] Twenty percent of the Project's costs would be allocated to Zones 1 through 7 based on each Zone's load ratio share.[329] "the remaining 80 percent of the costs of an MEP are allocated to pricing zones based on the distribution of positive Adjusted Production Cost (APC) savings to the Local Resource Zones."[330] The load ratio share is the sum of each utility's share of load in an LRZ as a proportion of the total net amount of electricity drawn from MISO.[331]

194. As a MEP, the Project's costs will ultimately be shared within the region such that Xcel Energy's NSP Companies' load will pay 16.96 percent of the total monetary costs.[332] Customers from outside of Xcel's service territory in Minnesota will benefit from the Project and absorb, through their serving utilities, some of the Project's costs.[333] The Applicants calculate that, depending on the route and segment and design alternatives chosen, that the Minnesota jurisdiction will ultimately pay between $4.1 and $5.3 million of the Project's cost.[334] However, because ITC Midwest does not have any load in the region, it will not be allocated any of the Project's costs.[335]

195. Once the line is in service, Xcel Energy will begin to receive wholesale revenues from its joint ownership of the transmission line. These revenues will reduce the annual revenue requirement arising from the Project's costs that Xcel Energy must recover from its end user ratepayers. Xcel Energy includes and recovers MISO Schedule 26 costs net of revenues from rate payers through its Transmission Cost Recovery Rider. Minn. Stat. § 216B.16, subd. 7b(b)(2) (2018), specifically permits electric utilities such as Xcel Energy to include these costs in its annual transmission rider, provided that the costs are offset by revenues from transmission sales.[336]

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[327] Ex. XC-6 at 37 (Certificate of Need Application). A map showing the Local Resource Zone boundaries is provided in Attachment WW of the MISO Tariff. *Id.*
[328] Ex. DER-1 at 7 (Johnson Direct).
[329] Ex. XC-6 at 37 (Certificate of Need Application); Ex. DER-1 at 7 (Johnson Direct).
[330] Ex. XC-22 at Schedule 1 at 3 (Hillstrom Surrebuttal).
[331] Ex. DER-1 at 7-8 (Johnson Direct).
[332] Ex. XC-6 at Appendix J at 1 (Cost Allocation Information).
[333] Ex. XC-22 at 9 (Neidermire Direct).
[334] Ex. XC-6 at Appendix J (Cost Allocation Information).
[335] Ex. DER-1 at 7 (Johnson Direct).
[336] *Id.* at 10.

B. Conditions for Cost Recovery

196. Applicants must provide periodic updates to MISO on the costs incurred for the Project. If the cost of the Project is projected to exceed 25 percent of the baseline cost estimate, or if the Project is delayed or unable to be completed, MISO must initiate a "variance analysis," a process MISO has never undertaken.[337] The MISO variance analysis is directed at determining the reason(s) for the cost overruns, delays, and project abandonments. One consideration is the degree of fault of the developer or transmission owner.[338] Other considerations include the economic impact of the variance, and its effects on system reliability; the attainment of public policy goals; and the additional costs to complete the project.[339] As a result of the variance analysis, a project could be continued at greater cost than the baseline amount as well be revised in particulars to mitigate the variance(s), or be terminated.[340]

197. DOC-DER agrees with Xcel Energy that it should be allowed to recover costs up to the level of the cost estimate the Commission approves for the Project without further Commission action. Xcel Energy has an incentive to set the cap as high as possible without putting the Project in jeopardy, but other MISO members have an incentive to keep their transmission costs as low as possible. There is no evidence in the record that the Applicants' cost estimates are excessive, and the Administrative Law Judge finds the estimates reasonable.

198. Mr. Johnson of DOC-DER doubted that MISO would ever require a member to absorb a cost overrun or withdraw support from a project in midstream. In its brief, the DOC-DER urged the Commission to cap the "costs included in Xcel's TCR rider for the proposed Project based on the cost estimate determined in this matter and subject to the following:

- the range of cost estimates of $104.8 million to $160.8 million is the starting point for determining the cap amount;

- Xcel must provide a final number or cap amount within 45 days of the Commission's Order determining the route, reflecting the Commission's decisions in this proceeding using the costs identified for the 39 different route options identified in Schedule 2 of Mr. Stevenson's Direct testimony and clearly identifying the cost effects of any material changes due to the Commission's decisions;

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[337] Ex. XC-24 at 35-36, Schedule 7 at 3-7 (Siebenaler Direct).
[338] *Id.* at Schedule 7 at 11.
[339] *Id.* at Schedule 7 at 12.
[340] *Id.* at Schedule 7 at 13-19. It is interesting to note the confidentiality provisions in the variance procedure that limit public disclosure of the variance but allow disclosure that it is commencing a variance analysis to third parties as needed to investigate and mitigate the variance. But not disclosing confidential information is permitted unless needed to determine whether any potential NERC reliability standards violations, service obligation issues, and economic or public policy needs that may be jeopardized." *Id.* at Schedule 7 at 19.

- DOC DER and other interested parties will be permitted the opportunity to address whether they agree with the Applicants' final Project cost estimate; and

- the Applicants must identify these costs clearly and ensure that the costs are easily trackable in the future in riders and rate cases."[341]

199. The Administrative Law Judge finds the DOC-DER's proposed conditions reasonable and recommends the Commission adopt them.

200. In making this recommendation, the Administrative Law Judge understands that despite the fact that Xcel Energy will have joint ownership with ITC Midwest of the transmission line, Xcel Energy will incur and recover all the costs of constructing the transmission line up to the cap. Any reimbursement received by Xcel Energy from ITC Midwest in relation to the latter's interest in the transmission line should offset costs Xcel Energy would otherwise recover from its ratepayers. Otherwise, Applicants must convince the Commission that the amount paid for the Project by Minnesota ratepayers should not be reduced by the amount of ITC Midwest's payments for the Project to Xcel Energy.

VII. Environmental Benefits of Project

201. Considering the Project's benefit as solely resulting from the lower energy costs consumers will enjoy is important and gives the Commission a quantitative metric to consider, but energy savings is only one benefit. But Applicants urge the Commission to also consider how the Project will benefit environmental values by enabling reductions in coal generation and increases in wind generation.

202. In compliance with the Commission's November 25, 2014, order in Docket No. ET6675/CN-12-1053, ITC Midwest developed a template to evaluate the environmental externalities of different transmission line alternatives.[342] ITC Midwest developed the initial template and submitted it to the Commission as a compliance filing on October 7, 2015, to be applied to future Certificate of Need proceedings.[343] This is the

[341] DOC-DER Brief at 50 (Mar. 22, 2019) (eDocket No. 20193-151304-01).
[342] Ex. XC-18 at 2 (Abing Direct).
[343] *Id.* at 3.

first Certificate of Need proceeding in which ITC Midwest has populated its externalities template.[344]

203. The Applicants used ITC Midwest's externalities template to calculate what the template terms the "public policy benefits" associated with the reduction in emissions of CO_2, NO_X, and SO_2 for the proposed Project and a 161 kV alternative.[345]

204. These environmental benefits[346] were estimated by first identifying the change in the avoided tons of emissions for CO_2, NO_X, and SO_2.[347] These reductions in values for generation resources in MISO Local Resource Zones 1, 2, and 3 were then multiplied by the Commission-approved externality values for each study year.[348]

205. The Commission-approved externality values for CO_2, NO_X, and SO_2 were taken from the Commission's January 3, 2018, Order Updating Environmental Cost Values in Docket No. E999/CI-14-643.[349]

206. Environmental benefits result from reduced emissions of CO_2, NO_X, and SO_2 for the proposed Project as well as the 161 kV alternative. The environmental benefit was calculated by first identifying the change in the avoided tons of emissions for CO_2, NO_X, and SO_2.[350] These reductions in values for MISO Local Resource Zones 1, 2, and 3 were then multiplied by the Commission-approved externality values for each study year.[351] Benefits for each non-simulated year in the study period were interpolated between, or extrapolated from, benefits calculated in simulated years, and a PV of benefits for each year was then calculated.[352]

207. This analysis demonstrated that the 345 kV Project afforded greater environmental benefits than the 161 kV alternative because it provides greater estimated avoided emissions reductions for CO_2, NO_X, and SO_2 than the 161 kV alternative.[353] Table 11 shows the net avoided emissions for the Project and the 161 kV alternative.[354]

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[344] *Id.*
[345] *See* Ex. XC-6 at Appendix I (ITC Midwest's Cost of Alternatives, Including Commission Externalities Values).
[346] The Administrative Law Judge prefers the term "environmental benefits" to "public policy benefits" as being more descriptive. "Public policy benefits" could include affordability and thus access to lower cost energy, as well as enhanced grid reliability, which is discussed separately.
[347] Ex. XC-18 at 4 (Abing Direct).
[348] *Id.*
[349] *Id.* at 4-5.
[350] *Id.* at 4.
[351] *Id.* The Commission-approved externality values for CO2, NOX, and SO2 were taken from the Commissioner's Order in *In re the Further Investigation into Environmental and Socioeconomic Costs*, MPUC Docket No. E999/CI-14-643, Order Updating Environmental Cost Values (Jan. 3, 2018).
[352] Ex. XC-18 at 5 (Abing Direct).
[353] *Id.* at 6.
[354] *Id.* at 7.

Table 11 Annual Net Avoided Emissions

Annual Emissions Benefit (short tons) for MISO LRZ's 1,2,3			
Preferred Option: Huntley-Wilmarth 345 kV			
	SO2	***NOx***	***CO2***
2021	105	85	159,048
2026	57	131	339,622
2031	22	33	442,764
Alternative: Huntley-Wilmarth 161 kV			
	SO2	***NOx***	***CO2***
2021	60	54	76,280
2026	52	90	210,511
2031	20	33	316,323

208. After multiplying the estimated total annual avoided emissions tonnages, shown in Table 11, by the Commission-approved externality values for CO_2, NO_X, and SO_2, the Project clearly offers environmental benefits greater than the 161 kV alternative.[355] The range of net benefits for the 345 kV Project is $368 million (2016$) to $770 million (2016$) as compared to $295 million (2016$) to $552 million (2016$) for the 161 kV alternative.[356]

209. This conclusion was supported by DOC-DER witness Mr. Landi, who agreed that the Project would result in greater reductions of emissions of CO_2, NO_X, and SO_2 for 2021, 2026, and 2031 relative to the 161 kV alternative.[357]

210. The Administrative Law Judge concludes that the results of the Applicants' analysis demonstrate that the Project better supports Minnesota's policy objectives of minimizing overall emissions of CO_2, NO_X, and SO_2 than any alternative, including the no-build alternative.[358]

VIII. Other Benefits of Project

211. In addition to lower-cost energy and environmental benefits, CEO's witness Mr. Michael Goggin concluded that the Project will increase wholesale electricity market

[355] *Id.*
[356] *Id.* at 6.
[357] Ex. DER-3 at 33 (Landi Direct).
[358] Ex. XC-18 at 7 (Abing Direct).

competition while also reducing the risk of electrical system outages. [359] Electric outages affect public safety, economic productivity, and personal welfare.

212. Mr. Goggin explained that transmission infrastructure is instrumental in increasing competition in wholesale power markets and reducing the potential for generators to harm consumers by exercising market power.[360] A weak grid makes it possible for generation owners in constrained parts of the grid to exert market power and charge excessive prices.[361] In any market, the more supply options that are available to an area, the less likely it is that any one of those suppliers will be in a position to exert market power.[362]

213. Mr. Goggin also explained that transmission facilitates the integration of renewable energy by allowing greater aggregation of diverse renewable resources across a larger footprint, resulting in a steadier output from the resources, reducing operating reserve needs, and allowing a greater dependable contribution to meet the system's peak demand needs.[363]

214. Additionally, Mr. Goggin stated that transmission capacity protects consumers and reliability by enabling more electricity to be delivered to regions that are experiencing a shortage when extreme events of any type affect any source of supply or demand on a part of the grid.[364] Additional transmission capability also protects consumers against the multitude of uncertainties that affect the power system by allowing greater flexibility in shifting from one form of generation to another as fuel prices fluctuate, power plant capacity is added and retired, and electricity demand changes.[365]

215. The Administrative Law Judge agrees that the Project provides benefits that the Commission should take into consideration because it increases the system's access to generation resources, and this in turn both serves to increase price competition among generators and enhances system reliability and efficiency.

[359] Ex. CEOS-1 at 24-29 (Goggin Direct).
[360] *Id.* at 24.
[361] *Id.* at 25.
[362] *Id.*
[363] *Id.*
[364] *Id.*
[365] *Id.*

ANALYSIS: CERTIFICATE OF NEED

I. Criteria in Statute and Rule

216. The length and capacity of the Project render it a "large energy facility" under Minn. Stat. § 216B.2421, subds. 2(2), (3) (2018).[366]

217. Minn. Stat. § 216B.243, subd. 2, requires that before a large energy facility may be constructed in Minnesota, the Commission must issue a certificate of need (CN).

218. Minn. Stat. § 216B.243, subds. 3, 3a, set out criteria for the Commission to evaluate in its consideration of an application for a CN.

219. Minn. Stat. § 216B.243, subds. 3,3a, prescribe the CN statutory requirements for large energy facilities and are generally similar to the criteria included in Minn. R. 7849.0120 (2017) but include some additional requirements.

220. The provisions relevant to a CN for a high voltage transmission line are:

> Subd. 3. **Showing required for construction.** No proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures and unless the applicant has otherwise justified its need. In assessing need, the commission shall 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 under sections 216C.05 to 216C.30 and this section 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;

[366] Subdivision 2(2) includes in the definition of "large energy facility" "any high-voltage transmission line with a capacity of 200 kilovolts or more and greater than 1,500 feet in length." Similarly, subdivision 2(3) adds "any high-voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota. . . ."

4) promotional activities that may have given rise to the demand for this 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;

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; [367]

9) with respect to a high-voltage transmission line, 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 or applicants are in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subdivision 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, subdivision 7;

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

12) *.*.*[368]

[367] Unlike subdivision 3(12), subdivision 3(8) does not specifically designate that it relates only to a "generating plant." This factor is evaluated in relation to Minn. R. 7849.0120(A)(2) (2017).

[368] Subdivision 3(12) is inapplicable because it relates solely to generating plants: "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." Minn. Stat. § 216B.243, subd. 3(12).

Subd. 3a. **Use of renewable resource.** The commission may not issue a Certificate of Need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

221. Minn. R. 7849.0120 provides that a CN for a high voltage transmission line shall 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 that 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 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;

(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.

222. In addition, Minn. R. 7849.1200 requires the DOC-EERA to prepare an environmental report evaluating the proposal and any alternatives.

223. The Applicants bear the burden of proving the need for the proposed transmission line and demonstrating that the statutory criteria have been met.[369] The Applicants also bear the burden to show that a more reasonable and prudent alternative

[369] *See* Minn. Stat. § 216B.243, subd. 3.

to the proposed facility has not been demonstrated by a preponderance of the evidence on the record.[370]

224. The Commission's decision to issue a CN determines a project's beginning and end points and establishes a ceiling on the amount of cost that a utility may recover from its end users without initiating a rate case.[371] The Commission does not regulate ITC Midwest's transmission rates, which are instead subject to FERC oversight.[372]

II. Application of Criteria

A. The Project Meets the Requirements of Minn. R. 7849.0120; Minn. Stat. § 216B.243, subd. 3 (1)-(9)

225. To a significant extent, criteria or concerns the Commission must consider pursuant to Minn. Stat. § 216B.243, subd. 3(1)-(9) are incorporated into the subitems of Minn. R. 7849.0120. This portion of the Report is organized according to the subitems of Minn. R. 7849.0120. The Report notes where the identical or similar criteria is set out in statute. Where a concern for the Commission's consideration pursuant to subdivision 3 is not related to any subitems of Minn. R. 7849.0120, the Report considers the concern separately at the conclusion of this section.

B. Adequacy, Reliability, and Efficiency of Energy Supply

226. Minn. R. 7849.0120(A) requires that "the probable result of denial [of a CN] 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. . . ." In making this determination, the Commission is directed to evaluate five concerns, each discussed separately below.

i. Criteria (A)(1): Forecast Accuracy

Minn. R. 7849.0120(A)(1): "[T]he accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility.[373]

227. The "type of energy" that will be supplied by the Project is, according to DOC-DER economist Dr. Steve Rakow, "congestion relief." [374] He distinguishes congestion relief by explaining that if customers' needs cannot be met, reliability issues

[370] Minn. R. 7849.0120(B).
[371] Ex. DER-1 at 11-15 (Johnson Direct).
[372] Ex. XC-6 at 3 (Certificate of Need Application).
[373] Minn. R. 7849.0120 (A)(1); *see also* Minn. Stat. § 216B.243, subd. 3(1) (requires the Commission to evaluate "the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based").
[374] Ex. DER-5 at 9, SRR-1 (Rakow Direct).

exist; if customers' needs can be met, but only "in an uneconomic manner, an economic or congestion issue exists."[375]

228. MISO collects proposals for generation projects by region and studies the proposals in groups, two groups per year from 2013 to 2017 and one study group in 2018. The projects proposed in each group are examined in three phases.[376] Dr. Rakow developed his forecast for wind generation additions in future years by obtaining the Definitive Planning Phase (DPP) information on wind projects in the study area from August 2015 through April 2018.[377] By the later date, the earliest study group projects have either been withdrawn or have proceeded to an executed General Interconnection Agreement (GIA) between MISO, the transmission owner, and the wind generator. Later DPP groups remain in the DPP process.

229. Dr. Rakow's forecast thus relies on much DPP information that was not available at the time the MTEP16 report was released in August 2016.[378] Based on historical experience, Dr. Rakow concludes that 80 to 85 percent of the wind projects that enter a DPP study group will ultimately sign a GIA.[379] Applying this information to the projects in the DPP study groups from August 2015 to April 2018, Dr. Rakow forecasts 14,786 MW of additional GIAs from wind projects in Minnesota and Iowa since the MTEP16. Assuming only half the projects in the 2016 to 2018 groups are constructed, there would still be a 9,917 MW increase in wind energy from Minnesota and Iowa projects since MTEP16. Even this lower forecast exceeds the amount of wind energy MISO estimated to be added by 2030 in every future scenario except the Sub-Regional CPP future. [380]

230. The lower forecast is therefore very conservative not only due to assuming a withdrawal rate of 50 percent but also because of the likelihood that additional wind energy projects could be proposed and be in service by 2030. Thus, Dr. Rakow concludes that new wind energy will substantially exceed the 4,300 MW amount necessary to yield a 1.25 benefit-to-cost ratio. [381] Accordingly, he advises that the probable result of denying the CN "would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, the applicant's customers, or to the people of Minnesota and neighboring states."[382]

231. The Administrative Law Judge finds that the Applicants' forecast of demand for the type of energy that would be supplied by the proposed facility is reasonable and

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[375] *Id.* at 10.
[376] *Id.* at 14.
[377] *Id.* at 16.
[378] *Id.* at 15.
[379] *Id.* at 20-21. Although some projects with a GIA are not completed, Dr. Rakow asserts that they should be reported as withdrawn, but he does not affirm that this is MISO's consistent practice. *Id.* In addition, Dr. Rakow concludes that all project in the 2012 to 2014 study groups were counted as "already existing" in the MTEP16 analysis. *Id.* at 22.
[380] *Id.*
[381] *Id.* at 23.
[382] *Id.* at 23-24.

likely conservative because the increase in wind generation projects in the area to be served by the Project has been significantly larger than MISO anticipated in every MTEP16 future scenario but one.[383] The Administrative Law Judge recommends that the Commission find that Applicants' energy demand forecast is sufficiently accurate to demonstrate the need for the Project as required by Minn. R. 7849.0120(A)(1); Minn. Stat. § 216B.243, subd. 3(1).

232. Although MISO necessarily had to forecast demand to confirm the need for the Project, the Project's benefit-to-cost ratio is significantly positive because the impetus to build the 345 kV line is to relieve congestion rather than to meet increased future load. Adding to the need for the Project is the retirement of significant coal generation. MTEP16 assumes in two of the five future scenarios.[384] Beyond relieving congestion, the Project will reduce curtailments of wind generation and so give end users greater access to low-cost energy while improving the robustness of the regional transmission system.[385]

ii. Criteria (A)(2): Effects of Applicant's Existing or Expected Conservation Programs and State and Federal Conservation Programs

Minn. R. 7849.0120(A)(2): "[T]he effects of the applicant's existing or expected conservation programs and state and federal conservation programs."[386]

233. The Applicants state that because the need for the Project is to relieve congestion caused by increased wind generation, demand management programs are not an effective alternative.[387] Reductions in load would need to be extremely large to eliminate demand for additional wind energy. Dr. Rakow testified that he considered those levels of load reduction to be "far in excess of what might be expected from a targeted load management and conservation alternative."[388] He cited a targeted demand-side management program that Xcel Energy conducted that achieved only a small fraction of

[383] *See* Minn. R. 7849.0120(A)(1); *see also* Minn. Stat. § 216B.243, subd. 3(1) (requires the Commission to evaluate "the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based").
[384] Ex. DER-5 at 9 (Rakow Direct).
[385] *Id.* at 5.
[386] Minn. R. 7849.0120(A)(2); *see also* Minn. Stat. § 216B.243, subd. 3(2) (requiring the Commission to evaluate "the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand"). Minn. Stat. § 216B.243, subd. 3(8), requires the Commission to evaluate "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."
[387] Ex. XC-6 at 13, 122 (Certificate of Need Application); Ex. CEOs-1 at 7 (Goggin Direct) (concurring with Applicants in pointing out that electricity demand centers in Minnesota are far from where renewable resources are located and that demand response, conservation, and demand management will not relieve the transmission constraint).
[388] Ex. DER-5 at 25 (Rakow Direct).

what would be required to eliminate congestion along the Huntley-Wilmarth 161 kV line.[389]

234. The DOC-DER agrees with the Applicants that the Project will satisfy four "needs." The need for greater efficiency is met by relieving congestion as is the need for avoiding curtailments of wind generation. The Project also meets the need for a more robust regional transmission system backbone and the need to reduce carbon emissions.[390]

235. The Applicants stated that because the need for the Project is driven by increased amounts of wind generation along the Minnesota-Iowa border rather than increased demand, conservation and demand-side management programs are not effective alternatives to meet the identified need.[391]

236. The Administrative Law Judge concurs with the Applicants, the CEOs, and DOC-DER that demand response, demand management, and conservation programs are not effective means to relieve congestion in the Project area.

iii. Criteria (A)(3): Effects of Promotional Activities

> Minn. R. 7849.0120(A)(3): "[T]he 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."[392]

237. The Applicants state that they have not conducted any promotional activities or undertaken any action that created the need for the Project.[393] There is no evidence in the record to the contrary. Dr. Rakow concurs with the Applicants that the need for the Project arises from the fact that wind generation in southwestern Minnesota and northwestern Iowa "is typically a least cost addition to a utility's resource mix."[394]

238. The Applicants did not create the conditions giving rise to low-cost wind generation near the Project area. The Administrative Law Judge concludes that there is no evidence in the record that the Applicants' promotional practices created the need for the Project.

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[389] *Id.*
[390] *Id.* at 5.
[391] Ex. XC-6 at 122 (Certificate of Need Application).
[392] Minn. R. 7849.0120(A)(3); *see also* Minn. Stat. § 216B.243, subd. 3(4) (requiring the Commission to evaluate "promotional activities that may have given rise to the demand for this facility").
[393] Ex. XC-6 at 13 (Certificate of Need Application).
[394] Ex. DER-5 at 26 (Rakow Direct) (citing to the most recent resource plans for four Minnesota electric utilities, including Xcel Energy).

iv. Criteria (A)(4): Ability of Current and Future Facilities Not Requiring Certificates of Need to Meet Demand

Minn. R. 7849.0120(A)(4): "[T]he ability of current facilities and planned facilities not requiring certificates of need to meet the future demand."[395]

239. Dr. Rakow states that "all current facilities would be in MISO's transmission models and all planned facilities that have been approved by MISO would also be included in MISO's transmission models."[396] Accordingly, Dr. Rakow concludes "that current facilities and planned facilities not requiring certificates of need have not been shown to be able to meet the need for congestion relief."[397]

240. The Applicants also considered generation that does not require a CN, such as distributed generation.[398] Applicants explained that to alleviate the congestion, any new generation resource would need to be operating at sufficient levels and at a low enough cost to replace the low-cost generation resources that are being limited by the congestion.[399] The distributed generation would also need to be located in such a manner as to not require additional power flows in the direction of the identified congestion (i.e., they would need to be located north of the congestion).[400] Given these constraints, distributed generation resources as not sufficient to meet the identified needs. [401]

241. Moreover, the Applicants evaluated a "no-build" alternative that considered the ability of Xcel Energy's conservation and load management programs to meet the identified need, further demonstrating that current facilities are not sufficient to meet the identified needs.[402]

242. The record demonstrates that no current or planned generation or transmission alternatives that do not require a CN is capable of addressing the identified needs.

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[395] Minn. R. 7849.0120 (A)(4).
[396] Ex. DER-5 at 27 (Rakow Direct).
[397] *Id.* at 28.
[398] Ex. DER-3 at Schedule ML-6 (Landi Direct).
[399] *Id.*
[400] *Id.*
[401] *Id.*
[402] Ex. XC-6 at 121-24 (Certificate of Need Application); Ex. XC-24 at 38 (Siebenaler Direct); Ex. DER-3 at 6-7 (Landi Direct).

v. Criteria (A)(5): Effect of Proposed Facility on Efficient Use of Resources

Minn. R. 7849.0120(A)(5): "[T[he effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources."[403]

243. Dr. Rakow testified that the Project demonstrates that it will relieve congestion along the Minnesota-Iowa border, reducing curtailments of wind-generated energy.[404] Because wind energy is currently and expected to remain the least cost energy source, relieving congestion will improve the system's ability to deliver consumers electricity at the least cost. In addition, the Project will reduce line losses.[405]

244. One way the DOC-DER measures the benefits of the Project to electric consumers in Minnesota is by considering the incidence of the adjusted production cost (APC) savings: 65 percent of the APC Savings occur in local resource zone 3, 34.5 percent in local resource zone 1, and 0.5 percent in local resource zone 4.[406] Most of Minnesota's electric utilities are in local resource zone 3, with the remainder in local resource zone 1.[407]

245. These facts led Dr. Rakow to conclude that the Project will result in lower electric costs for consumers in Minnesota and enhance the deliverability of energy, meeting the considerations set out in Minn. Stat. § 216B.243, subd. 3. (9).[408]

246. The Administrative Law Judge concurs in Dr. Rakow's conclusions. The Administrative Law Judge concludes that the Project will increase the availability of low-cost power, thereby improving the overall efficiency of the electric system and making efficient use of resources.

C. Absence of Superior Alternatives[409]

247. Minn. Stat. § 216B.243, subd. 3(6), directs the Commission to evaluate "possible alternatives for satisfying the energy demand or transmission needs including

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[403] Minn. R. 7849.0120(A)(5).
[404] Ex. DER-5 at 28 (Rakow Direct); Ex. XC-6 at Appendix F at 109-110 (MISO Transmission Expansion Plan 2016).
[405] Ex. DER-5 at 28 (Rakow Direct); Ex. XC-6 at Appendix F at 111 (MISO Transmission Expansion Plan 2016).
[406] Ex. DER-5 at 30 (Rakow Direct).
[407] *Id.* at SRR-3 at 14.
[408] *Id.* at 31. Minn. Stat. § 216B.243, subd. 3(9), requires the Commission to consider "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."
[409] Minn. Stat. § 216B.243, subd. 3(6), requires the Commission to evaluate "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation."

but not limited to the potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation." Minn. R. 7849.0120(B) requires the Commission to consider whether "a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record" and directs the Commission to consider four concerns in making its evaluation.

i. Criteria (B)(1): Appropriateness of the Size and Type of Facility

Minn. R. 7849.0120(B)(1): "[T]he appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives."

248. Minnesota Statutes provide additional direction to the Commission with respect to the range of "reasonable alternatives" that should be considered. Minn. Stat. § 216B.2426 (2018) requires that:

> the Commission shall ensure that opportunities for the installation of distributed generation, as that term is defined in section 216B.169, subdivision 1, paragraph (c), are considered in any proceeding under section . . . 216B.243 [Certificate of Need for Large Energy Facilities].

249. Minn. Stat. § 216B.2422, subd. 4 (2018), requires that:

> the Commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the Commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless that utility has demonstrated that a renewable energy facility is not in the public interest.

250. DOC-DER witness rate analyst Matthew Landi discussed the many alternatives to the Project that MISO and the Applicants considered.[410] The record contains examination of both higher and lower voltage lines, different line endpoints, different conductors, different circuit designs, upgrades to existing lines, direct current versus alternating current, underground lines, new generation sources, and other alternatives.[411]

251. MISO's Market Congestion Planning Study involved consideration of 23 possible transmission solutions. Seven were excluded as involving costs in excess of benefits. The remaining 16 were analyzed in more detail, and the four-best solutions were then subjected to full 20-year net present value calculations. One was eliminated for failing the benefit cost test. The remaining three projects were then subject to engineering

[410] Ex. DER-3 at ML-1 (Landi Direct).
[411] Ex. XC-6 at 97-124 (Certificate of Need Application); Ex. XC-24 at 38 (Siebenaler Direct); Ex. DER-3 at 6-7 (Landi Direct).

analyses to assess their ability to reduce system congestion. MISO found that only the Project fully relieved congestion and had a benefit-to-cost ratio well above MISO's 1.25 cut-off.[412]

252. MISO and the Applicants considered different sizes[413] of transmission lines, different voltages, [414] different types of transmission facilities[415] with different conductors arrays, current flows, terminals and substations,[416] generation alternatives,[417] upgrading existing facilities or reconductoring them,[418] and placing transmission lines underground [419] as well as not constructing the Project or purchasing power from existing generation resources.[420] None of the feasible alternatives were superior to the Project in resolving congestion without incurring higher costs.[421]

253. Additionally, the Applicants analyzed the Project under the MTEP17 and MTEP18 models.[422] While the APC saving benefits decreased for both the 161 kV line and the Project's 345 kV line under MTEP18, the decrease for the 161 kV line was more pronounced.[423]

254. With respect to reducing curtailments under MTEP18, the Project is more effective than the 161 kV alternative at reducing curtailments in each of the four MTEP18 Futures, discussed above. The Project reduces curtailments by between 2.6 percent and

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[412] Ex. DER-3 at 4-5 (Landi Direct). Unlike MTEP16's use of five future scenarios, MTEP17 utilizes three: Existing Fleet weighted at 31 percent, Policy Regulations weighted at 43 percent, and Accelerated Alternative Technologies at 26 percent. *Id.*

[413] By "size" of transmission line, the DOC-DER is referring to the "quantity of power transfers that the transmission line enables." Ex. DER-3 at 7 (Landi direct) (citing MPUC Docket No. ET6675/CN-11-826 (Jan. 28, 2013) and noting that Applicants use a consistent definition).

[414] Constructing lower voltage 161 kV lines would not fully relieve congestion and had lower benefit-to-cost ratios than the Project. Building higher voltage 500 kV or 765 kV would relieve congestion, but at significantly higher cost and would adversely affect the existing transmission system. Ex. XC-6 at 98-113 (Certificate of Need Application); Ex. DER-3 at 8-10 (Landi Direct); Ex. EERA-13 at 4-11 to 4-19 (Draft EIS).

[415] By "type" of transmission facility, DOC-DER refers to the line's "nominal voltage, rated capacity, surge impedance loading (SIL), and nature of power transported (AC or DC). Ex. DER-3 at 11 (Landi Direct).

[416] Ex. EERA-13 at 4-19 (Draft EIS).

[417] *Id.* at 4-23 to 4-24.

[418] *Id.* at 4-20.

[419] Ex. XC-6 at 113-121 (Certificate of Need Application); Ex. DER-3 at 6, 12-13 (Landi Direct); Ex. EERA-13 at 4-26 to 4-28 (Draft EIS) (Table 4-6 provides a summary of alternatives to the Project and their deficiencies relative to the Project).

[420] Ex. EERA-13 at 4-24 to 4-25 (Draft EIS).

[421] For example, constructing a double circuit 345/345 kV line added costs without "any measurable additional benefit as compared to the proposed single circuit 345 kV line." Ex. XC-6 at 113 (Certificate of Need Application).

[422] Ex. XC-24 at 39 (Siebenaler Direct).

[423] *Id.* at 40.

18.4 percent, whereas the 161 kV alternative only reduces curtailments by between 1.4 percent and 12.1 percent.[424]

255. The Applicants ultimately concluded that, given the current and anticipated expansion of wind generation in the Upper Midwest, a 161 kV alternative simply does not provide the necessary capacity to transport this energy to customers.[425] Rather, the capacity of the Project is needed to enable this generation to reach customers and thus realize all the benefits of this low-cost renewable wind generation.[426] DOC-DER witness Mr. Landi agreed that the Project, as proposed, is a superior option to address the identified congestion issue compared to the 161 kV alternative.[427]

256. Due to the significant decrease in the economic benefits of the 161 kV alternative, the Project outperforms this alternative in the 20-year PV benefit in both model years, as well as the weighted benefit-to-cost ratio in MTEP18. This is worth noting because, as explained in the Direct Testimony of the Applicants' witness Mr. Siebenaler, the weighted benefit-to-cost ratio metric was the only metric where the 161 kV alternative slightly outperformed the Project under MTEP17 due to its lower cost.[428]

257. When considering the performance of the 161 kV alternative with regard to relieving the identified congestion under the MTEP18 models, the 161 kV alternative initially reduces 99 percent of the congestion in 2022, but only provides 94 percent and then 85 percent congestion relief by 2027 and 2032, respectively, as more wind is added to the system.[429] Conversely, the Project relieves 100 percent of the identified congestion throughout the entire study period.[430]

258. With respect to reducing curtailments under MTEP18, the Project is more effective than the 161 kV alternative at reducing curtailments in each of the four MTEP18 Futures, discussed above. The Project reduces curtailments by between 2.6 percent and 18.4 percent, whereas the 161 kV alternative only reduces curtailments by between 1.4 percent and 12.1 percent.[431]

259. The Applicants ultimately concluded, and the Administrative Law Judge concurs, that given the current and anticipated expansion of wind generation in the Upper Midwest, a 161 kV alternative simply does not provide the necessary capacity to transport this energy to customers.[432] Rather, the capacity of the Project is needed to enable this generation to reach customers and thus realize all of the benefits of this low-cost

[424] *Id.* at 40, Schedule 9.
[425] *Id.* at 42.
[426] *Id.*
[427] *Id.* at 48.
[428] *Id.* at 40.
[429] *Id.*
[430] *Id.*
[431] *Id.*
[432] *Id.* at 42.

renewable wind generation.[433] DOC-DER witness Mr. Landi agreed that the Project, as proposed, is a superior option to address the identified congestion issue compared to the 161 kV alternative.[434]

260. Only additional generation facilities sited north of existing congestion would reduce or eliminate the need for the Project, but at a higher cost than the additional wind generation anticipated in the Project area because the latter has superior wind conditions.[435] The record does not suggest that many wind projects north of the Project are in DPP.

261. DOC-DER requested that Applicants demonstrate that distributed generation resources were considered in their analysis of alternatives to the Project as required by Minn. Stat. § 216B.2426.[436] The Applicants provided their analysis of the ability of rooftop solar, solar gardens and distributed wind energy, which are common examples of distributed energy, to alleviate the congestion issue. Solar gardens generate energy during daylight hours while wind generation is highest during late evening and overnight hours, which greatly limits the congestion relief available through distributed solar generation.[437] Distributed thermal generation "is generally more costly than wind resources. As a result, adding new thermal resources would have little impact on the identified congestion and could possibly make the congestion costs even higher."[438] Large amounts of distributed wind generation would have to be sited north of the congestion to provide the sought after relief, and finding suitable sites would be difficult and costly because that area is generally more highly developed than the area through which the Project will pass. In addition, solving congestion in this manner would leave existing and lower cost wind generation underutilized.[439]

262. Minn. R. 7849.0120(B)(1) further requires the Commission to consider the timing of the Project, which DOC-DER interprets to indicated the "proposed on-line date for the project."[440] The Applicants anticipate that the Project will be online by the end of 2021.[441] Given that congestion in the Project area has been documented since 2008 and is anticipated to increase as new wind generation is added in southern Minnesota and

[433] *Id.*
[434] *Id.* at 48.
[435] Ex. XC-6 at 118-20 (Certificate of Need Application); Ex. CEOs-1 at 10-11, Schedule 1.1 (Goggin Direct).
[436] Ex. DER-3 at ML-6 (Landi Direct).
[437] *Id.* at ML-6 at 1-2.
[438] *Id.* at ML-6 at 2.
[439] *Id.*
[440] *Id.* at 13.
[441] *Id.* at 13-14.

northern Iowa, Mr. Landi concludes, and the Administrative Law Judge agrees, that the timing of the project is reasonable.[442]

263. Not building the Project is one possibility, but congestion would continue, causing Minnesota consumers to pay an additional $210 to $276 million for electricity.[443] The Applicants considered and rejected two variants of a "no build" alternative: (1) reducing congestion by increasing load growth in the area, and (2) reducing congestion through conservation or demand-side management. The first alternative would require highly improbable increases in load as new wind generation came on-line. The second alternative would require equally implausible load reductions.[444]

264. The Applicants further examined the feasibility of constructing additional wind generation north of the area of congestion, which would be difficult because of existing development around Mankato and because wind speeds are lower in that area than in the Project area to the south. Adding more wind generation north of Mankato would also result in underutilized wind generation in the Project area.[445]

265. The Administrative Law Judge agrees with DOC-DER's and DOC-EERA's conclusions that the Applicants reasonably considered, and rejected as either insufficient or not cost-effective or both, distributed generation and larger generation alternatives to the Project.[446] The Applicants and MISO examined every feasible alternative to the Project as well as several variants of a no-build alternative and found no superior solution to present and future congestion in southern Minnesota and northern Iowa.

ii. Criteria (B)(2): Cost of Proposed Facility and the Cost of Energy to be Supplied

Minn. R. 7849.0120(B)(2): "[T]he cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable

[442] *Id.* at 13 (noting that as of September 2017, 23,100 MW of active wind projects expected to be in service in Minnesota or Iowa by 2021).
[443] Ex. EERA-13 at 4-10 (Draft EIS).
[444] Ex. DER-3 at 15-16 (Landi Direct); Ex. EERA-13 at 4-10 to 4-11 (Draft EIS).
[445] Ex. XC-6 at 119-21 (Certificate of Need Application).
[446] Ex. DER-3 at 19 (Landi Direct).

