MPUC Docket No. E-002/CN-22-532
MPUC Docket No. E002/TL-23-157
CAH Docket No. 65-2500-40099

STATE OF MINNESOTA
THE COURT OF ADMINISTRATIVE HEARINGS

FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Xcel Energy for a Certificate of Need and Route Permit for the Mankato - Mississippi River 345 kV Transmission Line in Southeast Minnesota

REPORT OF THE ADMINISTRATIVE LAW JUDGE

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In the Matter of the Application of Xcel Energy for a Certificate of Need and Route Permit for the Mankato - Mississippi River 345 kV Transmission Line in Southeast Minnesota	**FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATIONS**

This matter was assigned to Administrative Law Judge Ann C. O'Reilly to conduct public and evidentiary hearings on the Certificate of Need and Route Permit Application (Application) of Northern States Power Company, doing business as Xcel Energy (Xcel Energy, the Company, or the Applicant). Xcel Energy proposes to construct the Mankato – Mississippi River Transmission Project (Project), which, in the Company's proposal would traverse Blue Earth, Le Sueur, Waseca, Rice, Dodge, Olmsted, Goodhue, Winona, and Wabasha counties.

The Minnesota Public Utilities Commission (Commission) also requested that the Administrative Law Judge prepare Findings of Fact, Conclusions of Law, and Recommendations related to the proposed Route Permit. The Commission directed that the Certificate of Need portion of the Application be handled through the Commission's informal process.

Valerie T. Herring, Taft Stettinius & Hollister, LLP, Lauren Steinhaeuser, Assistant General Counsel, and Ellen Heine, Principal Siting and Land Rights Agent, appeared on behalf of Xcel Energy.

Richard Dornfeld, Assistant Attorney General, appeared on behalf of the Minnesota Department of Commerce (Department). Richard Davis, Environmental Review Manager for the Energy Environmental Review and Analysis unit (EERA),[1] and Jamie MacAlister, Director of Regulatory Affairs for the Division of Energy Resources (DER), also appeared on behalf of the Department.

[1] On July 1, 2025, the Minnesota Energy Infrastructure Permitting Act, Minn. Stat. Ch. 216I, took effect and consolidated EERA staff and the Commission's Energy Facilities Permitting staff into a single entity – the Energy Infrastructure Permitting (EIP) unit. *See* Notice of Legislative Changes (July 9, 2025) (eDocket No. 20257-220799-01). For clarity of the Report and ease of the reader, this Report refers to EERA rather than EIP; principally because the majority of the filings in this docket were made by EERA prior to July 1, 2025, the effective date of the new statute.

Amelia Vohs and Abigail Hencheck appeared on the behalf of the Minnesota Center for Environmental Advocacy, Fresh Energy, and Clean Grid Alliance (collectively, the Clean Energy Organizations or CEOs).

Carol Overland appeared on behalf of NoCapX 2020 and the Prehn Family.

Bret Eknes and Cezar Panait appeared on behalf of Commission staff.

STATEMENT OF ISSUES

1. Has Xcel Energy satisfied the criteria established in Minn. Stat. Ch. 216E (2024) and Minn. R. Ch. 7850 (2023) for a Route Permit for the Project?[2]

2. Does the Environmental Impact Statement (EIS) include the information required by applicable law, and was it prepared in compliance with applicable law?

SUMMARY OF RECOMMENDATIONS

The Administrative Law Judge concludes that the Applicant has satisfied all relevant criteria set forth in Minnesota law for a Route Permit for the Project. The Judge further recommends that the Commission grant a Route Permit for:

- Segment 1 North with Route Segment 18 and Alternative Alignment 2 [referred to in the FEIS as Route Option B]
- Segment 2 North, Conductor Segment 2G, and Segment 2 South [referred to in the FEIS as Route Option B];
- Segment 3 (as proposed); and
- Route Segment 12 (also known as the CapX Co-Locate Option) for Segment 4 [referred to in the FEIS as Route Option D].

Additionally, the Administrative Law Judge recommends that the Commission determine that the EIS submitted in these proceedings was prepared in compliance with applicable law; reasonably addresses the issues and alternatives raised during the scoping process; and provides responses to the comments that were received during the draft EIS review process.

Based upon the information in the Application, the EIS, the testimony at the public and evidentiary hearings, the written comments received, the exhibits admitted in the proceeding, and other evidence in the record, the Administrative Law Judge makes the following:

[2] Because the Application for this Project was filed prior to July 1, 2025, it is being reviewed under Minn. Stat. Ch. 216E (2024) and Minn. R. Ch. 7850 (2023) rather than Minn. Stat. Ch. 216I (2025). *See* Notice of Legislative Changes (July 9, 2025) (eDocket No. 20257-220799-01).

FINDINGS OF FACT

I. APPLICANT

1. Northern States Power Company, doing business as Xcel Energy, is a Minnesota corporation headquartered in Minneapolis, Minnesota, that is engaged in the business of generating, transmitting, distributing and selling electric power and energy and related services in the states of Minnesota, North Dakota, and South Dakota.[3]

2. Xcel Energy is the Applicant and proposed permittee for the Project.[4]

3. Xcel Energy is a wholly owned subsidiary of Xcel Energy Inc. and operates its transmission and generation system as a single integrated system with its sister company, Northern States Power Company, a Wisconsin corporation, known together as the NSP Companies.[5]

4. In Minnesota, Xcel Energy provides electric service to 1.5 million customers.[6]

5. The NSP Companies are vertically integrated transmission-owning members of Midcontinent Independent System Operator, Inc. (MISO).[7]

6. Together, the NSP Companies have over 46,000 conductor miles of transmission lines and approximately 550 transmission and distribution substations.[8]

7. Segments of the Project will either be individually or jointly owned by Xcel Energy, Dairyland Power Cooperative, Southern Minnesota Municipal Power Agency, and the City of Rochester, Minnesota, acting through its Public Utility Board.[9]

8. As the Project Manager for the Project, Xcel Energy will be responsible for the construction of the proposed transmission facilities, and, as such, Xcel Energy is the sole Applicant for the Certificate of Need and Route Permit for the Project and will be the sole permittee for the Project.[10]

II. PROCEDURAL HISTORY

9. On April 2, 2024, the Applicant filed the Certificate of Need and Route Permit Application.[11]

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[3] Ex. Xcel-15 at 11 (Application).
[4] Ex. Xcel-15 at 11 (Application).
[5] Ex. Xcel-15 at 11 (Application).
[6] Ex. Xcel-15 at 11 (Application).
[7] Ex. Xcel-15 at 11 (Application).
[8] Ex. Xcel-15 at 11 (Application).
[9] Ex. Xcel-15 at 11 (Application).
[10] Ex. Xcel-15 at 11 (Application).
[11] Ex. Xcel-15 (Application).

10. The Commission issued a Notice of Comment Period on Application Completeness on April 8, 2024, requesting initial comments by April 22, 2024, reply comments by April 29, 2024, and supplemental comments by May 6, 2024.[12]

11. On April 19, 2024, the Commission received public comments requesting the Commission consider residential impacts on route options.[13]

12. The EERA filed comments and recommendations on completeness of the Application on April 22, 2024.[14] The EERA recommended that the Commission accept the Application as substantially complete after the Applicant files a new set of maps that accurately displays all lakes, public waters, watercourses, and public road throughout the Project area.[15] The EERA further recommended that the Commission combine the proceedings for the Certificate of Need and Route Permit, and take no action on an advisory task force.[16]

13. NoCapX 2020 and the Prehn Family also filed comments on April 22, 2024, asking the Commission to find the Application incomplete, appoint an advisory task force to identify route alternatives, and direct the Executive Secretary to issue an authorization to the Applicant to initiate consultation with the State Historic Preservation Office (SHPO).[17]

14. The Operating Engineers Local 49 and North Central States Regional Council of Carpenters (IUOE Local 49/NCSRC of Carpenters) also filed comments noting the importance of timely permitting and deployment of projects like this one to meet Minnesota's energy goals in a reliable manner.[18] IUOE Local 49/NCSRC of Carpenters also conclude that an advisory task force was not warranted.[19]

15. Two landowners filed comments. Trevor Scrabeck filed comments related to potential impacts of the Project on his personal use airport in New Haven Township.[20] Dale Thomforde, a Supervisor on the New Haven Township Board, discussed potential route impacts and recommended route alternatives.[21]

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[12] Ex. PUC-6 (Notice of Comment Period on Application Completeness).
[13] Public Comment (April 19, 2024) (eDocket No. 20244-205732-01); Public Comment (Trevor Scrabeck) (April 19, 2024) (eDocket No. 20244-205687-01).
[14] Ex. EERA-1 (Comments and Recommendations on Application Completeness Extension Variance Request).
[15] Ex. EERA-1 (Comments and Recommendations on Application Completeness Extension Variance Request).
[16] Ex. EERA-1 (Comments and Recommendations on Application Completeness Extension Variance Request).
[17] Comments (Prehn Family and NoCapX 2020) (April 22, 2024) (eDocket No. 20244-205817-02).
[18] Comments (IUOE Local 49 and NCSRC of Carpenters) (April 26, 2024) (eDocket No. 20244-206045-01).
[19] Comments (IUOE Local 49 and NCSRC of Carpenters) (April 26, 2024) (eDocket No. 20244-206045-01).
[20] Public Comment (Trevor Scrabeck) (April 22, 2024) (eDocket Nos. 20244-205759-01 and 20244-205756-01).
[21] Public Comment (Dale Thomforde) (April 23, 2024) (eDocket No. 20244-205870-01).

16. On April 29, 2024, the Applicant filed reply comments responding to the Department, DER, EERA, NoCapX 2020 and the Prehn Family, the commenters in the Certificate of Need proceeding, and the two landowners.[22]

17. The Applicant requested the Commission find the Application complete; evaluate the Certificate of Need Application using the Commission's informal process; order the Certificate of Need and Route Permit to proceed jointly; decline to appoint an advisory task force; and delegate authority to the Executive Secretary to issue delegation of authority to the Applicant for Minnesota SHPO consultation.[23]

18. NoCapX 2020 and Prehn Family also filed reply comments responding to comments from MISO, the Department, DER, EERA, and members of the public.[24]

19. The Mayor of Oronoco provided comments related to potential impacts to Lake Shady and supporting an alternative route for the 161 kV transmission line along the existing CapX2020 345 kV line.[25] In addition, the Oronoco City Council filed a resolution requesting supporting evaluation of an alternative route for the 161 kV transmission line along the existing CapX2020 345 kV line.[26]

20. On May 6, 2024, the Applicant filed supplemental comments responding to NoCapX 2020 and the Prehn Family, the City and Mayor of Oronoco, and commenters in the Certificate of Need proceeding.[27] The Applicant reiterated its prior recommendations and suggested that the route alternative proposed by the City and Mayor of Oronoco be evaluated during the scoping process.[28]

21. On May 17, 2024, Xcel Energy submitted a compliance filing demonstrating that the notices required by Minn. Stat. § 216E.03, subd. 4 and Minn. R. 7850.2100, subps. 2 and 4 were published or mailed.[29]

22. The Commission also issued a notice of Commission agenda meetings for May 28 and May 30, 2024.[30]

23. On May 22, 2024, the Commission filed a sample Route Permit,[31] as well as its briefing papers for its May 30, 2024, agenda meeting.[32]

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[22] Ex. Xcel-19 (Reply Comments).
[23] Ex. Xcel-19 (Reply Comments).
[24] Comments (Reply Comments of the Prehn Family and NoCapX 2020) (April 29, 2024) (eDocket No. 20244-206134-02).
[25] Public Comments (Mayor of Oronoco) (April 29, 2024) (eDocket No. 20244-206072-01).
[26] Public Comment (City of Oronoco, City Council Resolution) (April 29, 2024) (eDocket No. 20244-206073-01).
[27] Ex. Xcel-20 (Supplemental Comments).
[28] Ex. Xcel-20 at 5 (Supplemental Comments).
[29] Ex. Xcel-21 (Notice of Filing of Application Compliance Filing).
[30] Ex. PUC-8 (Notice of May 28 and 30, 2024 Agenda Meeting).
[31] Ex. PUC-9 (Sample Route Permit).
[32] Ex. PUC-10 (May 30, 2024 Agenda Briefing Papers).

24. The next day, the Commission filed amended briefing papers with revised staff decision options for its May 30, 2024, agenda to discuss Application completeness.[33]

25. On May 30, 2024, the Commission filed second amended briefing papers with revised decision options. The Commission met to consider the completeness of the Application that same day.[34]

26. On June 24, 2024, the Commission and the Department issued a Notice of Public Information and EIS Scoping Meetings.[35]

27. On June 26, 2024, the Commission issued an Order: (1) accepting the Certificate of Need portion of the Application as substantially complete and directing that the Certificate of Need Application be reviewed using the informal review process; (2) accepting the Route Permit portion of the Application as substantially complete and referring the Route Permit matter to the Office of Administrative Hearings (OAH) for public and evidentiary hearings and a full report from an Administrative Law Judge; (3) authorizing joint hearings and combined environmental review of the Certificate of Need and Route Permit applications; (4) denying the request to establish an advisory task force; and (5) authorizing the Executive Secretary to issue an authorization to the Applicant to initiate consultation with SHPO.[36]

28. The Notice of Public Information and EIS Scoping Meetings was published in the *Environmental Quality Board (EQB) Monitor* on June 26, 2024.[37]

29. On July 3, 2024, the Applicant filed comments on the scope of the EIS, recommending the EIS evaluate a route alternative for Segment 4 that would involve double-circuiting the 161 kV line with the existing North Rochester – Northern Hills 161 kV line for a portion of its length, referred to as "Segment 4 West Modification in the EIS."[38]

30. Between July 8 and July 10, 2024, public information and EIS scoping meetings were held in Mankato, Waterville, Faribault, Pine Island and Kellogg, Minnesota. On July 11, 2024, virtual public information and EIS scoping meetings were held via WebEx.[39]

31. On July 29, 2024, NoCapX 2020 and the Prehn Family filed comments on the scope of the EIS.[40]

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[33] Ex. PUC-11 (May 30, 2024 Agenda - Revised Staff Decision Options).
[34] Ex. PUC-12 (May 30, 2024 Agenda – 2nd Revised Decision Options).
[35] Ex. PUC-13 (Public Information and Environmental Impact Statement Scoping Meetings).
[36] Ex. PUC-15 (Accepting Applications as Complete, Establishing Procedural Requirements, and Notice of and Order for Hearing).
[37] Ex. PUC-14 (EQB Monitor).
[38] Ex. Xcel-22 (Comments on Scope of Environmental Impact Statement).
[39] Ex. PUC-13.
[40] Comments (Scoping Comments – Prehn Family and NoCapX 2020) (July 29, 2024) (eDocket No. 20247-209032-01).