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

266. The energy to be supplied by the proposed facility is wind-generated, which is currently the least expensive source of power.[447] The cost of alternative energy will be higher.[448]

267. The most feasible alternatives are to construct a higher voltage line that would also eliminate congestion or a lower voltage line that would relieve less congestion than the Project. As noted above, the higher voltage line provides no measurable benefit over the Project's proposed 345 kV line.

268. The Applicants closely evaluated the benefit-to-cost ratios and congestion relief that would be available from a 161 kV line from Huntley to Wilmarth.[449] The Applicants found the lower voltage line would not fully address the congestion issue and in five years' time would hinder the development of additional wind generation in southern Minnesota.[450] The Applicants found that the 345 kV line would be more effective in reducing curtailments than the 161 kV line under MTEP17 future scenarios.[451] Further, lower voltage lines "tend to have higher losses than higher voltage lines."[452] The Applicants demonstrated that the 345 kV line would be "more effective at reducing system losses during a greater part of the year than a 161 kV line between the Huntley and Wilmarth substations."[453]

269. Another consequence of constructing a 161 kV line instead of a 345 kV line is that currently the lower voltage line does not meet MISO's voltage threshold for a project to be classified as a MEP.[454] Eighty percent of the costs of a MEP project "are allocated to pricing zones based on the distribution of positive APC savings to the Local Resource Zones and the remaining 20 percent are allocated to each pricing zone based on MISO LRS."[455] It is likely that MISO would consider the 161 kV alternative a type of

[447] Ex. EERA-13 at Table 4-1 (Draft EIS) (showing coal is the most expensive generation sources and wind and geothermal the least expensive sources); Ex. XC-6 at 54-56 (Certificate of Need Application). In particular, Figure 13 (Ex. XC-6 at 56) shows few wind facilities north of the Project area, and Figure 12 shows that southern Minnesota has higher wind speeds, and thus more power generation potential, than the north eastern portion of the state. Although wind generation outside the Project area could be an alternative source of energy in the future, it would almost certainly be more expensive.
[448] Ex. CEOs-1 at 4-5 (Goggin Direct).
[449] Ex. XC-6 at 102-13 (Certificate of Need Application).
[450] *Id.* at 108.
[451] *Id.* at 109.
[452] *Id.* at 111-12.
[453] *Id.* at 112.
[454] *Id.* (more than 50 percent of a project's total cost must be attributable to facilities that operate at 345 kV or higher).
[455] *Id.*

project the costs of which are borne entirely by the transmission owners located in the same local resource zone as the Project.[456]

270. The Administrative Law Judge concludes that the cost of energy that would be supplied by feasible alternatives to the Project would exceed the cost of energy to be supplied by the Project.

iii. Criteria (B)(3): Effects of Facility on Natural and Socioeconomic Environment

Minn. R. 7849.0120(B)(3): "[T]he effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives."

271. None of the feasible alternatives completely relieve the problem of grid congestion in southern Minnesota and northern Iowa, and constructing a 161 kV line instead of the 345 kV line has largely the same negative environmental impacts.[457]

272. The Applicants have devised several alternative routes that have different advantages and disadvantages. Not all the effects of the Project on the natural and socioeconomic environments are reasonably quantifiable and assessed in a benefit-to-cost analysis. Although the aesthetic impact of a transmission line crossing a park, river, or other land is subjective, the record shows that the aesthetics are never perceived as positive or desirable. Each route will have a negative impact on viewsheds, agriculture, forrested land, and wildlife habitat, no matter which route the Commission chooses

273. The lower-cost energy the Project will transmit is a clearly benefit, but the effect on Xcel Energy's customers' individual electric bills will likely be small. It seems unlikely that the economic effects of the Project will significantly affect the choices people make about where to live and work.

274. One route alternative, the Blue Route, for the Project raises the possibility of conflicting with the Mankato Regional Airport[458] and with the Eastwood solar farm.[459] Other alternatives involve the placement of facilities in Minneopa State Park, or proximate to a greater or lesser number of dwellings, and across or bordering farm land. To some

[456] *Id.*
[457] The right-of-way easements for the 161 kV line are not as wide as required for a 345 kV line, and there is an existing easement for certain routes. *See, e.g., id.* at 31.
[458] *Id.* at Appendix K (Airspace Evaluation Memo).
[459] Ex. EERA-13 at 3-11 (Draft EIS).

extent, the negative impacts of the Project can be mitigated[460] and the utilities must pay fair compensation for right-of-way easements.[461]

275. Any routing decision the Commission makes will have negative impacts on those whom the line passes by and, to greater and lesser extents, on the agricultural and natural environments, including flora and fauna. Negative impacts cannot be entirely avoided, but neither can the need for additional transmission capacity if congestion is to be relieved and the growth of renewable generation accommodated. The thorough analysis of impacts and mitigation measures and long-term effects performed by DOC-EERA convinces the Administrative Law Judge that the negative impacts of the Project are not so substantial as to prohibit it.

iv. Criteria (B)(4): Reliability of the Project

Minn. R. 7849.0120(B)(4): "[T]he expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives."

276. It is uncontroverted that the Project will relieve congestion in the grid and enhance system reliability. No alternative to the Project entirely relieves congestion or has a superior benefit-to-cost ratio.

D. Protection of Natural and Socioeconomic Environments and Human Health

277. In considering whether a CON must be granted to the Applicants, the effects of the proposed facility on natural and socioeconomic environments compared to the effects of reasonable alternatives must be considered.

i. Criteria (C)(1): Relationship of Facility to Overall State Energy Needs

Minn. R. 7849.0120(C)(1): "[T]he relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs."

278. As set out above, the Project will reduce curtailments of present and future wind generation in southern Minnesota and northern Iowa and provide Minnesota consumers with access to lower cost and carbon free wind generation.[462]

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[460] *Id.* at 5-1 to 7-65.
[461] *Id.* at 3-28.
[462] Ex. DER-5 at 31 (Rakow Direct). Minn. Stat. § 216B.243, subd. 3(9) requires the Commission to consider "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."

ii. Criteria (C)(2): Effects on Natural and Socioeconomic Environment

Minn. R. 7849.0120(C)(2): "[T]he 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."

279. Minnesota Statutes section 216B.2422, subdivision. 3(a) (2018) requires the Commission to "quantify and establish a range of environmental costs associated with each method of electricity generation" and required utilities to "use the values established by the commission in conjunction with other external factors including socioeconomic costs, when evaluating and selection options." The Commission has developed costs for CO_2, NO_x and SO_2.

280. The Applicants attempted to quantify the "public policy benefits" of the Project, giving a range of value using both a high and a low CO_2 negative externality value. The [r]emaining effluents [were] valued at [the] median of rural subregion values."[463] Benjamin Abing, a transmission planning engineer with ITC Holdings Corp, used the Commission's approved emissions externality values and determined that the 345 kV line provided greater emissions reductions than the 161 kV line.[464] Mr. Abing found the public policy benefits of the Project were equal to roughly 21 percent of the estimated economic benefits of the Project.[465]

281. DOC-DER witness Mathew Landi confirmed the Applicants' conclusion that the 345 kV Project will afford higher net benefits than the 161 kV alternative.[466]

282. The Administrative Law Judge concludes that the public policy benefits of reduced emissions and less expensive energy costs that will result from the Project are superior to any reasonable alternative to the Project.

iii. Criteria (C)(3): Effects on Inducing Future Development

Minn. R. 7849.0120(C)(3): "[T]he effects of the proposed facility, or a suitable modification thereof, in inducing future development."[467]

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[463] Ex. XC-6 at Appendix I at 2, n. 2 (ITC Midwest's Cost of Alternatives, Including Commission Externalities Values).
[464] Ex. XC-18 at 6 (Abing Direct); Tr. at 44 (Abing).
[465] Percentages calculated from Ex. XC-6 at Appendix I at 2 (ITC Midwest's Cost of Alternatives, Including Commission Externalities Values).
[466] Ex. DER-3 at 38-41 (Landi Direct).
[467] Minn. Stat. § 216B.243, subd. 3(3) requires the Commission to evaluate "the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425." Subdivision 7 of this section places requirements on entities to report transmission projects to the Commission.

283. It is uncontroverted in the record that the Project will support the anticipated increase in wind and solar generation in southern Minnesota and northern Iowa. The Project will relieve current and future anticipated congestion of the electric grid and allow consumers in the Twin Cities region to access more plentiful and cheaper power.

iv. Criteria (C)(4): Socially Beneficial Uses of Output

Minn. R. 7849.0120(C)(4): "[T]he socially beneficial uses of the output of the proposed facility or a suitable modification thereof, including its uses to protect or enhance environmental quality."[468]

284. Carbon free electricity generation is a highly desirable alternative to non-renewable electric generation. The increased supply of wind and solar energy the Project will enable will allow Minnesota utilities to retire coal generation facilities. These retirements will reduce harmful emissions of CO_2, SO_2 and NO_x.

E. Criteria (D): Full Compliance

Minn. R. 7849.0120(D): "[T]he 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." [469]

285. Mr. Rakow noted the many potentially required permits for the Project that the Applicants identified in Table 34 of the Application.[470] The Applicants commit to obtaining all necessary permits prior to commencing construction.[471] The Administrative Law Judge concludes that Concern D poses no barriers to the project. Either the Applicants will obtain all necessary permits or the Project will not be constructed.[472]

[468] Similarly, Minn. Stat. § 216B.243, subd. 3(5) requires the Commission to evaluate the benefits of the Project "including its uses to protect or enhance environmental quality and to increase reliability of energy supply in Minnesota and the region."
[469] Minn. R. 7849.0120 (D). Minn. Stat. § 216B.243, subd. 3(7) requires the Commission to evaluate the Project's compliance with "the policies, rules, and regulations of other state and federal agencies and local governments").
[470] Ex. DER-5 at 29 (Rakow Direct); Ex. XC-6 at 177-78 (Certificate of Need Application).
[471] Ex. XC-6 at 177 (Certificate of Need Application).
[472] Ex. DER-5 at 29 (Rakow Direct).

F. Analysis Under Minn. Stat. § 216B.243, subd. 3(10) through 3(12) and subd. 3a

286. Minnesota Statutes § 216B.243, subd. 3 (10) requires the Commission to evaluate:

> whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 [renewable energy objectives] and 216B.2425, subdivision 7 [transmission upgrades to support renewable development], and have filed or will file by a date certain an application for certificate of need under this section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subdivision 7.

287. The Commission has found the Applicants' filing complete.[473] The Project is an upgrade to the transmission system that will support renewable development.

288. Subdivision 3(11) of section 216B.243 requires the Commission to determine whether the Applicants have made the demonstrations required under subd. 3a of this section. Under certain conditions, Minnesota Statutes § 216B.243, subd. 3a bars the Commission from issuing a certificate of need to either a large nonrenewable generation project or to a transmission line for transporting power generated by nonrenewable resources.[474] Because the Project will serve to power from current and future renewable generators, the subdivision does not apply to the Project.

289. As Dr. Rakow explained: "the interconnection of numerous generators is conditional upon the completion of the proposed Project. Thus, the incremental impact of the proposed Project would be to enable the transmission of energy from all new resources, including renewable resources."[475] Because the principal objective and effect

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[473] Order Finding Applications Complete and Notice of and Order for Hearing (Mar. 28, 2018) (eDocket No. 20183-141450-02).

[474] Minn. Stat. § 216B.243, subd. 3a reads:

> The Commission may not issue a certificate of need under this section for a large energy facility . . . that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable energy source" includes hydro. wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

[475] Ex. DER-5 at 32 (Rakow Direct).

of the Project is to relieve congestion preventing consumers from accessing inexpensive wind and solar energy, the requirement of subdivision 3 (11) is met.

290. Subdivision 3(12) of Minn. Stat. § 216B.243 applies only when an applicant is proposing a nonrenewable generating plant.

G. Other Issues

291. No party opposed granting Applicants' request for a Certificate of Need.

292. Multiple public commenters questioned the need for the Project given their observations of new solar facilities in their area.[476] Other commenters asked whether the need is based on proposed wind towers that have yet to be built or whether Applicants considered possible decommissioning of older wind towers.[477] Another commenter stated that the Project is not needed because other existing lines could be reconductored and double circuited or coal plants could be shuttered and that there is not actually congestion.[478] Additionally, one commenter recommended energy conservation efforts to defray the Project need.[479] Others questioned the Project's actual savings to customers.[480]

293. Some commenters provided general comments questioning the Project need or stated that the increased need is limited to more populated areas or locations with anticipated development.[481] Another commenter stated that the Applicants failed to provide much information "about the cost and technical feasibility of updating existing routes to add capacity."[482] One commenter questioned why the Applicants could not increase capacity of the current lines versus building new transmission lines.[483] Other commenters believe the Project is needed but oppose certain routes (discussed in more detail in the route permit section of this Report).[484]

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[476] Comment by Ruth Sonnek (Mar. 3, 2019) (eDocket No. 20193-151163-02); Comment by Gregory Depuydt (Mar. 6, 2019) (eDocket No. 20193-151163-02); Mapleton 6:00 p.m. Tr. at 19-26 (Feb. 28, 2019). Mr. Hopkins also commented on whether the Project is needed based on decommissioning of several wind turbines. Mapleton 6:00 p.m. Tr. at 19-26.

[477] Comment by Ruth Sonnek (Mar. 3, 2019) (eDocket No. 20193-151163-02); Mapleton 6:00 p.m. Tr. at 45-46 (Feb. 28, 2019); Mankato 6:00 p.m. Tr. at 67-69 (Feb. 27, 2019).

[478] Comment by Carol Overland (May 18, 2018) (eDocket No. 20185-1430902-02).

[479] Comment by Elizabeth Albrecht Schiferl (Feb. 24, 2019) (eDocket No. 20193-151163-02).

[480] *Id.*; Comment by Linda Johnson (Mar. 13, 2019) (eDocket No. 20193-151223-02).

[481] Comment by Ryan Jones (Mar. 5, 2019) (eDocket No. 2019-151163-02); Comment by Ruth Sonnek (Mar. 3, 2019) (eDocket No. 2019-155163-02); Comment by Linda Johnson (Mar. 13, 2019) (eDocket No. 20193-151223-02); Mankato 1:00 p.m. Public Hearing Transcript (Tr.) at 47 (Feb. 27, 2019); Mankato 6:00 p.m. Tr. at 24-31 (Feb. 27, 2019).

[482] Comment by Andy Johnson (Mar. 14, 2019) (eDocket No. 20193-151223-02).

[483] Mankato 1:00 p.m. Tr. at 74-77 (Feb. 27, 2019).

[484] Comment by Bryan Schneider (Mar. 3, 2019) (eDocket No. 20193-151163-02); Comment by Seth Greenwood (Mar. 11, 2019) (eDocket No. 20193-1581163-02); Comment by Jesse and Kim Van Sickle (Mar. 14, 2019) (eDocket No. 20193-151163-02); Mankato 1:00 p.m. Tr. at 65 (Feb. 27, 2019).

294. Christopher Frederick commented on a possible increase in renewable generation in Minnesota due to interest at the state legislature and the possible need for the Applicants and MISO to update the analyses to include more renewables.[485]

295. Lucas Nelson, policy associate for the Center for Rural Affairs, a nonprofit based in Nebraska, commented on the economic opportunities from wind generation. He pointed out that "one of the biggest losses or the biggest hurdles to new wind generation is a lack of transmission infrastructure." Mr. Nelson's organization supports the Project because it believes the new upgrades are essential to the transmission grid to support new wind generation. Mr. Nelson emphasized that wind energy projectsprovide a new source of tax revenue that is essential for rural communities. Mr. Nelson believes that gathering input from stakeholders is important and that "all transmission is essential to building new renewable energy."[486]

296. Responsive to both those supporting the Project and those questioning its need, Mr. Andrew Siebenaler explained that as of August 1, 2018, the MISO interconnection queue contained 536 interconnection requests with a combined capacity of 91,300 megawatts (MW).[487] DOC-DER also explained that far greater amounts of energy would come from new wind energy sources that required transmission to load centers.[488]

297. Magellan intervened in the proceeding in accordance with its duty to "monitor and help mitigate" potential corrosive and other ill-effects of potential induced alternate current if a transmission line is built in close proximity to its pipeline.[489] Magellan "prefers that the purple route be selected because it would have no impact on Magellan's facilities."[490] However, if another route is selected, Magellan "has worked with Xcel in the past on other power projects and anticipates that Magellan, Xcel, and ITC Midwest will collaborate on this 345-kV Transmission Line, too, to ensure that both the Line and Magellan's pipelines can operate properly and safely."[491] Magellan included a map with its December 18, 2018 letter showing its pipeline and the Applicants' proposed routes.[492] Finding no later filing indicating Magellan's dissatisfaction with Applicants' proposals, the Administrative Law Judge concludes the parties have successfully resolved Magellan's pipeline safety concerns.

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[485] Mankato 1:00 p.m. Tr. at 66-68 (Feb. 27, 2019).
[486] Delavan 1:00 p.m. Tr. at 40-42 (Feb. 28, 2019).
[487] Ex. XC-24 at 7 (Siebenaler Direct).
[488] Hrg. Tr. at 47 (Rakow) (Feb. 28, 2019); Ex. DER-5 at 23 (Rakow Direct).
[489] Letter from Jimmy Puckett, Magellan Corrosion Supervisor, to Administrative Law Judge Case (Dec. 18, 2018) (eDocket No. 201812-148559-01).
[490] *Id.* at 2.
[491] *Id.*
[492] *See id.*

CONCLUSIONS OF LAW: CERTIFICATE OF NEED

1. Any of the forgoing Findings more properly designated as Conclusions and any of the Findings and Conclusions in the Routing section of the report more properly designated as a Finding or Conclusion in the Certificate of Need section are hereby adopted as such.

2. The Commission and the Administrative Law Judge have jurisdiction to consider the Applicants' Application for a Certificate of Need.

3. The Applicants, the DOC-EERA, and the Commission provided all notices required under Minnesota statutes and rules for a Certificate of Need proceeding.

4. Public hearings were conducted in the proposed Project areas for the Project. The public was given an opportunity to appear at the hearings or to submit written comments.

5. The Applicants and DOC-EERA have complied with all applicable substantive and procedural requirements for a Certificate of Need.

6. The record in this proceeding demonstrates that the Applicants have satisfied the criteria set forth in Minn. Stat. § 216B.243 and Minn. R. 7849.0120.

7. The record in this proceeding demonstrates that the Project will address multiple needs.

8. A more reasonable and prudent alternative has not been demonstrated by a preponderance of the evidence on the record to address those needs met by the Project.

9. The record in this proceeding also demonstrates that the Applicants have satisfied other relevant statutory criteria set forth in Minn. Stat. § 216B.1691 (renewable energy standards) and Minn. Stat. § 216B.2426 (distributed generation).

10. The Final EIS and record created in the matter adequately (1) address the issues and alternatives raised in scoping to the reasonable extent considering the availability of information at the time limitations for considering the permit application; (2) provide responses to the timely and substantive comments received during the draft EIS review process; and (3) was prepared in compliance with the procedures in Minn. R. 7850.1000-7850.5600.

11. Xcel Energy commits to submit a compliance filing within 45 days of the Commission's written Route Permit order addressing the final Project cost estimate, with an opportunity for interested parties to comment on the information included in Xcel Energy's compliance filing. Xcel Energy will identify the final Project costs clearly and ensure that the costs are easily trackable for future recovery in riders and rate cases. Any

costs exceeding the final Project cost estimate can be recovered in Xcel Energy's first rate case after the Project is in-service, so long as Xcel Energy is able to justify that these excess costs are reasonable.

12. The citations to exhibits in the Findings of Fact are not intended to indicate that all evidentiary support in the record has been cited.

13. The Administrative Law Judge finds that the record strongly supports the conclusion that the Project's benefits will exceed its costs. The analyses required of the Commission by statute and rule establish that the Project will support the development of renewable generation by relieving transmission system congestion in southern Minnesota. The Project will enhance the reliability and robustness of the transmission system while providing Minnesota consumers more access to low cost energy. It will also reduce harmful emissions of CO_2, SO_2 and NO_x by accommodating the retirement of coal generators and their replacement by renewable generation. The Administrative Law Judge recommends that the Commission grant Applicants their requested Certificate of Need.

FINDINGS OF FACT: ROUTE PERMIT[493]

I. Routes Evaluated for Project

1. To develop route options for the Project, the Applicants established a Project Study Area (36 miles long and 29 miles wide) between the two substation endpoints.[494] Using mapping data, the Applicants then identified routing constraints (i.e., areas to avoid such as population centers, environmentally sensitive areas, federal wildlife protection areas, and Minneopa State Park) and routing opportunities (i.e., infrastructure corridors such as existing transmission lines and roads as well as property lines). The Applicants conducted field visits in early 2017 to confirm the mapping data and to gain a better understanding of the Project Study Area. Later in 2017, the Applicants also met with local government units and federal and state agencies and held public open houses in Mapleton and Mankato to gather feedback on initial route options. [495] Based on the information and feedback collected, the Applicants refined and developed the routes proposed in the Route Permit Application.[496]

2. Areas of concern for the Applicants within the Project Study Area include the existing communities of Mankato, North Mankato, and Belgrade Township. Because the Wilmarth Substation is located within the northern boundary of Mankato, the Applicants developed routes that avoided areas with relatively dense, for the area, human

[493] The Findings of Fact in the either section, CON or Route Permit, of this report apply in the other.
[494] Ex. XC-7 at 25 (Route Permit Application).
[495] *Id.* at 28.
[496] *Id.* at ES-5, 25-31; Ex. XC-19 at 3-5 (Hillstrom Direct).

population, by traversing either to the west or to the east of the Mankato/North Mankato area before turning south towards the Huntley Substation.[497]

3. Other areas of concern in the Project Study Area are environmental and include Minneopa State Park to the west of the cities of Mankato and North Mankato; crossing of the Minnesota River and Watonwan River; and a parcel of land (the Pheasants Forever parcel) that is in the process of being transferred to the U.S. Fish and Wildlife Service (USFWS) to be added to an existing Waterfowl Protection Area (WPA).[498]

4. The Applicants proposed four route options in the Route Permit Application, identified from west to east as the Purple, Green, Red, and Blue routes.[499] As a result of the scoping process for the EIS, a fifth route alternative, Purple-E-Red, was added to the scope of the EIS.[500]

5. The Applicants included six route segment alternatives in the Route Permit Application, labeled as Segment Alternatives A-F.[501] As a result of the scoping process for the EIS, Route Segment C was removed from consideration and 14 new route segments (E2, G throughR, and Y) were added, for a total of 19 route segment alternatives. The DOC-EERA's scoping decision also included three new alignment alternatives (AA-1 to AA-3).[502]

6. A route segment alternative is a segment that departs from and returns to a route.[503] An alignment alternative places the line in a different location within the proposed route's width and therefore does not change the location or width of the proposed route.[504] In a route permit, the Commission approves a route, a route width, and an anticipated alignment.[505]

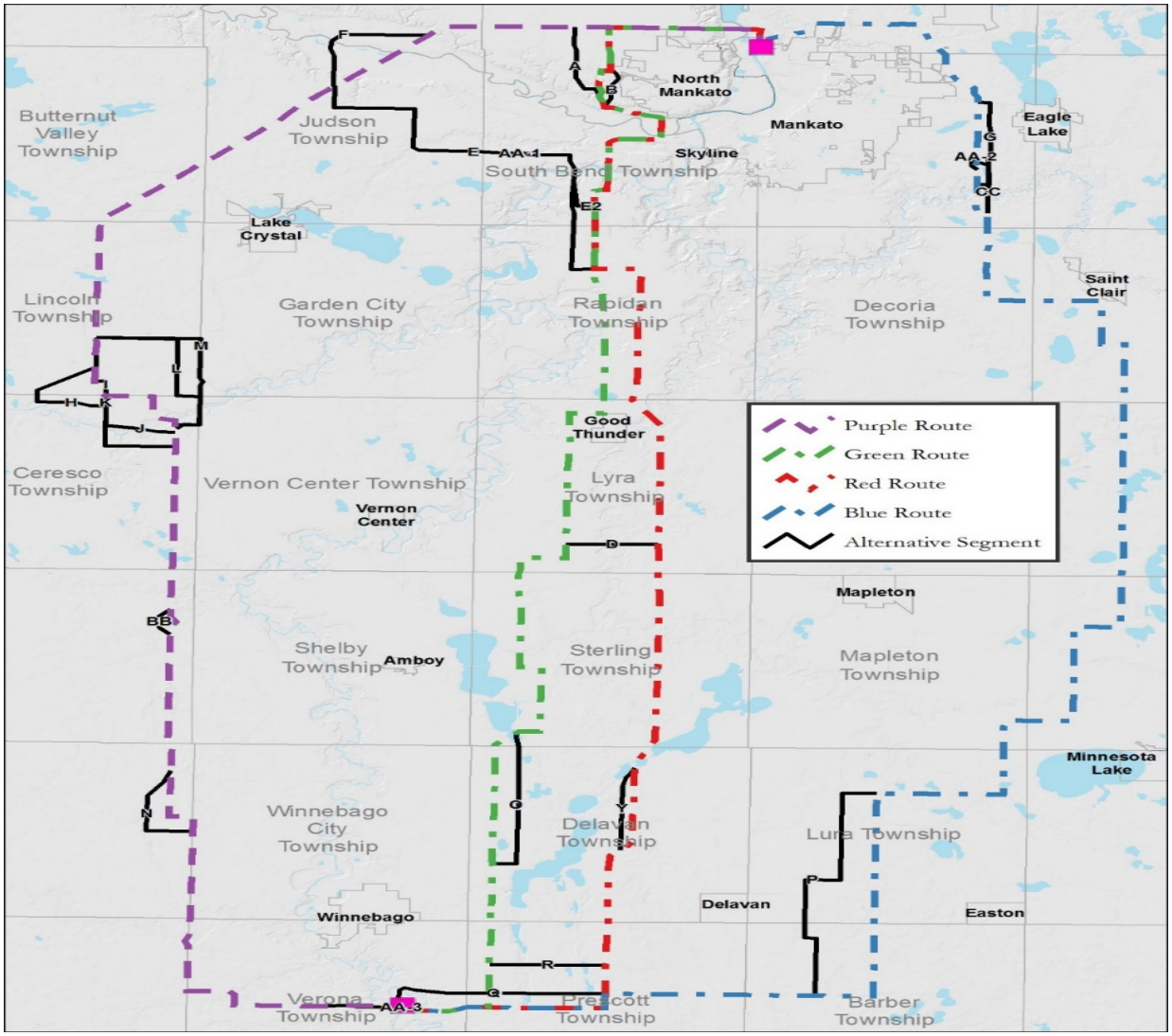
7. As a result of further information provided after the issuance of the Draft EIS, the Applicants requested that two additional Segment Alternatives be evaluated in the Final EIS. Segment Alternative BB was proposed as an alternative to minimize crossings of Willow Creek along the Purple Route and was developed in response to feedback received from the MnDNR on the Draft EIS. Segment Alternative CC was

[497] Ex. XC-7 at ES-8 (Route Permit Application).
[498] *Id.* at ES-9.
[499] *Id.* at 41-43; Ex. XC-19 at 24-25 (Hillstrom Direct).
[500] Ex. EERA-10 at 8 (DOC-EERA EIS Scoping Decision).
[501] Ex. XC-7 at 44-47 (Route Permit Application).
[502] Ex. EERA-10 at 8-10 (DOC-EERA EIS Scoping Decision).
[503] Ex. EERA-13 at 3-5 (Draft EIS).
[504] *Id.* at 3-19.
[505] *Id.* at 3-25.

proposed as an alternative along the Blue Route to avoid an area where a landowner stated that he is currently building a house.[506]

8. The routes and segment alternatives proposed for inclusion in the Final EIS are shown in Figure 1.

Figure 1: Routes and Segment Alternatives Included in the EIS[507]



[506] Ex. XC-27 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[507] Ex. EERA-21 at 1-3, Map 1-1 (Final EIS).

A. Purple Route

9. The Purple Route is approximately 51.6 miles long and follows 24.5 miles of existing transmission lines. Proceeding westward from the Wilmarth substation, the route follows the existing Lakefield Junction – Wilmarth transmission line to the west and south for approximately 23 miles. The Purple Route departs from the Lakefield Junction – Wilmarth line in Lincoln Township and proceeds south for approximately 23.5 miles, generally following property divisions and roads. The Purple Route turns to the east just southwest of Winnebago and follows property divisions and 160th Street the remaining 5 miles to the Huntley Substation.[508]

10. The Purple Route crosses the Minnesota River twice, once just northwest of the Wilmarth Substation and once approximately 8 miles west of Mankato through Minneopa State Park near Judson, Minnesota.[509]

11. The Purple Route crosses Minneopa State Park within the existing easement of the Lakefield Junction – Wilmarth 345 kV transmission line. This easement predates establishment of Minneopa State Park and provides sufficient rights to construct another 345 kV circuit within its bounds, consistent with the proposed Purple Route.[510] The Applicants propose to co-locate the two 345 kV transmission lines on single-pole, double-circuit structures, thus replacing the existing lattice tower structures.[511]

12. Since the new monopole structures will be 35 to 60 feet taller than the existing structures, the Applicants plan to install bird diverters along the section that traverses Minneopa State Park to minimize impacts on birds. Based on communications with the MnDNR, the Applicants' understanding is that no License to Cross Public Land would be required for crossing Minneopa State Park land in this location because the Project would utilize an existing unrestricted utility easement acquired in 1971, which predates the establishment of the park in this area.[512] The MnDNR filed comments on March 14, 2018, stating its "support of the [P]urple [R]oute as a viable option based on the transmission line work being restricted to the existing easement area."[513]

13. As different structures have different costs, the Applicants proposed several different design options for each route in the Route Permit Application.[514] For the Purple Route, the Applicants originally proposed three different design options: (1) a single-

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[508] Ex. EERA-13 at 3-1 (Draft EIS); Ex. XC-19 at 6-7 (Hillstrom Direct); Ex. XC-7 at 41, 73 (Route Permit Application).
[509] Ex. EERA-13 at 3-1 (Draft EIS); Ex. XC-7 at 41 (Route Permit Application).
[510] Ex. EERA-13 at 3-1 (Draft EIS); Ex. XC-19 at 11 (Hillstrom Direct); Ex. XC-7 at 41 (Route Permit Application); *see* Comment by MNDNR (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[511] Ex. XC-19 at 11 (Hillstrom Direct); Applicants' Route Permit Brief at 69 (Mar. 22, 2019) (eDocket No. 20193-151312-02).
[512] Ex. XC-19 at 9-12 (Hillstrom Direct).
[513] Comment by MNDNR (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[514] Ex XC-7 at 11 (Route Permit Application); Applicants' Route Permit Brief at 4-6 (Mar. 22, 2019) (eDocket No. 20193-151312-02).

circuit H-frame; (2) a single-circuit monopole; and (3) a double-circuit monopole. The double-circuit design (option 3) would be constructed on a monopole structure with existing transmission lines and on single-circuit monopole structures in areas where the new transmission line does not follow an existing transmission line corridor.[515] During this proceeding, the Applicants received feedback from a number of farmers and other landowners concerned about the increased agricultural and land use impacts from both the monopole design parallel to existing transmission lines and the H-frame, two-pole design.[516] In response to these concerns, the Applicants no longer recommend the single-circuit H-frame design option for the Project. Therefore, the two primary structure design options remaining are: (1) single-circuit monopole; and (2) double-circuit monopole.[517]

14. Segment Alternative F to the Purple Route was included in the Applicant's Route Permit Application as an option to avoid crossing Minneopa State Park.[518] This segment is approximately 3.8 miles long.[519] It departs from the Purple Route to the west, crosses the Minnesota River near the town of Judson, and continues to the south until rejoining the Purple Route. Compared to the Purple Route as initially proposed, segment Alternative F would nearly triple the area of prime farmland within the right-of-way. In addition, unlike the initially proposed Purple Route, Segment Alternative F would not follow an existing right-of-way for its length. [520] While Segment Alternative F minimizes impacts to wetlands and Minneopa State Park, it places 32 more residences within 1,000 feet of the transmission line right-of-way, almost doubles the amount of agricultural land within the right-of-way to 23.4 acres, and increases the number of monopole structures when compared to the equivalent segment of the Purple Route.[521]

15. The other segment alternatives to the initial Purple Route are Segment Alternatives H through M which were proposed during scoping of the EIS to minimize impacts to the Watonwan River valley and to avoid a parcel of land that is currently owned by Pheasants Forever, and that is in the process of being transferred to the USFWS to be added to an existing WPA.[522] Several of these segments were developed as a result

[515] Ex. XC-7 at ES-12 (Route Permit Application).
[516] Mankato 1:00 p.m. Tr. at 62 (Feb. 27, 2019); Mankato 6:00 p.m. Tr. at 52 (Feb. 27, 2019) ("The comment about the – where I'm on the existing purple route, Judson Township, and the comment about the double pole sets or the existing, adding another pole set would be the worst of both worlds, or another structure. If they can put it all on one pole, a new set, that would be much preferable to adding another existing line."); Mankato 6:00 p.m. Tr. at 54 ("I can't believe that it's even a consideration to build another line beside of an existing line. It seems like a no brainer, just put it all on one setting, one pole setting.").
[517] Ex. XC-25 at 4 (Stevenson Direct).
[518] Ex. XC-7 at 46 (Route Permit Application).
[519] *Id.*
[520] Ex. EERA-13 at 3-10, 7-17 to 7-21 (Draft EIS).
[521] Ex. XC-7 at 46 (Route Permit Application); Ex. EERA-13 at 3-10, 7-17 to 7-21 (Draft EIS).
[522] Ex. XC-19 at 25 (Hillstrom Direct).

of a field visit conducted by the Applicants and the MnDNR in consultation with the DOC-EERA.[523]

16. In Direct Testimony, the Applicants stated that they no longer support the original Purple Route near the Watonwan River due to the difficulty in obtaining the necessary land rights but did not state a preference as to the remaining segment alternatives for the Purple Route (route segments H-M).[524]

17. In Rebuttal Testimony, the Applicants indicated that they believe Segment Alternative I is no longer permittable because it crosses land recently purchased and integrated into the existing Nelson WPA.[525] Based on the high probability of additional land being acquired by the USFWS and higher cost, the Applicants stated in Rebuttal Testimony that they no longer support Segment Alternatives H, I, J, and K and instead prefer Segment Alternatives L or M for the Watonwan River crossing.[526] When comparing Segment Alternatives L and M, Segment Alternative L is shorter in length, has fewer non-residential buildings within 200 to 500 feet, follows a longer length of existing linear features, and has less forested area to be cleared than Segment Alternative M.[527] In its March 14, 2018, letter, the MnDNR stated that Segments L and M crossed a native plant community consisting of very mature basswood and bur oaks.[528] The MnDNR requested that the alignment for Segments L and M be shifted 125 feet to the west to avoid this native plant community. [529]

18. In a comment letter on the Draft EIS, the USFWS indicated that it would not permit new or expanded rights-of-way on service-interest lands, including lands in the process of being transferred to federal ownership.[530] Thus, Segment Alternatives I, J, and K, and the Purple Route near the Watonwan River, are not permittable by the USFWS.[531]

19. Segment Alternative N was proposed during scoping for the EIS to minimize impacts to farmland. [532] It follows a drainage ditch, requires two additional public water crossings, and adds approximately 0.6 miles of length to the Purple Route. Segment Alternative N has three more residences within 1,000 feet of the proposed alignment, would have greater aesthetic impacts, and would have approximately 12 more acres of agricultural land within its right-of-way when compared to an equivalent segment of the Purple Route, at an additional cost of $2.7 million.[533]

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[523] Ex. EERA-13 at 3-12 (Draft EIS); Ex. XC-19 at 24-25 (Hillstrom Direct).
[524] Ex. XC-19 at 25 (Hillstrom Direct).
[525] Ex. XC-20 at 12-14 (Hillstrom Rebuttal).
[526] *Id.*
[527] *Id.*; Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS).
[528] Comments by MNDNR (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[529] *Id.*
[530] Ex. EERA-20A (Agency Comments on Draft EIS).
[531] Ex. EERA-21 at 7-25, 7-31 (Final EIS).
[532] Ex. EERA-13 at 3-14, 7-34 to 7-38 (Draft EIS); Ex. XC-19 at 25 (Hillstrom Direct).
[533] Ex. EERA-13 at 3-14, 7-34 to 7-38 (Draft EIS); Ex. XC-19 at 25 (Hillstrom Direct).

20. Segment Alternative BB was proposed by the Applicants after the Draft EIS was issued in response to comments from the MnDNR requesting the number of crossings of Willow Creek be reduced along the Purple Route.[534] Segment Alternative BB reduces the number of crossings of Willow Creek from three to one.[535] Located south of 121st Street, Segment Alternative BB proceeds northwest to cross Willow Creek once and then turns north along property lines before proceeding northeast to rejoin the Purple Route.[536] Segment Alternative BB also reduces the number of residences within 300-feet of the proposed alignment from one to none, forest clearing from 3.2 acres to 0.5 acres, wetland in the right-of-way from 2.32 acres to 0.5 acres, and forested wetland in the right-of-way from 1.7 acres to 0.3 acres, while only slightly increasing the overall length and cost, when compared to the equivalent segment of the Purple Route.[537]

21. Alignment Alternative AA-3 to the Purple Route was proposed during scoping for the EIS by a landowner. Near the Huntley Substation, this alignment would either triple-circuit the new 345 kV line with the existing Minnesota to Iowa 345/161 kV line (AA-3a) or place the transmission line on the south side of 160th Street (AA-3b).[538]

22. Both alignments (AA-3a and AA-3b) result in moving the right-of-way for the line away from a seasonal residence. The owner of this seasonal residence stated at the public hearing in Mankato that she is opposed to the Purple Route unless the alignment is moved to the south side of 160th Street (AA-3b).[539] The costs are $700,000 more for Alignment Alternative AA-3b and $2.64 million more for Alignment AA-3a than for the corresponding portion of the Purple Route.[540] The substantial cost increase of Alignment Alternative AA-3a is primarily due to the fact that its use would require removing the existing double-circuit 345 kV/161 kV structures and foundations installed in 2018 by ITC Midwest, and replacing them with new taller triple-circuit structures. In addition, the Applicants generally prefer avoiding triple-circuit designs due to operational concerns and maintenance safety.[541] In its letter of March 14, 2018, the MnDNR stated a preference for Alignment Alternative AA-3a and Alignment Alternative AA-3b over the original Purple Route due to the reduced impacts to forested habitat of these alignment alternatives.[542]

B. Green Route

23. The Green Route is approximately 45.4 miles long and follows 5.4 miles of existing transmission lines. [543] It was developed by the Applicants to provide an alternative with a direct path to the south while avoiding crossing Minneopa State Park. From the

[534] Ex. EERA-20A at 2-3 (Agency Comments on Draft EIS).
[535] Ex. XC-27 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[536] *Id.*
[537] *Id.*
[538] Ex. EERA-13 at 3-21 (Draft EIS); Ex. XC-19 at 26 (Hillstrom Direct).
[539] Mankato 1:00 p.m. Tr. at 31 (Feb. 27, 2019).
[540] Ex. EERA-13 at 7-62 to 7-65 (Draft EIS).
[541] Ex. XC-26 at 4-5 (Stevenson Rebuttal).
[542] Comments by MNDNR (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[543] Ex. XC-7 at 41 (Route Permit Application).

Wilmarth Substation, the Green Route follows the Lakefield Junction – Wilmarth line for 4.5 miles north and west and then departs from this line in Belgrade Township, heading south along property lines through agricultural and residential areas.[544] The Green Route bypasses Minneopa State Park by heading east between the Minnesota River and North Mankato and crosses the river by double-circuiting the existing South Bend – Wilmarth 115 kV transmission line.[545] Once across the Minnesota River, the Green Route heads west along U.S. Highway 169 for one mile, where it turns south.[546] After departing from the highway, the Green Route takes a relatively direct route south for 30 miles to the Huntley Substation, generally along field divisions and roads with a few deviations from these features to avoid homes [547]

24. While the Green Route avoids crossing Minneopa State Park, it traverses along the western fringe of North Mankato in areas that are designated as future residential or industrial development in North Mankato's Comprehensive Development Plan.[548]

25. For the Green Route, the Applicants proposed two design options: (1) single-circuit H-frame structures; or (2) single-circuit monopole structures. The Green Route follows the existing Lakefield Junction – Wilmarth Line leaving the Wilmarth Substation but the Applicants proposed to construct this segment as a single-circuit design adjacent to the existing line. The only location where the Applicants proposed to double-circuit the Green Route with an existing line is for a one-mile segment across the Minnesota River.[549]

26. Segment Alternative O, proposed during scoping for the EIS, is a 5.1-mile modification of the Green Route to follow County Road 107 rather than property lines. Segment Alternative O is longer in length, has fewer residences within 200 to 500 feet of the alignment but more residences within 500 to 1,000 feet, has more acres of CREP (Conservation Reserve Enhancement Program) easements within the right-of-way, has more non-residential buildings within 500 to 1,000 feet, and more acres of non-forested wetlands within the right-of-way than the equivalent segment of the Green Route.[550]

27. The Applicants also proposed several segment alternatives that relate to both the Green Route and the Red Route, which are discussed further, below.

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[544] *Id.*
[545] *Id.*
[546] *Id.*
[547] Ex. EERA-13 at 3-4 (Draft EIS); Ex. XC-19 at 15-17 (Hillstrom Direct); Ex. XC-7 at 41-42, 73 (Route Permit Application).
[548] Ex. EERA-13 at A-3 (Draft EIS).
[549] Ex. XC-7 at ES-12 (Route Permit Application).
[550] Ex. EERA-13 at 3-15 (Draft EIS); Ex. XC-19 at 26 (Hillstrom Direct).

C. Red Route

28. The Red Route is approximately 46.5 miles long and follows 26.3 miles of existing transmission lines.[551] The Red Route shares the same route with the Green Route for the northern 16 miles. The Red and Green routes proceed together around the edge of North Mankato, through Belgrade Township, and across the Minnesota River.[552] The Red Route departs from the Green Route near Rapidan Township where it follows the existing Huntley – South Bend 161 kV transmission line for approximately 24 miles and then continues south and west approximately 6 miles, joining the Green Route into the Huntley Substation.[553]

29. For the Red Route, the Applicants proposed to double-circuit the 345 kV line in all areas where this route follows existing transmission line corridors: in the north when exiting the Wilmarth substation, across the Minnesota River Valley, and along the Huntley – South Bend 161 kV transmission line. In the areas where the route does not follow existing transmission line corridors, the Applicants propose either: (1) single-circuit H-frame structures; or (2) single-circuit monopole structures.[554]

30. Segment Alternatives A and B, which relate to both the Green Route and the Red Route because they share the same alignment in this area, were proposed by the Applicants in the Route Permit Application to address proximity to residential areas and future development plans by North Mankato and Belgrade Township.[555]

31. Segment Alternative A is 3.8 miles long; it follows the Purple Route from the Wilmarth Substation before it diverges from the Purple Route west of 405th Avenue traveling south for 1.7 miles.[556] It crosses U.S. Highway 14 and 526th Street before turning southeast and crossing 409th Avenue, and rejoins the Green and Red routes west of Rockford Road. Segment Alternative A is longer in length, crosses more acres of forested wetland, has more than twice the number of non-residential buildings within 500 to 1,000 feet, has an additional watercourse crossing, and has more residences within 500 to 1,000 feet than the equivalent segment of the Red Route.[557] Segment Alternative A would add 11 double-circuit monopole structures and 15 single-circuit monopole structures, and would cost $2.13 million more (2016$) than the comparable segments of the Green Route and the Red Route.[558]

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[551] Ex. XC-7 at 42 (Route Permit Application).
[552] *Id.*
[553] Ex. EERA-13 at 3-4 (Draft EIS); Ex. XC-19 at 12-14 (Hillstrom Direct); Ex. XC-7 at 42, 73 (Route Permit Application).
[554] Ex. XC-7 at ES-12 (Route Permit Application).
[555] Ex. EERA-13 at 3-5 to 3-7 (Draft EIS); Ex. XC-19 at 21 (Hillstrom Direct); Ex. XC-7 at 44-45 (Route Permit Application).
[556] Ex. EERA-13 at 7-3 and 7-4 (Draft EIS).
[557] *Id.* at 3-5.
[558] *Id.* at 7-3, 7-4.

32. Segment Alternative B is 2.9 miles long; it diverges from the Green and Red routes south of U.S. Highway 14 and continues south along Rockford Road for 1.1 miles before rejoining the Green and Red routes near Judson Bottom Road.[559] Segment Alternative B has significantly less forested land and somewhat less agricultural land within its right-of-way. It would add seven double-circuit monopole and seven single-circuit monopole structures when compared to the equivalent segments of the Green and Red Routes. Segment Alternative B would have 25 more residences within 1,000 feet of the proposed alignment and would cost approximately $570,000 less (2016$) than the equivalent segments of the Green and Red routes.[560]

33. Segment Alternative D, proposed by the Applicants in the Route Permit Application, is 2.0 miles long and connects the Red and Green routes near their midpoints.[561] This connection would allow the use of a combination of Red and Green routes.[562] Segment Alternative D reduces aesthetic impacts by following road right-of-way (137th Street) for a portion of its length.[563] The Red Route in this area is proposed to be double-circuited with an existing 161 kV line; the Green Route primarily follows field and section lines.[564] Using Segment Alternative D as a as a connecting segment would have more aesthetic and agricultural impacts than selecting the Red Route, as proposed, and fewer aesthetic and agricultural impacts than the Green Route, as proposed.[565]

34. Segment Alternative R relates to the Red Route and was proposed by the Applicants during scoping for the EIS to provide an alternative option to connect to the Huntley Substation through existing transmission corridors. Segment Alternative R is 2.5 miles long and follows an existing 161 kV transmission line that does not cross a WPA.[566] Segment Alternative R minimizes the aesthetic impacts of the Red Route because it is double-circuited with an existing transmission line and minimizes agricultural impacts because it reduces the number of structures in the right-of-way by 31. Segment Alternative R costs $2.81 million more (2016$) than the equivalent segment of the Red Route.[567]

35. Segment Alternative Y relates to the Red Route and is 2.9 miles long. It moves the Red Route to the west to follow an existing 161 kV transmission line corridor instead of the road corridor of 405th Avenue.[568] Segment Alternative Y minimizes aesthetic impacts to viewsheds from existing homes because of its distance from

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[559] *Id.* at 3-5.
[560] *Id.* at 7-3, 7-4.
[561] Ex. XC-7 at 47 (Route Permit Application).
[562] Ex. EERA-13 at 3-8 (Draft EIS); Ex. XC-19 at 22 (Hillstrom Direct); Ex. XC-7 at 47 (Route Permit Application).
[563] Ex. EERA-13 at 7-8 (Draft EIS).
[564] *Id.*
[565] *Id.* at 7-8 to 7-11.
[566] *Id.* at 3-16; Ex. XC-19 at 28 (Hillstrom Direct).
[567] *Id.* at 7-48 to 7-52.
[568] *Id.* at 3-18; Ex. XC-19 at 26 (Hillstrom Direct).

residences and use of existing transmission lines, minimizes agricultural impacts by reducing the number of structures in agricultural land by nine.[569]

36. Segment Y increases impacts to wetlands, and costs approximately $440,000 more than the equivalent segment of the Red Route.[570] In its March 14, 2018 letter, the MnDNR supported the original Red Route with double-circuiting over Segment Y noting that the double-circuit design would remove an existing transmission line from running parallel to the Smith Wildlife Management Area (WMA). The MnDNR did not support Segment Y. The DNR noted that "currently the 161 kV line is near large wetlands on Smith WMA that are highly used by avian species. Moving the existing transmission line farther from the WMA is likely to reduce the number of avian collisions.[571]

D. Blue Route

37. The Blue Route is approximately 57.0 miles long and follows 9.7 miles of existing transmission lines.[572] The Blue Route exits the Wilmarth Substation to the east and traverses around Mankato following the existing Wilmarth – Dome Pipeline 115 kV transmission line for 3.7 miles.[573] Approximately 0.5 miles east of Highway 22, the Blue Route departs from the existing 115 kV line and turns to the southeast following a railroad/road corridor for 2.6 miles.[574] After heading south from the rail corridor and crossing Highway 14, the Blue Route continues approximately 40 miles to the south through farmland, primarily on field divisions and roads.[575] In Barber Township, the Blue Route joins and follows an existing 161 kV line, continuing to the west for approximately six miles. The last five miles of the Blue Route are shared with the Red and Green routes, following 160th Street to the Huntley Substation.[576]

38. The Applicants adjusted the Blue Route alignment after the Route Permit Application was submitted to avoid a wooded wetland complex east of Mankato. The wetland is protected by a deed restriction on vegetation removal, which is problematic for the safe construction and operation of the proposed transmission line. The Applicants adjusted the Blue Route alignment approximately 0.25 miles to the west.[577]

39. While the Blue Route avoids crossing Minneopa State Park and the Minnesota River, it passes in close proximityto the development areas in the eastern

[569] Ex. EERA-13 at 7-52 to 7-55 (Draft EIS).
[570] *Id.*
[571] Comments by MNDNR (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[572] Ex. XC-7 at 42 (Route Permit Application).
[573] *Id.*
[574] *Id.*
[575] *Id.*
[576] Ex. EERA-13 at 3-4 to 3-5 (Draft EIS); Ex. XC-19 at 18-19 (Hillstrom Direct); Ex. XC-7 at 42, 73 (Route Permit Application).
[577] Ex. XC-19 at 20 (Hillstrom Direct).

fringe of Mankato and the Mankato Regional Airport.[578] The Blue Route is located approximately one mile from the Mankato Regional Airport.[579]

40. For the Blue Route, the Applicants proposed two different design options: (1) a single-circuit H-frame, and (2) a single-circuit monopole. A segment near the Wilmarth Substation and a segment east of the Huntley Substation would be constructed as a double-circuit monopole.[580]

41. Segment Alternative G, which is approximately 3.4 miles long, was suggested by the Advisory Task Force to minimize potential impacts of the Blue Route on the Eastwood Solar Farm. Route Segment G moves the route slightly to the east, following a segment of County Road 86 where 13 homes are located.[581] Segment Alternative G avoids the potential for impacts to the Eastwood Solar Farm and reduces the area of wetlands in the right-of-way, has 13 more residences with 1,000 feet, and costs approximately $2.0 million more when compared to the equivalent segment of the Blue Route.[582]

42. Segment Alternative P is an alternative near the southern end of the Blue Route and was proposed by a landowner to minimize agricultural impacts. This segment is approximately 8.7 miles long and departs from the Blue Route just west of County Road 17. The Applicants analyzed, but did not propose, this segment because it has four additional houses within 500 feet (the corresponding Blue Route segment has none) and adds four angle structures, thereby increasing costs by approximately $1.55 million (2016$) over the equivalent segment of the Blue Route.[583]

43. Segment Alternative Q relates to the Green, Red, and Blue routes and was proposed by the Applicants during scoping for the EIS to provide an alternative option to connect to the Huntley Substation through existing transmission corridors.[584] Segment Alternative Q is approximately 4.8 miles long; it is double-circuited with an existing 161 kV line through the Prescott WPA.[585] USFWS staff has informally indicated that they do not prefer this Segment Alternative.[586] Segment Alternative Q minimizes aesthetic impacts because it follows existing transmission line, minimizes agricultural impacts by reducing the number of monopole structures by 37, and would cost an additional $3.2 million (2016$) because of its double-circuit construction when compared to the equivalent segments of the Blue, Red, and Green routes.[587]

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[578] *Id.* at 30-31.
[579] Ex. EERA-13 at 3-11 (Draft EIS).
[580] Ex. XC-7 at ES-12 (Route Permit Application).
[581] Ex. EERA-13 at 3-11 (Draft EIS); Ex. XC-19 at 27 (Hillstrom Direct); Ex. EERA-7 at 5 (Advisory Task Force Report).
[582] Ex. EERA-13 at 7-21 to 7-25 (Draft EIS).
[583] *Id.* at 3-16; Ex. XC-19 at 27-28 (Hillstrom Direct).
[584] Ex. XC-19 at 28 (Hillstrom Direct).
[585] Ex. EERA-13 at 7-45 to 7-48 (Draft EIS).
[586] *Id.* at 3-16 to 3-17; Ex. XC-19 at 28-29 (Hillstrom Direct).
[587] Ex. EERA-13 at 7-45 to 7-48 (Draft EIS).

44. Segment Alternative CC was proposed by the Applicants after the Draft EIS was issued in response to comments received by a landowner at a January 9, 2019, public meeting. [588] The landowner indicated that he is currently building a house within the proposed right-of-way of the Blue Route at 203rd Street in Mankato Township.[589] Segment Alternative CC uses a portion of Segment Alternative G, following property boundaries across the Le Sueur River to rejoin with the Blue Route at 594th Avenue.[590] Segment Alternative CC also reduces the number of stream crossings from two to one, decreases the amount of forest clearing from 9.1 acres to 7.0 acres, and reduces costs by $410,000 (2016$) when compared to the equivalent segment of the Blue Route.[591]

45. Alignment Alternative AA-2 to the Blue Route was proposed by a landowner to shift the line to the west to minimize agricultural and residential impacts. Alignment Alternative AA-2 departs from the Blue Route north of Minnesota State Highway 83.[592] Alignment Alternative AA-2 would increase costs by approximately $1.1 million (2016$) than the equivalent segment of the Blue Route.[593]

E. Purple-E-Red Route

46. The Purple-E-Red Route is a combination of the Purple and Red routes connected by Route Segment E which the Advisory Task Force proposed.[594] This route alternative is approximately 55 miles long and uses those portions of the Purple and Red routes that follow existing transmission lines, and as a result, a larger portion of this route alternative utilizes double-circuit design in existing transmission line corridors (approximately 32.3 miles). The Purple-E-Red Route exits the Wilmarth Substation along the Purple Route and after crossing the Minnesota River, follows Segment Alternative E to the Red Route.[595]

47. Segment Alternative E was proposed by the Applicants in the Route Permit Application.[596] It is approximately 11.8 miles long and provides a connection from the Purple Route, after crossing the Minnesota River, to the Green and Red routes.[597] This

[588] Mankato 1:00 p.m. Tr. at 36 (Jan. 9, 2019); Ex. XC-27 at 3-4 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[589] Mankato 1:00 p.m. Tr. at 36 (Jan. 9, 2019); Ex. XC-27 at 3-4 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[590] Ex. XC-27 at 3-4 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[591] *Id.*
[592] Ex. EERA-13 at 3-20 (Draft EIS); Ex. XC-19 at 28 (Hillstrom Direct).
[593] *Id.* at 7-59 to 7-62.
[594] *Id.* at 3-5; Ex. XC-19 at 23 (Hillstrom Direct).
[595] Ex. EERA-13 at 3-5 (Draft EIS); Ex. XC-19 at 23 (Hillstrom Direct).
[596] Ex. XC-7 at 47 (Route Permit Application).
[597] *Id.*

segment departs from the Purple Route near County Road 42, crosses Minneopa Creek, turns east following Highway 60, and turns south crossing the Blue Earth River.[598]

48. Segment Alternative E2 was proposed by the Applicants during scoping for the EIS to provide an alternative option to Segment Alternative E to reduce impacts to residences.[599] Segment Alternative E2 is identical to Segment Alternative E except that after crossing the Blue Earth River it turns east and connects with the Green and Red routes about 2.2 miles farther north than Segment Alternative E.[600]

49. Segment Alternative E and Segment Alternative E2 minimize aesthetic impacts and impacts to the areas identified by the City of North Mankato as targeted for future development. Both segment alternatives would have about 65 less residences within 1,000 feet of the proposed alignment, have significantly more agricultural land within the rights-of-way (approximately 190 acres compared to approximately 87 acres), add a significant number of structures (approximately 15 double-circuit and 40 parallel monopole structures), and cost approximately $19 million (2016$) more than the equivalent segment of the Red Route.[601]

50. Alignment Alternative AA-1 was proposed during scoping for the EIS to provide an alignment alternative option for Segment Alternative E. For a relatively short distance near the intersection of Highways 60 and 169, Alignment Alternative AA-1 travels on the south side of Highway 169 instead of the north side.[602] Alignment Alternative AA-1 would place the transmission line at a greater distance from residences on the north side of the highway, but closer to businesses on the south side of the highway, when compared to the proposed alignment for Segment Alternative E.[603]

F. Applicants' Recommended Route Configurations and Designs

51. In their posthearing brief, the Applicants provided their recommended route configurations and designs for each of the five routes. These recommendations reflect the Applicants' examination of all potential design options, analysis of all routes, including segment and alignment alternatives, evaluation of the Draft EIS, and review of comments received from the public, federal and state agencies, and local government units.

52. Based on this analysis, the Applicants recommended that (1) H-Frame structures (with two poles 20 to 30 feet apart) no longer be considered for use to minimize agricultural impacts of the Project, and (2) the single-circuit, monopole design constructed adjacent to the existing H-frame Lakefield Junction – Wilmarth 345 kV line no longer be considered for the Purple Route. The adjacent design would result in far higher

[598] Ex. EERA-13 at 3-8 to 3-9 (Draft EIS); Ex. XC-19 at 22 (Hillstrom Direct); Ex. XC-7 at 47 (Route Permit Application).
[599] Ex. EERA-13 at 3-8 to 3-9 (Draft EIS); Ex. XC-19 at 29 (Hillstrom Direct).
[600] Ex. EERA-13 at 3-8 to 3-9 (Draft EIS); Ex. XC-19 at 29 (Hillstrom Direct).
[601] Ex. EERA-13 at 7-12 to 7-17 (Draft EIS).
[602] *Id.* at 3-19.
[603] *Id.*

agricultural impacts than other design alternatives due to the increased number of structures.

53. The Applicants also refined each of the five route options included in the Draft EIS by incorporating segment and alignment alternatives that attempt to minimize human and environmental impacts. The Applicants' recommended route configurations for the five route options are described below.

i. Purple Route

54. In response to concerns raised bythe MnDNR, the Applicants recommend that the Purple Route incorporate Segment Alternative BB to reduce the number of crossings of Willow Creek and to limit forest clearing. The Applicants further recommend that the Purple Route incorporate Segment Alternative L to avoid current and future WPA near the Watonwan River area that are in the process of being added to the federal refuge system and minimize residences within 200 feet to 500 feet and watercourse crossings. The USFWS stated it will not allow a new transmission line to cross these current and future WPA parcels. The Applicants' recommended route configuration for the Purple Route incorporates Segment Alternatives BB and L, and is referred to as the Purple-BB-L Route.

ii. Green Route

55. The Applicants did not recommend any modifications to the Green Route.

iii. Red Route

56. Based on public comments in this proceeding and information in the Draft EIS, the Applicants recommended that the Red Route incorporate double-circuited Segment Alternative Q to reduce agricultural impacts by reducing the number of structures in this segment. The Applicants' recommended configuration for the Red Route incorporates Segment Alternative Q, and is referred to as the Red-Q Route.

iv. Blue Route

57. Based on public comments in this proceeding and information in the Draft EIS, the Applicants recommended that the Blue Route incorporate Segment Alternative CC to avoid conflict with a new house that a landowner has stated is being constructed within the right-of-way. The Applicants also recommended that the Blue Route incorporate a double-circuited Segment Alternative Q to reduce agricultural impacts. The Applicants' recommended configuration for the Blue Route incorporates segment alternatives CC and Q, and is referred to as the Blue-CC-Q Route.

v. Purple-E-Red Route

58. Based on public comment in this proceeding and information in the Draft EIS, the Applicants recommended that the Purple-E-Red Route include Alignment Alternative AA-1 to increase distance from existing residences. The Applicants further recommended that the Purple-E-Red Route incorporate double-circuited Segment Alternative Q to reduce agricultural impacts. The Applicants' recommended configuration for the Purple-E-Red Route incorporates Segment Alternative Q and Alignment Alternative AA-1, and is referred to as the Purple-E-AA1-Red-Q Route.

G. Transmission Line Structures and Conductors

59. The Applicants propose to mainly use single-pole steel structures. These monopole structures will be a single-circuit design if they accommodate only the new 345 kV transmission line. The monopole structures will be a double-circuit design in areas where the route follows existing transmission line corridors and will accommodate both the new 345 kV line and an existing transmission line on the same structure.[604]

60. Certain Project areas may require multiple pole or other specialty structures.[605] Examples of such areas include locations where the route changes direction, along highways, or in environmentally-sensitive locations.[606] For instance, three-pole structures may be used on all proposed routes to accommodate large angles where the transmission line route changes direction.[607]

61. The proposed monopole structures will typically range in height from approximately 90 feet to up to 170 feet. [608] The span length between structures will be approximately 1,000 feet. In some circumstances, design requirements or topography may require longer or shorter spans.[609]

62. A monopole structure is typically installed on a concrete foundation.[610]

63. The proposed conductors for the Project will consist of double-bundled, twisted pair Dove (2-556.5 kcmil) Aluminum Conductor Steel Reinforced cables, or cables with comparable capacity.[611] The 345 kV twisted pair conductors will have a capacity equal to or greater than 3,000 amps.[612] In locations where the new 345 kV line is

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[604] Ex. XC-7 at 11-13 (Route Permit Application); Ex. XC-25 at 4 (Stevenson Direct); Ex. EERA-13 at 3-23 (Draft EIS).
[605] Ex. XC-7 at 11 (Route Permit Application).
[606] *Id.*
[607] *Id.*; Ex. XC-25 at 8 (Stevenson Direct).
[608] Ex. XC-7 at 11 (Route Permit Application).
[609] *Id.*; Ex. XC-25 at 8 (Stevenson Direct); Ex. EERA-13 at 3-23 (Draft EIS).
[610] Ex. XC-7 at 11 (Route Permit Application); Ex. XC-25 at 4 (Stevenson Direct); Ex. EERA-13 at 3-23 (Draft EIS).
[611] Ex. XC-7 at 11 (Route Permit Application).
[612] *Id.*

proposed to be built as a double-circuit line, i.e., co-located with an existing transmission line, the conductor for the existing line would be sized appropriately for new construction at that voltage.[613]

H. Right-of-Way and Route Width

64. The right-of-way is the area required for the safe construction and operation of the transmission line.[614] The typical right-of-way width for the Project will be 150 feet regardless of which type of pole structure option is used.[615] All construction activities and permanent structures will be contained within the 150-foot right-of-way.[616] Any residences or other buildings located within a proposed right-of-way are generally removed or displaced.[617] Similarly, any trees and other woody vegetation in the right-of-way will be cleared and replaced with low-growing vegetation.[618]

65. When the new line follows existing roads, the Applicants propose to place structures on adjacent private property, approximately 10 feet offset from the existing road right-of-way.[619] In areas where a 10-foot offset is not feasible, structures may be placed inside road rights-of-way, subject to the road authority's utility accommodation policy.[620]

66. When the new line follows existing transmission line corridors, the Applicants propose to place the new double-circuit structures on the same centerline as the existing transmission line, with the exception of the northern portions of the Purple and Red routes.[621] To allow the existing 345 kV line to remain in service during the construction of the Project, the Applicants propose to offset the new double-circuit structures 100 feet to the north and northwest of the existing line, for 18.5 miles for the Purple Route from the Wilmarth Substation and for 4 miles for the Red Route from the Wilmarth Substation.[622] After the new line is constructed, the old line will be removed.[623]

67. If the permitted route follows existing transmission line rights-of-way through Minneopa State Park or WPA, the Applicants will use existing easements and place the new structures on the same centerline as the existing structures so that no additional easement rights would be needed.[624]

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[613] *Id.*; Ex. XC-25 at 9 (Stevenson Direct); Ex. EERA-13 at 3-25 (Draft EIS).
[614] Ex. XC-7 at 14 (Route Permit Application).
[615] *Id.*
[616] Ex. XC-7 at 14 (Route Permit Application); Ex. XC-25 at 8 (Stevenson Direct); Ex. EERA-13 at 3-26 (Draft EIS).
[617] Ex. EERA-13 at 5-11 (Draft EIS).
[618] *Id.* at 5-71.
[619] Ex. XC-7 at 14 (Route Permit Application).
[620] *Id.*; Ex. EERA-13 at 3-26 (Draft EIS).
[621] Ex. XC-25 at 7 (Stevenson Direct).
[622] *Id.*
[623] *Id.*
[624] Ex. XC-7 at 14 (Route Permit Application); Ex. EERA-13 at 3-26 to 3-27 (Draft EIS).

68. The transmission line must be constructed within the route designated by the Commission unless, after permit issuance, permission to proceed outside the route is sought by the Applicants and approved by the Commission.[625] As a result, the route width of a transmission line is wider than the right-of-way to provide some flexibility in designing and constructing the line.[626] The route width allows the Applicants to address any landowner concerns and engineering issues that may arise after a route permit is issued.[627] Once the utility establishes a final alignment and structure placement, the Applicants will acquire a 150-foot wide right-of-way centered on the structure location (75 feet on each side of the structure).[628]

69. The Applicants have requested a route width of 1,000 feet for the transmission line and of 1,000 feet around each of the Wilmarth and Huntley substations to accommodate the potential relocation of existing lines entering the substations.[629] The Applicants have requested an additional route width of approximately 4,000 feet for a section of the Blue Route near Mankato, where the route proceeds south of County Road 3 and U.S. Highway 14 until reaching Section 23 of Mankato Township, where the route width narrows back to 1,000 feet. The reasons for a 4,000 foot wide route section are not stated in the EIS or the Application. [630]

I. Project Schedule

70. The Project is expected to be placed in service in December 2021, immediately prior to MISO's designated in-service date of January 1, 2022. Construction of the Project is anticipated to commence in 2020.[631] The Applicants provided a preliminary Project schedule, subject to change, as shown in Table 1.

[625] Ex. EERA-13 at 3-25 (Draft EIS).
[626] *Id.*
[627] Ex. XC-7 at 9 (Route Permit Application); Ex. EERA-13 at 3-25 (Draft EIS).
[628] Ex. EERA-13 at 3-26 (Draft EIS).
[629] *Id.* at 3-25.
[630] Ex. XC-7 at 10 (Route Permit Application); Ex. EERA-13 at 3-25 (Draft EIS).
[631] Ex. XC-7 at 15 (Route Permit Application); Ex. XC-25 at 13 (Stevenson Direct); Ex. EERA-13 at 3-25 (Draft EIS).

Table 1: Anticipated Project Schedule[632]

Activity	Estimated Dates
Minnesota Certificate of Need and Route Permit Issued	Second Quarter, 2019
Survey and Transmission Line Design Begins	Second Quarter, 2019
Land Acquisition Begins	Third Quarter, 2019
Other Federal, State, and Local Permits Issued	First Quarter, 2020
Start Right-of-Way Clearing	Second Quarter, 2020
Start Project Construction	Second Quarter, 2020
Project In-Service	December 2021

J. Project Costs and MISO Variance Analysis

71. The Huntley–Wilmarth Project was studied, reviewed, and approved by the MISO Board of Directors as a Market Efficiency Project (MEP) in December 2016 in its annual Transmission Expansion Plan (MTEP16) report.[633] Therefore, Project costs are a key input in evaluating the need and economic benefits of the Project.[634]

72. The Applicants have a high degree of confidence in the cost estimates prepared for the Project.[635]

73. Due to the importance of costs in assessing the need for the Project, the Applicants implemented a more robust cost estimation process for the Project than is typically used prior to submitting a route permit application to the Commission.[636] In doing so, the Applicants developed costs that are specific to each route and pole structure design proposed in the Route Permit Application. These cost estimates allow for an evaluation of each route and design option in terms of how each option affects the projected benefit-to-cost ratio of the Project.[637]

74. Route and structure design options have varying costs and impacts on the human and natural environments. In general, H-frame structures are the least expensive type of structure, followed by single-pole, single-circuit structures and then single-pole, double-circuit structures. While H-frame structures are generally the least expensive, they have greater impacts on agricultural and other land use due to the two-pole design.[638] In general, monopole structures are about 10 to 15 percent more expensive than H-frame structures, and double-circuiting with an existing line is more expensive than paralleling

[632] Ex. XC-7 at 15 (Route Permit Application); Ex. XC-25 at 13 (Stevenson Direct).
[633] Ex. XC-7 at ES-1, 21 (Route Permit Application); Ex. XC-22 at 5, 7 (Neidermire Direct).
[634] Ex. XC-7 at ES-2 (Route Permit Application); Ex. XC-19 at 5 (Hillstrom Direct); Ex. XC-25 at 10-11 (Stevenson Direct).
[635] Tr. at 20-22 (Stevenson).
[636] Ex. XC-7 at 16 (Route Permit Application).
[637] *Id.*; Ex. XC-25 at 10-11 (Stevenson Direct); Tr. at 20-25 (Stevenson).
[638] Ex. XC-19 at 6 (Hillstrom Direct).

the line.[639] Double-circuiting a line, however, can reduce human and environmental impacts.[640]

75. For the total Project costs, the Applicants estimatedr several categories of costs for building a transmission line, including (1) transmission line structures and materials; (2) transmission line construction and restoration; (3) transmission line permitting and design; (4) transmission line right-of-way acquisition; and (5) substation materials, permitting, design, and construction.[641]

76. Based on the robust cost estimation analysis, the Applicant's calculated total Project costs for the route and design options proposed in the Route Permit Application range from $105.8 million to $138.0 million (2016$).[642] These costs, as prepared for the Route Permit Application, are listed in Table 2 below.

Table 2: Total Project Costs (2016$)[643]

Design Option	Route Option			
	Purple Route (West Route) ($Millions)	Green Route (Middle Route) ($Millions)	Red Route (Middle Route) $(Millions)	Blue Route (East Route) ($Millions)
Single-Circuit H-Frame		$109.0		
Single-Circuit Monopole		$121.3		
Single-Circuit Parallel H-frame	$105.8			
Single-Circuit Parallel Monopole	$121.7			
Double-Circuit Monopole and Single-Circuit H-Frame			$135.2	$123.7
Double-Circuit Monopole and Single-Circuit Monopole	$137.9		$138.0	$135.8

77. The Applicants prepared cost estimates for the segment alternatives (A-F) proposed in the Route Permit Application.[644] The Applicants also developed cost

[639] Ex. EERA-13 at 3-33 (Draft EIS).
[640] Ex. XC-7 at ES-2 (Route Permit Application).
[641] *Id.* at 16.
[642] *Id.*; Ex. XC-25 at 9-10 (Stevenson Direct).
[643] Ex. XC-7 at 16 (Route Permit Application); Ex. XC-25 at 9-10 (Stevenson Direct).
[644] Ex. XC-7 at 17-18 (Route Permit Application).

estimates for the new Purple-E-Red Route and segment and alignment alternatives proposed during scoping and included in the Draft EIS.[645]

78. The costs for all route, segment, and alignment alternatives were summarized in Schedule 2 of the Applicants' witness Mr. Stevenson's Direct Testimony and additional cost information was provided by the Applicants with their February 1, 2019, letter.[646] Of these alternatives, the lowest cost alternative is the Purple Route, single-circuit H-frame design with Segment Alternatives F and J at $104.8 million (2016$). The highest cost alternative is the Purple-E-Red Route, double-circuit design with Segment Alternatives E, Y, and Q at $160.7 million (2016$).[647]

79. The Applicants prepared recommended route configurations for each of the five route options by incorporating segment and alignment alternatives that they believe best minimize potential impacts. Cost estimates for the Applicants' recommended route configurations and designs are summarized in **Table 3**.

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[645] Ex. XC-25 at Schedule 2 (Stevenson Direct).
[646] *Id.*; Ex. XC-27 ((Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[647] Ex. XC-25 at 11, Schedule 2 (Stevenson Direct); Ex. XC-27 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).