32. Public comments were filed by Dale Thomforde and Gerald Rausch regarding the scope of the EIS on July 30, 2024.[41] A public comment was also filed by Michael Collins.[42]

33. The Minnesota Department of Natural Resources (MnDNR) filed comments regarding the scope of the EIS and proposed conditions for the Route Permit on July 31, 2024.[43]

34. On August 1, 2024, the Commission filed the presentation used at the public information and EIS scoping meetings.[44]

35. That same day, the EERA filed written public comments received at public meetings, as well as tribal and agency comments.[45] The Minnesota Department of Transportation (MnDOT) filed comments on the scope of the EIS.[46] And the Citizens for Environmental Rights & Safety (CFERS) filed comments on the scope of the EIS.[47]

36. The Administrative Law Judge issued an order for prehearing conference,[48] and on August 5, 2024, a first prehearing conference was held.[49]

37. On August 5, 2024, the Commission filed the minutes from the May 30, 2024 agenda meeting.[50]

38. An Order for a Continued Prehearing Conference was issued on August 6, 2024.[51]

39. On August 5 and 7, 2024, the CFERS filed additional comments and a notice of appearance.[52]

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[41] Public Comment (Dale Thomforde) (July 30, 2024) (eDocket No. 20247-209097-02); Public Comment (Gerald Rausch) (July 30, 2024) (eDocket No. 20247-209102-01).
[42] Public Comment (Michael Collins) (Aug. 1, 2024) (eDocket No. 20247-209158-01).
[43] Minnesota Department of Natural Resources Comments (July 31, 2024) (eDocket No. 20247-209122-01).
[44] Ex. PUC-16 (Public Meeting Presentation).
[45] Written Public Comments Received at Public Meetings (August 1, 2024) (eDocket No. 20248-209559-03); Tribal and Agency Comments (August 1, 2024) (eDocket No. 20248-209559-01).
[46] Comments (Minnesota Department of Transportation) (Aug. 1, 2024) (eDocket No. 20248-209198-01).
[47] Comments (Scoping Comments for EIS) (Citizens for Environmental Rights and Safety) (Aug. 1, 2024) (eDocket No. 20247-209158-01); Notice of Appearance (Citizens for Environmental Rights and Safety) (Aug. 7, 2024) (eDocket No. 20248-209330-01).
[48] Order for Prehearing Conference (Aug. 1, 2024) (eDocket No. 20248-209204-01).
[49] Prehearing Tr. (August 5, 2025) (eDocket No. 20248-209635-02).
[50] Ex. PUC-17 (May 30, 2024, Minutes).
[51] Order for Continued Prehearing Conference (Aug. 6, 2024) (eDocket No. 20248-209284-01).
[52] Other (Aug. 5, 2024) (eDocket No. 20248-209253-01); Public Comment (Page 1 of 6) (Aug. 7, 2024) (eDocket No. 20248-209329-02); Public Comment (Page 2 of 6) (Aug. 7, 2024) (eDocket No. 20248-209329-04); Public Comment (Page 3 of 6) (Aug. 7, 2024) (eDocket No. 20248-209329-06); Public Comment (Page 4 of 6) (Aug. 7, 2024) (eDocket No. 20248-209329-08); Public Comment (Page 5 of 6) (Aug. 7, 2024) (eDocket No. 20248-209329-10); Public Comment (Page 6 of 6) (Aug. 7, 2024) (eDocket No. 20248-209329-12).

40. On August 12, 2024, the Applicant filed affidavits of publication and newspaper tear sheets for the Notice of Public Information and EIS Scoping Meetings.[53]

41. On August 13, 2024, the EERA filed comments received via email, mail, and internet form.[54] The EERA also filed public meeting minutes from the public information and EIS scoping meetings.[55]

42. On August 14, 2024, a second prehearing conference was held by the Administrative Law Judge.[56]

43. On August 27, 2024, NoCapX 2020 and the Prehn Family filed a petition to intervene in the contested case proceeding.[57]

44. A First Prehearing Order was issued by the Judge on August 28, 2024.[58]

45. The Applicant also filed comments responding to comments on the scope of the EIS.[59]

46. The Petition to Intervene filed by NoCapX 2020 and the Prehn Family was granted on September 9, 2024, giving them full party status.[60]

47. On September 13, 2024, the EERA filed public comments and a comment from the Putrah Family was filed outside of the public comment period.[61]

48. On September 19, 2024, the EERA filed its summary of the scoping process and its recommendations for the scope of the EIS.[62]

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[53] Ex. Xcel-24 (Affidavit of Publication for Notice of Public Information and Environmental Impact Statement Scoping Meetings).
[54] Public Comments (Received Email, Mail, Internet Form, and eDockets Part 1 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-01); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 2 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-03); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 3 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-05); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 4 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-07); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 5 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-09); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 6 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-11); Public Comments (Received Email, Mail, Internet Form, and eDockets Part 7 of 7) (Aug. 13, 2024) (eDocket No. 20248-209459-13).
[55] Public Comment (Public Meeting Minutes) (Aug. 13, 2024) (eDocket No. 20248-209459-15).
[56] Prehearing Tr. (August 14, 2024) (eDocket No. 20248-209635-02).
[57] Intervention (NoCapX 2020 and the Prehn Family) (August 27, 2024) (eDocket No. 20248-209823-02).
[58] First Prehearing Order (Aug. 28, 2024) (eDocket No. 20248-209844-02).
[59] Ex. Xcel-25 (Response to Environmental Impact Statement Scoping Comments).
[60] Order Granting Petition to Intervene by NoCapX 2020 and the Prehn Family (Sept. 9, 2024) (eDocket No. 20249-210073-02).
[61] Public Comment (Putrah Family - Comment Outside Comment Period) (Sept. 13, 2024) (eDocket No. 20249-210197-02); Public Comment (Public Comments 1-26) (Sept. 13, 2024) (eDocket No. 20249-210198-04); Public Comments (Public Comments 27-49) (Sept. 13, 2024) (eDocket No. 20249-210198-06); Public Comment (Public Comments 50-96) (Sept. 13, 2024) (eDocket No. 20249-210198-08).
[62] Ex. EERA-5 (Scoping Summary and Recommendations).

49. On September 20, 2024, the Commission filed its notice of Commission meeting for October 3, 2024.[63]

50. NoCapX 2020 and the Prehn Family filed comments on the Commission's meeting notice.[64] The CFERS provided additional comments on route options.[65]

51. The Commission filed briefing papers for its October 3, 2024, agenda meeting.[66]

52. On October 1, 2024, the Commission accepted a new decision option from Commissioner Tuma.[67] An attachment to the new decision option was filed on October 3, 2024, and, that same day, the Commission met to consider the scope of the EIS.[68]

53. On October 9, 2024, the Commission issued an Order adopting the system alternatives and route alternatives recommended by the EERA for inclusion in the EIS and adding one additional alternative to the scope of the EIS.[69]

54. The Commission filed a letter authorizing the Applicant to initiate consultation with the Minnesota SHPO on October 15, 2024.[70]

55. On November 8, 2024, the Applicant filed a letter to request to remove Segment Alternative 1L.[71]

56. NoCapX 2020 and the Prehn Family filed comments with additional information to consider for the EIS on November 19, 2024.[72]

57. On December 2, 2024, the EERA filed the Scoping Decision for the EIS,[73] and on December 11, 2024, the EERA filed Notice of the EIS Scoping Decision.[74]

58. On December 18, 2024, the Commissioned filed minutes from its October 3, 2024, agenda meeting.[75]

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[63] Ex. PUC-18 (Notice of Commission Meeting).
[64] Comments (Omissions from Commission Mtg Notice – Prehn Family and NoCapX 2020) (Sept. 21, 2024) (eDocket No. 20249-210398-02).
[65] Citizens for Environmental Rights & Safety Comments (Sept. 26, 2024) (eDocket No. 20249-210505-01).
[66] Ex. PUC-19 (October 3, 2024 Agenda Briefing Papers).
[67] Ex. PUC-20 (October 3, 2024 Agenda – New Decision Option – Commissioner Tuma).
[68] Ex. PUC-21 (October 3, 2024 Agenda – Attachment to Decision Option – Commissioner Tuma).
[69] Ex. PUC-22 (Order Adding Alternative to Scope of Environmental Impact Statement).
[70] Ex. PUC-23 (Letter).
[71] Ex. Xcel-26 (Response to Environmental Impact Statement Scoping Comments).
[72] Comments (Info for DEIS) (Nov. 19, 2024) (eDocket No. 202411-212167-01).
[73] Ex. EERA-6 (Environmental Impact Statement Scoping Decision).
[74] Ex. EERA-7 (Notice of Environmental Statement Scoping Decisions).
[75] Ex. PUC-24 (October 3, 2024 Minutes).

59. On December 23, 2024, the Clean Energy Organizations (CEO) filed a Petition to Intervene.[76] The Petition was granted on January 3, 2025.[77]

60. On January 8, 2025, a Second Prehearing Order was issued.[78]

61. Between January 31, 2025, and February 12, 2025, the Applicant mailed Notice of the EIS Scoping Decision to landowners with property located either on one of the newly added route or alignment alternatives, or on one of the routes originally proposed in the Application.[79] The Applicant also sent this mailing to local government units.[80]

62. MnDOT and No CapX 2020 and the Prehn Family filed comments on March 10, 2025.[81]

63. On March 28, 2025, the Applicant filed Direct Testimony and Schedules of Ellen Heine and Tony Wendland.[82]

64. A Third Prehearing Order was issued on May 1, 2025.[83]

65. On May 5, 2025, the Applicant filed a letter requesting to expand the width for portions of proposed Route Option 2 North and Route Option 2 South.[84]

66. On May 5, 2025, the EERA filed a draft EIS (DEIS).[85]

67. Commission issued a Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS on May 6, 2025. The Order notified the public that the Commission would accept comments through June 10, 2025.[86]

68. On May 7, 2025, the Commission filed an Affidavit of Publication documenting that it had published the Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS in the *EQB Monitor*.[87]

69. On May 8, 2025, the EERA filed a letter explaining that it failed to mail the Notice of the EIS scoping decision and the Newly Affected Landowner Packet to landowners that were affected by the route and alignment alternatives included in the EIS

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[76] Clean Energy Organizations Petition for Intervention (Dec. 23, 2024) (eDocket No. 202412-213285-01).
[77] Order on Petition to Intervene by the Clean Energy Organizations (Jan. 3, 2025) (eDocket No. 20251-213528-01).
[78] Second Prehearing Order (Jan. 8, 2025) (eDocket No. 20251-213668-01).
[79] Ex. Xcel-34 (Letter Regarding Mailed Notice of Scoping Decision).
[80] Ex. Xcel-29 at Schedule 4 (Heine Direct and Schedules).
[81] Comments (Minnesota Department of Transportation) (March 10, 2025) (eDocket No. 20253-216230-01); Comments (No CapX 2020 and the Prehn Family) (March 10, 2025) (eDocket No. 20253-216250-01).
[82] Ex. Xcel-29 (Heine Direct and Schedules); Ex. Xcel-30 (Wendland Direct and Schedules).
[83] Third Prehearing Order (May 1, 2025) (eDocket No. 20255-218443-01).
[84] Ex. Xcel-32 (Request to Expand Width).
[85] Ex. EERA-8 (Draft Environmental Impact Statement).
[86] Ex. PUC-26 (Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS).
[87] Ex. PUC-27 (Affidavit of Publication).

Scoping Decision in December 2024.[88] The EERA blamed the state mail system for failing to comply with the EERA's directions.[89] The EERA explained that, although it customarily sends these items to newly identified landowners, the notice is not required by statute or rule. In addition, even after learning of the error, it decided against sending the mailing because it did not want to cause confusion with the Notice of DEIS Availability.[90]

70. Concerned with the EERA's explanation, the Judge issued an Order for Prehearing Conference to discuss the newly affected landowner notice issue.[91]

71. On May 12, 2025, the Applicant filed Rebuttal Testimony of Company witness Heine.[92]

72. On the same day, NoCapX 2020 and the Prehn Family filed comments on defects in notice to newly affected landowners.[93]

73. In response to the EERA's disclosure, the Applicant filed a letter advising the Judge that, between January 31, 2025, and February 12, 2025, it sent a mailing to all landowners with property located either on one of the newly added route or alignment alternatives, or on one of the routes originally proposed in the Application.[94] This notice was sent to 2,878 landowners, including all of the 1,341 newly affected landowners that were not sent the EERA's Newly Affected Landowner Packet.[95]

74. Also on May 13, 2025, the Commission filed a Certificate of Service for a mailing of the Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of DEIS to landowners, federal and state representatives, local governments, and tribal representatives.[96]

75. On May 14, 2025, NoCapX 2020 and the Prehn Family filed comments on the notices provided to the newly affected landowners.[97]

76. On May 16, 2025, the Commission issued an Affidavit of Mailing of the Newly Affected Landowner Packet to newly affected landowners.[98]

77. On May 19, 2025, the Applicant filed Surrebuttal Testimony of Company witness Wendland.[99]

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[88] Letter (May 8, 2025) (eDocket No. 20255-218717-01).
[89] *Id.*
[90] EERA Letter (May 8, 2025) (eDocket No. 20255-218717-01).
[91] Order for Prehearing Conference (May 9, 2025) (eDocket No. 20255-218768-01).
[92] Ex. Xcel-33 (E. Heine Rebuttal Testimony and Schedules).
[93] Comments (May 12, 2025) (eDocket No. 20255-218810-01).
[94] Ex. Xcel-34 (Letter Regarding Mailed Notice of Scoping Decision).
[95] Ex. Xcel-34 (Letter Regarding Mailed Notice of Scoping Decision).
[96] Ex. PUC-28 (Certificate of Service to Paper Recipients).
[97] Comments (May 14, 2025) (eDocket No. 20255-218922-01).
[98] Ex. PUC-29 (Mailing to Newly Affected Landowners).
[99] Ex. Xcel-35 (Wendland Surrebuttal).

78. On May 20, 2025, the EERA filed its Certificate of Mailing the DEIS and cover letter to public libraries.[100]

79. On May 21, 2025, the Commission filed comments from Duane Tiede.[101]

80. Six public hearings were conducted on May 27, 28, and 29, 2025: five public hearings were held in-person along the proposed routes, and one public hearing was conducted via video conference using WebEx.[102]

81. In-person public hearings were at held on the morning of May 27, 2025, at the Country Inn and Suites in Mankato, Minnesota;[103] the evening of May 27, 2025, at Waterville High School in Waterville, Minnesota; [104] the morning of May 28, 2025, at the Eagles Club in Owatonna, Minnesota;[105] the evening of May 28, 2025, at the VFW Post in Zumbrota, Minnesota;[106] and the evening of May 29, 2025, at the American Legion in Faribault, Minnesota.[107] A virtual public hearing was held via conference call and WebEx on the morning of May 29, 2025.[108]

82. On May 28, 2025, the Applicant filed a witness list, witness summaries, and a draft exhibit list.[109] On the same date, Ryland Eichhorst, Mayor of the City of Oronoco, filed public comments.[110]

83. On May 29 and 30, 2025, the Commission filed a total of 14 additional public comments.[111]

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[100] Ex. EERA-9 (Certificate of Mailing DEIS to Libraries).
[101] Public Comment (Duane Tiede) (May 21, 2025) (eDocket No. 20255-219149-01).
[102] *See generally* Ex. PUC-30 (Public Hearing Presentation).
[103] Mankato Pub. Hr. Tr. (May 27, 2025) (eDocket No. 20256-220419-01).
[104] Waterville Pub. Hr. Tr. (May 27, 2025) (eDocket No. 20256-220419-02).
[105] Owatonna Pub. Hr. Tr. (May 28, 2025) (eDocket No. 20256-220419-03).
[106] Zumbrota Pub. Hr. Tr. (May 28, 2025) (eDocket No. 20256-220419-04).
[107] Faribault Pub. Hr. Tr. (May 29, 2025) (eDocket No. 20256-220419-05).
[108] Virtual Pub. Hr. Tr. (May 29, 2025) (eDocket No. 20256-220419-06).
[109] Ex. Xcel-37 (Witness List, Witness Summaries, and Draft Exhibit List).
[110] Public Comment (Ryland Eichhorst) (May 28, 2025) (eDocket No. 20255-219315-01).
[111] Public Comment (Jean Bye) (May 29, 2025) (eDocket No. 20255-219331-02); Public Comment (City of Madison Lake) (May 29, 2025) (eDocket No. 20255-219331-01); Public Comment (Brady and Jennifer Taylor 1) (May 29, 2025) (eDocket No. 20255-219330-01); Public Comment (Brady and Jennifer Taylor 2) (May 29, 2025) (eDocket No. 20255-219330-02); Public Comment (Dale and Thomforde New Haven Township Supervisor (1 of 2)) (May 30, 2025) (eDocket No. 20255-219445-01); Public Comment (Dale and Thomforde New Haven Township Supervisor (1 of 2)) (May 30, 2025) (eDocket No. 20255-219445-02); Public Comment (Harly and Daine Krause) (May 30, 2025) (eDocket No. 20255-219444-01); Public Comment (Luis Barajas) (May 30, 2025) (eDocket No. 20255-219442-01); Public Comment (Ryland Eichhorst, Mayor, Oronoco) (May 30, 2025) (eDocket No. 20255-219440-01); Public Comment (Gordon Cariveau Jr and Yvonne Cariveau) (May 30, 2025) (eDocket No. 20255-219439-01); Public Comment (Scott Condes) (May 30, 2025) (eDocket No. 20255-219438-01); Public Comment (Lori Schulz and Joyce Schulz) (May 30, 2025) (eDocket No. 20255-219436-01); Public Comment (Tom Sammon) (May 30, 2025) (eDocket No. 20255-219434-01); Public Comment (Tamra Berg) (May 30, 2025) (eDocket No. 20255-219417-01); and Public Comment (Dale Thomforde) (May 30, 2025) (eDocket No. 20255-219416-01).

84. An evidentiary hearing was held on May 30, 2025, at the offices of the Public Utilities Commission in St. Paul, Minnesota.[112] At the request of the Judge, the Applicant filed a map of its preferred route.[113]

85. Between June 3, 2025, and June 10, 2025, the Commission filed numerous public comments it received on the Application.[114]

86. On June 10, 2025, NoCapX 2020 and the Prehn Family filed comments on a wide range of subjects, including the sufficiency of the DEIS, the merits of the Certificate of Need Application and the routes described in the Application.[115] They also filed the family landowner notice; the landowner mailing list; the responses to landowner mailing information requests by the Department and Xcel Energy; the scoping comments; and the comments on the completeness of the Application.[116]

87. On June 10, 2025, various public comments were filed,[117] as well as comments from the Minnesota Interagency Vegetation Management Planning Working Group regarding the Applicant's vegetation management plan;[118] the MnDNR filed

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[112] Evid. Hr. Tr. (May 30, 2025) (eDocket No. 20256-220419-07).
[113] Ex. Xcel-36 (Maps of Preferred Route).
[114] Public Comment (Brad Stadsvold) (June 3, 2025) (eDocket No. 20256-219553-01); Public Comment (Michael and Christine Brown) (June 3, 2025) (eDocket No. 20256-219551-01); Public Comment (Mark Jacobs) (June 3, 2025) (eDocket No. 20256-219545-01); Public Comment (Kathryn Mueller) (June 3, 2025) (eDocket No. 20256-219543-01); Public Comment (Sarah Schmidt) (June 4, 2025) (eDocket No. 20256-219573-01); Public Comment (Shawna Hanson) (June 4, 2025) (eDocket No. 20256-219572-01); Public Comment (Andy Hart) (June 4, 2025) (eDocket No. 20256-219571-01); and Public Comment (Angela Just) (June 4, 2025) (eDocket No. 20256-219570-01); Public Comment (Matthew Kuehl) (June 5, 2025) (eDocket No. 20256-219605-01); Public Comment (Matthew Kuehl) (June 5, 2025) (eDocket No. 20256-219605-01); Public Comment (Michael Collins) (June 6, 2025) (eDocket No. 20256-219657-01); Public Comment (Jeff Mattson) (June 6, 2025) (eDocket No. 20256-219655-01); Public Comment (Thomas Gauthier) (June 9, 2025) (eDocket No. 20256-219705-01); Public Comment (Jeff Mattson) (June 9, 2025) (eDocket No. 20256-219704-01); Public Comment (Kevin Quinlan) (eDocket No. 20256-219703-01); Public Comment (Batch 1 06102025 11 Comments) (June 10, 2025) (eDocket No. 20256-219788-03); Public Comment (City of Waseca) (June 10, 2025) (eDocket No. 20256-219788-02); Public Comment (Two Sisters Kitchen and Bar) (eDocket No. 20256-219788-01); Public Comment (Christopher Bultman) (June 10, 2025) (eDocket No. 20256-219760-01); Public Comment (Dodge County) (June 10, 2025) (eDocket No. 20256-219808-01).
[115] NoCapX 2020 and the Prehn Family (NoCapX 2020 and the Prehn Family DEIS and Final Comments) (June 10, 2025) (eDocket No. 20256-219811-01).
[116] NoCapX 2020 and the Prehn Family (NoCapX 2020 and the Prehn Family Landowner Notice Comments) (June 10, 2025) (eDocket No. 20256-219811-02); NoCapX 2020 and the Prehn Family (NoCapX 2020 and the Prehn Commerce Landowner Mailing List) (June 10, 2025) (eDocket No. 20256-219811-03); NoCapX 2020 and the Prehn Family (NoCapX 2020 - Prehn DOC and Xcel Responses to Landowner Mailing Info Requests) (June 10, 2025) (eDocket No. 20256-219811-04); NoCapX 2020 and the Prehn Family (NoCapX - Prehn Completeness Comments) (June 10, 2025) (eDocket No. 20256-219811-07); NoCapX 2020 and the Prehn Family (NoCapX 2020 - Prehn Family Scoping Comments) (June 10, 2025) (eDocket No. 20256-219811-06).
[117] Public Comment (Erin Glorbigen) (June 10, 2025) (eDocket No. 20256-219768-01); Public Comment (Jeanne Allen) (June 10, 2025) (eDocket No. 20256-219770-01); Public Comment (Nathan Brandt) (June 10, 2025) (eDocket No. 20256-219809-01); Public Comment (Erin Glorvigen) (June 10, 2025) (eDocket No. 20256-219803-01).
[118] Hearing Comments (June 10, 2025) (eDocket No. 20256-219785-01).

comments recommending special permit conditions for the Route Permit; [119] MnDOT filed comments on the DEIS, specifically focusing on Route Segment 17;[120] and the Applicant filed comments on the DEIS.[121]

88. Between June 11 and June 17, 2025, the Commission filed batches of public comments.[122]

89. On June 30, 2025, the Commission staff filed a series of hearing-related materials, including the sign-in sheets; hearing exhibits; public hearing transcripts; and the transcript of the evidentiary hearing transcript.[123]

90. On July 25, 2025, the Energy Infrastructure Permitting unit (EIP), formerly the EERA, filed its Final EIS (FEIS).[124] At the same time, the EIP issued its Notice of Availability of the FEIS and Comment Period.[125] The notice advised that the comment period for the adequacy of the FEIS would close on August 15, 2025.[126]

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[119] Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. 20256-219807-01, 20256-219807-02, 20256-219807-03, and 20256-219807-04).
[120] Comments (MnDOT) (June 10, 2025) (eDocket No. 20256-219788-03).
[121] Ex. Xcel-38 (Comments on DEIS).
[122] Public Comment (John & Kristine Paro) (June 11, 2025) (eDocket No. 20256-219823-01); Public Comment (Loren Quaale) (June 11, 2025) (eDocket No. 20256-219822-01); Public Comment (Jennifer Bromeland) (June 11, 2025) (eDocket No. 20256-219821-01); Public Comment (Gary Henslin) (June 11, 2025) (eDocket No. 20256-219820-01); Public Comment (Zach Knutson) (June 11, 2025) (eDocket No. 20256-219818-01); Public Comment (Jeannie Mattson) (June 11, 2025) (eDocket No. 20256-219817-01); Public Comment Batch (June 16, 2025) (eDocket No. 20256-219908-01); Public Comment (Dan Sheady) (June 16, 2025) (eDocket No. 20256-219901-01); Public Comment (Blue Earth Public Works Department) (June 17, 2025) (eDocket No. 20256-219968-01).
[123] *See* Other (Sign-In Sheet – Mankato Public Hearing) (June 30, 2025) (eDocket No. 20256-220421-05); Other (Sign-In Sheet – Waterville Public Hearing) (June 30, 2025) (eDocket No. 20256-220421-06); Other (Sign-In Sheet – Owatonna Public Hearing) (June 30, 2025) (eDocket No. 20256-220421-07); Other (Sign-In Sheet – Faribault Public Hearing) (June 30, 2025) (eDocket No. 20256-220421-08); Other (Sign-In Sheet Zumbrota Public Hearing) (June 30, 2025) (eDocket No. 20256-220421-09); Exhibit – Hearings (Exhibit B – Waterville Public Hearing) (June 30, 2025) (eDocket No. 20256-220421-01); Exhibit – Hearings (Exhibit C – Zumbrota Hearing) (June 30, 2025) (eDocket No. 20256-220421-02); Exhibit – Hearings (Exhibit D – Zumbrota Hearing) (June 30, 2025) (eDocket No. 20256-220421-03); Exhibit – Hearings (Exhibit E – Zumbrota Hearing) (June 30, 2025) (eDocket No. 20256-220421-04); Transcripts (Public Hearing – Mankato – 5-27-25) (June 30, 2025) (eDocket No. 20256-220419-01); Transcripts (Public Hearing – Waterville – 5-27-25) (June 30, 2025) (eDocket No. 20256-220419-02); Transcripts (Public Hearing – Owatonna - 5-28-25) (June 30, 2025) (eDocket No. 20256-220419-03); Transcripts (Public Hearing – Zumbrota – 5-28-25) (June 30, 2025) (eDocket No. 20256-220419-04); Transcripts (Public Hearing – Faribault – 5-29-25) (June 30, 2025) (eDocket No. 20256-220419-05); Transcripts (Public Hearing –Virtual – 5-29-25) (June 30, 2025) (eDocket No. 20256-220419-06); Transcripts (Evidentiary Hearing – 5-30 – 25) (June 30, 2025) (eDocket No. 20256-220419-07).
[124] Ex. PUC-31 (FEIS).
[125] Ex. PUC-32 (Notice of Availability of the FEIS and Comment Period).
[126] *Id.*

91. On August 1, 2025, Applicant filed its Response to Hearing Comments, Proposed Findings of Fact, Conclusions of Law, and Recommendations, and Post-Hearing Brief.[127]

92. On August 15, 2025, the EERA filed an Affidavit of Publication of the Final EIS published in the *EQB Monitor*, and the Certificate of Mailing of the Final EIS to the local libraries.[128]

III. THE PROPOSED PROJECT

A. Overview of the Project

93. The proposed Project involves the construction of a new, approximately 130-mile, 345 kV transmission line between the existing Wilmarth Substation in Mankato, Minnesota and the Mississippi River near Kellogg, Minnesota, and a new, approximately 20-mile 161 kV transmission line between the North Rochester Substation and an existing transmission line northeast of Rochester, Minnesota.[129]

94. The Project is divided into four segments: Segments 1, 2, and 3 (which consists of the 345 kV portion of the Project) and Segment 4 (which consists of the 161 kV portion on the Project). These four segments are described as follows:

- Segment 1 is a new 48-to-54-mile 345 kV transmission line that will be constructed from the existing Wilmarth Substation and a point near the existing West Faribault Substation.

- Segment 2 is a new 34-to-42-mile 345 kV transmission line that will be constructed between a point near the existing West Faribault Substation and the existing North Rochester Substation.

- Segment 3 is a new 345 kV transmission line that will be constructed between the existing North Rochester Substation and the Mississippi River, near Kellogg, Minnesota. This segment converts approximately 27 miles of existing 161/345 kV transmission line to 345/345 kV operation and installs approximately 16 miles of new 345 kV circuit on an existing 345 kV transmission line. Segment 3 would displace the 161 kV line where it is currently double-circuited with an existing 345 kV line.

- Segment 4 is the relocation of a portion of an existing 161 kV transmission line which is needed because a portion of the new 345 kV transmission line in Segment 3 would displace the 161 kV

[127] *See* eDocket Nos. 20258-221682-01; 20258-221684-01; 20258-221686-01; 20258-221687-01.
[128] Affidavit of Publication (PUC-EIP) (August 12, 2025) (eDocket No. 20258-222162-01); Other – Certificate of Mailing (PUC-EIP) (July 31, 2025) (eDocket No. 20258-222165-01).
[129] Ex. Xcel-15 at 1 (Application).

transmission line where it is currently double-circuited with an existing 345 kV transmission line.[130]

95. Collectively, the four segments will comprise the transmission line portion of the Project. Depending upon the final route selected by the Commission, the proposed Project may traverse portions of Blue Earth, Le Sueur, Waseca, Rice, Dodge, Olmsted, Goodhue, Winona, and Wabasha counties.[131]

96. The proposed Project also includes upgrades to the existing "associated facilities," which are the Wilmarth and North Rochester substations. Depending upon the route selected by the Commission, the Project may also include upgrades to the Eastwood Substation.[132]

97. As part of the MISO Board of Directors' 2021 Transmission Expansion Plan (MTEP21) Report, the Project was studied, reviewed, approved and included in the Long-Range Transmission Planning (LRTP) Tranche 1 Portfolio.[133]

98. The objective of the LRTP Tranche 1 Portfolio is to facilitate the delivery of reliable, safe, and affordable energy. The transmission system in southern Minnesota is the nexus between significant renewable resources in Minnesota and the Dakotas, and the regional load centers in the Twin Cities and Western Wisconsin.[134]

99. The amount of renewable energy generation on the electric system is increasing as traditional generation resources age and are replaced with renewable resources. This Project is intended to provide additional transmission capacity to reliably deliver this renewable energy to customers. This Project intends to relieve overloads on existing transmission facilities and reduce congestion on the transmission system, ideally resulting in lower energy costs.[135]

B. Transmission Line Structures and Conductor Design

104. For the 345 kV portions of the Project in Segments 1 and 2, single-pole steel structures will be primarily used.[136]

105. For the portions of the 345 kV line that will be co-located with existing 115 kV or 345 kV transmission lines, the 115 kV and 345 kV circuits will be constructed in a double-circuited configuration.[137]

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[130] Ex. Xcel-15 at 2 (Application); Ex. PUC-31 at 16 (FEIS).
[131] Ex. Xcel-15 at 2, 25 (Application).
[132] Ex. Xcel-15 at 2, 25 (Application).
[133] Ex. Xcel-15 at 4 (Application).
[134] Ex. Xcel-15 at 3-4 (Application).
[135] Ex. Xcel-15 at 3-4 (Application).
[136] Ex. Xcel-15 at 20 (Application); Ex. PUC-31 at 52 (FEIS).
[137] Ex. Xcel-15 at 20-21 (Application); Ex. PUC-31 at 53 (FEIS).