Table 3: Cost Estimates for Applicants' Recommended Route Configurations[648]

Route Alternative	Cost (Millions) (2016$)[649]	Cost (Millions) (Escalated to anticipated year spend $)[650]
Purple-BB-L Route *Purple Route Modified to Use Segment Alternatives BB and L Double-Circuit Monopole Design*	$140.1	$155.8
Green Route *Single-Circuit Monopole Design*	$121.3	$134.9
Red-Q Route *Red Route Modified to Use Segment Alternative Q Double-Circuit Monopole Design*	$141.2	$157.1
Blue-CC-Q Route *Blue Route Modified to Use Segment Alternative Q Double-Circuit Monopole Design*	$138.6	$154.1
Purple-E-AA1-Red-Q Route *Purple-E-Red Route Modified to Use Segment Alternative Q and Alignment Alternative AA-1 Double-Circuit Monopole Design*	$160.2	$178.2

80. Another consideration related to Project costs is the MISO variance process. Under Attachment FF of the MISO tariff, if the cost of this Project exceeds or is projected to exceed 25 percent or more of the Project's baseline cost estimate, MISO is required to initiate a new process called a variance analysis.[651]

81. The Project's baseline cost estimate is $108 million (2016$).[652] Applicants will update the Project's cost estimate provided to MISO after a route is determined by the Commission and the Applicants file their final cost estimates 45 days after the

[648] Filing Letter and Errata for the Applicants' Post-hearing Briefs (Apr. 3, 2019) (eDocket No. 20194-151666-02. The costs for the Applicants' recommended route configurations were calculated using the cost estimates for the segment alternatives provided in Ex. XC-25 at Schedule 2 (Stevenson Direct), and Ex. XC-27 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[649] "2016 dollars" or "(2016$)" assumes that the Project would have been constructed (and dollars spent) in 2016.
[650] The escalated dollar figures account for inflationary pressures from 2016 until the dollars are actually spent. The majority of costs for this Project will be spent in 2020 and 2021.
[651] Ex. XC-24 at 35 (Siebenaler Direct).
[652] *Id.* at 36.

Commission issues its Route Permit Order.[653] Any final route with a cost estimate of $135 million (2016$) or more would trigger a MISO variance analysis.[654]

82. After a variance analysis has been triggered, MISO will investigate the facts and documentation and then, at the conclusion of this process, decide to: (1) take no action; (2) institute a mitigation plan to alleviate grounds for a variance; or (3) cancel the project.[655] Other than requiring a variance analysis, the MISO tariff does not dictate a particular outcome.

K. Permittees

83. Northern States Power Company, a Minnesota corporation, and ITC Midwest LLC are the permittees for the Project.[656]

II. Public, Local Government, and Federal and State Agency Participation

A. Public Outreach

84. The Applicants made significant efforts to reach out to the public before filing the Route Permit Application.[657]

85. There were 25,000 public outreach mailers sent to the parcels in the Project Study Area regarding open house meetings for the Project. Local media covered the open houses, and newspaper articles and news stations provided information about them.[658]

86. Applicants hosted two open houses for the Project to gather input from the public on several different transmission line routing options. Open house invitations sent to each land parcel within the Project Study Area. The first open house was held on June 20, 2017, at the Maple River High School in Mapleton, Minnesota. The second was held on June 21, 2017, at the Courtyard by Marriott in Mankato, Minnesota.[659]

87. One hundred and seventy-six formal and informal comments were collected and summarized by the Applicants during the open house meetings. Several common themes arose in these comments, including concern about crossing through farmland and potential impacts on agricultural practices; concerns about using double poles because they are difficult to farm around; avoiding environmentally-sensitive areas and preservation of natural beauty; concerns about impacts associated with the Blue Earth River crossing; concerns regarding transmission line safety, particularly in residential

[653] *Id.*; Ex. XC-26 at 2-3 (Stevenson Rebuttal).
[654] Ex. XC-24 at 36 (Siebenaler Direct).
[655] *Id.*
[656] Ex. XC-7 at 4 (Route Permit Application).
[657] *Id.* at 181.
[658] *Id.*
[659] *Id.*

areas; and concerns over decreased property values and hindrances to future development.[660]

88. Since filing the Route Permit Application, the Applicants have maintained a list of approximately 20,000 landowners and residents in the Project area. On April 2, 2018, the Applicants mailed everyone on the list to notify them of the DOC-EERA scoping meetings and to provide a general update on the status of the Project.[661]

89. The Commission authorized advisory task force consisted of eight members representing eight local units of government. The advisory task force met three times I April and May, 2018. The task force identified and prioritized impacts, issues, mitigation measures and route alternatives to be analyzed in the EIS. The areas of concern identified by the task force, such as impacts on farmland, communities, natural resources and cost were echoed by the public throughout the scoping process and development of the EIS. Further, the DOC-EERA's EIS and the Applicants' proposals thoroughly considered and carefully responded to the concerns and suggestions raised by the advisory task force.[662]

90. The Applicants also mailed landowners and residents on on September 5, 2018, to inform them of the issuance of the scoping decision among other Project updates.[663]

91. The Applicants maintain a Project website, e-mail address, and phone line to allow the Applicants to continue to be available to members of the public to answer questions about the Project.[664]

B. Public Comments

92. Members of the public spoke at the Draft EIS public meetings on January 9-11, 2019, and at the Public Hearings held on February 27-28, 2019.[665] Additionally, members of the public submitted comments in writing, to DOC-EERA regarding the Draft EIS and to the Commision, at the public hearings and on the Commission's website.

93. EERA staff received comments on the draft EIS from 74 commenters. EERA staff has responded to each of these commenters in the final EIS, which was issued on April 3, 2019.[666]

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[660] *Id.* at 182.
[661] Ex. XC-19 at 32 (Hillstrom Direct).
[662] Ex. EERA-7 (Advisory Task Force Report).
[663] *Id.* at 32, Schedule 5.
[664] *Id.* at 32.
[665] *See* Mankato 1:00 p.m., 6:00 p.m. Tr. (Feb. 27, 2019); Delavan 1:00 p.m. Tr. (Feb. 28, 2019); Mapleton 6:00 p.m. Tr. (Feb. 28, 2019).
[666] Ex. EERA-21 (Final EIS).

i. Comments at Public Hearings[667]

94. Approximately 40 people spoke during the public hearings held in Mankato, Delavan, and Mapleton on February 27-28, 2019.[668] Comments on the route for the Project are summarized below., Comments on the need for the Project are summarized above in the CON section of this report.

a. Public Hearing on February 27, 2019 at 1:00 p.m. in Mankato, Minnesota

95. The first public hearing took place on February 27, 2019, at the AmericInn in Mankato, Minnesota, starting at 1:00 p.m.

96. Several introductions and presentations were made after the Administrative Law Judge convened the public hearing. Ms. Tricia Debleeckere explained the Commission's role in the process.[669] Mr. Matthew Landi described the Department's role in the process.[670] Mr. Ray Kirsch described the EIS process.[671] Mr. Tom Hillstrom from Xcel Energy gave a presentation on the need for the Project and the process of selecting proposed routes.[672]

97. Twenty-three people attended the public hearing and signed the hearing register.[673] All members of the public were afforded a full opportunity to make a statement on the record and/or ask questions.

98. North Mankato is an intervenor in this proceeding.[674] At each of the public hearings, Omar Bustami, legal counsel for North Mankato, addressed North Mankato's concerns that the northern portion of the Red and Green Routes would negatively affect current and future development in North Mankato.[675]

ii. Red Route[676]

99. Allan Zelinsky is a landowner whose property borders the Red and Green Routes. He expressed concern about diminished property values. Mr. Zelinsky wants to ensure that he will be able to conduct gravel mining if the transmission lines go through

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[667] This report attempted to identify the specific route of concern to a commenter where the commenter did not mention a route color in order to assist the Commission in identifying specific concerns along routes.
[668] Mankato 1:00 p.m., 6:00 p.m. Tr. (Feb. 27, 2019); Delavan 1:00 p.m. Tr. (Feb. 28, 2019); Mapleton 6:00 p.m. Tr. (Feb. 28, 2019).
[669] Mankato 1:00 p.m. Tr. at 7 (Feb. 27, 2019).
[670] *Id.* at 8.
[671] *Id.* at 8-12.
[672] *Id.* at 12-18.
[673] *See* Mankato 1:00 p.m. sign-in sheets (Feb. 27, 2019) (eDocket No. 20193-151084-01).
[674] Mankato 1:00 p.m. Tr. at 21 (Feb. 27, 2019).
[675] *Id.* at 21-25.
[676] Some commenters addressed both red and green routes in their comments.

his property. He also expressed health and safety concerns due to the proposed Routes' proximity to homes.[677]

100. Andrew Frederick is a property owner along the Red and Green routes. He shared Mr. Bustami's concerns about North Mankato's development initiatives. Mr. Frederick is concerned about future development in the Northport industrial park area of North Mankato, and more particularly about the impact of power lines on residential development and the environment. He also feared impacts on dairy farming.[678]

101. John Todd jointly owns property along the Red Route, near the Blue Earth River. Mr. Todd expressed concerns about decreases in property values and the negative impact on hunting the Project would cause. Mr. Todd also raised health concerns.[679]

102. Jeff Schmidt is a landowner in Lyra Township. Mr. Schmidt commented that there currently is a power line crossing his property which presents both health and safety concerns . He recommended fewer poles to lessen the impact on landowners. He intends to mine his land in the future and requested that the power lines be placed on one line "rather than put them on multiple lines with larger easements." Mr. Schmidt raised concerns about the impact on wildlife and the natural environment. He also requested fair compensation if the chosen route goes through his land.[680]

iii. Green Route

103. See comments in the Red Route category.

iv. Purple Route

104. June Davis and her husband own four parcels of land in Verona Township where they have a manufactured home for use on weekends and during the summer. They "are greatly opposed to the purple route." Ms. Davis states that the current ITC line already affects buildable land, but an additional line would create a situation where Ms. Davis and her husband would never be able to build a home on their property. The alternative route, AA-3b, would not affect their property. Ms. Davis is "totally against the purple route unless they would be willing to go south of 160th Street." Ms. Davis is concerned about aesthetics with her proposed alternative route, as well as its effect on wildlife. She also spoke about the Project's negative impact on property values and the potential association between EMF exposure and childhood leukemia as well as other health impacts.[681]

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[677] Mankato 1:00 p.m. Tr. at 36-38 (Feb. 27, 2019); Pub. Hrg. Ex. F (eDocket No. 20193-151080-13).
[678] Mankato 1:00 p.m. Tr. at 40-44 (Feb. 27, 2019). No exhibit was submitted into the record.
[679] *Id.* at 44-48; Pub. Hrg. Ex. G (eDocket No. 20193-151080-15).
[680] Mankato 1:00 p.m. Tr. at 58-61 (Feb. 27, 2019); Pub. Hrg. Ex. J (eDocket No. 20193-151081-02). Mr. Schmidt does not specify which route, although Ex. J. shows a dotted red line near his property.
[681] Mankato 1:00 p.m. Tr. at 29-35 (Feb. 27, 2019); Pub. Hrg. Exs. A, B (eDocket Nos. 20193-151080-03, 20193-151080-05).

105. Bob Schroeder, a resident of Lake Crystal, owns a farm in Lincoln Township. Mr. Schroeder explained that he currently has three sets of poles running through his land. He stated that he "would be 100 percent for the line, your new line to go on the existing purple line and put one pole up and put both lines on one pole. It's much much easier to farm around one pole than it is the H poles." Mr. Schroeder described challenges trying to mow around the current sets of poles. Mr. Schroeder further commented that it does not make sense to build a new line elsewhere, causing disruption in other parts of the area, but feels that the poles could look better.[682]

106. Merlin Zarn lives in Pleasant Mound Township. He commented on segment BB of the Purple route. Mr. Zarn agrees with Mr. Schroeder's comments. Mr. Zarn owns farmland with field tiles along the proposed route. He expressed concern about how the depth of the poles might affect his field tiles. He agreed that the power line is needed but stated, "this is ruining quite a bit of our land and I would like to see that changed. I would propose that they go back to their original purple route and install that."[683]

v. Blue Route

107. Paul Vogel is Director of Community Development for the City of Mankato. He also submitted testimony on behalf of Patrick Hentges, Mankato City Manager. Mr. Vogel described public infrastructure and investment in the area, stating, "[s]ince 2006, 766 acres of land has been sold for development in the growth area and 320 acres has been developed or is currently under development." Mr. Vogel noted that more than $25 million in infrastructure investment provided by the City of Mankato and Blue Earth County, which includes "$4.3 million of federal transportation funds and $813,000 of state funds awarded to promote economic development." Mr. Vogel commented that public and private investments "were made in conformance with adopted land use planning goals and guidance of the results of the AUAR that was conducted by the City of Mankato in conformance with Minnesota Rules 4410.3610, called the Greater East Mankato Infill District AUAR." Mr. Vogel noted that these plans did not anticipate the addition of a high voltage transmission line. The Blue Route, according to Mr. Vogel, is in "a densely urbanizing area" and is "expected to have the highest percentage of projected population growth between 2018 and 2023 than any other proposed route alignments." Mr. Vogel also expressed concerns about how the Route could affect future expansion of the Mankato Regional Airport. Mr. Vogel noted that on January 28, 2019, the Mankato City Council "adopted a resolution requesting that the [B]lue [R]oute be rejected from consideration."[684]

108. Eugene Braam, a property owner in Mankato Township, commented on the unique natural environment in the area, including rivers and wetland. He asked for special consideration for landowners with unique situations. He describes his property, which includes multiple 150-year-old oak trees and conservation areas, with CREP and RIM

[682] Mankato 1:00 p.m. Tr. at 61-63 (Feb. 27, 2019); Pub. Hrg. Ex. K (eDocket No. 20193-151081-04).
[683] Mankato 1:00 p.m. Tr. at 63-65 (Feb. 27, 2019); Pub. Hrg. Ex. L (eDocket No. 20193-151081-06).
[684] Mankato 1:00 p.m. Tr. at 49-52 (Feb. 27, 2019); Pub. Hrg. Ex. H (eDocket No. 20193-151080-17).

(Reinvest in Minnesota) easements. He requested special consideration for reimbursement, given the unique features of his property.[685]

vi. General Comments

109. Clayton Johnson commented "the higher the power that goes through [the lines], the more ions that are emitted from these things that cause these problems." Mr. Johnson also expresseed concerns about the economic impact. For these reasons, and for overall health and safety, he recommended that the Applicants bury the lines underground.[686]

110. Christopher Frederick commented that his home is in Belgrade Township and he supports "using existing corridors and right-of-ways for any warranted or needed transmission, future investment in transmission." [687]

111. Kenneth Warning asked about the proposed routing and completion schedule.[688] Mr. Tom Hillstrom provided Mr. Warning with more information about the proposed routing and the proposed Project timeline.[689]

112. Mary Milbrath, a resident of Belgrade Township, expressed concern that the project may weaken local infrastructure. She pointed out the Route's impact on public areas, such as the historical landmarks near Judson Bottom Road, and Minneopa State Park. Ms. Milbrath commented about the health impacts on humans and animals living near power lines. She pointed to other states which provide money to residents for "green" initiatives. Ms. Milbrath questioned who benefits monetarily from the Project and by what amount. She also stated that the maps lack detail on the "actual number of people that are affected." She pointed out that the line is "coming through the Minneopa area, that area is a floodplain and has been wet most of the summer."[690]

113. Julee Johnson also owns property in Belgrade Township and is concerned about the Project's potential to harm health. Ms. Johnson described research she has done on power lines and states that she has "found that some of the contracts have been written, [so] that health issues cannot be brought up later." Ms. Johnson is concerned about property devaluation, negative impacts on tourism, increased maintenance costs for aboveground lines, and negative effects on animal and human health and safety.

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[685] Mankato 1:00 p.m. Tr. at 72-73 (Feb. 27, 2019). No exhibit was submitted into the record.
[686] *Id.* at 57-58. No exhibit was submitted into the record.
[687] *Id.* at 66-71. No exhibit was submitted into the record. Mr. Frederick also commented on the Project need; these comments are found in the Certificate of Need section of this Report.
[688] *Id.* at 76-79; Pub. Hrg. Ex. M. The Administrative Law Judge notes that Ex. M is the one listed in the transcript for Mr. Warning. However, in eDockets, Ex. M appears to be a map for Eugene Braam.
[689] Mankato 1:00 p.m. Tr. at 77-79 (Feb. 27, 2019).
[690] Mankato 1:00 p.m. Tr. at 26-28 (Feb. 27, 2019); Pub. Hrg. Exs. C-E (eDocket Nos. 20193-151080-07, 20193-151080-09, 20193-151080-11). Ms. Milbrath does not specify which color route, but Exs. D and E show Belgrade township near the red, green and purple routes.

Ms. Johnson contends that buried lines, as opposed to above ground lines, would lessen some of these impacts.[691]

a. Public Hearing on February 27, 2019 at 6:00 p.m. in Mankato, Minnesota

114. The public hearing took place on February 27, 2019, at the AmericInn in Mankato, Minnesota, starting at 6:00 p.m.

115. The Commission, Department and Applicants provided introductions and presentations as in the earlier public hearing.

116. Thirty-five people attended this hearing and signed the hearing register.[692] All members of the public were afforded a full opportunity to make a statement on the record and/or ask questions.

117. Omar Bustami spoke on behalf of North Mankato. His comments are summarized above and within North Mankato's written materials.

i. Red Route

118. Mr. Adam Huiras, a homeowner and developer, read a statement from his wife. The Huiras live in North Mankato and plan to build a home on Balsam Court. The statement expressed concern about building a power line close to residential homes, particularly given the scenery in the area. Mr. Huiras commented that he is concerned about the impact on future residential development proximate to this Route. He asked which routes affect the most homes or future development. The Administrative Law Judge explained that the EIS has this data. Mr. Ray Kirsch also provided data on current residences along each route.[693]

ii. Green Route

119. No comments referenced the Green Route by name.

iii. Purple Route

120. Mr. Gregory Depuydt is a farmer whose land is in Belgrade North Section 32. He noted that an existing line goes through his farm, which he has had to work around

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[691] Mankato 1:00 p.m. Tr. at 52-57 (Feb. 27, 2019); Pub. Hrg. Ex. I (eDocket No. 20193-151080-19). Ms. Johnson does not specify the specific route she opposes, though she indicates that she is concerned with the same map area as Ms. Mary Milbrath. Mankato 1:00 p.m. Tr. at 53.

[692] *See* Mankato 6:00 p.m. sign-in sheets (Feb. 27, 2019) (eDocket No. 20193-151084-03).

[693] Mankato 6:00 p.m. Tr. at 39-43 (Feb. 27, 2019); Pub. Hrg. Exs. R, S (eDocket Nos. 20193-151081-16, 20193-151081-18). Mr. Huiras does not name the specific route but Ex. R, which is a map that contains Mr. Huiras' property, shows route segment B, which is along both the red and green routes.

since 1966. He described the difficulty of moving around pole settings and noted that he receives no compensation for his missing yield or weed control efforts in those areas. Mr. Depuydt stated that his home farm is located in Belgrade Township South, sections 4 and 5, along route segment A, and is currently unobstructed. Mr. Grant Stevenson, an engineer with the project, stated that it is possible that Mr. Depuydt's property could have as many as 2-3 pole settings placed on it based on the proposed route. Mr. Depuydt opposed the Purple Route but questioned why the proposed poles could not run along his property lines, either east or west, rather than through the middle of his field. Mr. Depuydt also pointed out that the proposed route is within 300 feet of his home. He questioned why the route cannot be moved further west near Lake Crystal. Mr. Depuydt shared Mr. Bustami's concerns about the impact on development in North Mankato.

121. Ms. Barb Anderson opposes the L Route Segment. Both the L and the M Route Segments cross Ms. Anderson's property. Ms. Anderson agrees with Mr. Depuydt's statements on the impacts the lines will have on farming. Ms. Anderson asked about the financial impacts of the Project, including the reduction in electricity costs to residents.[694] Mr. Drew Siebenaler and Mr. Tom Hillstrom provided Ms. Anderson with some additional information, with Mr. Hillstrom ultimately stating that "the price of electricity would be lower with this project in place than it would be without the project in place" and that the price will be lower "[f]or all the beneficiaries in the whole region."[695]

122. Ms. Amanda Gilman, who lives next door to Ms. Anderson, also opposes the line. Ms. Gilman explained that she runs a home daycare and is concerned about how the Project will affect her business and the children for whom she cares.[696]

iv. Blue Route

123. Mr. Dan Rotchadl is a Mankato Township Supervisor. Mr. Rotchadl asked whether the Applicants will be required to apply for a conditional use permit with the Township in order to use the land inconsistently with the Township's use designations. Mr. Ray Kirsch explained that under state statute, "if the company or the utilities are granted a permit, that permit preempts local zoning regulations, so they would not have to get a conditional use permit" from the Township. Mr. Rotchadl also asked whether the Applicants will be required to comply with the township's MS4 permit from the federal government related to surface water because the township is part of the Metropolitan Statistical Area (MSA). Mr. Tom Hillstrom commented that the Project should not have much affect on storm water runoff. Mr. Rotchadl commented that the township would need to review the Project for MS4 compliance during construction because certain amounts of soil will be disturbed. Mr. Hillstrom described a permitting process the Applicants must comply with called the National Pollutant Discharge Elimination System (NPDES). Under an NPDES permit, the Applicants will be required to implement erosion control measures during construction. Mr. Rotchadl stated that he does not oppose the Project. However,

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[694] *Id.* at 55-62; Pub. Hrg. Exs. T, U (eDocket Nos. 20193-151081-20, 20193-151082-02).
[695] Mankato 6:00 p.m. Tr. at 61-62 (Feb. 27, 2019).
[696] *Id.* at 62-63; Pub. Hrg. Exs. V, W (eDocket Nos. 20193-151082-04, 20193-151023-01).

because the Township is part of the MSA and receives transportation funds from the federal government, he is concerned about the Project's impact on surface water.[697]

v. Purple-E-Red Route

124. No comments directly addressed the Purple-E-Red Route by name.

vi. General Comments

125. Linda Johnson commented that the proposed Project affects her son's property. She asked whether the Administrative Law Judge intends to read all of the comments submitted as part of the scoping process. Ms. Johnson also expressed general concerns about the Project. She questioned how lower energy costs will be measured. Ms. Johnson commented that energy costs "could easily increase if those turbines become more expensive to operate or repair, plus the source of this power is variable and unreliable." She disputes the benefits of the proposed line and asserted that the proposal will only benefit owners of wind farms. Ms. Johnson raised concerns about the Project's affect on health and livelihoods. She feels, based on her review of online comments, that the consensus is that "no one wants this transmission line." Ms. Johnson also criticized the eminent domain process as "a very intrusive process." Ms. Johnson feels that the Applicants "are minimizing the impact of their proposed easement." She also expressed concern about how comments from the public will be weighed and considered. The Administrative Law Judge accepted Ms. Johnson's written statement into the record and indicated she will consider all comments in the record.[698] Ray Kirsch explained that the Department received approximately 75 comments from the scoping process. He stated that the Department will respond to each of the comments in the final EIS.[699]

126. Julee Johnson, who also provided comments during the 1:00 p.m. Mankato public hearing, asked about the size of the wires and the size of the tunnel for buried lines. Ms. Johnson reiterateed her earlier comments in favor of buried lines. She expressed concern about the Project's health and safety effects. She questioned whether "future development takes precedence over the land where many of us already live?" She also commented on the impact on quality of life and neighborhoods, and the costs associated with property loss and line maintenance. Ms. Johnson opposes the Project.[700]

127. Linda Johnson, adding to her earlier comments, questioned why the proposed routes go through fields instead of along property lines. Ms. Johnson contendsthat the Applicants are "not taking into consideration that those lines are going through people's property and their lives and you're …making no effort to minimize the

[697] Mankato 6:00 p.m. Tr. at 47-52 (Feb. 27, 2019). No exhibits were submitted into the record.
[698] *Id.* at 24-31; Pub. Hrg Exs. N, O (eDocket Nos. 20193-151086-02, 20193-151081-10).
[699] Mankato 6:00 p.m. Tr. at 26-28 (Feb. 27, 2019).
[700] *Id.* at 43-47. No exhibits were submitted into the record.

impact."[701] Mr. Hillstrom responded to Ms. Johnson's comments, stating that the Applicants reviewed property lines to find segments that go in the direction of the proposed route, and explained that "there's a limit to how long you can go until one fence line doesn't line up with another fence line."[702]

128. Mr. Paul Anderson lives in Judson Township. He expressed his preference to place the lines on one pole versus adding another pole.[703] Mr. Tom Hillstrom explained that the advantages to having one pole setting would be lower cost and less of an impact on land; the disadvantage would be occasional maintenance of a single line since both lines would be impacted if they are on the same pole.[704]

b. Public Hearing on February 28, 2019 at 1:00 p.m. in Delavan, Minnesota

129. The public hearing took place on February 28, 2019, at the Delavan High School Gymnasium in Delavan, Minnesota, starting at 1:00 p.m.

130. The Commission, Department and Applicants provided introductions and presentations (see above).

131. Forty-one people attended the public hearing and signed the hearing register.[705] All members of the public were afforded a full opportunity to make a statement on the record and/or ask questions.

132. Omar Bustami presented on behalf of North Mankato. His comments are summarized above and within North Mankato's written materials.

i. Red Route

133. Jerry Hyland owns a home in Prescott Township, section 9, that is just 800 feet north of the existing line (alternative segment R). Mr. Hyland asked which routes might affect his property. Mr. Hyland is concerned with having high voltage close to his house. He is opposed to Alternative Segment R.[706] Mr. Hillstrom confirmed that Alternative Segment R, Alternative Segment Q, and the original alignment of the Red Route are the route options in Mr. Hyland's neighborhood.[707]

134. Mr. Howard Reynolds lives in Danville Township. He opposed having the new route go down the township road due to the proximity to his home. Mr. Reynolds

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[701] *Id.* at 63-66.
[702] *Id.* at 65-66.
[703] *Id.* at 52-53. No exhibits were submitted into the record.
[704] *Id.* at 53.
[705] *See* Devlan 1:00 p.m. sign-in sheets (Feb. 28, 2019) (eDocket No. 20193-151084-05).
[706] Delavan 1:00 p.m. Tr. at 53-56 (Feb. 28, 2019); Pub. Hrg. Ex. II (eDocket No. 20193-151083-07).
[707] Delavan 1:00 p.m. Tr. at 55 (Feb. 28, 2019).

explained he also owns property on the other side of the roadthat would suffer the loss of mature oak trees if the line were located there. He is worried about future property values. According to Mr. Reynolds, the previous power line avoided homes.[708]

ii. Green Route

135. No comments directly addressed the Green Route by name.

iii. Purple Route

136. No comments directly addressed the Purple Route by name.

iv. Blue Route

137. Lee Manthei, a property owner from Mapleton, Minnesota, noted that all of the routes, but particularly the Blue Route in Medo Township north of Cottonwood Lake, would affect him. Mr. Manthei expressed concern that the Route would go through the middle of farm fields, causing damage. He also explained that he would not be able to dust his fields with fungicides via plane. Mr. Manthei stated that this Project benefits areas like North Mankato, not Mapleton. He recommended that the Applicants follow the existing power lines with a single pole system. He is less opposed to having the line along the edge of his farm rather than through it. Mr. Manthei also asked about compensation for damage to his property. He pointed out that a portion of his property already has a set of power lines; another line would have an added impact on his fields.[709] Tom Hillstrom provided responses to some of Mr. Manthei's comments, acknowledging that routes along 160th Street would require a right-of-way on private property along the road. Mr. Hillstrom also pointed out that segment Q is an existing transmission line, but the Applicants could rebuild the line with a double-circuit configuration to reduce obstacles.[710] Mr. Hillstrom and Ms. Debleeckere supplied additional information on the process of compensation provided to property owners for damage to property during the construction of power lines.[711]

138. Gene Braam submitted a written statement into the record. Mr. Braam asked whether any of the parties had completed an archeology study for the Project. Mr. Braam stated that the Blue Route crosses a Winnebago Indian reservation, now known as the Ho-Chunk Nation. He described some of the history of the Project area. Mr. Braam believes there is a "strong likelihood that there are Native American graves" in the area that crosses the Blue line, particularly the Medo Township. Mr. Braam stated

[708] *Id.* at 45-47. Although no exhibit was submitted during Mr. Reynolds' comments, it appears that Ex. GG applies to Mr. Reynolds (indicates "Reynolds" at the top of it.) *See* Pub Hrg. Ex. GG (eDocket No. 20193-151083-03). Mr. Reynolds does not specify the specific route color, though Ex. GG seems to show the red route, specifically route segment Y.
[709] *Id.* at 22-31; Pub. Hrg. Exs. X, Y (eDocket Nos. 20193-151082-06, 20193-151082-08).
[710] Delavan 1:00 p.m. Tr. at 28-30 (Feb. 28, 2019).
[711] *Id.* at 30-31.

that a westerly route would avoid potential disruption of Native American burial grounds and artifacts. Mr. Braam agreed with other commenters that it makes more sense to follow a route with an existing power line.[712] Mr. Ray Kirsch responded that while no such study had been done to this point, the state Historic Preservation Office recommended that such a survey be done on the chosen route.[713]

139. Mr. Larry Swenson and his wife own 77 wildlife acres that will be crossed by the southern portion of the Blue Route in Lura Township. Mr. Swenson stated that eagles were nesting on his property and noted that federal rules prohibit construction during eagle nesting and fledging season, from spring through summer. He expressed concern that the eagles might fly into the lines. Mr. Swenson stated that his home is approximately 75-80 yards from the proposed Blue Route, on the eastern side of the property.[714]

140. Mr. Bill Daly lives in Minnesota Lake, Minnesota. He owns farmland in Lura Township, Section 29. Like other commenters, Mr. Daly also notedthe difficulty in farming around electrical poles and in the "aerial application" of agricultural chemicals. Mr. Daly feels "the red line with the existing corridors really makes sense." He also thinks that the Applicants should use the existing line..[715]

v. Purple-E-Red Route

141. No comments directly addressed the Purple-E-Red Route by name.

vi. General Comments

142. Mr. Neal Grover lives and farms in the Amboy area and is impacted by all Routes, except the Blue Route. He does not believe that farmland should be used for windmills, solar farms, or power poles. He concured with other commenters that the Project should following existing routes, using monopoles poles. Mr. Grover expressed concern over damage to fields and drainage tile lines due to pole construction. Mr. Grover stated that it irritates him "that Pheasants Forever and U.S. Fish and Wildlife have more rights" than he does.[716]

143. Mr. Laurence Blaine lives near the southern portion of optional section Q. Mr. Blaine asked about the ownership of the proposed line.[717] Mr. Hillstrom stated that ITC would own half the line and Xcel Energy would own the other half.[718] Mr. Blaine also

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[712] *Id.* at 31-37; Pub. Hrg. Exs. Z, AA (eDocket Nos. 20193-151082-10, 20193-151082-12).
[713] Delavan 1:00 p.m. Tr. at 32 (Feb. 28, 2019).
[714] *Id.* at 37-39; Pub. Hrg. Exs. BB-EE (eDocket Nos. 20193-151082-14, 20193-151082-16, 20193-151082-18, 20193-151082-20).
[715] Delavan 1:00 p.m. Tr. at 52-53 (Feb. 28, 2019); Pub. Hrg. Ex. HH (eDocket No. 20193-151083-05).
[716] Delavan 1:00 p.m. Tr. at 44-45 (Feb. 28, 2019). No exhibits were submitted into the record.
[717] Delavan 1:00 p.m. Tr. at 47-48 (Feb. 28, 2019). During Mr. Blaine's comments, Pub Hrg. Ex. GG (eDocket No. 20193-151083-03) was submitted, although Ex. GG appears to apply to Mr. Reynolds.
[718] Delavan 1:00 p.m. Tr. at 48 (Feb. 28, 2019).

asked whether the Applicants will double string the lines to prepare for future needs.[719] Mr. Kirsch responded to say that the Applicants do not plan double circuiting the lines, except for areas with existing transmission lines.[720] Mr. Blaine states that he is concerned about dust from the Project, along with construction noise as his wife runs a dog breeding operation. Additionally, Mr. Blaine asked about a 300-acre solar farm that is to be constructed soon.[721] Mr. Drew Siebenaler stated, "Anything that has the interconnection agreement signed is included in the base assumption in the models. Anything that is projected to go further, maybe it's in the queue, the interconnection queue, it's put into what's called an RRF, a Regional Resource Forecast unit, so it's planned expansion of the generation fleet." Mr. Siebenaler opined that the solar farm is included in a later model year.[722]

144. Mr. William Appel is a dairy farmer who lives in Mapleton, Minnesota. He commented that he currently has a power line on his property. He is concerned about stray voltage and its impact on dairy cattle. Mr. Appel commented that stray voltage will be worse with an additional line. Mr. Appel and Mr. Hillstrom discussed fencing for cattle and the need for proper grounding. Mr. Hillstrom stated that transmission lines lack "ground current return so transmission lines normally do not cause stray voltage." Mr. Hillstrom did acknowledge that certain situations, such as paralleling existing lines or existing metal structures, may cause stray voltage issues, but this can be resolved with proper grounding. Mr. Appel commented that he intends to keep records of production if he begins losing production because of the new lines.[723]

c. Public Hearing on February 28, 2019 at 6:00 p.m. in Mapleton, Minnesota

145. The public hearing took place on February 28, 2019, at the Maple River High School Cafeteria in Mapleton, Minnesota, starting at 6:00 p.m.

146. The Commission, Department and Applicants provided introductions and presentations (see above).

147. Forty-five people attended the public hearing and signed the hearing register.[724] All members of the public were afforded a full opportunity to make a statement on the record and/or ask questions.

148. Omar Bustami presented on behalf of North Mankato. His comments are summarized above and within North Mankato's written materials.

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[719] *Id.* at 48-49.
[720] *Id.* at 50.
[721] *Id.* at 49-50.
[722] *Id.* at 51.
[723] *Id.* at 61-64. No exhibits were submitted into the record.
[724] *See* Mapleton 6:00 p.m. sign-in sheets (Feb. 28, 2019) (eDocket No. 20193-151084-07).

i. Red Route and Green Route

149. Mr. Bill Marks is a property owner of the largest proposed development in North Mankato. The Red and Green Routes would affect this development. He requested fairness if one of these Routes is chosen.[725]

150. Mr. Bill Marks comment below under the Blue Route.

ii. Purple Route

151. Mr. Daryl Lachmiller is a property owner in Rapidan. He commented that he already has three transmission lines running through his property and the proposed route would cross his land. Like other commenters, Mr. Lachmiller thinks that the Project should follow existing lines nor is it sensible to bypass the new substation north of Rapidan. Mr. Lachmiller also commented that using a single pole is preferable to the double H design for ease in farming around the poles.[726] Mr. Hillstrom explained that the proposed line does not go to the Rapidan substation because it is a lower voltage substation, which is incapable of handling a higher voltage line.[727]

iii. Blue Route

152. Mr. Layne Hopkins lives on County Road 186 near the Blue Route. which will cross his land. He suggested that the route go a little bit east "rather than right through my field." He recommended putting the line along the blacktop road (County Road 186). Mr. Hopkins also discussed development on Mankato's east side. He does not support having the new line go through the middle of the new residential area between Mankato and Eagle Lake. Mr. Hopkins agrees with other commenters who mentioned concerns about noise and health effects of the lines. He cites an article from a Mankato newspaper that mentions following the existing pathway to avoid disruption.[728]

153. Mr. Bill Marks farms west of Amboy and lives in Mankato.[729] He is concerned about the potential danger to pilots due to the current power line that near the end of the runway which is close to the Blue Route.[730]

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[725] Mapleton 6:00 p.m. Tr. at 37-38 (Feb. 28, 2019); Pub. Hrg. Exs. LL, MM (eDocket Nos. 20193-151083-13, 20193-151083-15).
[726] Mapleton 6:00 p.m. Tr. at 28-30 (Feb. 28, 2019); Pub. Hrg. Ex. KK (eDocket No. 20193-151083-11). Specific route colors were not mentioned. Based on Ex. KK, Mr. Lachmiller's property appears to be near Route Segment E, which may encompass the Purple, Red and Green Routes.
[727] Mapleton 6:00 p.m. Tr. at 29-30 (Feb. 28, 2019).
[728] *Id.* at 19-23; Pub. Hrg. Ex. JJ (eDocket No. 20193-151083-09).
[729] Mr. Marks also commented on the Red and Green Routes at the hearing.
[730] Mapleton 6:00 p.m. Tr. at 37-38 (Feb. 28, 2019); Pub. Hrg. Exs. LL, MM (eDocket Nos. 20193-151083-13, 20193-151083-15).