106. For portions of the Project where the new 345 kV lines will be co-located with existing 69 kV transmission lines, Xcel Energy will build below these existing 69 kV transmission lines with the new 345 kV line.[138]

107. For the remaining portions of the 345 kV transmission line, single-circuit structures will be used. The single-circuit and double-circuit structures are typically 85 to 175 feet tall and would be spaced approximately 1,000 feet apart.[139]

108. No new structures are anticipated to be required for Segment 3.[140] Segment 3 involves converting an existing 161/345 kV transmission line to 345/345 kV operation or installing a new 345 kV circuit on structures that now host double-circuits.[141]

109. For the 161 kV transmission line portion of the Project in Segment 4, single-pole, self-weathering steel structures will be used. In some locations, the 161 kV line will be single-circuit, and in other locations, the 161 kV line will be double-circuited with existing 69 kV or 161 kV transmission lines on double-circuit structures. Both the single-circuit and double-circuit structures are typically 75 to 140 feet tall and would be spaced approximately 350 to 700 feet apart.[142]

110. The Project will use double bundled 2X636 kcmil 36/7 Twisted Pair ACSR "Grosbeak" conductors for the new 345 kV transmission line.[143]

111. In Segment 3, between the North Rochester Substation and the Mississippi River, new double bundled 954 kcmil ACSS/TW 20/7 "Cardinal" conductors will be installed as the second 345 kV circuit on the existing structures. This is intended to match the wire type of the existing circuits.[144]

112. The 161 kV portion of the Project in Segment 4 will use a single 2x397.5 kcmil 36/7 Twisted Pair ZTACSR "Ibis" to match the wire type of the remainder of the transmission line. Rebuilt sections of 115 kV and 69 kV transmission lines will use 2x336 kcmil 36/7 Twisted Pair ACSR "Linnet" conductor in a double bundle and single wire configuration, respectively.[145]

113. The Project will be designed to meet or surpass relevant local and state codes, including National Electric Safety Code (NESC) and Xcel Energy's standards. Because these standards will be followed throughout design and construction, Xcel Energy also pledges that the installed line will meet the applicable operation standards.[146]

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[138] Ex. Xcel-15 at 21 (Application); Ex. PUC-31 at 53 (FEIS).
[139] Ex. Xcel-15 at 21-22, Table 2-1 (Application); Ex. PUC-31 at 52 (FEIS).
[140] Ex. Xcel-15 at 6-7 (Application).
[141] Ex. Xcel-15 at 6-7 (Application).
[142] Ex. Xcel-15 at 22-24, Table 2-2 (Application); Ex. PUC-31 at 54-55 (FEIS).
[143] Ex. Xcel-15 at 24 (Application).
[144] Ex. Xcel-15 at 24 (Application).
[145] Ex. Xcel-15 at 24 (Application).
[146] Ex. Xcel-15 at 24 (Application).

C. Associated Facilities

114. The existing Wilmarth Substation, owned by Xcel Energy, is the western endpoint of the Project and is located in Segment 1. This substation is located on the northern edge of Mankato, adjacent to Xcel Energy's refuse-derived fuel plant, just east of the Minnesota River.[147]

115. New substation equipment necessary to accommodate the proposed 345 kV transmission line will be installed at the Wilmarth Substation. Modifications would include: (1) two new 345 kV circuit breakers; (2) four new 345 kV group-operated switches; (3) three new one-phase bus stands; (4) rigid bus to extend the existing rigid bus to the switches; and (5) a flexible bus to connect the switches to the breakers. An approximately 0.8-acre expansion of the current fenced area and pad on the northeast corner of the Wilmarth Substation will be installed to accommodate the new substation equipment.[148]

116. The existing Eastwood Substation is owned by the Applicant and is located near the eastern boundary of Mankato. Modifications to the Eastwood Substation would only be undertaken if Segment 1 South were to be selected by the Commission. If selected, the needed modifications would include: (1) installation of approximately 500 feet of new 69 kV transmission line to connect an existing 69 kV line at the substation; and (2) installation of a new 69/115 kV transformer on the north side of the site to accommodate the interconnection of the new line. These modifications would be necessary to terminate the existing 69 kV line at the Eastwood Substation. In this scenario, the existing 69 kV transmission line would be removed between the Eastwood Substation and the Wilmarth Substation, and replaced with the Project's 345 kV transmission line.[149]

117. The existing North Rochester Substation is located near Pine Island, Minnesota, at the endpoints of Segment 3 and Segment 4. New substation equipment necessary to accommodate the proposed 345 kV transmission lines would be installed at the North Rochester Substation. The equipment needed would include new 345 kV circuit breakers, new 345 kV switches, new rigid and flexible bus, bus stand and an expansion of the Electrical Equipment Exposure (EEE). No expansion of the current fenced area will be required to accommodate this new substation equipment.[150]

D. Route Width

118. The transmission line must be constructed within the route width designated by the Commission unless, after permit issuance, permission to proceed outside of the earlier-approved route is granted by the Commission.[151]

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[147] Ex. Xcel-15 at 25 (Application); Ex. PUC-31 at 57 (FEIS).
[148] Ex. Xcel-15 at 25 (Application); Ex. PUC-31 at 57 (FEIS).
[149] Ex. Xcel-15 at 25 (Application); Ex. PUC-31 at 57 (FEIS).
[150] Ex. Xcel-15 at 25 (Application); Ex. PUC-31 at 59 (FEIS).
[151] Ex. PUC-31 at 60 (FEIS); Ex. Xcel-15 at 19 (Application).

119. The right-of-way (ROW) is the specific area, within the larger route width, required for the safe construction and operation of the transmission line. The ROW must be within the designated route and is the area by which the Applicant obtains rights from landowners to construct, operate, and maintain the transmission line.[152]

120. The width of the approved route is typically much wider than the ROW needed for the transmission line. The additional area within the approved corridor provides the permittee greater flexibility in setting the alignment, so as to facilitate other important objectives, such as coordinating with area landowners, avoiding sensitive natural resources, and making the best use of local topography and site conditions.[153]

121. For this Project, the Applicant requested a route width of 1,000 feet (500 feet to either side of the proposed centerlines), with wider areas around Project substations, area with routing constraints, and where route options join together.[154]

122. On May 12, 2025, the Applicant requested a route width expansion. The Applicant states that this route expansion is needed due to a recently approved transmission project from MISO that involves adding a second 345 kV circuit to the existing Hampton to North Rochester 345 kV transmission line. The approved transmission line prevents the proposed Project from double-circuiting with that same line, as originally proposed in the Application. The Applicant explained that portions of Segment 2 North and Segment 2 South near the North Rochester Substation will need to be constructed in a new ROW parallel to the existing 345 kV transmission project.[155]

123. There is one location in the requested ROW that deviates from being parallel to the existing line and would extend beyond the route width included in the Application. In this area, there is a residence located south of the existing line. As a result, the Applicant requested an expansion of the route width in this location to include land within 500 feet of the new proposed transmission centerline. The Applicant mailed notices to the 46 landowners potentially affected by a proposed route width expansion and revised alignment. Further, the potential environmental and human impacts of the requested route width expansion were included in the Final EIS.[156]

E. Right-of-Way

124. The 345 kV portion of the Project will require a 150-foot-wide ROW.[157]

125. The 161 kV portion of the Project will require an 80- to 100-foot-wide ROW. In the Application, the Applicant stated that the ROW for the 161 kV line would be 100 feet. There are portions of the 161 kV line, however, that are proposed to be double-circuited with existing transmission lines. These portions of the Project have a narrower

[152] Ex. PUC-31 at 61 (FEIS).
[153] Ex. PUC-31 at 60 (FEIS).
[154] Ex. PUC-31 at 60 (FEIS).
[155] Ex. Xcel-32 at 1-2 (Request to Expand Width); Ex. Xcel-33 at 1 (E. Heine Rebuttal Testimony).
[156] Ex. Xcel-33 at 2-3 (E. Heine Rebuttal Testimony); Ex. Xcel-32 at Attachment A, Figures 1 and 2 (Request to Expand Width).
[157] Ex. Xcel-15 at 20 (Application); Ex. PUC-31 at 62 (FEIS).

ROW. For these portions of the route, the right-of-way may only be 80 feet, and would not require changes the existing ROW.[158]

126. Where the proposed transmission lines parallel existing roadways or other infrastructure (for example, other transmission lines), the amount of new required ROW may be reduced. The Applicant's typical practice when paralleling existing road ROW is to place the poles on adjacent private property near the ROW. With this pole placement, the transmission line shares the existing infrastructure ROW, thereby reducing the size of the easement required from landowner(s). For example, if the required ROW is 150 feet, and the transmission pole is placed five feet off an existing road ROW, only an 80-foot ROW easement would be required from the landowner. The additional 70 feet of required ROW would be shared with the road ROW.[159]

F. Project Schedule

127. The Applicant anticipates that it will start construction of the Project in the fourth quarter of 2026 or the first quarter of 2027. The Applicant plans to have the Project in service in the first quarter of 2030.[160]

128. The table below provides the current permitting and construction schedule for the Project:

Anticipated Project Schedule

Activity	Estimated Dates
Minnesota Certificate of Need and Route Permit for Issued	Fourth Quarter 2025
Land Acquisition Begins	Fourth Quarter 2025
Survey and Transmission Line Design Begins	Third Quarter 2024
Other Federal, State, and Local Permit Issued	Third or Fourth Quarter 2026[161]
Start Right-of-Way Clearing	Third Quarter 2026
Start Project Construction	Fourth Quarter 2026 or First Quarter 2027
Project In-Service	First Quarter 2030

G. Project Costs

129. Xcel Energy estimates that the Project will cost $436.8 million to $589.7 million depending on the route selected.

[158] Ex. Xcel-15 at 20 (Application); Ex. PUC-31 at 62 (FEIS).
[159] Ex. PUC-31 at 61 (FEIS).
[160] Ex. Xcel-15 at 26-27 (Application); Ex. Xcel-30 at 3 (Wendland Direct).
[161] Ex. Xcel-15 at 26 (Application).

130. These costs are based on specific routes for both the 345 kV and 161 kV transmission lines.[162]

IV. PUBLIC PARTICIPATION

A. Pre-Application Public Outreach

131. Prior to filing the Application, Xcel Energy held two rounds of open houses; one in May of 2023 and a second in September 2023. These sessions were held to gather information about potential route alternatives and answer questions from the public about the Project.[163]

132. Xcel Energy sent out two mailers to recipients in the Project Study Area, inviting landowners, government officials, and members of the public to the open houses. In addition to providing information on dates and locations of the open houses, the mailings included a general Project description, a Project schedule, a map of the Project Study Area, the Project's website address, and Project contact information. These materials were sent to total of approximately 17,000 addressees.[164]

133. Additionally, news of the open houses was promoted on Xcel Energy's social media accounts and advertised in several area newspapers; including, the *Faribault Daily News, Kasson Dodge County Independent, Kenyon Leader, Lake Crystal Tribune, Mankato Free Press, Plainview News, Rochester Post Bulletin, Wabasha County Herald, Waseca County News, Waterville LifeEnterprise, Winona Daily News,* and the *Zumbrota News Record*.[165]

134. In May 2023, eight open house meetings were held for the Project. These included six in-person events; one live virtual event; and one on-demand self-guided open house available on the Project website.[166]

135. In September 2023, a five, additional open house meetings were held for the Project, including three in-person events, one live virtual event, and an on-demand self-guided virtual open house available on the Project website.[167]

136. The table below reflect the attendance at the various open houses:

Location	May 2023	September 2023[168]
Goodhue County Fairgrounds	68	50
Rice County Fairgrounds	27	32

[162] Ex. Xcel-30 at 4-5 (Wendland Direct); Ex. Xcel-35 at 2 (Wendland Surrebuttal).
[163] Ex. Xcel-15 at 337 (Application).
[164] Ex. Xcel-15 at 337 (Application).
[165] Ex. Xcel-15 at 337 (Application); Ex. Xcel-21 at 2 (Notice of Filing Application Compliance Filing).
[166] Ex. Xcel-15 at 337 (Application).
[167] Ex. Xcel-15 at 338 (Application).
[168] Ex. Xcel-15 at 337 (Application).

Mankato Country Inn and Suites	20	28
Virtual Open House	3	5

B. Post-Application Filing Public Outreach

137. After filing the Application, the Applicant continued to engage with the public by updating the Project website, including the dates and times for the EIS scoping meetings, the route alternatives included in the scoping decision, and how to comment in the proceeding.[169]

138. From July 8 to July 11, 2025, five in-person and two virtual public information and EIS scoping meetings were held throughout the Project Area. In-person meetings were held in Mankato, Waterville, Faribault, Pine Island, and Kellogg, Minnesota.[170]

139. In early 2025, Xcel Energy also sent out a mailing to landowners and local units of government that provided information about the EIS scoping decision and the new route alternatives that would be studied as part of the EIS. This mailing provided information about the Project, instructions on how to submit public comments, and a map of the route and alignment alternatives being studied in the EIS.[171]

C. Public Comments Received During Hearing Process

139. Comments on the Application and the DEIS were gathered during in-person and virtual public hearings held on May 27, 28, and 29, 2025.

140. The dates and times for these public hearings were provided above. Written public comments were received until June 10, 2025.

141. Due to the volume of comments, a summary of public comments is attached as Addendum 2.[172]

V. TRIBAL, FEDERAL, STATE, AND LOCAL GOVERNMENT PARTICIPATION

A. Applicant's Outreach

142. Prior to submitting the Application, Xcel Energy initiated outreach to tribal, federal, state, and local agencies through meetings and Project notification letters.[173]

[169] Ex. Xcel-29 at 24:21-24 (Heine Direct).
[170] Ex. PUC-13.
[171] Ex. Xcel-29 at 24:24-25:3 (Heine Direct); Ex. Xcel-34 at 2 (Letter Regarding Mailed Notice of Scoping Decision).
[172] Addendum 2.
[173] Ex. Xcel-15 at 323 (Application).

1. Tribal Nations

143. Xcel Energy engaged with all Tribal Nations in Minnesota, including those Tribal Nations in nearest proximity to the Project.[174]

144. On May 1, 2023, initial outreach letters were sent to all federally recognized Tribes in Minnesota and Tribes currently located in other states that have ancestral interest in the Minnesota counties crossed by the Project. A second letter was sent to Tribal contacts on October 31, 2023. These letters included detail on the Project and invited comments and ongoing communications with these nations.[175]

145. In May of 2023, representatives from the Prairie Island Indian Community (PIIC) contacted Xcel Energy and noted that one of the proposed route options crossed lands that were owned by the Tribe. On July 17, 2023, Xcel Energy and PIIC met and discussed the potential impacts of the Project on PIIC's property, which is located on the east side of U.S. Highway 52.[176]

146. On November 15, 2023, PIIC sent a letter to Xcel Energy noting their concerns with Segment 4 East. To address these concerns, the Applicant identified an additional alignment alternative, Alignment Alternative 4F, to parallel the highway on the southwestern side of U.S. Highway 52. On December 14, 2023, Xcel Energy had a telephone conference with PIIC to discuss the overall scope of the route options in Segment 4, including the new alignment alternative. Following this meeting, the Lower Sioux Indian Community requested to be identified as a consulting party on the Project and receive more detailed information regarding Segment 1 and Segment 4.[177]

147. On December 18, 2023, Xcel Energy emailed PIIC a map of the proposed route alternatives for Segment 4.[178]

2. Federal Agencies

148. The Applicant sent initial outreach letters in May 2023, to the following federal agencies: U.S. Army Corps of Engineers; Federal Aviation Administration; U.S. Department of Agriculture; U.S. Bureau of Indian Affairs; U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency. The letter introduced the Project and requested input regarding public and environmental resources that may be located within the Project Study Area, or resources that could potentially be affected by the Project.[179]

149. The U.S. Army Corps of Engineers responded to the Project notification letter on May 8, 2023. It later provided contact information for a project manager who will

[174] Ex. Xcel-15 at 324 (Application).
[175] Ex. Xcel-15 at 323-324 (Application).
[176] Ex. Xcel-15 at 325 and Appendix M (Application).
[177] Ex. Xcel-15 at 136, 325 and Appendix M (Application).
[178] Ex. Xcel-15 at 136, 325 and Appendix M (Application).
[179] Ex. Xcel-15 at 324, 326 and Appendix M (Application).

evaluate the Applicant's Section 404 permit once a route has been ordered. The Applicant replied to these communications with Project updates.[180]

150. The Federal Aviation Administration responded to the Project notification letter on May 9, 2023. The Federal Aviation Administration contact indicated the agency could meet with the Applicant to further review the Project as needed. Additionally, it directed the Applicant to use the Notice Criteria Tool to determine whether Form 7460-1 (a Notice of Proposed Construction of Alteration) is required for the Project.[181]

151. The U.S. Department of Agriculture responded to the Applicant's May 2023 outreach letter indicating that the agency will review the proposed routes to ensure that they do not intersect with any of the agency's easements. The Applicant provided the agency with maps on June 22, 2023, showing the then-proposed routes for the Project. The Applicant will continue to coordinate and consult with the agency to identify easements crossed by the Project.[182]

152. The U.S. Bureau of Indian Affairs responded through the Project website comment tool. The agency reviewed the project map and concluded that the proposed routes are not close to any tribal lands in the State; but it indicated that the PIIC would be the closest tribe to the Project area. The Applicant indicated it will continue to consult with the agency for the Project.[183]

153. In May of 2023, Xcel Energy provided a copy of the Information for Planning and Consultation report for the Project Study Area and the initial Project letter to the U.S. Fish and Wildlife Service (USFWS).[184]

154. During a follow up meeting on September 8, 2023, USFWS staff noted that the agency was "revising the regulations for the issuance of permits for eagle incidental take and eagle nest take …."[185] The agency staff recommended waiting for the final rule to become effective to determine how the new regulations would impact the Project. The Applicant will continue to coordinate with the USFWS on the application of this new rule to this Project and other relevant requirements.[186]

3. State Agencies

155. Xcel Energy met with MnDNR on July 17, 2023, to review preliminary route alternatives for the Project and to discuss natural resource concerns. MnDNR requested that a formal Natural Heritage Information System request be made through the Minnesota Conservation Explorer.[187]

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[180] Ex. Xcel-15 at 326 (Application).
[181] Ex. Xcel-15 at 326-27 (Application).
[182] Ex. Xcel-15 at 327 and Appendix M (Application).
[183] Ex. Xcel-15 at 327 (Application).
[184] Ex. Xcel-15 at 327 (Application).
[185] Ex. Xcel-15 at 327 (Application); 89 Fed. Reg. 9920 (Feb. 12, 2024).
[186] Ex. Xcel-15 at 327 and Appendix M (Application).
[187] Ex. Xcel-15 at 328-29 and Appendix M (Application).

156. A copy of the Minnesota Conservation Explorer review was provided to the Applicant by the MnDNR on January 23, 2024.[188]

157. Xcel Energy used this information to assess potential Project impacts in the Application.[189]

158. On August 22, 2023, Xcel Energy and MnDOT reviewed each of the proposed route segments and alignment alternatives proposed at that time. Feedback from MnDOT officials included: locations where roadway construction is planned; infrastructure that MnDOT requests be avoided or paralleled during later alignment; and noting that US Highway 61 is a scenic byway.[190]

159. On September 13, 2023, MnDOT and Xcel Energy discussed the new Early Notification Memo process that MnDOT has instituted and requested that Xcel Energy also use its Notification Memo form. Xcel Energy later submitted a completed Early Notification Memo to MnDOT.[191]

160. On January 30, 2024, MnDOT provided its Early Coordination response for the Project. The response included detail on meeting summaries, general transmission line routing considerations, and detailed recommendations and comments regarding resources associated with the Project.[192]

161. Xcel Energy contacted the Minnesota SHPO on March 7, 2023, to request information on known cultural resources within the Project Study Area.[193]

162. The Minnesota SHPO responded on March 10, 2023, with a Microsoft Access database file containing all known records of cultural resources within the Project Study Area.[194]

163. On May 1, 2023, Xcel Energy sent the initial outreach letter to the Minnesota SHPO describing Project and requesting comments. Xcel Energy also prepared a draft Cultural Resources Literature Review of the Project Study Area and submitted a copy of that to the Minnesota SHPO with a completed Request for Project review form on February 16, 2024.[195]

164. In addition to the general Project description and outreach letter, Xcel Energy sent a copy of the Project's draft Agricultural Impact Mitigation Plan (AIMP) to the Minnesota Department of Agriculture (MDA) on February 5, 2024. MDA provided

[188] Ex. Xcel-15 at 329 and Appendix M (Application).
[189] Ex. Xcel-15 at 329 and Appendix M (Application).
[190] Ex. Xcel-15 at 329 and Appendix M (Application).
[191] Ex. Xcel-15 at 329-30 and Appendix M (Application).
[192] Ex. Xcel-15 at 330 (Application).
[193] Ex. Xcel-15 at 330 and Appendix M (Application).
[194] Ex. Xcel-15 at 330 and Appendix M (Application).
[195] Ex. Xcel-15 at 330 (Application); Ex. Xcel-29 at 22:8-14 (Heine Direct).

comments on the draft AIMP to Xcel Energy on February 7, 2024, which Xcel Energy has incorporated into the AIMP filed with the Application.[196]

165. Xcel Energy sent an initial outreach letter with Project information and request for comment to the Minnesota Pollution Control Agency (MPCA) on May 1, 2023. MPCA staff met with Xcel Energy to discuss the proximity of the Project to a closed landfill and expressed concerns about replacing existing transmission structures with new double-circuit 345/115 kV structures, if this route is selected. After the meeting, the Applicant incorporated additional information from the MPCA into the Project routing map.[197]

166. Xcel Energy met with the owner of the landfill site on November 9, 2023, to discuss the Project and its proximity to the closed landfill. Xcel Energy will continue to coordinate and consult both the MPCA and the landowner of the closed landfill regarding the replacement of the existing 115 kV line with a double-circuit 345 kV/115 kV transmission line.[198]

4. Local Government Units

167. On May 1, 2023, Xcel Energy sent an initial outreach letter to the local government units in the Project Study Area describing the Project and requesting comments. As required by Minn. Stat. § 216E.03, subd. 3(a) (2024), Xcel Energy also sent a notice letter to local government units on October 5, 2023, informing them of the Project and the opportunity to arrange for a pre-application consultation meeting with the Applicant.[199]

168. Lime Township representatives spoke with Xcel Energy at the September 2023 open houses and provided written comments regarding concerns about airport safety, the proximity of the current proposed routes to the Mankato Airport, and the proximity of the proposed routes to the Mankato Airport control tower. Additional concerns were provided regarding the Project's proximity to the Summit Avenue Demolition Landfill.[200]

169. Xcel Energy held a virtual meeting with Lime Township on November 28, 2023, to discuss the concerns raised, provide updates on information the Applicant had learned regarding the airport and landfill, and address any further questions or concerns.[201]

170. Staff from the City of Mankato also attended the September 2023 public open houses and spoke with Xcel Energy about the Project. On October 25, 2023, Xcel

[196] Ex. Xcel-15 at 330-31 and Appendix M (Application).
[197] Ex. Xcel-15 at 331 and Appendix M (Application).
[198] Ex. Xcel-15 at 331 and Appendix M (Application).
[199] Ex. Xcel-15 at 332 and Appendix M (Application).
[200] Ex. Xcel-15 at 334 (Application).
[201] Ex. Xcel-15 at 334 (Application).

Energy held a virtual meeting with these staff members to discuss routing options near Mankato Airport.[202]

171. Mankato staff provided Xcel Energy with airspace easements in locations where the Proposed Routes were located. The Applicant incorporated that information into the Application and eliminated certain potential route segments south of the airport. Xcel Energy held a virtual meeting with Mankato staff to discuss those changes to the proposed routes.[203]

172. Xcel Energy attended a Goodhue County Committee meeting on January 16, 2024, to provide a Project presentation and answer questions regarding the Project.[204]

173. Xcel Energy met with the Oronoco City Council on January 16, 2024. Council members expressed concerns about possible routing along Highway 52 and expressed a preference that the new single-circuit 161 kV line be built parallel to the existing Hampton – La Crosse 345 kV transmission line.

174. Following the presentation by Xcel Energy, Cascade Township, Oronoco Township, Pine Island Township, and the City of Oronoco passed resolutions requesting that a route alternative for the new single-circuit 161 kV line be added which would parallel the Hampton – La Crosse 345 kV line.[205]

B. Tribal, Federal, and Government Participation in Route Permit Docket

1. Tribal Nations

175. On August 1, 2024, the EERA filed public comments from the PIIC regarding the scope of the EIS for the Project. The PIIC recommended that the EIS assess the proposed route Segment 4 East on PIIC and its Elk Run property for undue community burden, past injustices, and the impact upon tribal natural resources.[206]

2. Federal Agencies

176. On August 1, 2024, the U.S. Army Corps of Engineers (USACE) filed public comments. The agency indicated that the Project is likely to require a permit from the USACE. Xcel Energy responded in an August 28, 2024, letter stating that it will continue to coordinate with USACE as the Project proceeds and will apply for all required federal permits.[207]

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[202] Ex. Xcel-15 at 334 (Application).
[203] Ex. Xcel-15 at 334-335 and Appendix M (Application).
[204] Ex. Xcel-15 at 335 and Appendix M (Application).
[205] Ex. Xcel-15 at 335 and Appendix M (Application).
[206] Tribal and Agency Comments at 3-5 (Aug. 1, 2024) (eDocket No. 20248-209559-01).
[207] Ex. Xcel-25 at 16 (Response to Environmental Impact Statement Scoping Comments).

3. State Agencies

a. Minnesota Department of Natural Resources

177. On July 30, 2024, the MnDNR filed comments regarding potential environmental impacts that the agency recommended be considered in the EIS. Specifically, the MnDNR recommended that the EIS should fully describe the timing of the project work, the equipment and materials that will be used, and any temporary staging or workspaces placed near the McCarthy Lake Wildlife Management Area.[208]

178. The MnDNR further noted that the possible routes in Olmsted County are near mapped karst features. It recommended that the EIS address how the Project will account for karst geology in pole structure design and placement, and what measures the Applicant will take if it encounters karst features during construction. Finally, the MnDNR recommended that any additional route alternatives considered in the EIS be submitted to the MnDNR Natural Heritage staff to update the January 23, 2024 Natural Heritage letter.[209]

179. On January 13, 2025, Xcel Energy submitted a Natural Heritage Review request to the MnDNR via the Minnesota Conservation Explorer (MCE) to address the additional route alternatives that were added during scoping. On March 10, 2025, Xcel Energy contacted the MnDNR for an update on its response. The MnDNR provided that its response would be issued three months from the initial filing date.[210]

180. On May 1, 2025, the MnDNR issued a refresh of its initial natural heritage response (MCE 2023-00832). The updated response incorporated review of the route alternatives being analyzed in the DEIS (*see* MCE 2025-00029 and MCE 2025-00030). These updated reviews were filed on June 10, 2025, were used in preparing the final FEIS, and were included in Appendix M of the FEIS.[211]

181. On June 10, 2025, the MnDNR filed additional comments outlining its route preferences and proposed special conditions for the Route Permit. [212]

182. The MnDNR stated a preference for Route Segment 17 for Segments 1 and 2 "[t]o mitigate potential impacts on native plant communities, state-administrated lands, and public waters." The MnDNR stated that if Route Segment 17 is not selected, that it strongly encourages "double-circuiting the final route as much as feasible to minimize long-term impacts on natural resources." The MnDNR opposed selection of Route Alternative 1J, part of Segment 1 South, because this route alternative does not follow an existing transmission line and crosses between multiple areas known for their waterfowl population, including Ballantyne Lake, Duck Lake, and Madison Lakes, all Lakes of

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[208] Comments at 1-2 (July 30, 2024) (eDocket No. 20247-209122-01).
[209] Comments at 2 (July 30, 2024) (eDocket No. 20247-209122-01).
[210] Ex. Xcel-29 at 24 (Heine Direct).
[211] Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. 20256-219807-01, 20256-219807-02, 20256-219807-03, and 20256-219807-04).
[212] Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. 20256-219807-01, 20256-219807-02, 20256-219807-03, and 20256-219807-04).

Outstanding Biological Significance, as well as the Gilfillan Lake Wildlife Management Area (WMA). [213]

183. The MnDNR also prefers selecting Segment 2 South (near the Faribault WMA) over Segment 2 North. As the agency points out, Segment 2 South has the potential to be double-circuited with an existing transmission line in this area.[214]

184. For Segment 4, the MnDNR supports the CapX Co-Locate Option. This option co-locates the repositioned 161 kV line with the existing CapX2020 Hampton – La Crosse 345 line before traversing the Zumbro River.[215]

185. In its June 10, 2025 comments, the MnDNR requested that, to the extent that there is any ROW expansion or staging areas on the east side of the Zumbro River, that the tree removal within Minnesota Biological Survey (MBS) Site of Moderate Biodiversity Significance and riparian zone of the Zumbro River be limited.[216]

186. The MnDNR also recommended that the Route Permit include special conditions regarding: (1) coordination with USFWS on avoidance and permitting of federally-protected species; (2) deployment of avian flight divertors; (3) coordination with the Vegetation Management Planning Working Group (VMPWG) on the Project's Vegetation Management Plan (VMP); (4) addressing the timing of vegetation removal in the VMP; (5) prohibiting removal of vegetation in floodplains and near designated trout streams; (6) requiring the use of wildlife-friendly erosion control methods; (7) prohibiting dust control products that contain calcium chloride or magnesium chloride; and (8) requiring use of downward-facing facility lighting that minimizes blue hue.[217]

b. Minnesota Department of Transportation

187. On August 1, 2024, during the scoping process for the EIS, MnDOT filed comments. In these comments, MnDOT identified a wooded wetland complex within Segment 1. It advised the Applicant that all transmission line structures in proximity to the wooded wetland must comply with MnDOT requirements for wetland buffers and applicable U.S. Army Corps of Engineers regulations. MnDOT also recommended continued cooperation with the City of Madison Lake to ensure that the placement of transmission poles and lines are coordinated with the placement of the site infrastructure, sidewalks, and street extensions.[218]

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[213] Comments (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket Nos. 20256-219807-01, 20256-219807-02, 20256-219807-03, and 20256-219807-04).
[214] Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. 20256-219807-01).
[215] Comments at 1-2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. 20256-219807-01).
[216] Comments at 2 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. 20256-219807-01).
[217] Comments at 2-4 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. 20256-219807-01).
[218] Comments at 1-2 (August 1, 2024) (eDocket No. 20248-209198-01).

188. On November 22, 2024, Xcel Energy submitted an Early Notification Memo request to MnDOT addressing the new route alternatives that were added during EIS scoping for the Project. On November 26, 2024, MnDOT requested clarification on an alignment or intended use of Interstate 35 for ENM-4.[219] Xcel Energy responded the same day.[220]

189. On January 17, 2025, Xcel Energy submitted a supplemental Early Notification Memo request to MnDOT for Segment 4 West Modification, to which MnDOT replied it had no assets along this route alternative that would be affected.[221]

190. On March 25, 2025, MnDOT formally responded to the Early Notification Memo request and filed its response with the Commission. In this letter, MnDOT outlined potential impacts of the route alternatives, suggested mitigation measures, and identified proposed conditions for a route permit.[222]

191. On June 10, 2025, MnDOT filed comments on the DEIS suggesting edits to certain sections of the DEIS. MnDOT stated that it appreciated the work of EERA staff and the Applicant to incorporate MnDOT's findings from the Applicant's Early Notification Memo on Route Segment 17 into the DEIS.[223]

c. State Historic Preservation Office

192. On May 1, 2024, the SHPO responded to the Literature Review submission and assigned the Project to SHPO Number 2024-1231.[224]

193. On October 15, 2024, the Commission submitted a letter to the Applicant and the SHPO authorizing Xcel Energy to act on the Commission's behalf to consult with SHPO.[225]

194. On April 18, 2025, Xcel Energy met with SHPO staff to discuss: the Project, the cultural resources work that had been completed to date, the federal nexus and Section 106 matters, the status of permitting and the anticipated route permit decision date, future cultural resources work for the selected route, and the formatting of the anticipated cultural resource report.[226]

d. Vegetation Management Planning Working Group

195. On June 10, 2025, the EERA filed comments on behalf of the interagency Vegetation Management Planning Working Group (VMPWG) regarding the draft

[219] Ex. Xcel-29 at 23 (Heine Direct).
[220] *Id.*
[221] *Id*.
[222] *Id.* at 24.
[223] Comments at 1-3 (Minnesota Department of Transportation) (June 10, 2025) (eDocket No. 20256-219788-03).
[224] Ex. Xcel-29 at 24 (Heine Direct).
[225] *Id.* at 23; Ex. PUC-23 (Letter).
[226] Ex. Xcel-29 at 23 (Heine Direct).