154. Mr. Layne Hopkins provided additional comments at the end of the hearing. He asked if the Project protects agriculture land at all costs. Mr. Hopkins believes that if agricultural land had been a factor for the previous transmission line, the route would not have gone through his prime farmland.[731] Mr. Hillstrom agreed that protecting agricultural land is one factor to consider in choosing a route. Mr. Hillstrom described Alternative Segment G as an option for the Blue Route. He also explained the tradeoffs of placing the line through farmland versus residential areas.[732] Mr. Hopkins disagreed with Mr. Hillstrom asserting that moving the proposed route over a little bit will not impact additional homes.[733]

iv. Purple-E-Red Route

155. No comments were made directly on the Purple-E-Red Route by name.

v. General Comments

156. Ms. Lola Baxter, who lives in Danville Township, asked what will happen if Native American artifacts are found during the Project.[734] Mr. Hillstrom responded that the permit application and EIS contain data on known cultural resources, but that Applicants cannot do additional surveys until the Commission approves a proposed route. Following route approval, the Applicants will work with the state Historic Preservation Office and the Corps of Engineers on cultural resource surveys.[735]

157. Mr. David Johnson lives near the Blue Route. He asked about the relative cost of each Route and how the Applicants determined the Route options.[736] Later, Mr. Johnson asked about the proposed towers or poles.[737] Mr. Hillstrom explained that photos are available and provided a verbal description.[738]

158. Mr. Sheldon Stevermar, an engineer, asked why the Project proposes multiple routes versus using the existing power lines.[739] Mr. Hillstrom stated that the three western routes (Purple, Red and Green) all cross the Minnesota River twice. He further stated that the Blue Route to the east avoids a river crossing, but is the longest route. Mr. Hillstrom explained that various factors create more route choices.[740]

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[731] Mapleton 6:00 p.m. Tr. at 48-50 (Feb. 28, 2019).
[732] *Id.* at 48-50.
[733] *Id.* at 50.
[734] *Id.* at 26-28. No exhibits were submitted into the record.
[735] *Id.* at 27-28.
[736] *Id.* at 31-36. Mr. Hillstrom, Mr. Kirsch, and Ms. Debleeckere provided Mr. Johnson with some additional information during the hearing, pointing out materials in the record that address the factors used in determining routes, and the overall process for route selection.
[737] *Id.* at 41-42.
[738] *Id.*
[739] *Id.* at 42-43.
[740] *Id.* at 43.

d. Public Hearing Comment Period – Written Comments

159. Over 50 written comments were received during the comment period from stakeholders, including agencies, local units of government, property owners along the proposed routes or route alternatives, and others interested in the proceeding.[741] These comments are summarized below, many of which opposed or supported certain proposed routes or segments.

i. Purple Route

160. Ryan Jones states that if the Purple Route is selected, "the portion that will run along the existing transmission line right-of-way should be constructed so that both lines run on the same poles (double circuit, monopole)." He stated that if two lines run parallel to one another, it will create visual impacts, farming difficulties, and "twice as many impacts to the Minnesota River Valley and Minneopa State Park vicinity." He recommended the Blue Route to avoid crossing the Minnesota River Valley.[742]

161. A group of people submitted a joint comment regarding Route Segment H, along the Purple Route. These commenters farm various parcels of land in Lincoln and Ceresco Townships. They stated, "Our 'Family Farm' would be surrounded on three sides, in close proximity, by a high voltage transmission line" with Segment H. They also pointed out that a permanent easement was established in 2017 for access to "the Steve Piepgras acreage," resulting in replacement of the line fence along some of the property. The commenters also opposed Segments J and K because they "cut through one of the more historic and picturesque valleys in the area." Along the Purple Route, the commenters favor Segments L and M. They note that "[b]oth proposals cut through land that we farm...but do so in such a way that wouldn't interfere with the farming of those fields." Like other commenters, theyprefer single poles to "H" structures.[743]

162. Connie Fahrforth, a property owner, submitted written comments objecting to the proposed Purple Route or its alternatives due to environmental impacts. Ms. Fahrforth states, “The federal government saw the property adjacent to ours and recognized the benefit of being located here and what it offers in hopes of establishing their protected lands for waterfowl, pheasants, etc. It would be impossible to recreate what is currently being preserved in this collective area.”[744]

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[741] *See, e.g.*, Comment by Steven Burnett (Feb. 11, 2019) (eDocket No. 20192-150177-01); Comment by Melissa Anderson (Jan. 19, 2019) (eDocket No. 20192-150495-02); Comment by Russell and Ruth Sonnek (Mar. 5, 2019) (eDocket No. 20193-150861-01); Comment by Seth Greenwood (Mar. 11, 2019) (eDocket No. 20193-151163-02).

[742] Comment by Ryan Jones (Mar. 5, 2019) (eDocket No. 20193-151163-02).

[743] Comment by Dale and Karen (Bailey) Lachmiller, Mrs. Richard (Bernice) Bailey, Vickie (Bailey) Wiederhoeft, and Laurie (Bailey) Halverson (Mar. 11, 2019) (eDocket No. 20193-151163-02); *see* Ex. EERA-21 at 3-13 (Final EIS).

[744] Comment by Connie Fahrforth (Jan. 16, 2019) (eDocket No. 20192-150495-02).

163. Raquel Harder, a property owner, submitted written comments objecting to the proposed western path (Purple Route) as it would impact her property and wildlife.[745]

164. Neil Pederson comments that the current 345 kV transmission line crosses his property. If the Purple Route is chosen, Mr. Petersen urges that the existing line be removed and combined with the new line on double circuit monopoles. Mr. Pedersen believes this will minimize farming impacts.[746]

165. Aaron Jones, a property owner, submitted written comments stating his support for the Purple Route only if new, single-pole designs are used to support both the existing and new transmission infrastructure.[747]

166. Donald McGinness, a property owner along the Purple Route, submitted written comments noting the increased agricultural impacts from the parallel H-frame design as compared to the double-circuit design. Mr. McGinness stated that:

> [m]odern planting equipment is frequently 40 feet and larger in width. Agricultural sprayers have booms that are 90 to 120 in width and traverse fields 2-4 times during the growing season. Grain is harvested and unloaded on the go to carts traveling next to combines. These two units typically have an effective working width of 45 to 60 feet. Having a 300 [feet] corridor containing two H-frame structures with an effective footprint of 40 feet each at different intervals crossing fields at an angle will be a nightmare."
>
> Mr. McGinness also addressed Route Segment F. He opposes this alternative because a) it "unnecessarily creates a new corridor near many dwellings," leading to aesthetic and economic impacts; b) it "necessitate[s] the complete reshaping of a steep hill along County Road 42" which would require removal of trees used as erosion control; c) the "estimated cost between using a monopole structure through the current State Park corridor or a H-frame along route F is a virtual breakeven ($10.71m vs. $10.78m)" and insists that construction costs for Route F will be greater than budgeted.[748]

167. David Schlingmann and Victoria O'Connell oppose Alternative Segment E because of their concerns about health hazards and decreasing property values. They have corner acreage adjacent to commercially developed properties that would be impacted. They pointed out that proposed Alternative Segment E would impact Minneopa State Park. They recommended the western-most route, using existing power poles.[749]

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[745] Comment by Raquel Harder (Feb. 20, 2019) (eDocket No. 20192-150495-02).
[746] Comment by Neil Pederson (Mar. 12, 2019) (eDocket No. 20193-151163-02).
[747] Comment by Aaron Jones (Mar. 5, 2019) (eDocket No. 20193-151163-02).
[748] Comment by Donald McGinness (Mar. 15, 2019) (eDocket No. 20193-151163-02).
[749] Comment by David Schlingmann and Victoria O'Connell (Mar. 12, 2019) (eDocket No. 20193-151163-02). Alternative Segment E runs between the Purple Route and the Red/Green Route. *See* Ex. EERA-21 at 3-13 (Final EIS).

168. Jeff and Wendy Schmidt, property owners, state that they have an existing transmission line on their property. If one of the west side routes is chosen (Purple, Red or Green), the Schmidts urge the Applicants to use existing lines or replace them with monopole structures. The commenters noted that this type of structure would take up less space on the ground, be less intrusive, and have more room to conduct mining on the property. They strongly opposed a second set of power poles along the existing poles on their property. The Schmidts have concerns about the proposed line's impact on use and property values, as well as the environment. They note that their land is in a state game refuge and they are concerned about habitat destruction. Mr. Schmidt notes potential loss of income from the fees he collects to allow others to hunt on his land. He is also concerned about health effects and the removal of old bur oak trees. The commenters also described the potential for mining their land. They stated: "We would expect to be fully compensated for lost income from future mining, which will easily exceed millions of dollars." The commenters highlight their "strong concern" that landowners be paid a premium for land taken from them, describing the impact of the 150-foot-wide easement and the effect that maintenance on the lines has on the land.[750]

169. Jesse and Kim Van Sickle oppose Alternative Segment J in Ceresco Township because it "appears to run the length of [their farm field] which already is fairly difficult to farm because of soil saving structures, irregular borders, and drainage issues."[751]

ii. Green Route

170. Heather Madison lives in North Mankato and purchased some land to build a future home on Judson Bottom Road. She opposes the proposed routes through her property. Ms. Madison expressed concerns about noise and health issues with the new poles and the impact on property values. She stated, "I feel this will lower the value of our land tremendously and I know we would not have purchased it had the lines already been installed." She commented on the effects on future development and investment in the area, and impact on local wildlife. Ms. Madison recommended moving the poles further out to more rural areas.[752]

171. Connie and Glen Ruyter, homeowners, oppose the Green and Red routes along the east side of 41 and Rockford Road.[753] Ms. Ruyter is concerned about future property values and the impact of the line on future development. She questioned why the route does not call for underground lines. She points out that her neighborhood's utilities are currently underground so t they do not have "visual pollution" as a result of overhead power lines. She is concerned about the buzzing sound from the lines, and

[750] Comment by Jeff and Wendy Schmidt (Mar. 9, 2019) (eDocket No. 20193-151163-02). The Schmidts reference the Purple, Red and Green Routes in their comment.
[751] Comment by Jesse and Kim Van Sickle (Mar. 14, 2019) (eDocket No. 20193-151163-02).
[752] Comment by Heather Madison (Mar. 6, 2019) (eDocket No. 20193-151163-02).
[753] Comment by Connie Ruyter (Mar. 6, 2019) (eDocket No. 20193-151163-02); Comment by Glen Ruyter (Mar. 6, 2019) (eDocket No. 20193-151163-02). According to Map 7-3 of the Final EIS, the Ruyters' property is located near the Red and Green Routes. *See* Ex. EERA-21 at 7-6 (Final EIS).

overall health impacts, along with the quality of life of the neighborhood.[754] Mr. Ruyter shared Ms. Ruyter's concerns. He agreed with agricultural commenters that the line should follow existing right-of-ways or other natural borders that do not cross the middle of fields. He disputed that this is a "city versus farmer issue," and states, "It's unfortunate that some members of the farming community don't understand that if the proposed power lines are approved, then both city and farm property will be impacted and the goal is to minimize the impact."[755]

172. Misty Thompson, homeowner, also opposes the Green and Red Routes. Like other commenters, she believes the power lines will affect property values and quality of life. She is concerned about visual and noise pollution.[756]

173. Shelly Torbenson also opposes the Green and Red Routes along 41 and Rockford Road. She is a homeowner and believes the Routes are too close to her home. She is concerned about visual pollution and health effects. She stated that it "does not make common sense for this power line to be located in neighborhoods with so many children."[757]

174. Shawn Morgan opposes Alternate Segment B along the Green and Red routes, because it runs through his backyard. He noted that he did not see his home on the maps presented at the public hearings. He stated that his home was built 3 years ago and they were not made aware of a proposed transmission line. He claimed that they "never would have built" if they had known a power line would be built nearby. Mr. Morgan pointed out the walking/biking path along Rockford Road, which would be impacted by the line. Mr. Morgan stated that the "transmission lines would directly affect our property values and disrupt our quality of life."[758]

175. Matt Ruyter, North Mankato homeowner, commented on the impacts on quality of life, visual and audio pollution, health effects, and property values. He opposes the Green and Red Routes but suggests that if no other route is feasible, that the Applicants bury the lines to minimize harmful impacts.[759]

176. Steven Burnett, a land owner with property next to the City of North Mankato, submitted written comments stating opposition to the Green and Red Routes, as well as Segment Alternatives A and B, as these routes pass directly through Mr. Burnett's farm or would be within view of his existing home, along with his daughter's

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[754] Comment by Connie Ruyter (Mar. 6, 2019) (eDocket No. 20193-151163-02).
[755] Comment by Glen Ruyter (Mar. 6, 2019) (eDocket No. 20193-151163-02).
[756] Comment by Misty Thompson (Mar. 6, 2019) (eDocket No. 20193-151163-02). According to Map 7-3 of the Final EIS, Ms. Thompson's property is located near the Red and Green Routes. *See* Ex. EERA-21 at 7-6 (Final EIS).
[757] Comment by Shelly Torbenson (Mar. 10, 2019) (eDocket No. 20193-151163-02).
[758] Comment by Shawn Morgan (Mar. 8, 2019) (eDocket No. 20193-151163-02).
[759] Comment by Matt Ruyter (Mar. 10, 2019) (eDocket No. 20193-151163-02). According to Map 7-3 of the Final EIS, Mr. Ruyter's property is located near the Red and Green Routes. *see* Ex. EERA-21 at 7-6 (Final EIS).

home. He commented that the proposed routes would impact future development opportunities for his property. Mr. Burnett further discussed that he has already been impacted by the existing Lakefield Junction – Wilmarth 345 kV line and does not want a second 345 kV line to run through his property.[760]

177. Andy Frederick, a property owner, submitted written comments addressing impacts the Green and Red Routes would have on his existing property, the development of that property, and its value. He clarified he is not a “land developer,” but is in discussions with North Mankato about the future development of his property.[761]

178. Brian Eimer is a homeowner in North Mankato. He opposes the Green and Red Routes. Mr. Eimer is concerned about the Project because "it inhibits the potential for [his] neighborhood to grow." He further stated, "Building larger power lines would dramatically reduce the city's ability to continue the proposed growth plan of this area. Several homeowners in my neighborhood are concerned over the project being so close to homes and the trail." He is also concerned about potential health impacts because he has a pacemaker.[762]

179. Elizabeth Schiferl commented on the Green and Red Routes, particularly Alternative Segment A. She stated that this Segment would impact her property enjoyment and destroy natural habitats in the area. She considers Segment Alternative B somewhat better but that the route overall will impact many existing homesteads. She recommends the Purple Route.[763]

180. Kate Michaletz is a homeowner along the Green and Red Routes. Like other commenters near Rockford Road, Ms. Michaletz opposes the route and has strong concerns about visual pollution, quality of life, and health effects from the proposed line. She stated: "the safety hazards associated with power lines is a big issue and something that should not be 'brushed under the rug.'" She provided some links and information to some evidence-based research she has found regarding the health impacts of power lines.[764]

181. Christopher Schmidt is a homeowner in North Mankato who opposes the Green and Red Routes. He raises quality of life and property value concerns. He stated: "We would have chosen a different location when we purchased our home had we known these lines were a possibility. Not living under/near high voltage power lines has always

[760] Comment by Steven Burnett (Feb. 11, 2019) (eDocket No. 20192-150177-01).
[761] Comment by Andy Frederick (Mar. 8, 2019) (eDocket No. 20193-150952-01).
[762] Comment by Brian Eimer (Mar. 15, 2019) (eDocket No. 20193-151163-02).
[763] Comment by Elizabeth Albrecht Schiferl on behalf of Ken Albrecht (Mar. 14, 2019) (eDocket No. 20193-151163-02).
[764] Comment by Kate Michaletz (Mar. 15, 2019) (eDocket No. 20193-151163-02). According to Map 7-3 of the Final EIS, Ms. Michaletz’s property in the Pleasantview neighborhood is located near the Green and Red Routes. *See* Ex. EERA-21 at 7-6 (Final EIS).

been in the top 2 important factors for home location selection." He recommendeds routing the lines further west.[765]

182. Sam Lawrence, a North Mankato property owner, opposes the Segment A2 running along Rockford Rd/County Rd 41. Although Mr. Lawrence is primarily concerned with having the lines pass through the back of his property, he notices that "a handful of these routes come unnecessarily close to developments compared to other, more rural routes."[766]

183. Melissa Anderson, a resident of North Mankato in the Pleasantview Park neighborhood, submitted written comments objecting to any route that would be constructed near her neighborhood. She is concerned about the route's impact on a nearby public trail and the overall aesthetics.[767]

184. Adam Huiras is a homeowner in North Mankato. He comments that the proposed power line would go right over a walking/biking trail in his neighborhood. He would like the Applicants to consider a different route and not base the decision on construction cost savings."[768]

185. Heather Huiras is a homeowner in North Mankato who is building a new home nearby. She commented that giant power lines would have a large effect on "the view and the scenic quality of our neighborhood.' She stateed that the scenery of the walking/biking trail along Rockford Road "would be ruined by giant, obtrusive power lines." She objects to the proposed Green route.[769]

185. Mark Braun, a property owner, submitted written comments suggesting that the transmission line be buried if the selected route is close to North Mankato to minimize impacts on property values in that area.[770]

iii. Red Route[771]

186. Howard Reynolds prefers the Y Segment of the Red Route. He commented that the EIS report states: "Notably, one of the residences near the original red route is less than 200 feet from the anticipated alignment of the route." He states that this is his home. He argued that "there will be some negative psychological effects of taking a beautiful place to live and making it much less so." Mr. Reynolds noted: "Evidently the Y

[765] Comment by Christopher Schmidt (Mar. 13, 2019) (eDocket No. 20193-151163-02).
[766] Comment by Sam Lawrence (Mar. 11, 2019) (eDocket No. 20193-151163-02).
[767] Comment by Melissa Anderson (Jan. 19, 2019) (eDocket No. 20192-150495-02). Ms. Anderson's comment was submitted with a batch of comments in a document dated Feb. 20, 2019. According to Map 7-3 of the Final EIS, Ms. Anderson's property in the Pleasantview neighborhood is located near the Green and Red Routes. *See* Ex. EERA-21 at 7-6 (Final EIS).
[768] Comment by Adam Huiras (Mar. 15, 2019) (eDocket No. 20193-151163-02).
[769] Comment by Heather Huiras (Mar. 14, 2019) (eDocket No. 20193-151163-02).
[770] Comment by Mark Braun (Feb. 27, 2019) (eDocket No. 20193-151163-02).
[771] Many commenters are property owners along the Green and Red Routes. Their comments are found in the Green Route section (above).

segment would cost about 5% more. As the owner of just over a thousand shares of Excel I expect management to consider their shareholders, but not to hurt the citizenry too badly doing it." Overall, Mr. Reynolds prefers Route Segment Y based on proximity to homes, aesthetic impacts, and farming obstacles.[772]

iv. Blue Route

187. Ruth Sonnek opposes the Blue Route and states that it would go right through the middle of her farmland. She believes that the parties are placing a higher value on environmental concerns as compared with human concerns.[773]

188. Nick Thompson opposes the Blue Route. He expressed concerns about the line's proximity to the Mankato Regional Airport. Like another commenter, Mr. Thompson pointed out that this airport is used by MSU-Mankato to train new pilots and he is concerned, for instance, that "[a] young, inexperienced pilot misreading a location, concentrating on the runway approach and flying too low, or unable to see a 345 kV power line and running into it is much more likely than a typical airport that has mostly experienc[ed] pilots." He believes this Route is "the most expensive and the most negatively impactful proposed line." He feels other Routes have less impact and are less expensive. Regarding North Mankato development plans, Mr. Thompson commented, "[T]he reality is that this is the most non-impactful path to build the line" and that North Mankato has "been... inflating their growth projections."[774]

189. Glend May commented on the Blue Route and the impact on his farmland. He believes that Segment G would have less impact on his farmland since it would run along his property line instead of going through his fields. This is Mr. May's preferred route. Mr. May asked why the Commission does not follow CR 86 north and south when possible, pointing out other commenters at the public hearing he attended who agreed with this placement. Mr. May is also concerned about the affect the new line would have on property values and future development in the area. The other alternative route he prefers is the realignment of Segment CC, which would have less impact on his fields because the poles could follow his property lines. He favors the Purple-E-Red Route because it follows existing transmission lines.[775]

190. Bryan Schneider opposes the Blue route. He pointed out what he believes is an error on the environmental study that impacts the Blue Route. He contends that the Blue Route should be removed from consideration. Mr. Schneider commented on the proximity of the Blue Route to Mankato irport, noting that it is "less than 4,000 feet directly in the path of the runway of the Mankato Regional Airport." He stated that this is a dangerous situation given that MSU-Mankato using the airport for training new pilots. Further, he commented, "The PUC should not compromise the safety of airplane

[772] Comment by Howard Reynolds (Mar. 15, 2019) (eDocket No. 20193-151164-02).
[773] Comment by Ruth Sonnek (Mar. 3, 2019) (eDocket No. 20193-151163-02).
[774] Comment by Nick Thompson (Mar. 4, 2019) (eDocket No. 20193-151163-02).
[775] Comment by Glend May (Mar. 7, 2019) (eDocket No. 20193-151163-02).

passengers, pilots and these students. I know a lot of farmers are concerned about straight lines in their fields, however the same problem exists no matter what route is chosen. Same issue, different farmer." Mr. Schneider also commented that the Blue Route will jeopardize the Mankato airport's future ability to expand its runways and operations. Mr. Schneider stated that moving the Blue Route closer to the City of Mankato to avoid the airport would negatively impact the Sakata State Trail. He believes the Blue Route is "the most costly and the most negatively impactful route" due to the additional land that must be crossed, proximity to future residential development, and impacts on the environment. He stated that the Red/Green Route and Purple Route will have less impact on farmers than the Blue Route.[776]

191. Russell Sonnek, a property owner, submitted written comments raising concerns about the impact that the Blue Route will have on his farming practices and property values. Mr. Sonnek commented, "From tilling, planting, spraying, especially if you hire planes to spray, would be a major pain financially and for safety." He recommended putting the new line along the existing power lines. He agrees with another commenter that the Blue Route is hazardous for the Mankato airport.[777]

192. Margie Slingsby is a property owner on the Blue Route. If the Blue Route is chosen, Ms. Slingsby recommended following the alternate CC route. She is concerned about future development of her property and states, "If the original route is approved that would negate us from building on those two lots which carry the majority of the value of our land and would greatly depreciate the value." She also noted the environmental improvements she has made to her property which would be impacted by the power line.[778]

193. Brandon Brehmer, a farmer and new business owner, submitted written comments concerning the impacts that the Blue Route would have on agricultural businesses. Like other commenters, Mr. Brehmer is concerned about future development and the effect of the transmission line route on the Mankato airport.[779]

v. Purple-E-Red Route

194. Steven Lloyd, a property owner along Minneopa Creek, opposes the Purple-E-Red Route, Alternative Segment E, based on concerns about health effects, property values, agricultural impacts, and effects as land is passed to future generations. Mr. Lloyd pointed to page 35 in the Map Book, noting that his property is impacted by loud noise from passing trains every day. He commented that east of the junction of 528th Ave/CR 115 on State Highway 60, there are no current transmission lines and "[i]t would be very unfortunate and disturbing to add a transmission line of this magnitude when there are no poles or wires that exist in this farm land area." Mr. Lloyd stated that if the Project is

[776] Comment by Bryan Schneider (Mar. 3, 2019) (eDocket No. 20193-151163-02).
[777] Comment by Russell Sonnek (Mar. 4, 2019) (eDocket No. 20193-150861-01).
[778] Comment by Margie Slingsby (Mar. 13, 2019) (eDocket No. 20193-151163-02).
[779] Comment by Brandon Brehmer (Feb. 27, 2019) (eDocket No. 20193-151163-02).

approved, he would recommend that a route be chosen where existing transmission infrastructure exists replacing existing poles with a double-circuited monopole.He prefers that the transmission lines be buried. [780]

195. John Sertich, on behalf of the ownership of Nuss Truck and Equipment/SN Mankato, LLC, opposes the proposed Purple-E-Red Route. He pointed out that it is one of the "highest cost alternatives" because of the use of double circuit monopoles and runs through "very sensitive wetland/flooding areas in the Judson River bottom." Mr. Sertich has concerns about the "negative aesthetic impacts" to Nuss and others in the business park. He also notes that Nuss Truck and Equipment has spent over $2M renovating/constructing its existing facility to meet customer needs. He states, "[I]f property values are negatively affected by the selection of the E-Red Route, an alternative site location [for Nuss] may have made more financial sense." Mr. Sertich also pointed out that his business operation requires a large amount of real estate. He states, "Any potential loss in our existing land footprint would have significant negative effects on our day to day business operations in our efforts to support the significant customer base in the surrounding area." Mr. Sertich believes that further loss of land will affect the safety of employees and customers because of the need to relocate large trucks, trailers and equipment at the business. He pointed out that Nuss already has one power line overhead which impacts his property, along with health and noise effects.[781]

vi. General Comments

196. Gregory Depudyt expressed concern about how or whether the Administrative Law Judge will review public comments. He believes that the Project should be postponed until a "Human Impact Study" can be conducted. Mr. Depudyt commented on the difficulties in row crop farming around utility poles and expressed concern over who will deal with weed control within the "tear-drops" that occur at the end of the pole settings. Mr. Depudyt states that one of his farms has had a double wooden pole setting for over 40 years and "[i]t is a hindrance to every field operation." He stated that one of the proposed routes goes right through the middle of his home farm, which is unacceptable. Mr. Depudyt emphasizes that if the line is needed, that the Commission choose the Purple Routeinstead. He notes, "It impacts the least amount of people, also, there is no chance in the near future for property on the [Purple] Route to be developed."[782]

197. Arthur Milbrath commented that the proposed route should run through Blue Earth County over the Ponderosa Landfill and the lines should be placed underground near the airport.[783]

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[780] Comment by Steven Lloyd (Mar. 6, 2019) (eDocket No. 20193-151163-02).
[781] Comment by John Sertich (Feb. 27, 2019) (eDocket No. 20193-151163-02).
[782] Comment by Gregory Depudyt (Mar. 6, 2019) (eDocket No. 20193-151163-02).
[783] Comment by Arthur Milbrath (Mar. 11, 2019) (eDocket No. 20193-151163-02).

198. Paul Bowe, a property owner, submitted written comments suggesting that any new route use existing infrastructure with a single-pole, double-circuit design to minimize agricultural impacts.[784]

199. Paul Anderson, a land owner, submitted written comments stating that he would support the Project if the proposed 345 kV line used the same easement as the current 345 kV line, but opposed the construction of new transmission infrastructure. He recommends replacement of the current towers with a dual circuit monopole design to reduce the impact on land use for agricultural production. [785]

200. Vernon and Gary Peterson, land owners, submitted comments suggesting that the Applicants follow current transmission infrastructure rather than construct new infrastructure. The commenters raised concerns with the transmission line's effects on health, property values, and farmland, including weed control.[786]

C. Local Government and Federal and State Agencies Outreach

201. Applicants made significant efforts to reach out to interested public agencies and interested community organizations before filing the Application.[787]

202. The Applicants initiated their outreach campaign to public agencies through in-person meetings and Project notification letters. Many agencies, stakeholders, landowners, interested parties, and NGOs [Non-Governmental Organizations] were contacted to gather feedback on the Project.[788]

203. Subsequently, the Applicants sent a Project introduction letter and map to other federal, tribal, state, county, and local agencies and stakeholders with jurisdiction in the Project Study Area, introducing the Project and requesting agency input into public and natural resources that may be potentially affected by the Project. The Applicants also requested input from the federal and state agencies with respect to the resources under their jurisdiction as well as the identification of federal and state permits and/or approvals that may be potentially required for the Project.[789]

204. A total of 28 agency letters were sent on August 29, 2017, and September 8, 2017, requesting feedback on potential resources, concerns with route development, and offering GIS shapefiles upon request.[790]

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[784] Comment by Paul Bowe (Mar. 15, 2019) (eDocket No. 20193-151163-02).
[785] Comment by Paul Anderson (Mar. 13, 2019) (eDocket No. 20193-151163-02).
[786] Comment by Vernon and Gary Peterson (Mar. 12, 2019) (eDocket No. 20193-151023-01). The Petersons indicate they are brothers who own farm land in, or next to, Shelby and Pleasant Mount Township.
[787] Ex. XC-7 at 174-81 (Route Permit Application).
[788] *Id.* at 174.
[789] *Id.*
[790] *Id.* at 174, Appendix G.

i. Federal Agencies

a. U.S. Army Corps of Engineers (USACE)

185. The Applicants discussed the Project with USACE staff who will manage the permitting process under Section 404 of the Clean Water Act and authorization under Section 10 of the Rivers and Harbors Act. Discussions with the USACE included assessing potential wetland impacts for each route option; the avoidance of wetlands if practicable; and the analysis and avoidance of impacts to endangered species and cultural resources.[791]

b. U.S. Fish and Wildlife Service (USFWS)

185. On August 8, 2017, a phone meeting was held with USFWS to discuss whether existing easements on WPAs could be considered for new routes. Another meeting was held on August 15, 2017, to discuss potential impacts to federally-listed endangered species.[792]

186. The USFWS submitted comments on the Draft EIS on February 5, 2019. The USFWS noted that it would not permit new or expanded rights-of-way on service-interest lands, including lands in the process of being transferred to federal ownership. The USFWS indicated that the Green Route appears to have the least effects on permanently-protected conservation lands because the line would run adjacent to, and not through, such lands.[793] The USFWS also recommended modifications to the Purple Route, if selected, to avoid all Service interest lands that could be impacted by the Purple Route, as proposed.[794]

c. U.S. Department of Agriculture, Natural Resources Conservation (NRCS)

187. The Applicants sent a Project introduction letter to the NRCS office and requested comments on the Project. The NRCS responded, in a letter dated September 20, 2017, that form FPPA AD-1006 should be completed to determine whether the Farmland Protection Policy Act applies to the Project. But an email follow-up from the NRCS State Soil Liaison on September 28, 2017, stated that the NRCS acknowledges that the Project is excluded from the Farm Land Protection Policy Act because no federal funding will be used for the Project. The NRCS also provided mapping for NRCS-administered easements.[795]

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[791] *Id.* at 175-76.
[792] *Id.* at 176.
[793] Ex. EERA-20A at 12-13 (Agency Comments on Draft EIS).
[794] *Id.*
[795] Ex. XC-7 at 177 (Route Permit Application).

ii. State Agencies

a. Minnesota State Historic Preservation Office (SHPO)

188. The Applicants sent an introduction letter to the SHPO and received a response on October 3, 2017. The Applicants will conduct a Phase 1a Literature Review and, in turn, a Phase 1 archeological survey if necessary, after a final route has been selected by the Commission.[796]

b. Minnesota Department of Natural Resources (MnDNR)

189. The Applicants met with MnDNR staff on February 17, 2017, to discuss the Commission process and the MnDNR's participation in the permitting process. An overview of the Project Study Area was examined with preliminary discussions of the Minneopa State Park boundary and potential Minnesota River crossing locations.[797]

190. The Applicants again met with MnDNR staff on May 23, 2017, to discuss potential crossing of Minneopa State Park. The MnDNR requested additional descriptions of park impacts, and the Applicants followed up with a preliminary design that showed that no poles would be placed in parkland and that structures could be designed to keep energized lines above existing tree height to minimize tree clearing in the park.[798]

191. A subsequent meeting was held on September 14, 2017, after the MnDNR reviewed potential route options. The Purple-E-Red Route had not been identified as a route option as of that date. Discussion focused on areas where the MnDNR had concerns or suggestions on changes, as well as potential impacts on endangered species. The MnDNR suggested an analysis of visual impacts to Minneopa State Park. The MnDNR also requested further review of several crossings at other areas along the routes to reduce impacts to sensitive riparian areas, and Applicants refined several crossings based on this review.[799]

192. A meeting was also held on December 19, 2017, where the Applicants and the MnDNR reviewed route modification suggestions made by the MnDNR and the Applicants' preliminary work on a visual assessment for impacts to Minneopa State Park from Segment Alternative C.[800]

193. The MnDNR submitted comments in the Project docket on May 17, 2018, acknowledging the Applicants' efforts to minimize environmental impacts and to develop

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[796] *Id.*
[797] *Id.*
[798] *Id.*
[799] *Id.* at 178.
[800] *Id.*

a positive working relationship with the MnDNR. The MnDNR, overall, found that Segment Alternative C was the least preferable route.[801]

194. On January 28, 2019, the MnDNR submitted comments on the Draft EIS regarding information to be clarified or included in the EIS to help ensure the Final EIS is complete and accurate. Specifically, the MnDNR requested clarification in the Final EIS on whether any public water basins are within the right-of-way and if the existing transmission line that crosses the public water basin near the Smith WMA will be removed if the Red or Purple-E-Red Route is selected for construction.[802] Additionally, the MnDNR noted that the Purple Route crosses Willow Creek several times and recommended that the Final EIS include additional segment alternatives to minimize the number of crossings and associated habitat impacts at Willow Creek.[803]

195. On March 14, 2019, the MnDNR submitted comments on the project regarding the various route options as well as conditions that should be included in the route permit to mitigate Project impacts. These included shifting route segment M by 125 feet to avoid a native plant community, a Vegetation Management Plan for the easement in Minneopa State Park and a permit provision for winter tree clearing too protect nesting birds and roosting bats.[804]

c. Minnesota Department of Transportation (MnDOT)

196. The Applicants met with MnDOT on May 18, 2017. The meeting included discussion of theProject's background and potential routes.[805]

197. MnDOT submitted comments on May 16, 2018, commenting on the scope of the EIS. Specifically, MnDOT requested an opportunity to participate in the development of the EIS so that the EIS would include a thorough evaluation of the effects of various route proposals on the state transportation system.[806]

198. On January 28, 2019, MnDOT submitted comments on the Draft EIS, highlighting the importance that the designated route be sufficiently wide along trunk highway right-of-ways so that the Project can be constructed in accordance with MnDOT's Utility Accommodation Policy.[807]

d. Minnesota Board of Water and Soil Resources (BWSR)

199. A meeting was held with the Applicants and the BWSR on May 31, 2017. The meeting included a discussion of providing Project background and potential routes,

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[801] Ex. EERA-6A at 2-8 (Agency Comments on Scope of EIS).
[802] Ex. EERA-20A at 2-3 (Agency Comments on Draft EIS).
[803] *Id.*
[804] Comments by MNDNR (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[805] Ex. XC-7 at 178 (Route Permit Application).
[806] Ex. EERA-6A at 9-11 (Agency Comments on Scope of EIS).
[807] Ex. EERA-20A at 4-8 (Agency Comments on Draft EIS).

focusing on routes that intersected with BWSR easements. BWSR staff indicated that they would evaluate the project for compatibility with the conservation plan developed by the Soil and Water Conservation District in their easements.[808]

e. Minnesota Department of Agriculture (MnDOA)

200. The Applicants met with the MnDOA on December 19, 2017. The meeting included a discussion of providing Project background and proposed route options. During that meeting, MnDOA staff recommended preparing an Agricultural Impact Mitigation Plan for large (345 kV) transmission projects.[809]

201. The Applicants and the MnDOA finalized terms of an Agricultural Impact Mitigation Plan for the Project on September 12, 2018.[810] The Agricultural Impact Mitigation Plan specifies the measures that the Applicants will take to avoid or mitigate any impacts to agricultural land that may result from the construction of the Project.[811]

iii. Local Government Units

a. Mankato

185. The Applicants met with City of Mankato staff on January 31, 2017, where the City provided information on its future development plans and requested to be kept informed of the process.[812]

186. The Applicants provided a Project overview presentation to the Mankato City Council on June 12, 2017.[813]

187. A second City of Mankato staff meeting was held on August 22, 2017, to discuss specific concerns regarding potential routes east of the city.[814]

188. The City of Mankato submitted written comments to the Project docket on January 23, 2018, and again on May 3, 2018, addressing the Blue Route option.[815]

189. On January 28, 2019, the Mankato City Council adopted a resolution requesting that the Blue Route be rejected from consideration.[816]

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[808] Ex. XC-7 at 178 (Route Permit Application).
[809] *Id.*
[810] Ex. XC-20 at 14 (Hillstrom Rebuttal); Ex. EERA-13 at Appendix D (Draft EIS).
[811] Ex. XC-20 at 14 (Hillstrom Rebuttal); Ex. EERA-13 at Appendix D (Draft EIS).
[812] Ex. XC-7 at 178-79 (Route Permit Application).
[813] *Id.* at 179.
[814] *Id.*
[815] Comments by City of Mankato (Jan. 23, 2018) (eDocket No. 20181-139280-01); Comments by City of Mankato (May 3, 2018) (eDocket No. 20185-142731-01).
[816] Mankato 1:00 p.m. Tr. at 52 (Feb. 27, 2019); Resolution of the Mankato City Council (Mar. 4, 2019) (eDocket No. 20193-150821-01).

b. North Mankato

190. The Applicants met with City of North Mankato staff on January 31, 2017, where the Applicants provided a Project overview and the City provided information on its anticipated future boundaries.[817]

191. A Project overview presentation was provided to the North Mankato City Council on June 5, 2017.[818]

192. A meeting was held with the Applicants and the City of North Mankato on July 19, 2017, where several residents objected to the route segment along Rockford Road and the City expressed an objection to any route segments that cross possible future development areas.[819]

193. On August 9, 2017, the City of North Mankato submitted a resolution passed by the City Council of North Mankato requesting that the Applicants remove several segments of the proposed 345 kV transmission line from the Application.[820] North Mankato also submitted a memorandum addressing itss concerns with several of the proposed segments of the transmission line.[821]

194. A meeting was held on August 21, 2017, to discuss additional segments that were being considered west of North Mankato in Belgrade Township. North Mankato staff indicated that it objected to all routes on the city's western fringe.[822]

195. The City of North Mankato submitted comments on February 6, 2018, alerting the Commission to North Mankato's objection to all portions of the Red and Green Routes that conflict with the City's Comprehensive Development Plan.[823]

196. The City of North Mankato also submitted comments on the scoping of the EIS on May 21, 2018, suggesting that concerns and potential impacts associated with specific portions of the Red and Green Routes, as well as Segment Alternatives A, B, and C, be included within the scope of the EIS.[824]

197. The City of North Mankato also intervened in this proceeding and filed Direct Testimony[825] and Surrebuttal Testimony[826] addressing the its opposition to the proposed Red and Green Routes, as well as Segment Alternatives A and B.