Vegetation Management Plan (VMP). The VMP is included as Appendix V to the Application. The VMPWG stated that it was not recommending any action by the Commission at this time but provided comments on the draft VMP to document the progress toward a final VMP for the Project. The VMPWG provided several recommendations for updating the draft VMP and recommended that Xcel Energy continue to coordinate with the VMPWG as it finalizes the VMP.[227]

4. Local Government Units

196. On April 29, 2024, the Mayor of Oronoco provided comments regarding Route Alternative Segment 4 East and asked the Commission to consider city development plans when deciding among route alternatives. On the same day, the City of Oronoco provided a city council resolution in support of the Project's Segment 4 route and at least one alternative for the new single-circuit 161 kV line route from the North Rochester Substation to the Chester Junction.[228]

197. On May 29, 2025, the City of Madison Lake commented and expressed concerns regarding Segment 1 South as this route may interrupt commercial and residential development in the area. Madison Lake expressed its preference for Segment 1 North over Segment 1 South.[229]

198. On May 29, 2025, Dodge County filed comments expressing its concern about the addition of a Highway 14 route alternative (Route Segment 17). Dodge County stated that it did not receive notice of this alternative until May 16, 2025, and that it did not have adequate time to provide feedback on this alternative. Dodge County requested an extension of the public comment deadline to permit it to formulate detailed comments.[230]

199. On June 10, 2025, the City of Waseca filed a resolution supporting a comprehensive socioeconomic analysis, including a business development analysis, of the proposed route along Highway 14 (i.e., Route Segment 17). Waseca urged a direct comparison of Route Segment 17 with other route alternatives for Segments 1 and 2.[231]

200. On June 17, 2025, Blue Earth County Public Works filed a comment summarizing the potential impacts of Segment 1 North and Segment 1 South on its county roads and future road construction projects. Blue Earth County Public Works also stated that they anticipate that Xcel Energy will work with the county on developing and executing a Haul Road Use and Temporary Access Agreement.[232]

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[227] Hearing Comments at 1, 6 (June 10, 2025) (eDocket No. 20256-219785-01).
[228] Public Comment (April 29, 2024) (eDocket No. 20244-206073-01).
[229] Public Comment (May 29, 2025) (eDocket No. 20255-219331-01).
[230] Public Comment (May 29, 2025) (eDocket No. 20256-219808-01).
[231] Public Comment (June 10, 2025) (eDocket No. 20256-219788-02).
[232] Public Comment (June 17, 2025) (eDocket No. 20256-219968-01).

VI. ROUTES EVALUATED FOR PROJECT

A. Applicant's Route Development

201. Beginning in 2022 and extending through late 2023, Xcel Energy undertook its route selection process. This process included consideration of statutory and rule requirements; identification and review of existing transmission lines and linear infrastructure; information gathering and data compilation; public outreach and collecting stakeholder feedback; and comparing possible route segments and alignments.[233]

202. As detailed above, the Applicant also met with representatives of tribal governments, state agencies and local units of government regarding the Project.[234]

203. Xcel Energy developed a geographic information system (GIS) database of information from publicly available resources and its own on-site field reviews. The database was used to compare potential impacts from different routing options with the goal of developing Application routes that minimize impacts to sensitive resources.[235]

204. Xcel Energy took the following steps during this process; it:

- Established boundaries for Project Study Area;
- Identified opportunities and constraints within the Study Area;
- Developed preliminary route alternatives;
- Communicated with officials from tribal, state, and local agencies;
- Conducted initial outreach to area landowners;
- Reviewed the initial route network in the field;
- Held public open house meetings;
- Reviewed and refined potential routes based upon stakeholder feedback and analysis,
- Ran comparative analyses to remove the routes with the greatest impacts;
- Conducted a second round of public open house meetings;
- Optimized route segments to create the end-to-end routes featured in the Application; and

[233] Ex. Xcel-29 at 5 (Heine Direct); Ex. Xcel-15 at 108 (Application).
[234] Ex. Xcel-29 at 5:4-11 (Heine Direct); Ex. Xcel-15 at 108 (Application).
[235] Ex. Xcel-29 at 5:13-19 (Heine Direct); Ex. Xcel-15 at 108 (Application).

- Conducted constructability review of the end-to-end routes.[236]

205. To minimize adverse impacts from the Project, Xcel Energy pledged that, where feasible, it would avoid the following features within the Routing Study Area:

- residences;
- municipal boundaries;
- tribally owned properties;
- federally owned properties;
- state owned properties;
- lakes, rivers, and calcareous fens;
- public airports; and
- regional, county, and municipal parks.[237]

206. Additionally, as part of its effort to minimize Project impacts on the environment and affected landowners, Xcel Energy searched for opportunities to share existing rights-of-way and follow existing linear features. It identified routes that would:

- permit double-circuiting or parallelling existing transmission lines;
- parallel a roadway and potentially share public rights-of-way between the transmission line and road;
- permit placement of a transmission line centerline on a field or property line, where existing land uses could continue uninterrupted within the transmission line easement; and
- reduce the number of two-pole angle or dead-end structures by following straight lines.

207. In the Application, Xcel Energy proposed two end-to-end route alternatives for Segments 1, 2, and 4 of the Project.[238]

208. Additionally, it provided five alternative segments and three connector segments.[239]

[236] Ex. Xcel-29 at 5-6 (Heine Direct).
[237] Ex. Xcel-29 at 6-7 (Heine Direct).
[238] Ex. Xcel-29 at 4:16-19 (Heine Direct).
[239] Ex. Xcel-29 at 4:22-24 (Heine Direct).

209. Alternative routes were not provided for Segment 3 because route alternatives for this segment were thoroughly evaluated as part of the Hampton – La Crosse Project route permit proceeding.[240]

1. Segment 1

210. Segment 1 is the proposed new 345 kV transmission line that would run from the Wilmarth Substation in Mankato to a point near the West Faribault Substation near Faribault. Two potential routes were identified for Segment 1 in the Application: Segment 1 North (48.1 miles) and Segment 1 South (53.6 miles).[241]

211. Segment 1 North follows existing Xcel Energy transmission lines from the Wilmarth Substation until it ends near the West Faribault Substation. Nearly all of Segment 1 North (96 percent) could be double-circuited with either the existing 115 kV line or a 69 kV line.[242]

212. For Segment 1 North, no route segment or alignment alternatives were proposed in the Application.[243]

213. Segment 1 South generally follows existing 115 kV and 69 kV transmission lines from the Wilmarth Substation to near the West Faribault Substation. More than half of Segment 1 South (69 percent) could be double-circuited with existing 69 kV and/or 115 kV line.[244]

214. For Segment 1 South, one route segment alternative and no alignment alternatives were proposed in the Application.[245]

2. Segment 2

215. Segment 2 is the proposed new 345 kV transmission line that would run from a point near the West Faribault Substation, southwest of Faribault, to the North Rochester Substation, just north of Pine Island.[246]

216. The Applicant proposed two route options for Segment 2 in the Application: Segment 2 North (41.2 miles) and Segment 2 South (33.6 miles).[247]

217. As proposed in the Application, Segment 2 North could be double-circuited with existing 69 kV transmission line for 51 percent of its length and would be parallel to

[240] Ex. Xcel-15 at 7 (Application).
[241] Ex. Xcel-15 at 123 (Application).
[242] Ex. PUC-31 at 32 (FEIS); Ex. Xcel-15 at 123 (Application).
[243] Ex. Xcel-15 at 123 (Application).
[244] Ex. PUC-31 at 33 (FEIS).
[245] Ex. Xcel-15 at 123 (Application).
[246] Ex. PUC-31 at 35 (FEIS).
[247] Ex. PUC-31 at 35 (FEIS).

an existing 345 kV transmission line for 17 percent of its length. For Segment 2 North, no route segment or alignment alternatives were proposed in the Application.[248]

218. Segment 2 South would be primarily constructed in a new ROW that parallels some existing infrastructure, such as transmission lines, roads or railroads, for 27 miles of the alignment distance, but mostly (77 percent in total) parallels property lines. For Segment 2 South, no route segment or alignment alternatives were proposed in the Application.[249]

219. Xcel Energy did propose a connector segment for Segment 2 (named Connector 2G in the Application). Connectors, where present, connect the north and south route options. Connector 2G connects Segment 2 North and Segment 2 South in Rice County and travels north to south across agricultural land. Connector 2G would require a greenfield ROW.[250]

3. Segment 3

220. Segment 3 is the proposed new 345 kV transmission line that would run from the North Rochester Substation near Pine Island to the Mississippi River (and the Minnesota-Wisconsin border). It would cross the river near the City of Kellogg.[251]

221. Segment 3 is 43.4 miles and would be double-circuited in its entirety. The existing double-circuit structures were permitted by the Commission in 2012 as a 345 kV double-circuit capable line in the CapX2020 Hampton – La Crosse Project docket.[252]

222. The Applicant did not propose an alternative route for Segment 3 because those route alternatives were evaluated during the Hampton – La Crosse Project route permit proceeding. No additional ROW would be required for Segment 3.[253]

223. The westernmost 27 miles of Segment 3 would convert an existing 161 kV transmission line to 345 kV operation. The easternmost 16 miles of Segment 3 would involve installing new 345 kV transmission lines on the existing transmission structures. Additionally, the Mississippi River crossing would not require any new construction because the existing 69 kV line would be converted to 345 kV operation.[254]

224. An alternative route for Segment 3 was not proposed because, as noted above, route alternatives to this segment were evaluated as part of a prior route permit

[248] Ex. PUC-31 at 37 (FEIS); Ex. Xcel-15 at 127 (Application).
[249] Ex. PUC-31 at 37 (FEIS); Ex. Xcel-15 at 127 (Application).
[250] Ex. PUC-31 at 38 (FEIS).
[251] Ex. PUC-31 at 42 (FEIS).
[252] Ex. PUC-31 at 42 (FEIS); *In the Matter of Xcel Energy's Application for a Route Permit for the CapX2020 Hampton – Rochester – La Crosse High Voltage Transmission Line*, Order Issuing Route Permit as Amended, Docket No. E002/TL-09-1448 (May 30, 2012).
[253] Ex. PUC-31 at 42 (FEIS).
[254] Ex. PUC-31 at 42 (FEIS); Ex. Xcel-15 at 130 (Application).

proceeding and the entire length of Route Option 3 is within an existing transmission corridor. For that reason, no additional ROW will be required.[255]

4. Segment 4

225. Segment 4 is the proposed relocation of a portion of the existing North Rochester to Chester 161 kV transmission line that would be displaced by Segment 3.[256]

226. Two potential routes were identified for Segment 4 in the Application: Segment 4 West (23.7 miles) and Segment 4 East (19.6 miles). Portions of both routes would parallel existing transmission line rights-of-way, but both routes also require significant segments where new greenfield ROW would be required.[257]

227. Segment 4 West parallels a combination of roads, property lines, and existing transmission lines for nearly its entire length. At its northernmost portion, it could be double-circuited with an existing 161 kV line.[258]

228. For Segment 4 West, two route segment alternatives, and one connector (4Q) were proposed in the Application.[259]

229. Segment 4 East parallels U.S. Highway 52 for most of its length and includes some double-circuiting at points where the line runs between east and west.[260]

230. For Segment 4 East, route segment alternatives, and one connector (4Q) were proposed in the Application.[261]

231. In the Application, Xcel Energy proposed Connector 4Q. Connector 4Q connects Segment 4 West and Segment 4 East in Olmsted County, east of Highway 52. The line travels from north to south across agricultural land and parallels 20th Avenue Northeast. The connector would require a greenfield ROW.[262]

B. Route Alternatives Added During the Scoping Process

232. During the EIS scoping process, members of the public and the Applicant recommended 12 route segments and five alternative alignments.[263]

[255] Ex. Xcel-15 at 130-131 (Application).
[256] Ex. Xcel-15 at 133 (Application); Ex. PUC-31 at 44 (FEIS).
[257] Ex. Xcel-15 at 133 (Application).
[258] Ex. PUC-31 at 47 (FEIS).
[259] Ex. Xcel-15 at 133 (Application).
[260] Ex. PUC-31 at 48 (FEIS).
[261] Ex. Xcel-15 at 133 (Application).
[262] Ex. PUC-31 at 50 (FEIS).
[263] Ex. EERA-5 at 6 (Scoping Summary and Recommendations).

233. During the scoping process, the Applicant also requested that Segment Alternative 1L be removed from consideration as a potential route to avoid potential conflicts with CenterPoint Energy's gas wells in the area.[264]

234. EERA staff analyzed the route segments, connectors, and alternative alignments recommended by the public to determine if their inclusion in the EIS would aid the Commission's review of the Application. EERA recommended that 10 route segments and 5 alignment alternatives be evaluated in the EIS.[265]

235. The Commission adopted the route and alignment alternatives recommended by EERA for inclusion in the scope of the EIS but also added one additional alternative to Route Segment 9.[266]

1. Segment 1

236. For Segment 1 North, two route segment alternatives and two alignment alternatives were proposed during scoping. For Segment 1 South, seven subsegments, six route segments, and no alignment alternatives were proposed during scoping.[267] These alternatives are summarized in the table below:

Segment 1 Alternatives

Route Alternatives	Route Segment Alternatives	Alignment Alternatives
Segment 1 North	Route Segment 9 Route Segment 18	Alignment Alternative 2 Alignment Alternative 8
Segment 1 South	Route Segment 1 Route Segment 5 Route Segment 6 Route Segment 7 Route Segment 10 Route Segment 11	None

2. Segment 2

237. During scoping for Segment 2, no route, route segment, or alignment alternatives were proposed.[268]

3. Route Segment 17 (Route Alternative to Segment 1 and 2)

238. Route Segment 17 is a route alternative to both Segment 1 and 2. It was proposed during scoping to avoid impacts to agricultural land and natural resources. Route Segment 17 runs from the Wilmarth Substation in Mankato, to the Byron

[264] Ex. Xcel-29 at 8:4-8 (Heine Direct).
[265] Ex. EERA-5 at 6 (Scoping Summary and Recommendations).
[266] Ex. PUC-22 (Order Adding Alternative to Scope of Environmental Impact Statement).
[267] Ex. PUC-31 at 30 (FEIS).
[268] Ex. PUC-31 at 35 (FEIS).