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[817] Ex. XC-7 at 179 (Route Permit Application).
[818] *Id.*
[819] *Id.*
[820] Ex. NM-19 (City of North Mankato Resolution No. 47-17 (Opposing Route Options)).
[821] Ex. NM-20 (City of North Mankato Memorandum on Proposed Route Options).
[822] Ex. XC-7 at 179 (Route Permit Application).
[823] Ex. NM-21 at 1 (Comments of the City of North Mankato on Completeness of Route Permit Application).
[824] Ex. NM-22 (Comments of the City of North Mankato on Scoping of EIS).
[825] Ex. NM-1 (Fischer Direct).
[826] EX. NM-17 (Fischer Surrebuttal).

198. On January 28, 2019, the City of North Mankato submitted comments on the Draft EIS, supporting a Final EIS that concluded that portions of the Red and Green Routes in the area of North Mankato, as well as Segment Alternatives A and B, would have significant adverse effects on North Mankato's Comprehensive Development Plan.[827]

c. Nicollet County

199. The Applicants met with Nicollet County staff on February 15, 2017, where County staff provided some general guidance that existing corridors are preferred and suggested avoiding river bottom roads and a County park at Minnemishinona Falls.[828]

200. A second meeting was held with the Applicants and County staff on September 28, 2017, to discuss potential new route segments in Belgrade Township and to discuss the permitting process.[829]

201. Nicollet County submitted written comments in a letter to the Project dated October 10, 2017. The letter included a County board resolution and identified what Nicollet County classified as objectionable impacts from route segments in the area west of Mankato and indicated that these impacts can be avoided by following the Purple Route.[830]

202. In March 2019, Seth Greenwood, Public Works Director/County Engineer writing on behalf of the Nicollet County Board of Commissioners, requested that the Commission not consider the Red and Green Routes or Segment Alternatives A and B due to human, environmental, scenic, and farmland impacts.[831]

d. Blue Earth County

203. A meeting was held in Blue Earth County on February 15, 2017, to provide an overview of the Project. County staff inquired about the effects of the Project and provided some guidance on routing along roads and bike trails.[832]

e. Faribault County

204. On March 23, 2017, the Applicants met with Faribault County staff to provide a Project overview. Staff indicated that they were aware of wind development occurring south of the Project Study Area and inquired about economic benefits of the Project.[833]

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[827] Ex. NM-18 (Comments of the City of North Mankato on Draft EIS).
[828] Ex. XC-7 at 180 (Route Permit Application).
[829] *Id.*
[830] *Id.*
[831] Comment by Seth Greenwood (Mar. 11, 2019) (eDocket No. 20193-151163-02).
[832] Ex. XC-7 at 180 (Route Permit Application).
[833] *Id.*

f. Martin County

205. On March 23, 2017, the Applicants met with Martin County staff to provide a Project overview. Staff noted that only a small segment of one route is in Martin County.[834]

g. Butternut Valley Township

206. The Applicants attended a township meeting on June 19, 2017, where township supervisors indicated that if the route through the township were approved, another line built parallel to the existing line would not be acceptable. A route built as a double-circuit may be preferable especially if it were built on a single-pole structure.[835]

h. Belgrade Township

207. The Belgrade Township Board passed a resolution on September 12, 2017, requesting the Applicants to reevaluate proposed route segments in Belgrade Township and supporting routes along existing infrastructure routes.[836]

208. The Applicants attended a Belgrade Township meeting on October 10, 2017. The meeting was attended by approximately 50 residents, many of whom opposed route segments proposed for consideration in Belgrade Township. Specific objections raised included proximity to homes and a disapproval of introducing new routes to avoid the Project impeding future development in the City of North Mankato.[837]

209. Belgrade Township residents submitted a petition, signed by 32 people, dated October 10, 2017, requesting withdrawal of routes through Belgrade Township (Purple, Red, and Green Routes).[838]

III. Overview of Project Area

210. The majority of the Project area is rural in nature with an agriculture-based economy. Corn and soybean crop production, livestock operations, and associated industries drive the local agricultural economy. The predominant land cover type in Blue Earth, Nicollet, Martin, and Faribault counties is agricultural. Roughly 90 percent of the soil in the Project Area is identified as prime farmland. In 2012, the average farm size in these four counties is similar, averaging 350 acres, and slightly smaller than the average size of 352 acres for all Minnesota farms.[839]

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[834] *Id.*
[835] *Id.*
[836] *Id.* at 181.
[837] *Id.*
[838] *Id.* at 181, Appendix G.
[839] *Id.* at 93, 113.

211. Farming and protection of agriculture, the land, and the ability to continue to farm and support livelihoods through agriculture are strong values within the Project area.[840]

212. The four counties in the Project area have small populations compared to the State of Minnesota as a whole, comprising less than three percent (2.5 percent) of the state's total population.[841] Mankato has a population of approximately 42,000 people and North Mankato has a population of approximately 14,000 people.[842]

213. Land use and build infrastructure varies across the Project area, north to south. The northern Project area is primarily urban and centered on the cities of Mankato and North Mankato. The southern Project area is primarily agricultural, including crop and animal production operations.[843]

214. Manufacturing and service industries (restaurants, hotels, repair shops, convenience and retail stores) are concentrated in the urban and suburban areas located in the northern part of the Project area. The cities of Mankato and North Mankato, and their surrounding areas, serve as a regional hub for health care, arts, and culture. The Mankato Clinic is one of the largest private clinics in the state, with more than 100 physicians. The Mankato area also has four colleges—Bethany Lutheran College, Rasmussen College, South Central College and Minnesota State University, Mankato.[844]

215. The five Routes are located within the Minnesota River Watershed. Major rivers in the Project area include the Minnesota, Watonwan, Blue Earth, and LeSueur rivers. There are also several sizable lakes in the Project area, many being greater than 160 acres. Some of the lakes in the Project area include Rice Lake, Lake Crystal, Loon Lake, Mills Lake, Lily Lake, Lura Lake, and Minnesota Lake.[845]

216. Numerous natural amenities—including lakes, rivers, parks, WPAs, and WMAs—attract local and regional recreational users along all five route options. These amenities are also important to the identity of the area and provide opportunities for various recreational activities such as fishing, hunting, and snowmobiling, which are activities highly valued by area residents.[846]

217. The topography of the Project area is generally flat, with areas of rolling plains. The vegetation cover is uniformly low, making the topography in some areas susceptible to visual disruptions. The landscape in the area is dotted with various

[840] *Id.* at 93; Ex. EERA-13 at 5-26 (Draft EIS).
[841] Ex. XC-7 at 88-89 (Route Permit Application).
[842] Ex. EERA-13 at 5-3 (Draft EIS).
[843] *Id.*
[844] Ex. XC-7 at 93-94 (Route Permit Application); Ex. EERA-13 at 5-3 (Draft EIS).
[845] Ex. XC-7 at 125 (Route Permit Application); Ex. EERA-13 at 5-3 (Draft EIS).
[846] Ex. XC-7 at 94 (Route Permit Application); Ex. EERA-13 at 5-26 (Draft EIS).

structures, including residences, farm buildings, communication towers, distribution lines, transmission lines, wind turbines, and solar panels.[847]

218. Prior to European settlement, vegetation in the Project area was primarily associated with tallgrass prairie. Vegetation in the area is now dominated by agricultural and low-intensity urban land use; tallgrass prairie remnants are rare and isolated. Agricultural areas within the Project area include active row crop fields interspersed with wind breaks, woodlots, fence rows, and grassland swales associated with drainage ditches. There is minimal forestland in the area, mainly located in forested riparian areas near the larger streams and rivers, and no commercial forestry operations have been identified along the five route options.[848]

219. The wildlife species that inhabit the Project area are typical of those found in agricultural, rural, exurban, and suburban areas. These species are well-adapted for the dominant agricultural and developed habitats in the Project area.[849]

IV. Factors for a Route Permit

220. The Power Plant Siting Act (PPSA), Minn. Stat. ch. 216E (2018), requires that route permit determinations "be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure."[850]

221. Under the PPSA, the Commission and the Administrative Law Judge must be guided by the following responsibilities, procedures, and considerations:

> (1) evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high-voltage transmission lines 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;

[847] Ex. XC-7 at 87-88 (Route Permit Application).
[848] *Id.* at 117, 137.
[849] *Id.* at 138.
[850] Minn. Stat. § 216E.03, subd. 7.

(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;[851]

(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 subdivision 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;

(10) evaluation of 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; and

(12) when appropriate, consideration of problems raised by other state and federal agencies and local entities.[852]

222. Also, Minn. Stat. § 216E.03, subd. 7(e) (2018), provides that the Commission "must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons."

223. In addition to the PPSA, the Commission and the Administrative Law Judge are governed by Minn. R. 7850.4100 (2017), which mandates consideration of the

[851] Factor 4 is not applicable because the Applicants are not proposing to site a large electric generating plant in this docket.
[852] Minn. Stat. § 216E.03, subd. 7.

following factors when determining whether to issue a route permit for a high-voltage transmission line:

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

B. effects on public health and safety;

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

D. effects on archaeological and historic resources;

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

F. effects on rare and unique natural resources;

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

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

I. use of existing large electric power generating plant sites;[853]

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

K. electrical system reliability;

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

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

N. irreversible and irretrievable commitments of resources.[854]

224. No one factor is given greater weight than another. However, the record contains specific detail, to the level of each residence, for negative human impacts such as loss of agricultural land, displacement and aesthetic impacts on viewsheds. These

[853] This factor is not applicable because it applies only to power plant siting.
[854] Minn. R. 7850.4100.

impacts on human habitation and agriculture were given great weight by the Applicants and in the EIS necesarily resulting in the preferable routes being those placed in areas with greater negative impacts on flora and fauna. Nonetheless, the Applicants and the DOC-EERA carefully attempt to balance and minimize all negative effects through the proposed routes, route segments and alternatives. There is sufficient evidence on the record for the Administrative Law Judge to assess the routes on the record using the criteria and factors set out above.

A. Effects on Human Settlement

225. Minnesota Rule 7850.4100(A) requires consideration of the proposed routes' effects on human settlement, including displacement of residences and businesses, noise created during construction and by operation of the Project, and impacts to aesthetics, cultural values, recreation, and public services.

i. Displacement

264. There are currently no permanent residences, businesses, churches, schools, daycares, or nursing homes within the rights-of-way of the route or segment alternatives under consideration for the Project.[855] There is one seasonal residence and 13 non-residential buildings (e.g., agricultural outbuildings or animal production structures) within the rights-of-way of routing alternatives for the Project.[856]

265. The Project's displacement impacts are route-specific and vary by route and segment alternative.[857]

266. At a January 9, 2019, public meeting, a landowner indicated that he is building a house within the proposed right-of-way of the Blue Route at 203rd Street in Mankato Township. [858] Segment Alternative CC was proposed by the Applicants to move the Blue Route proposed alignment away from this house, avoiding any displacement.[859]

267. The Purple Route has one seasonal residence, a hunting trailer, within the proposed right-of-way. This seasonal residence is located approximately 500 feet west of the Huntley substation and approximately 30 feet from a 345 kV/161 kV transmission line constructed approximately one year ago. This seasonal residence is used sporadically during the year and is not currently connected to a well or septic system. The Applicants have stated that they will work with the landowner to find an acceptable solution using the

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[855] One location along the Blue Route has been identified where a residence is being constructed and Segment Alternative CC was developed to avoid this area of the Blue Route and the planned residence. Ex. XC-27 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[856] Ex. EERA-13 at 5-11, 6-7, Appendix J Route Analysis Tables (Draft EIS); Ex. XC-7 at 82 (Route Permit Application).
[857] Ex. EERA-13 at 6-1 (Draft EIS).
[858] Mankato 1:00 p.m. Tr. at 36 (Feb. 27, 2019).
[859] Ex. XC-27 at 3-4 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).

original Purple Route alignment or, alternatively, could either use Alignment Alternative AA-3b or pursue a design that is contained in the existing 345 kV/161 kV transmission line right-of-way.[860]

268. A home is being constructed within the right-of-way of the original Blue Route but the Applicants' recommended route configuration that incorporates Segment Alternative CC, the Blue-CC-Q Route, would avoid displacement of this home.[861]

269. No other route or segment alternative has an existing residence within the proposed right-of-way.[862]

270. All routes under consideration have non-residential buildings within the right-of-way. Non-residential buildings may or may not be removed or relocated as a result of the Project. A site-specific analysis conducted by the Applicants will determine whether a non-residential building must be removed or relocated.[863]

271. The Applicants have previously reviewed all non-residential buildings along the routes under consideration. The Applicants can avoid any currently-erected non-residential structure from being located within the transmission line right-of-way by pole placement, use of specialty structures, or modifying the right-of-way width. The Applicants have committed to working with landowners to implement additional design or mitigation measures as necessary to ensure adequate clearances and to address landowner concerns in these instances.[864]

272. No residential displacement is anticipated as a result of the Project. Applicants have committed to working with landowners to entirely avoid or minimize to the greatest extent practicable displacement of non-residential structures for any final route selected by the Commission for the Project.

ii. Noise

273. The Minnesota Pollution Control Agency (MPCA) has established noise limits for residential, commercial, and industrial land use activities (Minnesota Noise Standards).[865]

274. During the construction of the Project, temporary, localized noise from heavy equipment and increased vehicle traffic is expected to occur along the selected route's right-of-way during daytime hours. Construction noise could temporarily affect

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[860] Ex. EERA-20B at 2-3 (Applicants' Comments on Draft EIS); Ex. EERA-13 at 6-7 (Draft EIS).
[861] Mankato 1:00 p.m. Tr. at 36 (Feb. 27, 2019); Ex. XC-27 at 3-4 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[862] Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS).
[863] *Id.* at 6-8.
[864] Ex. XC-27 at 2-3 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).
[865] Ex. EERA-13 at 5-11 (Draft EIS); Ex. XC-7 at 83-84 (Route Permit Application).

residences, schools, and businesses. However, the Project will not exceed the nighttime Minnesota noise limits. Commission site permits require that construction activities are limited to daytime hours.[866]

275. The Applicants provided representative noise level data for the Project's transmission line configurations, and this data indicates that the highest noise level from operating the transmission line will comply with the Minnesota Noise Standards.[867]

276. Noise from the modified Huntley and Wilmarth substations (e.g., additional transformers and switchgear) outside of the substation property will be within the Minnesota Noise Standards.[868]

277. The Project's noise impacts do not vary notably by route or segment alternative.[869]

278. Overall, noise impacts from the Project are anticipated to be minimal and within the Minnesota Noise Standards.[870]

iii. Aesthetic Impacts

279. Aesthetic and visual resources include the physical features of a landscape such as land, water, vegetation, animals, and structures. Determining the relative scenic value or visual importance of these features in a given area is a complex process that depends on what individuals may perceive as being beautiful.[871]

280. In the northern Project area, the existing landscape is characterized by an urban and suburban built environment (Mankato/North Mankato area). Viewsheds are limited and frequently interrupted by buildings, businesses, streets, and trees.[872]

281. The existing landscape in the southern Project area is characterized by nearly level to gently rolling plains dominated by agricultural lands (i.e., crop and forage land). Viewsheds in this area are generally broad and uninterrupted, with only small scattered areas where they are defined by trees or topography. Dominant natural features in the landscape include lakes and the Blue Earth, Le Sueur, Minnesota, and Watonwan rivers and their associated riparian corridors.[873]

282. The southern Project area, however, is also shaped by existing infrastructure. Horizontal elements, such as highways and county roads, are consistently

[866] Ex. EERA-13 at 5-12 (Draft EIS); Ex. XC-7 at 84-85 (Route Permit Application).
[867] Ex. EERA-13 at 5-13 (Draft EIS); Ex. XC-7 at 85-87 (Route Permit Application).
[868] Ex. EERA-13 at 5-13 (Draft EIS); Ex. XC-7 at 87 (Route Permit Application).
[869] Ex. EERA-13 at 5-13, 6-3 (Draft EIS).
[870] *Id.* at 5-13.
[871] *Id.* at 5-4.
[872] *Id.*
[873] *Id.*

present, and vertical elements, such as transmission lines and wind turbines, are visible from considerable distances. Residences and farmsteads are also scattered across these viewsheds.[874]

283. The Project's aesthetic impacts are anticipated to be minimal to moderate, depending on the selected route.[875]

284. The Project's aesthetic impacts are route-specific and vary by route and segment alternative.[876]

285. The Project's aesthetic impacts can be minimized by selecting routes that maximize distances from residences or share existing infrastructure rights-of-way, such as existing transmission lines, roads, and railroads.[877]

286. The Green and Red Routes are near the greatest number of residences within 1,000 feet, while the Blue, Purple, and Purple-E-Red Routes are near the fewest number of residences within 1,000 feet. The number of residences close to the Green and Red Routes is two to three times higher than the number of residences close to the Blue, Purple, and Purple-E-Red Routes.[878] The Purple Route has one seasonal residence within the right-of-way near the Huntley Substation and within 30 feet of an existing 345 kV/161 kV transmission line.[879] The Purple Route and Blue Route have the fewest number of residences within 200 feet of the proposed alignment of each route. The number of residences within 200 feet of the proposed alignment of the Purple Route is further reduced by the Applicants' refined Purple-BB-L Route.[880]

287. **Table 4**, below, from the Draft EIS, shows the proximity of residential structures (either permanent or seasonal) to the five route alternatives.

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[874] *Id.*
[875] *Id.* at 5-4 to 5-5.
[876] *Id.*
[877] *Id.* at 6-3, 6-5.
[878] *Id.* at 6-3.
[879] *Id.* at 6-7.
[880] *Id.* at Appendix J Route Analysis Tables; Ex. XC-27 at 2 (Letter from Tom Hillstrom, Xcel Energy, and Tim Tessier, ITC Midwest, to Ray Kirsch, DOC).

Table 4: Proximity to Residences[881]

Residences, Distance from Anticipated Alignment	Route Alternative				
	Purple	Green	Red	Blue	Purple-E-Red
Residences within 0–75 Feet	1	0	0	0	0
Residences within 75–200 Feet	3	19	24	3	8
Residences within 200–500 Feet	12	46	38	10	19
Residences within 500–1,000 Feet	35	68	64	30	34
Total	51	133	126	43	61

288. The one residence in **Table 4** within 75 feet of the Purple Route is a seasonal trailer, discussed above.

289. **Table 5** summarizes the sharing of each route alternative with existing infrastructure, transmission lines, roads, or railroads.

Table 5: **Sharing of Existing Infrastructure by Route Alternative**[882]

Infrastructure	Route Alternatives				
	Purple	Green	Red	Blue	Purple-E-Red
Follows Existing Transmission Line (miles, percent)	24.5 (47)	5.4 (12)	26.3 (57)	9.7 (17)	32.3 (60)
Follows Existing Roads (miles, percent)	11.8 (23)	13.8 (30)	11.3 (24)	7.8 (14)	12.9 (24)
Follows Existing Railroad (miles, percent)	0 (0)	0 (0)	0 (0)	2.6 (5)	0 (0)
Total—Transmission Line, Road, or Railroad (miles, percent)	33.9 (66)	17.7 (39)	33.9 (73)	19.2 (34)	41.4 (77)
Follows Field, Parcel, or Section Lines (miles, percent)	33.2 (64)	36.9 (81)	36.5 (78)	47.2 (83)	41.5 (77)
Total—All (miles, percent)	49.1 (95)	39.1 (86)	41.6 (89)	49.6 (87)	51.3 (95)

Portions may share or parallel more than one type of infrastructure ROW or division/boundary line and therefore the sum may be greater than 100 percent.

290. The Purple-E-Red Route, Red Route, and Purple Route make the greatest use of existing infrastructure right-of-way. The Green and Blue Routes share the least amount of right-of-way with existing infrastructure.[883]

[881] Ex. EERA-13 at 6-4 (Draft EIS).
[882] *Id.* at 6-6.
[883] *Id.* at 6-7; *see also* Ex. XC-7 at 73 (Route Permit Application).

291. The Applicants' recommended Route configurations do not change any Route's overall proximity to residences. **Table 6**, below, shows proximity to residences for the Purple-BB-L Route, Green Route, Red-Q Route, Blue-CC-Q Route, and Purple-E-AA1-Red-Q Route.

Table 6: **Proximity to Residences for Applicants' Recommended Route Configurations**

Residences, Distance from Anticipated Alignment	Route Alternatives				
	Purple-BB-L	Green	Red-Q	Blue - CC - Q	Purple-E-AA1-Red-Q
Residences within 0-75 feet	1*	0	0	0	0
Residences within 75-200 feet	3	19	24	3	8
Residences within 200-500 feet	12	46	39	12	19
Residences within 500-1000 feet	36	68	64	30	35
Total	52	133	127	45	62

*seasonal trailer next to the Huntley Substation

292. The Blue-CC-Q and Purple-BB-L Routes have the fewest number of residences within 1,000 feet of the proposed alignment followed by the Purple-E-AA1-Red-Q Route. The Green and Red-Q Routes have the highest number of residences within 1,000 feet of their proposed alignment.[884]

293. The Applicants' recommended route configurations increase the amount of corridor sharing for each of the Routes but the Purple-E-AA1-Red-Q, Red-Q, and Purple-BB-L Routes make the greatest use of existing infrastructure right-of-way. The Green and Blue-CC-Q Routes share the least amount of right-of-way with existing infrastructure.[885]

[884] Ex. EERA-13. at Appendix J Route Analysis Tables (Draft EIS).
[885] *Id.* at 6-7; *see also* Ex. XC-7 at 73 (Route Permit Application).

Table 7: **Sharing of Existing Infrastructure for Applicants' Recommended Route Configurations**

Infrastructure	Route Alternatives				
	Purple-BB-L	Green	Red-Q	Blue - CC - Q	Purple-E-AA1-Red-Q
Total Length of Route (miles)	51.6	45.3	46.3	56.8	53.9
Follows Existing Transmission Line (miles, percent)*	25.9 (50%)	6.9 (15%)	34.7 (75%)	14.8 (26%)	40.7 (76%)
Follows Existing Roads (miles, percent)	14.2 (28%)	13.8 (30%)	9.3 (20%)	9.1 (16%)	11 (20%)
Follows Existing Railroad (miles, percent)	0	0	0	2.6 (5%)	0
Total – Transmission Line, Railroads and Roads (miles, percent)	40.1 (78%)	20.7 (47%)	(44) (95%)	26.5 (47%)	51.7 (96%)

**includes length where the route follows transmission line and road. This varies from Draft EIS tables that did not count where the route follows existing transmission and road.*

294. No significant aesthetic impacts are anticipated as a result of the Project.

iv. Zoning and Land Use

295. According to the PPSA, the route permit issued by the Commission is the only approval required to be obtained by the utility and the permit supersedes all regional, county, and local zoning and land use rules.[886] Impacts on local zoning and land use can, however, be considered impacts to human settlements and therefore a factor in evaluating routing options for a transmission line.[887]

296. The Project area is subject to zoning stipulations from several entities, including Nicollet County, Blue Earth County, Martin County, Faribault County, the City of North Mankato, and the City of Mankato.[888]

[886] Minn. Stat. § 216E.10.
[887] Ex. EERA-13 at 5-15 (Draft EIS).
[888] *Id.*

297. The Project will impact local and future planned land use. The Draft EIS states that the impacts are anticipated to be minimal to significant, depending on the selected route.[889]

298. The Project's land use impacts are route-specific and vary by route alternative. In general, the Project is compatible with zoning in the more rural, agricultural parts of the Project area, but less compatible with zoning and community planning in the more urban parts of Mankato and North Mankato.[890]

299. According to North Mankato's Comprehensive Development Plan, areas of new residential development are planned to occur north and southwest of the City. The Comprehensive Development Plan also includes areas zoned for future heavy industrial development, including the Northport Industrial Park, located north of U.S. Highway 14, near Lookout Drive.[891]

300. The Purple, Red, Purple-E-Red, and Green Routes all proceed westward from the Wilmarth Substation, double-circuited with or parallel to existing transmission lines. In doing so, they pass through a portion of land north of North Mankato that is planned for future residential development. Impacts from the Purple, Red, Purple-E-Red, and Green Routes on this future residential development are anticipated to be minimal, as the new line will follow an existing transmission line.[892]

301. The Purple and Purple-E-Red Routes continue following existing transmission lines to the west of North Mankato and have no further impact on the City's development plans.[893] Similarly, the Blue Route that proceeds eastward from the Wilmarth substation does not impact North Mankato's development plans.

302. The Red and Green Routes proceed to the south through North Mankato's Northport Industrial Park, which is planned for future heavy industrial development and future commercial/industrial mixed uses. Because industrial and commercial land uses are not necessarily incompatible with a transmission line, impacts on these land uses are anticipated to be minimal to moderate.[894]

303. The Red and Green Routes then continue proceeding further southward through land west and southwest of the City that is planned for future residential development.[895]

304. North Mankato opposes those portions of the Red and Green Routes that begin where the Routes turn south from the existing transmission line at Belgrade

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[889] *Id.* at 5-23.
[890] *Id.*
[891] *Id.* at 5-17.
[892] *Id.* at 6-8.
[893] *Id.*
[894] *Id.*
[895] *Id.*

Township and end where the Red and Green Routes meet Segment Alternative E. The City states that these route options interfere with the its near- and long-term growth plans described in the Comprehensive Development Plan adopted in 2015. The Red and Green Routes and Segment Alternatives A and B traverse through the planned North Ridge Residential Development Area and North Mankato South Boundary Residential Area.[896] According to North Mankato, 183 new homes will be added within 500 feet of the proposed Red and Green Routes.[897]

305. While there are potential impacts from the Red and Green Routes on North Mankato's future residential development, the impacts are most accurately described as moderate.[898] In order to ensure a common understanding of the designationsminimal, moderate and significant, the EIS provides definitions.[899] Significant impacts are defined as altering "an existing resource condition or function to the extent that the resource is severly impaired or cannot function."[900]The City's development plans are conceptual and the exact timing, scope, and nature of the development are uncertain.[901] In addition, the City has not yet annexed most of the future residential development area.[902] Finally, development can and does occur near and around transmission lines.[903] Nonetheless, parts of the Red and Green Routes impinge on the planned growth of North Mankato as described in its Comprehensive Development Plan; however, the impacts on this planned growth are moderate.[904]

306. The Blue Route proceeds eastward from the Wilmarth Substation and then southward between the cities of Mankato and Eagle Lake in a planned development area known as the Greater East Mankato Infill Service District. Some development of this area has begun and planned future land uses include a mix of residential, commercial, and public uses; open spaces; and extensions of public infrastructure to serve the area.[905]

307. The City of Mankato submitted comments on the Draft EIS, stating that the Blue Route conflicts with the its adopted land use and growth plans, future expansion of the Mankato Regional Airport, and maintenance of the forested wetland areas located between Mankato and the City of Eagle Lake.[906] The City of Mankato noted that the area between the cities of Mankato and Eagle Lake has, and will have in the near future, the

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[896] Ex. NM-1 (Fischer Direct).
[897] *Id.* at 14.
[898] *See* Ex. XC-20 at 2-12 (Hillstrom Rebuttal); Ex. EERA-20B at 1, 8 (Applicants' Comments on Draft EIS).
[899] Ex. EERA-21 at 5.1 (Final EIS).
[900] *Id.*
[901] Ex. XC-20 at 2-12 (Hillstrom Rebuttal); Ex. EERA-20B at 1, 8 (Applicants' Comments on Draft EIS).
[902] Ex. XC-20 at 2-12 (Hillstrom Rebuttal); Ex. EERA-20B at 1, 8 (Applicants' Comments on Draft EIS).
[903] Ex. XC-20 at 2-12 (Hillstrom Rebuttal); Ex. EERA-20B at 1, 8 (Applicants' Comments on Draft EIS).
[904] Ex. EERA-21 at 6-8 to 6-10 (Final EIS). DOC-EERA asserts that the impacts are moderate to significant. However, the Administrative Law Judge finds moderate to be the more accurate description because the development does not yet exist and because the transmission line would not "severly impair" or cause the resource to "not function." That is, it would predictably have an unwanted impact but not a debilitating one.
[905] Ex. EERA-13 at 6-10 (Draft EIS).
[906] Ex. EERA-20C at 2-11 (LGU Comments on Draft EIS).

fastest growing population in the Project area.[907] This area has already experienced significant public and private infrastructure investment reflecting the urban development. The City of North Mankato requested that the Draft EIS be amended to state that the Blue Route's impacts on aesthetics, displacement, zoning and land use, public services, and flora are "moderate to significant and likely unable to be mitigated."[908]

308. The exact timing, scope, and nature of the future development within the City of Mankato and the area between the City of Mankato and Eagle Lake is unknown today. Further, both industrial and residential development occurs near transmission lines.[909]

309. Nonetheless, the Blue Route impacts Mankato's planned future development, including limiting the planned build out of the Greater East Mankato Infill Service District, particularly residential development; the impacts on Mankato's planned future development are moderate.[910]

310. No significant impacts to approved and known land use plans are anticipated as a result of the Project should any route be selected.

311. The Applicants' recommended route configurations for the Red, Green, and Blue Routes do not avoid the areas identified by the Cities of North Mankato and Mankato for future development.

v. Electronic Interference

312. The Project's potential electronic interference impacts do not vary by route or segment alternative.[911]

313. No significant impacts on electronic devices—such as radios, televisions, internet, cellular phones, and GPS applications—are anticipated as a result of the Project.[912]

vi. Cultural Values

314. The Project's cultural impacts do not vary notably by route or segment alternative.[913]

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[907] *Id.*
[908] *Id.*
[909] Ex. XC-20 at 3 (Hillstrom Rebuttal).
[910] Ex. EERA-21 at 6-8 to 6-10 (Final EIS).
[911] Ex. EERA-13 at 6-3 (Draft EIS).
[912] *Id.* at 5-23 to 5-26, 6-3; Ex. XC-7 at 104-05 (Route Permit Application).
[913] Ex. EERA-13 at 6-3 (Draft EIS).

315. No significant impacts on cultural values are anticipated as a result of the Project.[914]

vii. Recreation

316. Recreation in the Project area consists primarily of outdoor recreational opportunities, such as canoeing, boating, biking, snowmobiling, camping, hunting, and fishing. Several lakes, rivers, WMAs, WPAs, recreational trails, and Minneopa State Park support these activities in the Project area.[915]

317. Impacts on recreation due to construction of the Project are anticipated to be minimal and temporary by nature, lasting only for the duration of construction. The Project itself, once constructed, could impact aesthetics at a special recreational location such that recreation could be less enjoyable. Impacts to recreation, however, are anticipated to be minimal. Potential impacts can be mitigated by prudent route selection, i.e., routing the line away from recreational resources.[916]

318. The Project's recreational impacts do not vary notably by route or segment alternative.[917]

319. No significant impacts to recreation are anticipated as a result of the Project.

viii. Public Services, Transportation, and Infrastructure

320. Transmission line projects have the potential to negatively impact public services (e.g., roads, railways, utilities, emergency services, and airports).[918]

321. The Applicants will coordinate the placement of transmission line structures with MnDOT, local roadway authorities, and railway authorities to avoid long-term impacts on roadways and railways. [919] The Project's long-term impacts on roadways and railways are anticipated to be minimal and do not vary notably by route or segment alternative.[920]

322. Although construction activities could occasionally cause lane or roadway closures and increase traffic in the Project area, temporary impacts from construction on roadways and railways are anticipated to be minimal and do not vary notably by route or segment alternative.[921]

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[914] *Id.* at 5-26, 6-3 (Draft EIS); Ex. XC-7 at 93-94 (Route Permit Application).
[915] Ex. EERA-13 at 5-55 (Draft EIS); *see also* Ex. XC-7 at 94-101 (Route Permit Application).
[916] Ex. EERA-13 at 5-59 (Draft EIS); Ex. XC-7 at 101-02 (Route Permit Application).
[917] Ex. EERA-13 at 6-15 (Draft EIS).
[918] Ex. XC-7 at 102-03, 105-13 (Route Permit Application).
[919] Ex. EERA-13 at 5-27 to 5-28, 6-10 (Draft EIS); Ex. XC-7 at 111-12 (Route Permit Application).
[920] Ex. EERA-13 at 5-27 to 5-28, 6-10 (Draft EIS); Ex. XC-7 at 111-12 (Route Permit Application).
[921] Ex. EERA-13 at 5-26, 6-3 (Draft EIS); Ex. XC-7 at 111-12 (Route Permit Application).

323. No impacts on emergency services are anticipated as a result of the Project.[922] Any temporary road closures required during construction would be coordinated with local jurisdictions to provide for safe access for police, fire, and other rescue vehicles. [923] Impacts on emergency services do not vary by route or segment alternative.[924]

324. Electric and gas utilities in the Project area are provided by a variety of public utility companies, co-operatives, and other entities. There are also several bulk transportation pipelines in the project area. In addition, municipal public works and departments construct and maintain various public utilities, including sanitary sewers, streets, sidewalks, and water mains.[925]

325. Depending on the design of the project, the Green, Red, and Blue Routes may potentially impact Magellan's pipelines in the Project area. Magellan prefers the Purple Route, but also anticipates that it will be able to work collaboratively with the Applicants to complete any mitigation efforts if it is later determined that any mitigation is needed, no matter which route is selected for the Project.[926]

326. The Project's impacts on traditional public electric, gas, pipeline, and municipal utilities are anticipated to be minimal. These impacts do not vary by route or segment alternative.[927]

327. The Project's impacts on the Eastwood Solar Farm, a 5.5 MW solar-powered generating facility located on the eastern edge of Mankato, will depend on the route selected. The Blue Route may generate shadows on the PV cells of the solar farm, potentially impeding its output and efficiency. Significant impacts are not anticipated as shadows are expected to be limited to morning hours. Accordingly, the Blue Route's impacts on the Eastwood Solar Farm are anticipated to be minimal to moderate.[928]

328. The other four route alternatives (Purple, Green, Red, and Purple-E-Red) as well as the segment alternatives associated with them have no impacts on the Eastwood Solar Farm.[929]

329. The Mankato Regional Airport is a public airport located approximately five miles northeast of Mankato. Transmission line structures and conductors can conflict with the safe operation of an airport if they are too tall for the applicable safety zones. The Mankato Regional Airport is subject to zoning and development guidelines, such as the

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[922] Ex. EERA-13 at 5-29 to 5-30, 6-10 (Draft EIS).
[923] *Id.*
[924] *Id.*
[925] *Id.* at 5-29 (Draft EIS).
[926] Letter from Jimmy Puckett, Magellan Corrosion Supervisor, to Administrative Law Judge Case (Dec. 18, 2018) (eDocket No. 201812-148559-02).
[927] Ex. EERA-13 at 6-10 (Draft EIS).
[928] *Id.* at 6-12.
[929] *Id.*

Mankato Regional Airport Zoning Ordinance, Federal Aviation Administration guidelines, and MnDOT guidelines, which all regulate the height of structures in close proximity to airports.[930]

330. The Project's impact on the Mankato Regional Airport will depend on the route selected. The Purple, Green, Red, and Purple-E-Red Routes as well as the segment alternatives associated with them have no impact on the Mankato Regional Airport.[931]

331. The Blue Route is located within approximately one mile of the Mankato Regional Airport.[932] The Applicants' proposed structure heights would comply with the existing regulations and limitations that apply to the Mankato Regional Airport.[933]

332. The Blue Route has the potential to impact future expansion of the Mankato Regional Airport and these impacts could require mitigation measures.[934] However, any such impacts are currently uncertain and no expansion plans have been approved or are under active development.[935]

333. No significant impacts to public services are anticipated as a result of the Project.[936]

B. Effects on Public Health and Safety

334. Minnesota Rule 7850.4100(B) (2017) requires consideration of the Project's effect on public health and safety. The evidence on the record demonstrates that health and safety issues are not anticipated during construction and operation of the facilities.

i. Construction and Operation of the Project

335. The Project will be designed in compliance with local, state, National Electrical Safety Code (NESC), and Applicants' standards for transmission lines, including clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and right-of-way widths.[937]

336. Construction crews and/or contract crews will comply with local, state, NESC, and Xcel Energy standards regarding installation of facilities and standard construction practices.[938] Established Xcel Energy standards and industry safety

[930] *Id.* at 5-30 to 5-31; Ex. XC-7 at 111 (Route Permit Application).
[931] Ex. EERA-13 at 6-12 (Draft EIS).
[932] *Id.* at 6-13.
[933] Ex. XC-7 at 111 (Route Permit Application); Ex. XC-19 at 31 (Hillstrom Direct).
[934] Ex. EERA-13 at 6-13 (Draft EIS).
[935] *Id.* at 5-32, 6-13.
[936] *Id.* at 6-10.
[937] Ex. XC-7 at 76 (Route Permit Application).
[938] *Id.*

procedures will be followed during and after installation of the transmission line.[939] This will include clear signage during all construction activities.[940]

337. The proposed transmission line will be equipped with protective devices to safeguard the public from any damage from the transmission line, such as structures or conductors falling to the ground or other potential accidents.[941] The protective devices include circuit breakers and relays located where the line connects to the substations.[942] The substations are fenced and contain a locking gate for access.[943] The protective equipment will de-energize the line should such an event occur. [944] Proper signage will be posted warning the public of the risk of coming into contact with energized equipment.[945]

338. The Applicants' design standards exceed the NESC requirements for safe design and operation of transmission lines.[946] These standards include designing transmission lines to withstand severe winds from summer storms and withstand the combination of ice and strong winds from winter weather.[947]

339. The record demonstrates that construction and operation of the Project will not significantly impact public safety.[948]

ii. Electric and Magnetic Fields

340. Minnesota Statutes section 216E.03, subdivision 7 requires consideration of the effects of electric and magnetic fields on public health and welfare.