Substation, and ultimately to the North Rochester Substation, just north of Pine Island. It is also referred to as the "Highway 14 Option," because it would primarily parallel U.S. Highway 14.[269]

239. Route Segment 17 is approximately 86.1 miles long. If selected, it would require a wider ROW and route width to allow the Applicant to work with MnDOT on the final design. During preliminary discussions with MnDOT, agency staff identified potential impacts to traffic, land uses, and ROW hydraulics that staff would seek to address and resolve.[270]

4. Segment 3

240. No route, route segment, or alignment alternatives were proposed during scoping for Segment 3.[271]

5. Segment 4

241. During scoping, two end-to-end route alternatives and two alignment alternatives were proposed for Segment 4. The two route alternatives were denominated as the Segment 4 West Modification and Segment 4 CapX Co-Locate Option (also referred to as Route Segment 12).[272]

242. The Segment 4 West Modification was proposed by the Applicant during the scoping process. It begins at the same point as Segment 4 West (at 50th Avenue Northeast) and is the same as Segment 4 West until it heads north at 75th Avenue Northwest. At that point, it is double-circuited with the existing North Rochester – Northern Hills 161 kV line. This portion could be double-circuited all the way through to the North Rochester Substation.[273]

243. The Segment 4 Cap-X Co-Locate Option was proposed during the scoping process and is 16.2 miles long. The commentor who suggested this alternative requested that the EIS study an option to construct the 161 kV line parallel to the existing CapX2020 Hampton – La Crosse line along Segment 3 in its entirety. This route alternative starts at the North Rochester Substation and would parallel Segment 3 to 40th Avenue NE.[274] The route and alignment alternatives for Segment 4 are summarized in the table below:

Segment 4 Alternatives

Route Alternatives	Route Segment Alternatives	Alignment Alternatives
Segment 4 West	Route Segment 4M Route Segment 4R	None

[269] Ex. PUC-31 at 40 (FEIS).
[270] Ex. PUC-31 at 40, 42 (FEIS).
[271] Ex. PUC-31 at 42 (FEIS).
[272] Ex. PUC-31 at 44 (FEIS).
[273] Ex. PUC-31 at 48 (FEIS).
[274] Ex. PUC-31 at 50 (FEIS).

Seg. 4 West Modification	Route Segment 13	None
Segment 4 East	Route Segment 4C Route Segment 4E	Alignment Alternative 16
Seg. 4 CapX Co-Locate	Route Segment 12	Alignment Alternative 15

C. Applicant's Preferred Routes

244. At the time of the filing of the Application, the Applicant did not identify a route preference.[275]

245. In the later Direct Testimony of Company witness Ellen Heine, however, the Applicant stated that it had analyzed the route and alignment alternatives studied in the EIS and, as a result of that analysis, Excel Energy determined its current preferred route for each segment of the Project.[276]

246. A summary of these preferred routes, as stated in Company's Direct Testimony, is provided in the table below:

Xcel Energy's Preferred Route with Alternatives[277]

Segment	Route Alternative	Route Subsegments, Route Alternatives and Alignment Alternatives Included
Segment 1	Segment 1 North (with Route Segment 18)	1A, 1O, 1I, 1F, 1E, 1D (including scoping alternatives Route Segments 9, 18, and 1F)
Segment 2	Segment 2 North, Connector 2G, and Segment 2 South	2A, 2B, 2D, 2F, and 2G
Segment 3	Segment 3	3A, 3B, and 3C
Segment 4	Segment 4 West Modification until cross Highway 52 then Segment 4 East	4I, 4J, 4N-East, and 4S

[275] Ex. Xcel-16 at 6 (Application).
[276] Ex. Xcel-29 at 16 (Heine Direct).
[277] Ex. Xcel-29 at 16 (Heine Direct).

1. Segments 1 and 2

247. For Segment 1, Xcel Energy's preferred route is Segment 1 North.[278]

248. This route generally follows, and would be double-circuited with, an existing 115 kV transmission line – with the exception of a section where it diverges from the 115 kV line to avoid aviation easements surrounding the Mankato Airport. That section follows an existing double-circuit 115/115 kV line south to an existing 69 kV corridor, where it would be double-circuited parallel to an existing trail.[279]

249. Xcel Energy prefers this route for Segment 1 because it uses the existing 115 kV right-of-way to the greatest extent possible, thus minimizing the amount of new right-of-way that is needed for the Project. In addition, as compared to the other route alternative for Segment 1, Segment 1 North has roughly half of the number of homes within close proximity to the proposed centerline. The preferred route has 70 residences within 500 feet of the anticipated centerline, as compared to 142 residences within 500 feet of the anticipated centerline of the other route alternatives in Segment 1.[280]

250. The Preferred Route, which is 42 miles long, is shorter (by five miles) than the other route alternatives. It also avoids timing and constructability constraints that accompany the alternative routes. Specifically, Segment 1 South requires installing equipment at the Eastwood Substation to re-terminate the existing 69 kV line between the Wilmarth and Eastwood Substations at Eastwood. This retrofit would need to be completed before any construction on the new 345 kV transmission line could begin.[281]

251. For Segment 2, Xcel Energy's preferred route is a combination of Segment 2 North and Segment 2 South.[282]

252. This route generally follows a combination of property lines and roadways until it reaches the existing Hampton – North Rochester 345 kV transmission line. At that point, Xcel Energy's preferred route is parallel to the existing Hampton – North Rochester 345 kV transmission line for 2.5 miles to the North Rochester Substation.[283]

253. Xcel Energy prefers this route because it is eight miles shorter than the alternative route and it crosses fewer acres of wetland (129 acres within the route width for the preferred route, versus 314 acres for the alternative route).[284]

254. While the alternative route for Segment 2 generally follows an existing 69 kV line that runs along state and local roads, a 69 kV line has a much narrower right-of-way than the 150 foot wide right-of-way required for the new 345 kV line. As a result, the alternative route will be required to diverge from the existing 69 kV transmission right-of-

[278] Ex. Xcel-29 at 16 (Heine Direct).
[279] Ex. Xcel-29 at 16-17 (Heine Direct).
[280] Ex. Xcel-29 at 17 (Heine Direct).
[281] Ex. Xcel-29 at 17 (Heine Direct).
[282] Ex. Xcel-29 at 18 (Heine Direct).
[283] Ex. Xcel-33 at 1 (Heine Rebuttal).
[284] Ex. Xcel-29 at 18:11-14 (Heine Direct).

way at multiple locations to avoid displacing existing residences. For example, the alternative route will need to leave the 69 kV right-of-way near the cities of Faribault and Kenyon to avoid displacing homes in these (and other) residentially dense areas. The alternative route will also need to cross back and forth across the road several times to avoid homes that are now located within close proximity of both the 69 kV line and the roadway.[285]

255. In the FEIS, the Applicant's preferred route for Segments 1 and 2 is labeled "Route Option B." It is comprised of Segment 1 North (with Route Segment 18), Segment 2 North, Connector Segment 2G, and Segment 2 South. It lies within the Segment 2 West Faribault to Rochester Study Area.[286]

256. During the EIS scoping process, two route segments and two alignment alternatives were proposed for Route Option B within Segment 1.[287]

257. The two route segment alternatives are Route Segments 9 and 18. Route Segment 9 is a shorter version of Route Segment 18. Both alternatives were proposed to minimize tree clearing and to shift the alignment further from Cannon Lake. Both alternatives would require shifting the alignment of the existing 115 kV line that is proposed to be double-circuited with the 345 kV line in this area.[288]

258. Xcel Energy supports inclusion of Route Segment 18 into Route Option B because it minimizes tree clearing in this portion of the route.[289]

259. The two alignment alternatives for Route Option B are Alignment Alternative 2 and Alignment Alternative 8. Xcel Energy supports Alignment Alternative 2 because it would avoid impacts to a new development that is currently under construction in this area.[290]

260. Xcel Energy takes no position on Alignment Alternative 8, which was proposed to avoid additional tree removal. Xcel Energy notes that this alignment alternative would also require shifting the alignment of the existing 115 kV line, which would be double-circuited with the 345 kV line in this portion of the route.[291]

3. Segment 3

261. For Segment 3, there is only one route under consideration because Segment 3 involves either converting an existing 161 kV to 345 kV operation or stringing an additional 345 kV circuit on existing double-circuit 345/345 kV capable structures.[292]

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[285] Ex. Xcel-29 at 18-19 (Heine Direct);.
[286] Ex. PUC-31 at 518 (FEIS).
[287] Ex. PUC-31 at 30 (FEIS); No route segment or alignment alternatives were proposed for Segment 2.
[288] Ex. PUC-31 at 30 (FEIS); Ex. PUC-31 at 233-235, Map 13-15 (FEIS).
[289] Xcel Energy's Brief at 8.
[290] Ex. Xcel-29 at Schedule 2 at 1 (Heine Direct and Schedules).
[291] Ex. Xcel-29 at Schedule 2 at 4 (Heine Direct and Schedules).
[292] Ex. Xcel-29 at 19 (Heine Direct).

4. Segment 4

262. For Segment 4, the Applicant's preferred route follows existing transmission lines and roadways between the North Rochester Substation and its intersection with the existing 161 kV transmission line.[293]

263. The Applicant prefers this route because it maximizes the amount of shared ROW with existing transmission lines as compared to the alternatives. The preferred route for Segment 4 is double-circuited with an existing 69 kV transmission for 6.4 miles and double-circuited with an existing 161 kV transmission line for approximately 11.3 miles. In total, Xcel Energy's preferred route shares existing transmission line ROW for nearly 80 percent of its total length – 17.7 miles of the 22.2 miles for this segment.[294]

264. In the FEIS, the Applicant's preferred route is Route Option A. It is comprised of the Segment 4 West Modification option and then the "south-south option" within the Highway 52 to the Existing 161 kV line Study Area.[295]

265. Xcel Energy also supports selection of Route Option D. Route Option D is also referred to as the "CapX Co-Locate Option."[296]

266. During the EIS scoping process, there were no alignment alternatives proposed for Route Option A and there was one alignment alternative proposed for Route Option D.[297]

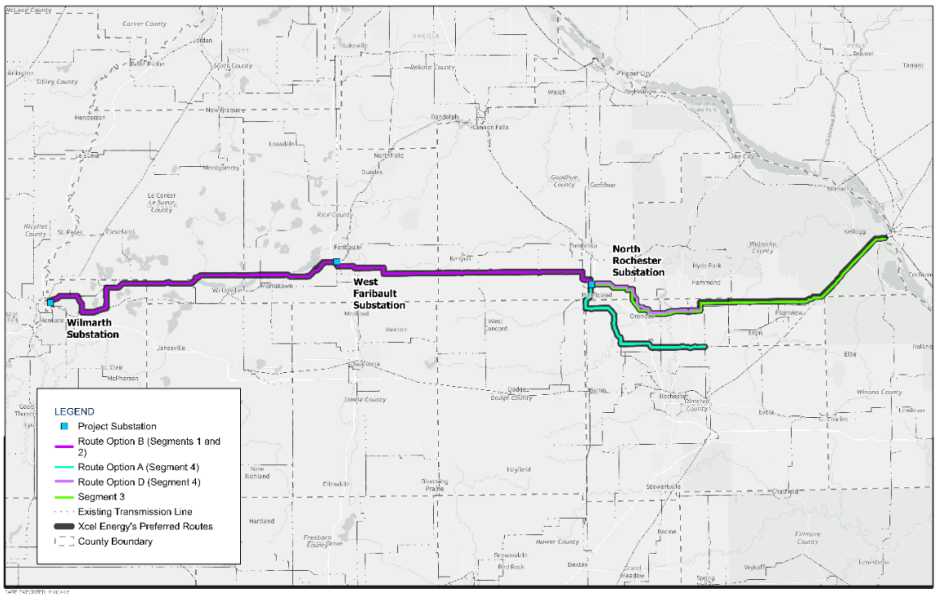
267. The Route Option D alignment alternative is Alignment Alternative 15. It is approximately 1.2 miles long and is an alternative Zumbro River crossing location. Route Option D crosses the Zumbro River adjacent to the existing CapX line. Alignment Alternative 15 would cross the river further south, on the south side of County Road 12.[298]

268. Xcel Energy takes no position on this alignment alternative because it has similar impacts as the proposed alignment.[299]

269. Maps of the Applicant's preferred routes are provided in Addendum 1 to this filing. An overview map of the Applicant's preferred routes is shown below in the map below:[300]

[293] Ex. Xcel-29 at 20 (Heine Direct).
[294] Ex. Xcel-29 at 20-21 (Heine Direct).
[295] Ex. PUC-31 at 794 (FEIS).
[296] Xcel Energy's Brief at 1-2.
[297] Ex. PUC-31 at 44 (FEIS).
[298] Ex. PUC-31 at 50 (FEIS).
[299] Xcel Energy's Brief at 12; Ex. Xcel-29 at Schedule 2 at 5 (Heine Direct and Schedules).
[300] *See* Ex. Xcel-29 at Schedule 3 at 2 (Heine Direct and Schedules).

Applicant's Preferred Routes



D. Full Routes Analyzed in the EIS

270. Chapter 8 of the EIS analyzed the potential impacts of three end-to-end routes for Segment 1 and Segment 2. These end-to-end route options are:

- Route Option A, which is a combination of Segment 1 North and Segment 2 North;
- Route Option B, which is a combination of Segment 1 North (with Route Segment 18), a portion of Segment 2 North, Connector Segment 2G, and Segment 2 South; and
- Route Option C, which is Route Segment 17 or the "Highway 14 Route Option."[301]

271. Route Option B is the Applicant's preferred route.[302]

272. These findings compare the Route Option B (Applicant's preferred route) to these two other route options for Segment 1 and 2 of the Project.[303]

273. The EIS only analyzed one end-to-end route for Segment 3, because this portion of the Project involves either converting an existing 161/345 kV line to 345/345 kV

[301] Ex. PUC-31 at 518 (FEIS).
[302] Ex. Xcel-29 at 16:1-8 (Heine Direct).
[303] Ex. PUC-31 at 518 (FEIS).

operation or installing a second 345 kV circuit on existing 345/345 kV double-circuit capable structures. As noted above, no alternatives for Segment 3 were proposed.[304]

274. The EIS analyzed the potential impacts of four end-to-end Segment 4 route options:

- Route Option A: Segment 4 West Modification option within the North Rochester to Highway 52 Study Area and then the south-south option within the Highway 52 to the Existing 161 kV Line Study Area;
- Route Option B: Segment 4 West Modification option within the North Rochester to Highway 52 Study Area and then the south-north option in the Highway 52 to the Existing 161 kV Line Study Area;
- Route Option C: Segment 4 East option within the North Rochester to Highway 52 Study Area and then the south-north option in the Highway 52 to the Existing 161 kV Line Study Area; and
- Route Option D: The CapX Co-Locate Option.

275. The Applicant's Preferred Route for Segment 4 is "Route Option A," as described in Chapter 10 of the EIS [305] However, in post-hearing briefing, The Applicant stated that it preferred either Route Option A or the CapX Co-Locate Option for Segment 4.

276. These findings compare the Applicant's two preferred routes to the other two route options for Segment 4 of the Project.[306]

VII. FACTORS FOR A ROUTE PERMIT

277. The Power Plant Siting Act (PPSA), Minn. Stat. Ch. 216E, 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.[307]

278. Under the PPSA, the Commission must apply the following considerations:[308]

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[304] Ex. PUC-31 at 518 (FEIS).
[305] Ex. PUC-31 at 518 (FEIS).
[306] *See* Xcel Energy's Brief at 8-12.
[307] Minn. Stat. § 216E.03, subd. 7(a) (2022). Following submission of the Application, the Minnesota Legislature recodified Chapter 216E into Chapter 216I. *See* Minn. Laws. 2024 ch. 126 art 7, § 14 (the Minnesota Energy Infrastructure Permitting Act).
[308] *Id*.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

279. In addition, 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."[309]

280. The Commission is also governed by Minn. R. 7850.4100 (2025), which mandates consideration of the 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;

[309] Minn. Stat. § 216E.03, subd. 7(e).