341. Electric and magnetic fields are invisible regions of force resulting from the presence of electricity and are produced by all electric devices, including transmission and distribution lines.[949]

342. Electric fields on a transmission line are dependent on the voltage of the line.[950] The strength of an electric field decreases rapidly as the distance from the source increases and electric fields are easily shielded or weakened by most objects, such as trees or buildings.[951]

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939 *Id.*
940 *Id.*
941 *Id.* at 76-77.
942 *Id.*
943 *Id.*
944 *Id.*
945 *Id.*
946 Ex. EERA-20B at 6 (Applicants' Comments on DEIS).
947 *Id.*
948 Ex. XC-7 at 77 (Route Permit Application).
949 *Id.* at 54.
950 *Id.*
951 *Id.* at 55; Ex. EERA-13 at 5-33 (Draft EIS).

343. Magnetic fields are created by the electrical current moving through a transmission line. Similar to electric fields, their strength decreases rapidly as the distance from the source increases.[952]

344. Since the 1970s, a large amount of scientific research has been conducted on electric and magnetic fields and human health. This large body of research has been reviewed by many leading public health agencies such as the U.S. National Cancer Institute, the U.S. National Institute of Environmental Health Sciences, and the World Health Organization, among others. These reviews have concluded that there is insufficient evidence to demonstrate a causal relationship between electric and magnetic field exposure and any adverse human health effects.[953]

345. Predicted electric fields for the Project, as modeled and measured by the Applicants, are below the 8 kV/m standard required by the Commission.[954] Similarly, predicted magnetic fields for the Project, as modeled and measured by the Applicants, are below any regulatory guidelines for magnetic fields used in other states or internationally.[955]

346. No adverse health impacts from electronic and magnetic fields are anticipated for persons living or working near the Project.[956]

iii. Implantable Medical Devices

347. Electromechanical implantable medical devices, such as cardiac pacemakers, cardioverter defibrillators, neurostimulators, and insulin pumps, may be subject to interference from electric and magnetic fields.[957]

348. Maximum levels of electric fields at the edge of the right-of-way are anticipated to be less than 1.5 kV/m, and in most instances, less than 1 kV/m. These levels do not interfere or interact with implantable medical devices.[958]

349. No adverse health impacts or permanent impacts to implantable medical devices are anticipated as a result of the Project.[959]

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[952] Ex. EERA-13 at 5-32 to 5-33 (Draft EIS).
[953] Ex. XC-7 at 62-63 (Route Permit Application).
[954] Ex. EERA-13 at 5-36 (Draft EIS); Ex. XC-7 at 54-57 (Route Permit Application).
[955] Ex. EERA-13 at 5-38 (Draft EIS); Ex. XC-7 at 58-63 (Route Permit Application).
[956] Ex. EERA-13 at 5-36 (Draft EIS); Ex. XC-7 at 113 (Route Permit Application).
[957] Ex. EERA-13 at 5-42 (Draft EIS).
[958] *Id.* at 5-43.
[959] *Id.*

iv. Stray Voltageand Induced Voltage[960]

350. Stray voltage is, generally, an issue associated with electrical distribution lines and electrical service at a residence or on a farm. [961] Transmission lines do not create stray voltage as they do not directly connect to businesses, residences, or farms.[962] Because the Project is a 345 kV transmission line, it does not directly connect to businesses or residences, and accordingly, no stray voltage impacts are anticipated from the Project.[963]

351. The Project's stray voltage impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.[964] Any potential impacts on distribution services can be mitigated with several measures, including phase cancellation and proper grounding.[965]

352. Induced voltage is the electric field from a transmission line extending to a conductive object in close proximity to the line. The commission requires an electric field limit to prevent serious hazard from shoks due to induced voltage.[966]

353. No significant impacts to public health and safety are anticipated from stray and induced voltage as a result of the Project.

C. Effects on Land-Based Economies and Direct and Indirect Economic Impacts

354. Minnesota Rule 7850.4100(C) requires consideration of the Project's effects on land-based economies, specifically agriculture, forestry, tourism, and mining.

i. Agriculture

355. Agriculture is the main land-based economic resource in the Project area, with roughly 90 percent of the soil identified as prime farmland (e.g., prime farmland or farmland of statewide importance).[967]

356. Transmission lines cause permanent agricultural impacts when transmission line structures are located in crop, pasture, and other agricultural land.[968] The footprint of the structures cannot be used for agricultural production, which affects s

[960] The Applicants use the terms "Stray Voltage" and "Induced Voltage," however the term "induced voltage" is not defined in the application or EIS.
[961] *Id.*; Ex. XC-7 at 64 (Route Permit Application).
[962] Ex. XC-7 at 64 (Route Permit Application).
[963] Ex. EERA-13 at 5-44 (Draft EIS); Ex. XC-7 at 64 (Route Permit Application).
[964] Ex. EERA-13 at 6-15 (Draft EIS).
[965] *Id.*
[966] Ex. EERA-13 (Draft EIS) at 5-45.
[967] Ex. EERA-13 at 5-47, 5-51 (Draft EIS).
[968] *Id.* at 5-47.

farm income.[969] Structures can impede the use of farm equipment and thus limit the management options for agricultural operations, which also affects farm income by increasing costs or by requiring farmers to forgo more profitable uses of their lands .[970] Each structure must be carefully avoided during tillage, planting, spraying, and harvesting of fields.[971]

357. In addition, transmission line structures in agricultural fields could potentially impede the use of irrigation systems.[972]

358. The Project's impacts on agricultural operations and production are route-specific and vary by route and segment alternative, the type of structures used, and the configuration of the structures.[973]

359. The Applicants and the MnDOA have developed and finalized an Agricultural Mitigation Plan for the Project, outlining best practices to minimize and mitigate impacts on farmland.[974]

360. Any other effects on agriculture from the Project (e.g., irrigation, precision farming, organic agriculture, animal production, and beekeeping) are anticipated to be minimal. These impacts do not vary notably by route or segment alternative.[975]

361. Impacts on agricultural production depend on the amount of farmland in a route's right-of-way, the structure used (H-frame vs. monopole), and the line configuration (parallel vs. double-circuit). Depending on the structure and configuration, the Project may increase or decrease the current amount of structures placed in farmland in the Project area.[976]

362. **Table 6-4** shows the amount of agricultural land in the rights-of-way of the route alternatives as well as the number of additional structures placed in agricultural fields as a result of the Project.

[969] *Id.* at 5-51.
[970] *Id.* at 5-47, 5-51; Ex. XC-7 at 116 (Route Permit Application).
[971] Ex. EERA-13 at 5-47, 5-51 (Draft EIS); Ex. XC-7 at 116 (Route Permit Application); Mankato 1:00 p.m. Tr. at 62 (Feb. 27, 2019) ("I have three sets of poles, they're a real pain and you know what to farm around."); Mankato 6:00 p.m. Tr. at 32-33 (Feb. 27, 2019); Delavan 1:00 p.m. Tr. at 44-45 (Feb. 28, 2019).
[972] Ex. EERA-13 at 5-53 (Draft EIS).
[973] Ex. XC-19 at 5-46 (Hillstrom Direct).
[974] Ex. XC-20 at 14 (Hillstrom Rebuttal); Ex. XC-7 at 117 (Route Permit Application).
[975] Ex. EERA-13 at 6-15 (Draft EIS).
[976] *Id.* at 6-16; Ex. XC-7 at 116-17 (Route Permit Application).

Table 6-4: Agricultural Land and Additional Structures by Route Alternative[977]

Resource		Purple Route	Green Route	Red Route	Blue Route	Purple-E-Red Route
Agricultural Land in 150-Foot Right-of-Way (acres)		611	519	506	755	619
Additional Structures in Agricultural Fields	H-Frame Structures for Single-Circuit Segments	215	195	-5	240	41
	Monopole Structures for Single-Circuit Segments	75 (Double-Circuit)	120	-25	125	-28 (Double-Circuit)
		175 (Parallel)				9 (Parallel)

363. As shown in **6-4**, using H-frame structures instead of monopoles, results in more structures in agricultural fields and more impacts to agricultural production.[978] For example, for the Blue Route, with H-frame structures, there would be 240 structures in fields; with monopoles, there would be 125 structures.[979]

364. In addition, paralleling instead of double-circuiting results in more structures in agricultural fields and higher impacts on agricultural production.[980] As an example, for the Purple Route, double-circuiting results in 75 structures in fields; paralleling results in 175.[981]

365. Double-circuiting with an existing transmission line will lead to reduction in the number of structures in farm fields, if existing H-frame structures are removed and replaced with monopole structures.[982]

366. The Red Route and the Purple-E-Red Route with monopole structures reduce the number of structures in fields.[983] The Red Route results in a net reduction of 25 structures in fields.[984] The Purple-E-Red route results in a reduction of 16 structures in fields.[985]

[977] Ex. EERA-13 at 6-17 (Draft EIS); *see also* Ex. XC-7 at 117 (Route Permit Application); Ex. EERA-21 at 6-17, Table 6-4 (Final EIS).
[978] Ex. EERA-13 at 6-16 ((Draft EIS).
[979] *Id.*
[980] *Id.*
[981] *Id.*
[982] *Id.*
[983] *Id.* at 6-18.
[984] *Id.*
[985] *Id.*

367. The Purple Route would have moderate impacts on agriculture with a monopole, double-circuit design and this would increase the number of structures in fields by 75.

368. The Purple, Green, and Blue Routes with H-frame structures or monopole (single-circuit) structures would have the greatest agricultural impacts.[986]

369. The Applicants recommended route configurations do not include any H-frame or parallel design options due to the increased agricultural impacts of those designs.[987] In addition, the Applicants' recommended route configurations further reduce the number of structures in fields for the Red-Q Route, Purple-E-AA1-Red-Q Route, and the Blue-CC-Q Route but slightly increase the number of structures in fields along the Purple-BB-L Route.

Table 8: Agricultural Land and Additional Structures for Applicants' Recommended Route Configurations[988]

Resource		Purple-BB-L	Green	Red-Q	Blue-CC-Q	Purple-E-AA1-Red-Q
Agricultural Land in 150-foot Right-of-Way (acres)		635 (plus additional Ag. Land in Segment BB	519	514	757 (plus unknown difference from Segment Alt. CC)	629.3
Additional Structures in Agricultural Fields	H-Frame Structures for Single-Circuit Segments	215	195	Not Analyzed[989]	Not Analyzed[990]	Not Analyzed[991]
	Monopole Structures for Single-Circuit Segments	93 (Double Circuit)	120	-62	88	-65
		193 (Parallel)				Not Analyzed

370. The Red Route and the Purple-E-Red Route with monopole structures reduce the number of structures in fields.[992] The Red Route results in a net reduction of

[986] *Id.*
[987] Applicants' Route Permit Brief at 22-23 (Mar. 22, 2019) (eDocket No. 20193-151312-02).
[988] *See* Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS).
[989] Segment Alternative Q was not analyzed for an H-frame configuration.
[990] Segment Alternative Q was not analyzed for an H-frame configuration.
[991] Segment Alternative Q was not analyzed for an H-frame configuration.
[992] Ex. EERA-13 at 6-18 (Draft EIS).

25 structures in fields.[993] The Purple-E-Red route results in a reduction of 28 structures in fields.[994]

371. The Purple Route would have moderate impacts on agriculture with a monopole, double-circuit design; this route and design would increase the number of structures in fields by 75.[995]

ii. Forestry

372. There are few remaining forested areas in the Project area. Some forested riparian land is located along larger streams and rivers and some small woodlots are located adjacent to farmsteads. There are no known tree farms, timber plots, or other commercial forestry operations in the Project area.[996]

373. No significant impacts on forestry resources or operations are anticipated as a result of the Project. The impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.[997]

iii. Mining

374. Mining does not comprise a major industry in the Project area, and any such operations consist mainly of aggregate sand or gravel mining sites used for local construction projects.[998]

375. The Project's impacts on mining are anticipated to be minimal and they do not vary notably by route or segment alternative.[999]

iv. Tourism

376. Impacts on tourism due to construction of the Project are anticipated to be minimal and temporary by nature, lasting only for the duration of construction. The Project itself, once constructed, could impact aesthetics at a specific location such that activities could be less enjoyable. However, in some cases the ROW for powerlines may host an ancillary use, such as a bike path, that may have a positive impact on tourism.[1000] Long-term impacts on tourism are anticipated to be minimal. Potential impacts can be mitigated

[993] Ex. EERA-13 at 6-18 (Draft EIS).
[994] Ex. EERA-21 at 6-17, Table 6-4 (Final EIS).
[995] Ex. EERA-21 at 6-40, Table 6-14 and 6-17, Table 6-4 (Final EIS).
[996] *Id.* at 5-54; Ex. XC-7 at 117-18 (Route Permit Application).
[997] Ex. EERA-13 at 5-54, 6-15 (Draft EIS); Ex. XC-7 at 118 (Route Permit Application).
[998] Ex. EERA-13 at 5-54 (Draft EIS); Ex. XC-7 at 119 (Route Permit Application).
[999] Ex. EERA-13 at 5-55, 6-15 (Draft EIS); Ex. XC-7 at 119 (Route Permit Application).
[1000] Ex. XC-11 (Letter, Minneopa State Park Update).

by prudent route selection, i.e., routing the line away from resources subject to tourism.[1001]

377. The Project's impacts on tourism are anticipated to be minimal and do not vary notably by route or segment alternative.[1002]

D. Effects on Archeological and Historic Resources

378. Minnesota Rule 7850.4100(D) (2017) requires consideration of the Project's effects on archaeological and historic resources.

379. Archeological resources include historic and prehistoric artifacts, structural ruins, and earthworks, which are often partially or completely below ground. Historic resources include extant structures, such as buildings and bridges, and landscapes.[1003]

380. The SHPO maintains a comprehensive database of all documented prehistoric and historic archaeological sites as well as historic architectural resources and cultural landscapes for the entire state. To determine potential impacts on cultural resources, known archeological and historic sites in the Project area were identified through SHPO records.[1004]

381. The Project's impacts on archeological and historic resources are route-specific, although most of the identified cultural resources are located at a significant distance from the routing alternatives.[1005]

382. The Project's impacts on archeological and historic resources are anticipated to be minimal with proper mitigation measures.[1006] The primary means of mitigation are prudent routing (avoiding known cultural resources) and prudent structure placing within a route.[1007]

383. The Purple Route has two archeological resources located within its right-of-way[1008]—neither of these resources have been evaluated for listing in the National Register of Historic Places (NRHP).[1009] The Project's impacts on these resources can be avoided and minimized through surveys and prudent placement of the route alignment and individual structures.[1010]

[1001] Ex. EERA-13 at 5-59 (Draft EIS); Ex. XC-7 at 118 (Route Permit Application).
[1002] Ex. EERA-13 at 6-15 (Draft EIS).
[1003] *Id.* at 5-59 (Draft EIS).
[1004] *Id.*; Ex. XC-7 at 119-20 (Route Permit Application).
[1005] Ex. EERA-13 at 5-59 (Draft EIS).
[1006] *Id.* at 5-63.
[1007] *Id.*
[1008] One is an unnamed site with artifact scatter and the other is Pleasant Mound ghost town. *See id.* at 6-20.
[1009] *Id.* at 6-19; Ex. XC-7 at 120-21 (Route Permit Application).
[1010] Ex. EERA-13 at 6-19 (Draft EIS); Ex. XC-7 at 120-21 (Route Permit Application).

384. A significant historic and architectural resource, the Adams H. Bullis House, listed in the NRHP, is located within 500 feet of the Green Route.[1011] Impacts to this resource can be avoided by selecting a route other than the Green Route or by placing the transmission line on the Green Route so that the line would be shielded from view by vegetation surrounding the Adams H. Bullis House to the extent possible.[1012]

385. Two historic resources, the Borgmeier farmstead and an unnamed farmstead, are located within 500 feet of the Blue Route.[1013] These farmsteads have not been evaluated for listing in the NRHP.[1014] Impacts to these farmsteads can be avoided by selecting a route other than the Blue Route or by placing the transmission line on the Blue Route so that the line would be shielded from view by vegetation surrounding the farmsteads to the extent possible.[1015]

386. The Applicants' recommended route configurations are not anticipated to change the historic and architectural resources located within the right-of-way or within 500 feet of the route alternative.[1016] Segment Alternative Q has two fewer historic sites within one mile as compared to the same segment of the Red and Blue Routes but has two more archeological sites within one mile as compared to the same segment of the Red and Blue Routes.[1017] No archaeological or historic resources occur within the rights-of-way of Segment Alternatives BB and CC.[1018] Segment Alternative CC is within 0.5 miles of a historic resource – an unnamed farmstead.[1019]

E. Effects on the Natural Environment

387. Minnesota Rule 7850.4100(E) (2017) requires consideration of the Project's effects on the natural environment including effects on air and water quality and flora and fauna. Appendix J of the EIS contains Route Analysis Data Tables. These tables allows the Commission, and any member of the public, to review, in specific numeric detail, the relative effects of each route segment on most considerations about the natural environment as well as other impacts.[1020]

388. The Project's potential impacts on natural resources are anticipated to be relatively minimal because the Project area is primarily agricultural land with limited natural resource diversity.[1021] Whether an area with limited diversity and habitat should have emphasis placed on preserving that diversity may inform of the weight given this

[1011] Ex. EERA-13 at 6-20 (Draft EIS).
[1012] *Id.*; Ex. XC-7 at 121-22 (Route Permit Application).
[1013] Ex. EERA-13 at 6-20 (Draft EIS); Ex. XC-7 at 122 (Route Permit Application).
[1014] Ex. EERA-13 at 6-20 (Draft EIS); Ex. XC-7 at 122 (Route Permit Application).
[1015] Ex. EERA-13 at 6-20 (Draft EIS); Ex. XC-7 at 122 (Route Permit Application).
[1016] Ex. EERA-13 at Appendix J Route Analysis Tables (Draft EIS).
[1017] *Id.*
[1018] Ex. EERA-21 at Appendix L, L-129 to L-140 (Final EIS).
[1019] *Id.* at Appendix L, L-135.
[1020] *Id*.
[1021] Ex. EERA-13 at 5-63 (Draft EIS).

factor. Impacts can, to some extent, be avoided and mitigated through the choice of routes and permit requirements such as winter tree clearing and consultation with USFW and MnDNR.[1022]

i. Air Quality

389. Potential air quality impacts associated with the Project come from two primary sources: long-term emissions from operating the transmission line and short-term emissions from construction activities. Ionization of air molecules surrounding the transmission line conductor (corona effect) produces a very small amount of ozone and nitrogen oxide (NOx). Accordingly, emissions from operating the proposed transmission line are anticipated to have negligible impacts on air quality.[1023]

390. Emissions during Project construction would primarily consist of emissions from construction vehicles and other equipment (CO_2, NOx, and particulate matter) as well as dust generated from earth-disturbing activities.[1024] Any emissions from construction would be similar to those from agricultural activities common in the Project area and would only occur for short periods of time in localized areas.[1025] Minor short-term air quality impacts from construction can be mitigated by prudent construction practices, such as using water trucks to reduce dust, covering open-bodied trucks, and promptly reseeding areas of disturbed vegetation.[1026]

338. The Project's air quality impacts are anticipated to be minimal and they do not vary notably by route or segment alternative.[1027]

391. The Applicants also modeled the avoided tons of emissions for SO_2, NO_x, and CO_2 resulting from the decrease in coal generation in and increase in renewable generation that the Project is expected to make possible.[1028] The Applicants concluded that using the most recent Commission-approved values for externalities, and dispatch assumptions from MISO's MTEP17 PROMOD cases for the Project produces $5.3 million to $21.1 million in annual public policy benefits from emissions reductions during the simulated study years.[1029]

ii. Water Quality and Resources

392. There are a variety of water resources in the Project area, such as rivers and streams (watercourses), lakes and ponds (waterbodies), wetlands, floodplains, and groundwater resources.[1030]

[1022] *Id.*
[1023] *Id.* at 5-46; Ex. XC-7 at 124 (Route Permit Application).
[1024] Ex. EERA-13 at 5-46.
[1025] *Id.*
[1026] *Id.*; Ex. XC-7 at 124 (Route Permit Application).
[1027] Ex. EERA-13 at 6-15 (Draft EIS).
[1028] Ex. XC-6 at 105 (Certificate of Need Application).
[1029] *Id.*
[1030] Ex. EERA-13 at 5-64 (Draft EIS).

a. Surface Waters

393. Watercourses in the Project area tend to be small to moderate in size, and the major watercourses include the Blue Earth River, Le Sueur River, Maple River, Minnesota River, and Watonwan River.[1031] Smaller watercourses include the Cobb River, Elm Creek, Minneopa Creek, Perch Creek, Rice Creek, and Willow Creek.[1032] The Project area contains several larger waterbodies, including Bass Lake, Cottonwood Lake, Lake Crystal, Eagle Lake, Lura Lake, Loon Lake, Mills Lake, Minnesota Lake, Perch Lake, Rapidan Lake, and Rice Lake.[1033]

394. It is anticipated that all watercourses and waterbodies in the Project area would be avoided by prudent routing or be spanned.[1034] The crossing distance for all watercourses and waterbodies in the project area is less than 1,000 feet—the typical transmission line span for the Project.[1035] Thus, no structures would be placed within these features, and no direct impacts on watercourses and waterbodies are anticipated.[1036]

395. Construction activities have the potential to have indirect impacts on surface water resources, for example, as a result of vegetation removal within the right-of-way.[1037] Mitigation measures, such as the development of a stormwater pollution prevention plan, are anticipated to prevent or minimize any such Project impacts on watercourses and waterbodies.[1038]

396. The Green Route crosses 17 watercourses (seven are of Public Waters Inventory (PWI)), the Red Route crosses 18 watercourses (12 are of PWI), the Purple-E-Red Route crosses 22 watercourses (14 are of PWI), the Purple Route crosses 27 watercourses (17 are of PWI), and the Blue Route crosses 41 watercourses (15 are of PWI).[1039]

397. The Blue-CC-Q Route continues to have the most watercourse crossings with 43 crossings. The next highest total is for the Purple-BB-L Route (33 crossings) and the Purple-E-AA1-Red-Q Route (22 crossings).[1040]

[1031] *Id.*
[1032] *Id.*
[1033] *Id.*
[1034] *Id.* at 5-67.
[1035] *Id.*
[1036] *Id.*
[1037] *Id.* at 5-67, 6-22; Ex. XC-7 at 132 (Route Permit Application).
[1038] Ex. EERA-13 at 5-67, 6-23; Ex. XC-7 at 132 (Route Permit Application).
[1039] Ex. EERA-13 at 6-22 to 6-23.
[1040] *Id.* at Appendix J Route Analysis Tables.

b. Wetlands

398. Placement of transmission structures in a wetland will result in permanent negative impacts on the environment where the structure foundation occupies space in the wetland. Permanent impacts on wetlands can also occur when forested wetlands are converted to non-forested wetlands when trees are removed from the transmission line right-of-way. Wetlands can be impacted by soil erosion and sediment deposition during construction. Sedimentation and ground disturbance in wetlands can make them more susceptible to establishment of invasive plant species, such as reed canary grass, which would adversely impact wetland function by reducing vegetative biodiversity and altering wildlife habitat. Vegetation clearing, movement of soils, and construction traffic could impair functioning wetlands.[1041]

399. The Project may impact wetlands and these impacts are route-specific.[1042] The Project's potential impacts on wetlands can be mitigated by selecting routes, alignments, and pole placements that avoid wetlands.[1043]

400. If wetlands cannot be avoided, construction impacts can be mitigated by a variety of strategies, including using construction mats, constructing during winter months when the ground is frozen, using all-terrain construction equipment designed to minimize soil impacts, assembling structures on upland areas prior to site installation, and transporting crews and equipment via roads instead of wetlands.[1044]

401. The Purple-E-Red Route has the greatest amount of non-forested wetland within the right-of-way (63 acres), followed by the Purple Route (53 acres), Red Route (48 acres), Green Route (38 acres), and Blue Route (37 acres).

402. The Blue Route has the largest amount of forested wetland within the right-of-way (19 acres), followed by the Red Route (13 acres), the Purple-E-Red Route (11 acres), the Green Route (7 acres), and the Purple Route (6 acres). None of the rights-of-way for the route alternatives contain PWI wetlands.[1045]

403. The Purple-E-AA1-Red-Q Route has the greatest amount of non-forested wetland within the right-of-way (67.1 acres), followed by the Red-Q Route (52 acres), the Purple-BB-L Route (48.6 acres), the Blue-CC-Q Route (41.4 acres), and the Green Route (38.2 acres).

404. The Blue-CC-Q Route has the largest amount of forested wetland within its right-of-way (19 acres), followed by the Red-Q Route (14.1 acres), the Purple-E-AA1-

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[1041] *Id.* at 5-69; Ex. EERA-13 at 6-24 (Draft EIS).
[1042] Ex. EERA-13 at 6-24 (Draft EIS); *see also* Ex. XC-7 at 135-37 (Route Permit Application).
[1043] Ex. EERA-13 at 6-24 (Draft EIS).
[1044] *Id.* at 5-70.
[1045] *Id.* at 6-24; *see also* Ex. XC-7 at 135 (Route Permit Application).

Red-Q (12.2 acres), the Green Route (7 acres), and the Purple-BB-L Route (5.3 acres). None of the rights-of-way for the route alternatives contain PWI wetlands.[1046]

c. Floodplains

405. The Federal Emergency Management Agency (FEMA) delineates floodplains and determines flood risks in areas susceptible to flooding. At the state level, the MnDNR oversees the administration of the state floodplain management program and oversees the national flood insurance program for Minnesota. Floodplains are also regulated at the local level and Martin County, Nicollet County, and the City of Mankato have designated floodplain zoning districts within the Project area.[1047]

406. FEMA has designated 100-year floodplains along the following watercourses: Blue Earth River, Center Creek, Cobb River, Elm Creek, Le Sueur River, Little Cobb River, Maple River, Minneopa Creek, Minnesota River, Rice Creek, South Creek, Watonwan River, Willow Creek, and along several unnamed tributaries.[1048]

407. No impacts on floodplains are anticipated as a result of the Project. If a floodplain crossing is greater than the typical 1,000-foot transmission line span, the crossing may require permanent placement of structure foundations within the floodplain. However, it is anticipated that these structures would have limited effects on water flow, floodwater storage capacity, or flooding in these floodplains, since the volume displaced by the structures would likely be small in the context of the setting. FEMA does not require mitigation for construction within the floodplain.[1049]

408. The Project's impacts on floodplains are anticipated to be minimal and they do not vary notably by route or segment alternative.[1050]

d. Groundwater

409. The Project's impacts on groundwater are anticipated to be minimal and they do not vary notably by route or segment alternative.[1051] Structure foundations used for the construction are not expected to be deep enough to impact groundwater resources.[1052]

410. The applicants note that if shallow depths to groundwater resources are identified during geotechnical design of the project, specialty structures with wider, shallower foundations may be used.[1053]

[1046] Ex. EERA-13 at 6-24 (Draft EIS); *see also* Ex. XC-7 at 135 (Route Permit Application).
[1047] Ex. EERA-13 at 5-68 (Draft EIS).
[1048] *Id.*; Ex. XC-7 at 127 (Route Permit Application).
[1049] Ex. EERA-13 at 5-68 (Draft EIS); Ex. XC-7 at 127 (Route Permit Application).
[1050] Ex. EERA-13 at 6-21 (Draft EIS).
[1051] *Id.* at 5-70.
[1052] *Id.* at 5-70, 6-21 (Draft EIS); Ex. XC-7 at 133-34 (Route Permit Application).
[1053] Ex. EERA-13 at at 5-70 (Draft EIS).

iii. Flora

411. The project area is primarily located in the Minnesota River Prairie subsection of the Prairie Parkland province. The northeast corner of the project area is located in the Big Woods subsection of the Eastern Broadleaf Forest Province. The Big Woods subsection is characterized by loamy mantled end moraine with gently-to-moderately-rolling topography. Pre-settlement vegetation was dominated by oak woodland and maple-basswood forest. At present, vegetation in this subsection is dominated by agriculture, with less than 15 percent remaining as upland forest or wetland.[1054]

412. Forested vegetation represents between three percent and eight percent of the land cover within the right-of-way for all route alternatives.[1055] Forested vegetation is mainly located along rivers and other watercourses.[1056]

413. Construction of the Project will have long-term impacts on flora when vegetation is permanently removed at each structure and within the route right-of-way. The primary long-term impact from the Project occurs when forest or other woody vegetation is cleared from the right-of-way and permanently converted to low-growing vegetation.[1057]

414. Construction of the Project will also have short-term impacts on existing vegetation, including physical surface disturbance, soil compaction, and other impacts from equipment use. These impacts can be mitigated or avoided by a number of measures, such as replanting, limiting vehicle traffic, and other prudent construction practices.[1058] Short-term impacts on vegetation from construction do not vary significantly by route or segment alternative.[1059]

415. The Project's impacts on forested vegetation vary by route and segment alternative.[1060]

416. Out of the five route alternatives, the Green and Red Routes would traverse through the largest amount of forested land cover (68 and 64 acres respectively), much of which is located adjacent to the Minnesota and Blue Earth rivers.[1061] These two Routes would result in relatively greater impacts on forested vegetation than other Route alternatives. The Purple and Blue Routes have the least amount of forested land cover

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[1054] *Id.* at 5-70 to 5-71.
[1055] *Id.* at 6-25.
[1056] *Id.*; *see also* Ex. XC-7 at 137-38 (Route Permit Application).
[1057] Ex. EERA-13 at 5-71, 6-25 (Draft EIS).
[1058] *Id.* at 5-71; *see also* Ex. XC-7 at 138 (Route Permit Application).
[1059] Ex. EERA-13 at 6-25 (Draft EIS).
[1060] *Id.* at 6-25.
[1061] *Id.*

(37 acres each).[1062] The Purple-E-Red Route has an intermediate amount of forested land cover, much of which is located adjacent to rivers (56 acres).[1063]

417. The Applicants' recommended route configurations have impacts on forested vegetation that range from 36 to 68 acres.[1064] Appendix J of the EIS allows the Commission, and any member of the public, to review in great detail the relative impacts of each route segment on all potential considerations including forested land.[1065]

418. The Green and Red-Q Routes would traverse through the largest amount of forested land cover (68 and 49 acres respectively) and would result in relatively greater impacts on forested vegetation than other route alternatives.[1066] The Purple-BB-L and Blue-CC-Q Routes have the least amount of forested land cover (36 acres each). The Purple-E-AA1-Red-Q Route has an intermediate amount of forested land cover (57 acres).[1067]

iv. Fauna

419. The Project's impacts on fauna are primarily assessed by evaluating wildlife habitat and wildlife management and conservation areas near the oute alternatives.[1068] The Project area contains several federal Grassland Bird Conservation Areas, several federal WPAs, the Upper Minnesota Valley Important Bird Area designated as such by the National Audubon Society, several MnDNR WMAs, and several MnDNR Shallow Wildlife Lakes, Migratory Waterfowl Feeding and Resting Areas, and State Game Refuges.[1069]

420. On February 5, 2019, the USFWS stated, in a letter to DOC-EERA, that the Green Route "appears to have the least effects on permanently protected lands set aside for conservation purposes."[1070]

421. The USFWS also stated that it would not allow new or expanded ROWs on Service-interest lands noting that new transmission lines and expanded ROWs reduce habitat available to wildlife on interest lands, increase invasive species presence, and create collision/mortality for federal trust species. The USFWS recommended modifying the proposed Purple Route to avoid all Service-land impacts. If the Purple Route with modification moves forward, the USFWS requests that it be consulted to minimize avian species impacts as new lines to the west may still be in the path of birds traveling between Watonwan WPA, the Watonwan River and the Lincoln/Kaul WPA complex. The USFWS

[1062] *Id.*
[1063] *Id.*
[1064] *Id.* at Appendix J Route Analysis Tables.
[1065] *Id*.
[1066] *Id.*
[1067] *Id.*
[1068] *Id.* at 6-26.
[1069] *Id.* at 5-72, 5-77.
[1070] Ex. EERA-20A (Agency Comments on Draft EIS).

noted that the area to the west of the proposed Purple Route has high resource value and is a potential acquisition area for the expansion of the Lincoln/Kaul WPA complex.[1071]

422. In a letter datedJanuary 28, 2019, the MnDNR also expressed concern about the Purple Route crossing of the Watonwan River.[1072]

423. The MnDNR did not endorse a particular proposed route. Rather, the agency addressed specific concerns about each proposed route and "supported" certin alternatives that addressed some of the concerns of the MnDNR. The MnDN supported the new new Purple Route segment BB and Blue Route segment alternative CC in order to minimize impacts to natural resources.

424. Of note, the MnDNR found that related to the Green Red route alternative segment B is parallel to Rockford Road and minimizes impacts to forested habitat and avian colisions. MnDNR found alternative segment B to be more environmentally sensitive than alternative segment A.[1073]

425. MnDNR supported the red route with double circuiting to include the existing Huntley-South Bend 161 kV transmission line. MnDNR stated "this removes the existing 161 kV transmission line from running parallel to Smith WMA and reduces the number of WMA acres impacted. Currently the 161 kV transmission line is near large wetlands on Smitthat are highly used by avian species. Moving the existing transmission line farther from the WMA is likely to reduce the number of avian collisions.[1074]

426. Potential long-term impacts on fauna as a result of the Project are anticipated to be minimal with appropriate mitigation measures.[1075] Potential impacts on fauna can be mitigated through several measures, such as routing away from high-quality habitat, using existing rights-of-way, spanning, and special structures. Impacts on fauna are smaller when a route follows existing roads or transmission lines.[1076]

427. All route alternatives pass through Grassland Bird Conservation Areas. The acreage of such land within the rights-of-way range from 108 acres for the Purple-E-Red Route to 81 acres for the Purple Route.[1077] The Purple Route and the Blue Route traverse through these conservation areas along an existing transmission line, while the Green, Red, and Purple-E-Red Routes do not follow existing infrastructure.[1078]

[1071] *Id.*
[1072] *Id.*
[1073] MnDNR Comments (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[1074] *Id.*
[1075] Ex. EERA-13 at 6-26 (Draft EIS).
[1076] *Id.* at 5-77, 6-26.
[1077] *Id.* at 6-26.
[1078] *Id.*

428. All route alternatives, except the Green Route, would pass through WPAs.[1079] Because the Purple, Red, Purple-E-Red and Blue Routes follow existing transmission lines and roads to cross the WPAs, the anticipated impacts on fauna do not vary notably by route alternative although the record indicates that the choice of certain alternatives and segments may reduce bird electrocutions.[1080]

429. All route alternatives would pass through the Upper Minnesota Valley Important Bird Area, however, the Blue Route's right-of-way would include only one acre of this land.[1081] The Purple and Purple-E-Red Routes traverse through this conservation area along an existing transmission line, while the Green and Red Routes do not follow existing infrastructure.[1082]

430. The Green, Red, and Purple-E-Red Routes would traverse through WMAs, while the Purple and Blue Routes would not cross such lands.[1083] Because the Green, Red, and Purple-E-Red Routes will use existing infrastructure to cross WMAs, the Project's impacts on WMA habitat are anticipated to be minimal and they do not vary notably by route alternative.[1084]

431. The Red and the Purple-E-Red Routes would pass through the edge of one shallow wildlife lake, Lura Lake, along an existing transmission line and road.[1085] The Blue Route would pass through the eastern edge of Cottonwood Lake, which is designated as a shallow wildlife lake and a Migratory Waterfowl Feeding and Resting Area.[1086] The Purple and Green Routes do not cross any shallow wildlife lakes.[1087]

432. The Blue Route is the only route alternative that would cross a Migratory Waterfowl Feeding and Resting Area.[1088]

433. All five route alternatives cross the east Minnesota River Game Refuge following an existing transmission line.[1089]

434. The Project may also impact avian species (e.g., songbirds, raptors, waterfowl) due to electrocution or collision with transmission line conductors. The Applicants will minimize these impacts by constructing the Project in accordance with the Avian Power Line Interaction Committee's safety recommendations, which minimize

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[1079] *Id.*
[1080] *Id.*
[1081] *Id.*
[1082] *Id.*
[1083] *Id.*
[1084] *Id.*
[1085] *Id.* at 6-28.
[1086] *Id.*
[1087] *Id.*
[1088] *Id.* at 6-27, 6-28.
[1089] *Id.* at 6-28.

electrocution risk.[1090] Bird collisions can also be mitigated by conductor configuration and bird flight diverters.[1091]

435. Overall, the Blue and Purple Routes are most likely to minimize the Project's impacts on fauna habitat because they do not cross any WMAs and cross all WPAs, Grassland Bird Conservation Areas, and the Upper Minnesota Valley Important Bird Area along existing transmission lines. The Green and Red routes are likely to have the most impact on fauna habitat, because they do not follow existing transmission lines when crossing Grassland Bird Conservation Areas and the Upper Minnesota Valley Important Bird Area.[1092]

436. The Applicants' recommended route configurations have the same impacts on fauna habitat as the original routes. The Blue-CC-Q and Purple-BB-L routes are most likely to minimize the Project's impacts on fauna habitat because they do not cross any WMAs and to the extent they cross any WPAs, Grassland Bird Conservation Areas, or the Upper Minnesota Valley Important Bird Area, the Project would follow existing transmission lines. The Green and Red-Q Routes are likely to have the most impact on fauna habitat, because they do not follow existing transmission lines when crossing Grassland Bird Conservation Areas and the Upper Minnesota Valley Important Bird Area.[1093]

F. Effects on Rare and Unique Natural Resources

437. Minnesota Rule 7850.4100(F) (2017) requires consideration of the Project's effects on rare and unique resources.

438. Impacts to rare and unique natural resources are primarily assessed by evaluating the presence of rare species near the right-of-way of route alternatives and the presence of rare communities within the right-of-way of route alternatives.[1094]

i. Rare Species

439. The Project's potential impacts on rare species are anticipated to be minimal and they do not vary significantly by route or segment alternative.[1095] Potential impacts can be minimized through prudent construction management and species-specific mitigation measures.[1096]

[1090] *Id.* at 5-78; Ex. XC-7 at 141 (Route Permit Application).
[1091] Ex. EERA-13 at 5-78 (Draft EIS).
[1092] *Id.* at 6-28.
[1093] *Id.* at Appendix J Route Analysis Tables.
[1094] *Id.* at 6-29.
[1095] *Id.* at 6-30.
[1096] *Id.* at 5-81, 6-30; *see also* Ex. XC-7 at 141-49 (Route Permit Application).

440. No federally endangered or threatened species have been documented within one mile of the route alternatives.[1097] Nine state endangered or threatened species have been documented within one mile of the route alternatives, including the eastern spotted skunk, the loggerhead shrike, the Blanding's turtle, and six threatened vascular plants.[1098] All of the route alternatives have between five and seven state-endangered or threatened species within one mile of them.[1099] The Blue Route has three state-endangered or threatened species within its right-of-way; all other route alternatives have two such species within their rights-of-way.[1100]

441. All route alternatives have two or three state special concern or watchlist species within their rights-of-way.[1101] The number of such species within one mile from the route alternatives varies from seven to sixteen.[1102]

442. Migratory birds are protected under the Bald and Golden Eagle Protection Act or the Migratory Bird Treaty Act.[1103] Bald eagles have been documented nesting in the right-of-way of the Purple and Purple-E-Red Routes near the Minnesota River.[1104] Two colonial water bird nesting sites have been documented within one mile of the Blue Route, adjacent to the Maple River.[1105]

443. As the Project's potential impacts on rare species are anticipated to be minimal and do not vary significantly by route or segment alternative, the Applicants' recommended route configurations will have similar potential impacts on rare species as the original five routes.

ii. Rare Ecological Communities

444. The Project area contains rare ecological communities, including Minnesota Biological Survey (MBS) sites of biodiversity significance (SBS), MBS native plant communities, and MBS railroad rights-of-way prairies.[1106]

445. The Project's potential impacts on rare communities are anticipated to be minimal. Potential impacts can be minimized through prudent routing, spanning and construction management. In addition, following existing rights-of-way and field lines would reduce the potential for fragmenting of rare communities.[1107]

[1097] Ex. EERA-13 at 6-29 (Draft EIS).
[1098] *Id.*
[1099] *Id.*
[1100] *Id.*
[1101] *Id.* at 6-30.
[1102] *Id.*
[1103] *Id.*
[1104] *Id.*
[1105] *Id.*
[1106] *Id.* at 5-85; *see also* Ex. XC-7 at 149-53 (Route Permit Application).
[1107] Ex. EERA-13 at 5-86 (Draft EIS).

446. The Project's potential impacts on rare communities vary by route and segment alternative.[1108]

447. The Purple and Purple-E-Red routes pass through the largest area of SBS (37 acres) as well as the largest area of SBS ranked as "high" (22 acres). The Blue Route traverses through the least amount of SBS (3 acres) and no SBS ranked "high."[1109]

448. The Purple-E-Red Route would pass through the most forested and non-forested native plant communities, including native plant communities with a conservation status rank of S2 (imperiled) or S3 (vulnerable to extirpation), while the Blue Route would pass through the least.[1110]

449. The Blue Route impacts the fewest rare communities and all of the communities can be spanned.[1111] The Purple and Purple-E-Red Routes impact the greatest number of rare communities.[1112] The Purple-E-Red Route also includes two rare communities that cannot be spanned.[1113]

450. As the Project's potential impacts on rare communities are anticipated to be minimal and do not vary significantly by route or segment alternative, the Applicants' recommended route configurations will have similar potential impacts on rare communities as the original five routes.[1114]

G. Application of Various Design Considerations

451. Minnesota Rule 7850.4100(G) (2017) requires consideration of whether the applied design options maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity.

452. Applicants originally proposed three different structure designs for the proposed 345 kV line: (1) single-circuit, H-frame, (2) single-circuit, monopole, and (3) double-circuit, monopole.[1115] In places where the proposed route follows an existing transmission line corridor, the Applicants also examined three different configurations: (1) paralleling the existing transmission line on H-frame structures; (2) paralleling the existing transmission line on monopole structures; and (3) double-circuiting the new 345 kV line with the existing line on a monopole structure.[1116]

[1108] *Id.* at 6-33.
[1109] *Id.*
[1110] *Id.*
[1111] *Id.*
[1112] *Id.*
[1113] *Id.*
[1114] *Id.* at Appendix J Route Analysis Tables.
[1115] Ex. XC-7 at ES-12 (Route Permit Application).
[1116] Ex. EERA-13 at 3-23 (Draft EIS).

453. The type of structure (monopole or H-frame) and the configuration (parallel or double-circuit) used for the proposed transmission line influences the nature and extent of the impacts of the Project.[1117]

454. Monopole structures better mitigate the potential agricultural impacts of the Project as compared to H-frame structures. H-frame structures have greater land-use impacts due to their two-pole design as compared to the design of monopole structures.[1118]

455. During the proceedings for the project, many farmers expressed concerns abot the increased agricultural impacts of two structure designs: (1) H-Frame structures (with two poles 20 to 30 feet apart) and (2) the single-circuit, monopole design adjacent to the existing H-Fram Lakefield Junction-Wilmarth 345 kV line. Based on thisfeedback as well as an examination of the data related to the increased number of structuires in farm fields from these tow designs, the Applicants recommended that these two designs no longer be considered in order to ensure agricultural impacts are minimized for the Project.[1119]

456. The proposed 345 kV transmission line will relieve 100 percent of the congestion along the Huntley to Wilmarth path throughout the 20-year study period.[1120] As a result, the Applicants concluded that it was not necessary to construct facilities capable of expanding the transmission capacity of the proposed 345 kV line.[1121]

457. The Huntley and Wilmarth substations have the ability to accommodate transmission line connections in addition to the Project's conncections following completion of the substation modifications.[1122]

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

458. Minnesota Rule 7850.4100(H) (2017) requires consideration of the use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries.

459. All of the route alternatives, except the Purple Route, follow field, parcel, or section lines for about 80 percent of their length. The Purple Route shares 64 percent of its length with field, parcel, and section lines.[1123] The Purple Route shares a lower percentage of its length with field, parcel, and section lines because it follows an existing

[1117] *Id.* at 3-25.
[1118] *Id.* at 5-51.
[1119] Applicants' Route Permit Brief at 3-4 (Mar. 22, 2019) (eDocket No. 20193-151312-02).
[1120] Ex. XC-24 at 41 (Siebenaler Direct).
[1121] Ex. XC-6 at 113 (Certificate of Need Application).
[1122] Ex. XC-7 at 18 (Route Permit Application).
[1123] Ex. EERA-13 at 6-34 (Draft EIS).

transmission line for a portion of its length that does not necessarily follow field, parcel, and section lines.

I. Use of Existing Transportation, Pipeline, and Electrical Transmission System Rights-of-Way

460. Minnesota Rule 7850.4100(J) requires the use or paralleling of existing transportation, pipeline, and electrical transmission system rights-of-way be considered.

461. None of the route options share a pipeline right-of-way.

462. The Purple-E-Red Route shares the most right-of-way with existing transmission lines, roads, and railroads (77 percent), followed by the Red and Purple Routes (73 and 66 percent, respectively).[1124] The Purple-E-Red Route also shares the most right-of-way with existing transmission lines (60 percent).[1125] The Green and Blue Routes share the least amount of right-of-way with existing transmission lines, roads, and railroads at 39 percent and 34 percent, respectively.[1126]

463. Potential impacts of the route also depend on whether the new transmission line is constructed parallel to or is double-circuited with the existing transmission line. The Purple, Red, and Purple-E-Red Routes have the option of double-circuiting in all areas where the Route follows existing transmission line corridors. In contrast, only a minor portion of the Green and Blue Routes would be double-circuited with an existing transmission line.[1127]

464. An examination of both infrastructure corridor sharing and field, parcel, and section lines shows that the Purple-E-Red Route follows existing infrastructure or field, parcel, and section lines for 95 percent of its length and the Red Route follows these same corridors for 89 percent of its length.[1128] The Purple Route also follows existing infrastructure (66 percent) and field lines (64 percent), for a high percentage of its length, a total of 95 percent.[1129] The amount of right-of-way sharing for all routes is shown in **Table 6-11** below from the Final EIS.

[1124] Ex. EERA-21 at 6-34, Table 6-11 (Final EIS).
[1125] Ex. EERA-13 at 6-34 (Draft EIS).
[1126] Ex. EERA-21 at 6-34, Table 6-11 (Final EIS).
[1127] Ex. EERA-13 at 6-34 (Draft EIS).
[1128] Ex. EERA-21 at 6-34, Table 6-11 (Final EIS).
[1129] *Id.*

Table 6-11: Sharing of Existing Infrastructre for Applicants' Recommended Route Configurations[1130]

Infrastructure	Route Alternatives				
	Purple-BB-L	Green	Red-Q	Blue - CC - Q	Purple-E-AA1-Red-Q
Total Length of Route (miles)	51.6	45.3	46.3	56.8	53.9
Follows Existing Transmission Line (miles, percent)*	25.9 (50%)	6.9 (15%)	34.7 (75%)	14.8 (26%)	40.7 (76%)
Follows Existing Roads (miles, percent)	14.2 (28%)	13.8 (30%)	9.3 (20%)	9.1 (16%)	11 (20%)
Follows Existing Railroad (miles, percent)	0	0	0	2.6 (5%)	0
Total – Transmission Line, Railroads and Roads (miles, percent)	40.1 (78%)	20.7 (47%)	(44) (95%)	26.5 (47%)	51.7 (96%)

**includes length where the route follows transmission line and road. This varies from Draft EIS tables that did not count where the route follows existing transmission and road.*

465. As shown in Table 6-11, above, an analysis of the Applicants' recommended route configurations improves the percentage of corridor sharing for each alternative but does not change the performance of the route alternatives relative to each other. The Purple-E-AA1-Red-Q Route shares the most right-of-way with existing transmission lines, roads, and railroads (96 percent), followed by the Red-Q and Purple-BB-L Routes (95 and 78 percent, respectively). The Purple-E-AA1-Red-Q Route also shares the most right-of-way with existing transmission lines (76 percent). The Green and Blue-CC-Q Routes continue to share the least amount of right-of-way with existing transmission lines, roads, and railroads at 47 percent.

466. Minnesota Statutes section 216E.03, subdivision 7(e), provides that the Commission "must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route,

[1130] *Id.* The EIS notes that "[p]ortions may share or parallel more than one type of infrastructure ROW or division/boundary line and, therefore, the sum may be greater than 100 percent." *Id.*

the [C]ommission must state the reasons." Consistent with the requirements of this statute, all of the Applicants' recommended route configurations utilize existing high-voltage transmission routes and parallel existing highway right-of-way to the maximum extent feasible.

J. Electrical System Reliability

467. Minnesota Rule 7850.4100(K) (2017) requires consideration of electrical system reliability when selecting a route for a high-voltage transmission line.

468. The Project will be constructed to meet all reliability standards and requirements.[1131] All proposed route alternatives support and enhance the reliability of the regional electrical system.[1132]

K. Costs of Constructing, Operating, and Maintaining the Facility

469. Minnesota Rule 7850.4100(L) (2017) requires consideration of the cost to construct proposed routes and the cost of operation and maintenance.

470. The costs of the Project vary by the route alternative as well as by the structure type and configuration.

471. For the Applicants' recommended route configurations, the lowest cost alternative is the Green Route, single-circuit monopole design at $121.3 million (2016$).[1133]

472. For the Applicants' recommended route configurations, the highest cost alternative is the Purple-E-AA1-Red-Q, double-circuit design at $160.2 million (2016$).[1134]

473. The cost of the Project will impact the Project's benefit-to-cost ratio. The economic benefits of the Project was calculated by MISO in MTEP16 and by the Applicants using the MTEP17 and MTEP18 models. The higher the cost, the lower the benefit-to-cost ratio, as the Project's economic benefits remain constant for each MTEP model year.

474. **Table 10** shows the estimated costs for the Applicants' five recommended route configurations as well as the benefit-to-cost ratios estimated by the Applicants under the MTEP17 and MTEP18 models.

[1131] Ex. EERA-13 at 6-35 (Draft EIS).
[1132] *Id.* at 6-35 to 6-36.
[1133] Ex. XC-25 at 11, Schedule 2 (Stevenson Direct).
[1134] *Id.*

Table 9: Estimated Cost and Benefit-to-Cost Ratios

Route Alternative	Cost (Millions) (2016$)	Weighted Benefit-to-Cost Ratio (MTEP17)	Weighted Benefit-to-Cost Ratio (MTEP18)
Purple-BB-L Double-Circuit, Monopole Design	$140.1	1.63	1.28
Green Single-Circuit, Monopole Design	$121.3	1.88	1.47
Red-Q Double-Circuit, Monopole Design	$141.2	1.62	1.27
Blue-CC-Q Double-Circuit, Monopole Design	$138.6	1.65	1.29
Purple-E-AA1-Red-Q Double-Circuit, Monopole Design	$160.2	1.43	1.12

475. Under MTEP17 and MTEP18 models, the benefit-to-cost ratios for all five of the Applicants' recommended route configurations is above 1.0. This means that the APC savings of each route alternative is greater than its costs and thus the Project will provide economic benefits to MISO North/Central, which includes Minnesota customers, in terms of lower wholesale energy costs regardless of the route selected by the Commission.[1135]

476. However, the higher cost route/design alternatives have lower benefit-to-cost ratios as compared to lower cost route/design alternatives.[1136] The Green Route has the highest benefit-to-cost ratio under the MTEP17 and MTEP18 models at 1.88 and 1.47, respectively. The Purple-E-AA1-Red-Q Route has the lowest benefit-to-cost ratio under the MTEP17 and MTEP18 models at 1.43 and 1.12, respectively.

477. As noted above, another consideration related to the Project costs is the MISO variance process. Under Attachment FF of the MISO tariff, if the cost of this Project exceeds or is projected to exceed 25 percent or more of the Project's baseline cost estimate, MISO is required to initiate a new process called a variance analysis. The Project's baseline cost estimate is $108 million (2016$).[1137]

478. The Applicants will update the Project's cost estimate provided to MISO after a route is determined by the Commission and the Applicants file their final cost

[1135] Ex. XC-22 at 8 (Neidermire Direct).
[1136] *Id.*
[1137] Ex. XC-24 at 36 (Siebenaler Direct).

estimates. Any final route with a cost estimate of $135 million (2016$) or more may trigger a MISO variance analysis.[1138] After the variance analysis has been triggered, MISO will investigate the facts and documentation and then at the conclusion of this process decide to: (1) take no action; (2) institute a mitigation plan to alleviate grounds for variance; or (3) cancel the project.[1139] Other than requiring a variance analysis, the MISO tariff does not dictate a particular outcome.[1140]

479. All of the Applicants' recommended route configurations with the exception of the Green Route would trigger a MISO variance analysis.

480. In their post-hearing brief, the Applicants stated that if the Commission selects a route that would result in a variance analysis, the Applicants will support the Commission's decision in the MISO process. This will include providing information on the Project's increased economic benefits under MTEP17 and MTEP18 and information on the Commission's routing factors and how these were applied by the Commission in its final route selection.

481. Operation and maintenance costs after construction of the transmission line will be nominal for several years because the line will be new and minimal initial vegetation management is required.[1141] Xcel Energy will perform annual aerial inspections of the transmission line and inspect the line from the ground every six years.[1142] Xcel Energy will also perform necessary vegetation management for the line.[1143]

482. The annual aerial inspections are the principal operation and maintenance costs for the transmission line.[1144] These inspections cost approximately $150-$200 per mile and the ground inspections cost approximately $400-$600 per mile.[1145] Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line.[1146]

L. Unavoidable Adverse Human and Natural Environmental Effects

483. Minnesota Rule 7850.4100(M) (2017) requires consideration of unavoidable human and environmental impacts.

[1138] *Id.*
[1139] *Id.*
[1140] *Id.* at 37.
[1141] Ex. XC-7 at 53-54 (Route Permit Application).
[1142] *Id.*
[1143] *Id.*
[1144] *Id.*
[1145] *Id.*
[1146] *Id.*

484. Even with prudent mitigation strategies, such as appropriate routing, the Project will have adverse human and environmental impacts that cannot be avoided.

485. The Project will have permanent aesthetic impacts, temporary construction-related impacts, permanent impacts on agriculture, and permanent impacts on flora and fauna.[1147]

486. These impacts are anticipated to occur for all route alternatives and vary by the route and segment alternative, as discussed in prior sections.[1148]

M. Irreversible and Irretrievable Commitments of Resources

487. Minnesota Rule 7850.4100(N) (2017) requires consideration of the irreversible and irretrievable commitments of resources that are necessary for the Project.

488. The commitment of a resource is irreversible when it is impossible or very difficult to redirect that resource for a different future use. An irretrievable commitment refers to the use or consumption of a resource such that it is not recoverable for later use by future generations.[1149]

489. There are few commitments of resources associated with the Project that are irretrievable. These commitments include the steel, concrete, and hydrocarbon resources committed to the project, though it is possible that the steel could be recycled at some point in the future. Labor and fiscal resources required for the project are also irretrievable commitments.[1150]

490. Irreversible and irretrievable impacts commitments are anticipated to occur for all route alternatives and they do not vary significantly among route alternatives.[1151]

V. Consideration of Issues Presented by State Agencies and Local Units of Government

491. Minnesota Statutes section 216E.03, subdivision 7(12) (2018) requires the Commission to examine, when appropriate, issues presented by federal and state agencies and local units of government. The majority of the issues presented by federal, state, and local units of government are addressed as part of the analysis of the Commission's routing factors. The issues that have not previously been addressed are discussed below.

[1147] Ex. EERA-13 at 6-42 to 6-43 (Draft EIS).
[1148] *Id.* at 6-42.
[1149] *Id.* at 6-43.
[1150] *Id.*
[1151] *Id.*

A. Minneopa State Park

492. Minnesota siting rules prohibit locating a new transmission lines in a state park except in certain circumstances. Minnesota Rule 7850.4300, subpart 2 (2017) provides such crossings are permissible when "the transmission line would not materially damage or impair the purpose for which the area was designated and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line."

493. The Purple-BB-L and Purple-E-AA1-Red-Q Routes cross Minneopa State Park within the existing, unrestricted easement of the Lakefield Junction – Wilmarth 345 kV transmission line acquired in 1971. This easement predates the establishment of Minneopa State Park and provides sufficient rights to construct another 345 kV circuit line within its existing right-of-way.[1152]

494. Minneopa State Park is long and narrow along the banks of the Minnesota River. The transmission line would cross 650 feet of state-owned park land and 2,500 feet of private property within the statutory boundary of Minneopa State Park.

495. The Applicants propose to co-locate the two 345 kV transmission lines on single-pole, double-circuit structures, thus replacing any existing lattice tower structures. Since the new monopole structures are 35 to 60 feet taller than the existing structures, the Applicants plan to install bird diverters along the section that is within the state park boundaries to minimize impacts on birds.[1153]

496. In comments filed on May 18, 2018, the MnDNR stated that construction of the two Purple Routes would not require a License to Cross Public Land, since these routes follow an existing, unrestricted utility easement acquired prior to the establishment of the state park in this area.[1154] In these comments, the MnDNR outlined some additional recommended conditions for the Purple Routes' crossing of Minneopa State Park.[1155] The Applicants do not object to any of these conditions, which include developing a new vegetation management plan for the existing right-of-way, providing an option for a future park trail segment, and coordination with the USFWS regarding a bald eagle nest near the existing easement and the Minnesota River.[1156]

497. Given that the Purple Routes' crossing of Minneopa State Park would be confined to an existing easement and any construction impacts would be short term, there will be no material damage or impairment of Minneopa State Park from the proposed transmission line. In addition, if the Commission selects either the Purple-BB-LL Route or

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[1152] *Id.* at 3-1; Ex. XC-19 at 11 (Hillstrom Direct); Ex. XC-7 at 41 (Route Permit Application).
[1153] Ex. XC-19 at 9-12 (Hillstrom Direct).
[1154] *Id.*; Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS).
[1155] Ex. XC-19 at 9-12 (Hillstrom Direct); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS).
[1156] Ex. XC-19 at 11-12 (Hillstrom Direct); Ex. EERA-6A at 2-8 (MnDNR Comments on the Scope of the EIS).

the Purple-E-AA1-Red-Q Route, it has determined that this route best meets its routing criteria and there is no feasible and prudent alternative to the selected route.

498. If the Commission believes a variance from Minn. R. 7850.4300, subp. 2 is necessary, the requirements for a variance are satisfied. A variance to a Commission rule shall be granted when enforcement of the rule would pose an excessive burden on the utility or others affected by the rule, granting the rule would not adversely impact the public interest, and granting the variance would not conflict with standards imposed by law.[1157]

499. Enforcement of Minn. R. 7850.4300 would pose an excessive burden on the utility and the public as not allowing this crossing would result in greater human and environmental impacts along one of the other route alternatives, would likely increase Project costs, and would leave the Lakefield – Wilmarth 345 kV transmission line in place across the state park while creating a new transmission line right-of-way elsewhere in the area. Granting the variance would neither adversely impact the public interest or conflict with standards imposed by law as construction of the new 345 kV transmission line along the Purple Route crossing of Minneopa State Park would use the existing easement, would replace lattice structures with single-pole, double-circuit structures, and would allow for the installation of bird diverters on the transmission lines' associated shield wire(s).

B. MnDNR Recommendations

500. In a March 14, 2019, letter, the MnDNR submitted recommendations on various route options presented in this proceeding, as well as recommended conditions to include in the Commission's Route Permit to mitigate potential Project impacts.[1158]

501. In its comments, the MnDNR recommended that a detailed Vegetation Management Plan (VMP) be prepared for the right-of-way easement in Minneopa State Park.[1159] The MnDNR requested that the VMP specify techniques that will be used to control invasive plants, monitor schedules, and reports that will be provided to Minneopa State Park staff.[1160] The MnDNR further requested that the Route Permit include a condition requiring the Applicants to develop a VMP in coordination with the MnDNR.[1161] The Applicants are agreeable to this condition.

502. The MnDNR recommended that the final EIS include a commitment from the Applicants for winter tree clearing. Applicants state they are unable to commit to winter tree clearing for the entire length of the Project due to the timing of when easements may be obtained and the need to meet the Project's in-service date of December 2021.[1162]

[1157] Minn. R. 7829.23200, subp. 1.
[1158] MnDNR Comments (Mar. 14, 2019) (eDocket No. 20193-151077-01).
[1159] *Id.* at 2.
[1160] *Id.*
[1161] *Id.*

503. The MnDNR recommended that the Applicants work with the MnDNR to determine appropriate locations for avian flight diverters after the route is determined.[1163] The Applicants committed to installing avian flight diverters and agreed to work with the MnDNR to appropriately locate these diverters.

504. The MnDNR recommends that coordination between the Applicants and the appropriate agencies regarding potential impacts to rare native plant communities and state-listed species, including the need for surveys, be included as a route permit condition.[1164] The Applicants are agreeable to this condition.

VI. Summary of Route Recommendation

505. In their post-hearing brief, the Applicants provided their recommended route configurations and designs for each of the five routes (Section F, above). These recommendations were based on Applicants' examination of all potential design options, analysis of all routes, including segment and alignment alternatives, evaluation of the Draft EIS, and review of comments received from the public, federal and state agencies, and local government units. These routes are: Purple-BB-L, Green, Red-Q, Blue-CC-Q, and Purple-E-AA1-Red-Q.

506. The record evidence supports the addition of Alignment Alternative AA-3b to the Purple-BB-L Route. Alignment Alternative AA-3b avoids the displacement of a seasonal residence near the Huntley substation and minimizes impacts to forest habitat associated with the Blue Earth River.[1165]

507. The record evidence demonstrates that the Purple-BB-L-AA3b Route constructed on double-circuit structures minimizes impacts to the human and natural environments based on the routing factors in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4000 and 7850.4100. The Purple-BB-L-AA3b Route has the fewest number of existing residences within 500 feet, avoids areas designated for future development by Mankato and North Mankato, follows existing transmission line corridors for more than half of its length, includes the fewest acres of forested land within its right-of-way, and has moderate agricultural impacts due to its double-circuit design. Route segment L minimizes the impacts of the purple route as it crosses the Watonwan River. This route appears to address the USFWS concern that the Purple route would negatively impact waterfowl flying between the Watonwan River and its WPA, as well as those stopping at the WPA. In contrast, MnDNR did not support the Green Route with the addition of Segment Y.

508. The Purple-BB-L-AA3b Route also is among the higher cost ($140.8 million (2016$)) routes and has a benefit-to-cost ratio well above 1.0 (about 1.63 under MTEP17 and 1.28 under MTEP18). As the estimated costs for the Purple-BB-L-AA3b Route are

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[1163] *Id.*
[1164] *Id.*
[1165] Ex. EERA-21 at 7-72 to 7-65 (Final EIS); MnDNR Comments (Mar. 14, 2019).

more than 25 percent greater than the MISO baseline cost estimate, selection of the Purple-BB-L-AA3b Route would trigger the MISO variance process.

VII. Notice

509. Minnesota statutes and rules require an applicant for a Route Permit to provide certain notice to the public as well as to local governments before and during the Application for a Route Permit process.[1166]

510. The Applicants provided notice to the public and to local governments in satisfaction of Minnesota statutory and rule requirements.

511. Minnesota statutes and rules also require the DOC-EERA and the Commission to provide certain notice to the public throughout the Route Permit process. The DOC-EERA and the Commission provided the notice in satisfaction of Minnesota statutes and rules.[1167]

VIII. Adequacy of the EIS

512. The Commission is required to determine the adequacy of the EIS.[1168]

513. The EIS addresses the issues and alternatives raised in scoping to a reasonable extent considering the availability of information and the time limitations for considering the permit application.

514. The EIS provides responses to the comments received during the draft environmental impact statement review process.

515. The EIS was prepared in compliance with the procedures in parts 7850.1000 to 7850.5600.

Based on these Findings and Fact and Conclusions, the Administrative Law Judge makes the following:

CONCLUSIONS OF LAW: ROUTE PERMIT

1. The Commission and the Administrative Law Judge have jurisdiction to consider the Applicants' Route Permit Application.

2. The Commission determined that the Application was substantially complete and accepted the Application on March 28, 2018.

[1166] Minn. Stat. § 216E.03, subds. 3a, 4; Minn. R. 7850.2100, subps. 2. 4.
[1167] Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2, .2500, subps. 2, 7-9.
[1168] Minn. R. 7850.2500, subp. 10.

3. The DOC-EERA has conducted an appropriate environmental analysis for the Project for purposes of this Route Permit proceeding and the Final EIS satisfies Minn. R. 7850.2500.

4. The Applicants gave notice as required by Minn. Stat. § 216E.03, subd. 3a and 4, and Minn. R. 7850.2100, subp. 2 and 4.

5. DOC-EERA gave notice as required by Minn. Stat. § 216E.03, subd. 6, Minn. R. 7850.2300, subp. 2, and Minn. R. 7850.2500, subp. 2 and 7-9.

6. Public hearings were conducted in communities along the proposed transmission line routes. The Applicants and the Commission gave proper notice of the public hearings and the public was given the opportunity to appear at the hearings or submit written comments.

7. All procedural requirements for processing the Route Permit have been met.

8. The record evidence demonstrates that the Purple-BB-L-AA3b satisfies the Route Permit criteria set forth in Minn. Stat. § 216E.03, subd. 7(a) and Minn. R. 7850.4100 based on the factors in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4000.

9. The record evidence demonstrates that the Purple-BB-L-AA3b Route is the best route alternative for the Project.

10. The record evidence demonstrates that constructing the Project along the Purple-BB-L-AA3b Route does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Acts, Minn. Stat. §§ 116B.01-116B.13, and the Minnesota Environmental Policy Act, Minn. Stat. §§ 116D.01-116D.11.

11. Routing of the transmission line along the Purple-BB-L-AA3b Route would not materially damage or impair the purpose for which this area within Minneopa State Park was designated and no feasible and prudent alternative exists.

12. The Applicants' request for a route width of 1,000 feet for the transmission line and 1,000 feet surrounding the Wilmarth and Huntley substations is reasonable and appropriate for the Project.

13. The Applicants' request for a right-of-way of 150 feet for operation and maintenance of the 345 kV transmission line is reasonable and appropriate.

14. Any Findings more properly designated as Conclusions are adopted as such.

15. The Commission and the Administrative Law Judge have jurisdiction to consider the Applicants' Route Permit Application.

16. The Commission determined that the Application was substantially complete and accepted the Application on March 28, 2018.

17. The DOC-EERA has conducted an appropriate environmental analysis for the Project for purposes of this Route Permit proceeding and the Final EIS satisfies Minn. R. 7850.2500.

18. The Applicants gave notice as required by Minn. Stat. § 216E.03, subd. 3a and 4, and Minn. R. 7850.2100, subp. 2 and 4.

19. DOC-EERA gave notice as required by Minn. Stat. § 216E.03, subd. 6, Minn. R. 7850.2300, subp. 2, and Minn. R. 7850.2500, subp. 2 and 7-9.

20. Public hearings were conducted in communities along the proposed transmission line routes. The Applicants and the Commission gave proper notice of the public hearings and the public was given the opportunity to appear at the hearings or submit written comments.

21. All procedural requirements for processing the Route Permit have been met.

22. The record evidence demonstrates that the Purple-BB-L-AA3b Route satisfies the Route Permit criteria set forth in Minn. Stat. § 216E.03, subd. 7(a) and Minn. R. 7850.4100 based on the factors in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4000.

23. The record evidence demonstrates that the Purple-BB-L-AA3b Route is the best route alternative for the Project.

24. The record evidence demonstrates that constructing the Project along the Purple-BB-L-AA3b Route does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Acts, Minn. Stat. §§ 116B.01-116B.13, and the Minnesota Environmental Policy Act, Minn. Stat. §§ 116D.01-116D.11.

25. Routing of the transmission line along the Purple-BB-L-AA3b Route would not materially damage or impair the purpose for which this area within Minneopa State Park was designated and no feasible and prudent alternative exists.

26. The Applicants' request for a route width of 1,000 feet for the transmission line and 1,000 feet surrounding the Wilmarth and Huntley substations is reasonable and appropriate for the Project.

27. The Applicants' request for a right-of-way of 150 feet for operation and maintenance of the 345 kV transmission line is reasonable and appropriate.

28. Any Findings more properly designated as Conclusions are adopted as such.

Based on these Findings and Fact and Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

1. The Commission conclude that all relevant statutory and rule criteria necessary to obtain a Route Permit for the Purple-BB-L Route have been satisfied and that there are no statutory or other requirements that preclude granting a Route Permit based on the record.

2. The Commission should grant a Route Permit for the Purple-BB-L-AA3b Route, double-circuit, monopole design.

3. The Commission's Standard Route Permit Conditions should be incorporated into the Route Permit, unless modified herein.

4. The Route Permit should include a special permit condition requiring the Applicants to work with the MnDNR and USFWS regarding strategies to avoid and mitigate impacts to avian species, including determining appropriate locations for avian flight diverters:

> The Permittees shall consult with the MnDNR and USFWS regarding strategies to avoid and mitigate impacts to avian species, including the use of avian flight diverters. The Permittees shall document and file with the Commission their consultations with MnDNR and USFWS and the resulting mitigation strategies.

5. The Route Permit should include a special permit condition requiring the Applicants to coordinate with the MnDNR and any other appropriate agencies regarding potential impacts to rare native plant communities and state-listed species, including the potential need for surveys:

> The Permittees shall consult with the MnDNR and other appropriate agencies regarding mitigation strategies for potential impacts to rare native plant communities and state-listed species including, but not limited to, surveys. The Permittees shall document and file with the Commission their consultations and the resulting mitigation strategies.

6. The Route Permit should include a condition requiring the Applicants to develop a Vegetation Management Plan in coordination with the MnDNR for the right-of-way in Minneopa State Park:

In coordination with the MnDNR, the Permittees shall develop a Vegetation VMP Management Plan for the right-of-way across Minneopa State Park. The purpose of the plan shall be to mitigate potential impacts to Minneopa State Park and related flora and fauna including, but not limited to, the control of invasive species. The Permittees shall document and file with the Commission their consultations with the MnDNR and the resulting VMP Vegetation management Plan.

7. The Route Permit should include a special permit condition requiring the Applicants to comply with the Agricultural Impact Mitigation Plan (AIMP) approved by the MnDOA for the project.

8. The Route Permit should include a special permit condition requiring the Applicants to confer with the MnDNR regarding tree clearing for the project and requiring the Applicants to conduct winter tree clearing to the extent practicable:

The Permittees shall consult with the MnDNR regarding tree clearing for the project. The Permittees shall develop, with the MnDNR, a prioritized list of areas where winter tree clearing would be most beneficial. The Permittees shall, to the extent practicable, clear trees in the identified priority areas during the winter.

9. The Route Permit should include a special permit condition requiring the Applicants to file with the Commission their consultations with SHPO, the results of cultural and archaeological surveys conducted, and resulting mitigation strategies:

The Permittees shall consult with SHPO regarding the appropriate cultural and archaeological resource surveys for the project. The Permittees shall document and file with the Commission their consultations with SHPO, the results of cultural and archaeological resource surveys conducted, and the resulting mitigation strategies.

10. The Route Permit should include a special permit condition requiring the Applicants to shift the alignment of Segment Alternative L at the Watonwan River to avoid the Basswood – Burr Oak native plant community noted by the MnDNR.

11. The Applicants be required to take those actions necessary to implement the Commission's orders in this proceeding.

Dated: May 22, 2019

BARBARA J. CASE
Administrative Law Judge

NOTICE

Notice is hereby given that exceptions to this Report, if any, by any party adversely affected must be filed under the time frames established in the Commission's rules of practice and procedure, Minn. R. 7829.2700, .3100 (2017), unless otherwise directed by the Commission. Exceptions should be specific and stated and numbered separately. Oral argument before a majority of the Commission will be permitted pursuant to Minn. R. 7829.2700, subp. 3. The Commission will make the final determination of the matter after the expiration of the period for filing exceptions, or after oral argument, if an oral argument is held.

The Commission may, at its own discretion, accept, modify, or reject the Administrative Law Judge's recommendations. The recommendations of the Administrative Law Judge have no legal effect unless expressly adopted by the Commission as its final order.