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.[310]

281. There is sufficient evidence in the record for the Administrative Law Judge to assess the Project using the criteria and factors set out above.[311]

VIII. APPLICATION OF ROUTING FACTORS

A. Effects on Human Settlement

282. Minnesota Rule 7850.4100(A) (2025) requires consideration of the Project's effects on human settlement, including displacement of residences and businesses, noise created during construction or by operation of the Project, and impacts to aesthetics, cultural values, recreation, and public services.[312]

1. Displacement

283. Displacement occurs when a residence or building must be removed to complete construction of the project. For safety reasons, generally residences and other structures are not allowed within the ROW of a transmission line. Accordingly, any residences or other buildings within a proposed ROW are potentially subject to removal or displacement.[313]

a. *345 kV Route Options*

284. The right-of-way required for a 345 kV transmission line is 150 feet, or 75 feet on either side of the centerline of the route.[314]

285. A potential displacement is defined by the Applicant as any occupied structure located within 75 feet of the centerline of the route. If a potential displacement

[310] Minn. R. 7850.4100 (2025).
[311] *See id*.
[312] Minnesota Rule 7850.4100(A).
[313] Ex. PUC-31 at 107 (FEIS).
[314] Ex. Xcel-15 at 138 (Application).

is identified during the final design of the Project, the Applicant will adjust the final alignment to avoid displacing residents.[315]

286. For Segment 1 and 2, there are no residences located within 75 feet of the Route Option B, so no displacement is anticipated.[316]

287. Route Option C has four residences within the ROW and Route Option A has one residence within the ROW. However, the Applicant represents that none of these residences (or any residences at all) will be displaced by the Project.[317]

288. The table below lists the number of residences within 1,600 feet of the proposed transmission line centerline for the route options of Segments 1 and 2, and Route Segment 17:[318]

Comparison of Residential Impacts for Segments 1 and 2 and Route Segment 17

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Residences within 0-75 feet of centerline	0	1	4
Residences within 75-500 feet of centerline	122	175	71
Residences within 500-1,600 feet of centerline	96	158	179
Total Residences within 0-1,600 feet of centerline	218	334	254

289. Route Option B has 218 residences within 1,600 feet of the centerline compared to 334 residences for Route Option A and 254 residences for Route Option C.[319]

[315] Ex. Xcel-15 at 138 (Application); Ex. PUC-31 at 107 (FEIS).
[316] Ex. PUC-31 at 519 (FEIS).
[317] Ex. PUC-31 at 519 (FEIS); Ex. Xcel-15 at 154 (Application).
[318] Ex. PUC-31 at 519 (FEIS).
[319] Ex. PUC-31 at 519 (FEIS).

290. The following table provides the number of non-residential structures within 1,600 feet for the proposed transmission line centerline for Segments 1 and 2, and Route Segment 17.[320]

Comparison of Residential Impacts for Segments 1 and 2 and Route Segment 17

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Non-Residential within 0-75 feet of centerline	6	7	9
Non-Residential within 75-500 feet of centerline	279	504	261
Total Non-Residential within 0-500 feet of centerline	285	511	270

291. Route Option A has the most non-residential structures within the 500 feet of the centerline, as compared to Route Option B and Route Option C. All three options have a similar count of non-residential structures within the ROW (between six and nine).[321]

292. For Segment 3, there are no residential or non-residential structures within the ROW and no displacement is anticipated. Segment 3 does have 59 residences within 1,600 feet of the centerline.[322]

b. *161 kV Route Options*

293. The right-of-way required for a 161 kV transmission line is 100 feet wide, or 50 feet on either side of the centerline of the route. A potential displacement occurs in this setting if there is any occupied structure within 50 feet of the centerline of the route. As it would be with a higher voltage line, if a potential displacement is identified during the final design of the Project, the Applicant will adjust the alignment to avoid displacing residents.[323]

294. There is one residence located within 50 feet of Route Option A, Route Option B, and Route Option C. No residences are located within 50 feet of Route Option D.[324]

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[320] Ex. PUC-31 at 519 (FEIS).
[321] Ex. PUC-31 at 519 (FEIS).
[322] Ex. PUC-31 at 532, 635 (FEIS).
[323] Ex. Xcel-15 at 138 (Application); Ex. PUC-31 at 657-59 (FEIS).
[324] Ex. PUC-31 at 795 (FEIS).

295. While Route Options A, B, and C each have one residence that could be subject to displacement because it is located within ROW, the Applicant has indicated no residences would be displaced by the Project.[325]

296. The following table provides the number of residences located within 1,600 feet for the proposed transmission line centerline for the four Segment 4 route options.[326]

Comparison of Residential Impacts for Segment 4

Route Option	Route Option A (Segment 4 West Mod. and South-South)	Route Option B (Segment 4 West Mod. and then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Residences within 0-50 feet of centerline	1	1	1	0
Residences within 50-250 feet of centerline	49	34	28	1
Residences within 250-500 feet of centerline	82	45	75	21
Total Residences within 500-1,600 feet of centerline	64	92	130	18
Total Residences within 0-1600 feet of centerline	196	172	234	40

297. As detailed above, Route Option D has the fewest number of residences within 1,600 feet of the centerline (40 residences). Route Option A has 196 residences, Route Option B has 172 residences, and Route Option C has 234 residences within 1,600 feet of the centerline.[327]

[325] Ex. Xcel-15 at 154 (Application).
[326] Ex. PUC-31 at 795 (FEIS).
[327] Ex. PUC-31 at 795 (FEIS).

298. The following table provides the number of non-residential structures located within 1,600 feet for the proposed transmission line centerline for Segment 4.[328]

Comparison of Non-Residential Structure Impacts for Segment 4

Route Option	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Non-Residential Structures within 0-50 feet of centerline	3	3	2	0
Non-Residential Structures within 50-250 feet of centerline	72	62	65	2
Non-Residential Structures within 250-500 feet of centerline	123	82	116	48
Non-Residential Structures within 500-1,600 feet of centerline	71	88	139	42
Total Non-Residential Structures within 0-1600 feet of centerline	269	235	322	92

299. Route Option D does not contain any non-residential structures within the ROW. Route Options A and B have three non-residential structures, and Route Option C has two non-residential structures, all of which could be subject to displacement within ROW. Overall, Route Option A has the most non-residential structures within 1,600 feet of the centerline with 269 structures and Route Option D has the fewest with 92 structures.[329]

2. Noise

300. The Minnesota Pollution Control Agency has the authority to adopt noise standards pursuant to Minn. Stat. § 116.07, subd. 2 (2024). These standards are set forth in Minnesota Rule 7030.0050 (2025), which classifies noise limits according to land uses

[328] Ex. PUC-31 at 795 (FEIS).
[329] Ex. PUC-31 at 798 (FEIS).

or Noise Area Classifications (NAC). The rules also establish daytime and nighttime noise limits.[330]

301. Residences are classified as NAC-1. They are protected by MPCA's most restrictive noise limits. Moreover, different standards are specified for daytime and nighttime hours; as well as standards that may not be exceeded for more than 10 percent of the time during any hour (L10) and 50 percent of the time during any hour (L50). The applicable standards prohibit ambient noise levels in residential areas from exceeding:

- 60 A-weighted decibels for more than 50 percent of any daytime hour;
- 65 A-weighted decibels for more than 50 percent of any daytime hour;
- 50 A-weighted decibels for more than 50 percent of any nighttime hour; and,
- 55 A-weighted decibels for more than 10 percent of any nighttime hour.[331]

302. The primary noise-sensitive "receptors" in the Project area are rural residences.[332]

303. Short-term noise impacts would occur during construction of the Project. Impacts would be minimal, and the Applicant pledges to comply with state noise standards.[333]

304. Noise impacts during operation would be also modest; although there would be perceptible noise impacts during periods of foggy, damp, or rainy weather conditions. Even during these periods, however, the Project would meet state noise standards.[334]

305. Noise levels during construction, operation, and maintenance of the 345 kV lines are minimal and are not anticipated to exceed MPCA noise limits.[335]

306. Noise levels during construction, operation, and maintenance of the 161 kV transmission lines are minimal and are not anticipated to exceed MPCA noise limits.[336]

3. Aesthetics

307. Aesthetics refers to the visual quality of an area as perceived by the viewer and forms the viewer's impression of an area. Aesthetics are a special statutory factor because the values assigned in this category can vary widely from person to person, depending upon the component parts of the viewer's perception. Different viewers may

[330] Minn. Stat. § 116.07, subd. 2; Minnesota R. 7030.0050; Ex. PUC-31 at 118 (FEIS).
[331] Ex. PUC-31 at 118 (FEIS).
[332] Ex. PUC-31 at 119 (FEIS).
[333] Ex. Xcel-15 at 179 (Application); Ex. PUC-31 at 117 (FEIS).
[334] Ex. PUC-31 at 117 (FEIS).
[335] Ex. PUC-31 at 117, 266, and 541 (FEIS).
[336] Ex. PUC-31 at 664 (FEIS).

perceive the same area differently, based upon differences in the strength of preservation as a value, the history associated with particular places, and communal memory.[337]

308. For example, individual assessments of the changes to the viewshed of a rural area following the introduction of new utility structures, can vary greatly between viewers. Similarly, measurements of the impacts can be equally diverse, depending upon individual perceptions, degree of aesthetic change, strength of commitment to the unimpacted aesthetic, and acceptance of the proposed project.[338]

309. The landscape in the Project area is primarily agricultural and characterized by fields, rural roads, farms, and homesteads. Most of the Project area contains existing utility infrastructure, including electric transmission and distribution lines, which visually altered the landscape when initially established.[339]

310. The proposed overhead transmission lines will be visible to observers in the area surrounding the Project. The height of new 345 kV structures would generally range from 85 to 175 feet.[340]

311. Several taller structures, approximately 195 feet, would be necessary where Segment 1 South crosses Highway 14 and an existing double-circuit 115 kV line north of the Eastwood Substation. The height of new 161 kV structures would generally range from 75 to 140 feet.[341]

312. Areas of higher scenic value that intersect with the proposed routes include the Minnesota River Valley Scenic Byway, the Sakatah Singing Hills State Trail, shoreland of waterways and waterbodies, and wildlife management areas.[342]

313. The Applicant committed to minimizing aesthetic impacts by preserving trees where possible, spanning natural areas when feasible, and using existing infrastructure, roadways and transmission facility rights-of-way whenever practicable.[343]

a. *345 kV Route Options*

314. Aesthetic impacts can be minimized by selecting routes that are located away from homes, schools, businesses, and parks or other recreation areas. Aesthetic impacts can also be minimized by following existing transmission line ROW where elements of the built environment already define the viewshed.[344]

315. For Segments 1 and 2, aesthetic impacts are anticipated to be moderate for Route Option A, B, and C. Route Option B has fewer residences within the ROW, route

[337] Ex. PUC-31 at 7 (FEIS).
[338] Ex. PUC-31 at 8 (FEIS).
[339] Ex. Xcel-15 at 180 (Application).
[340] Ex. Xcel-15 at 181 (Application); Ex. PUC-31 at 53 (FEIS).
[341] Ex. Xcel-15 at 180-183 (Application); Ex. PUC-31 at 55 (FEIS).
[342] Ex. PUC-31 at 98 (FEIS).
[343] Ex. Xcel-15 at 183 (FEIS).
[344] Ex. PUC-31 at 522 (FEIS).

width, and local vicinity than the alternative options. Route Option B has a total of 218 residences within the local vicinity compared to 334 residences for Route Option A and 254 residences for Route Option C.[345]

316. Route Option B also has fewer non-residential structures within the local vicinity as compared to the two other route alternatives.[346]

317. All three route options for Segments 1 and 2 would result in aesthetic impacts to areas used for recreational purposes, because each would introduce new crossings at the Straight River, a state water trail, where there is no infrastructure today.[347]

318. Route Option A could be double-circuited with (or paralleling) existing transmission lines for 74 percent of its length, such that 90 percent of its length would be parallel to existing transmission lines, roads, or railroads.[348]

319. Route Option B could be double-circuited with (or paralleling) existing transmission lines for 55 percent of its length, such that 64 percent of its length would be parallel to existing transmission lines, roads, or railroads.[349]

320. Route Option C could be double-circuited with (or paralleling) existing transmission lines for 22 percent of its length, such that 86 percent of its length would be parallel to existing transmission lines, roads, or railroads.[350]

321. Segment 3 of the Project is anticipated to have minimal aesthetic impacts because it will be double-circuited on existing structures.[351]

b. *161 kV Route Options*

322. Aesthetic impacts are anticipated to be moderate for the 161 kV route options of the transmission lines.[352]

323. As noted above, aesthetic impacts can be minimized by selecting routes that are located away from homes, schools, businesses, and other places where people congregate.[353]

[345] Ex. PUC-31 at 522 (FEIS).
[346] Ex. PUC-31 at 522 (FEIS).
[347] Ex. PUC-31 at 522 (FEIS).
[348] Ex. PUC-31 at 522 (FEIS).
[349] Ex. PUC-31 at 522 (FEIS).
[350] Ex. PUC-31 at 522 (FEIS).
[351] Ex. PUC-31 at 635 (FEIS).
[352] Ex. PUC-31 at 798 (FEIS).
[353] Ex. PUC-31 at 645 (FEIS).

324. Route Option D has fewer residences within the ROW, route width, and local vicinity, with 40 residences compared to the Route Option A with 196 residences, Route Option B with 172 residences, and Route Option C with 234 residences.[354]

325. All four 161 kV route options cross the Zumbro River, a state water trail, where there is existing utility infrastructure present.[355]

326. Route Options A, B, and C cross the Zumbro River south of 75th Street and would be double-circuited with an existing 69 kV line. Route Option D would cross the Zumbro River near White Bridge Road and would parallel an existing 345 kV line crossing.[356]

327. Route Options A and B would intersect the Douglas State Trail near Rochester, where there is no existing transmission line infrastructure.[357]

328. Double-circuiting and paralleling existing transmission lines is the key strategy for minimizing aesthetic impacts from the Project. Route Option A would be double-circuited with or paralleling existing transmission lines for 74 percent of its length and 82 percent of its length would be parallel to existing infrastructure. Route Option B would be double-circuited with existing transmission lines for 61 percent of its length and 71 percent of its length would be parallel to existing infrastructure. Route Option C would be double-circuited with existing transmission lines for 13 percent of its length and 70 percent of its length would be parallel to existing infrastructure. Route Option D would be double-circuited with or paralleling existing transmission lines for 84 percent of its length and 90 percent of its length would be parallel to existing infrastructure.[358]

4. Cultural Values

329. Cultural values consist of shared community beliefs and attitudes within a given area that provide a framework for community unity. Cultural values can be informed by local history, heritage, economic opportunities, community resources, and common experiences.[359]

330. The Project area is generally rural in nature, albeit with pockets of more densely populated municipalities.[360]

331. Southeastern Minnesota is known for its vast landscapes and wooded bluffs along the Mississippi River corridor. It is a health care and agricultural powerhouse, where

[354] Ex. PUC-31 at 798 (FEIS).
[355] Ex. PUC-31 at Maps 66-21 and 66-27 (FEIS).
[356] Ex. PUC-31 at Maps 66-21, 66-27 (FEIS).
[357] Ex. PUC-31 at 798 (FEIS).
[358] Ex. PUC-31 at 798 (FEIS).
[359] Ex. PUC-31 at 103, 798 (FEIS).
[360] Ex. PUC-31 at 103, 256, 534, and 652 (FEIS).

advanced manufacturing is a strong industry, which, in part, drives the need for additional utility infrastructure.[361]

332. Segment 1 traverses Blue Earth, Le Sueur, Waseca, and Rice counties in southeast Minnesota. Segment 1 is primarily in a rural setting, with some more populated municipal areas scattered throughout this area.[362]

333. Segment 2 traverses Rice County and Goodhue County in southeast Minnesota. Segment 2 is primarily in a rural setting with two cities, Faribault and Wanamingo, along the proposed routes.[363]

334. Segment 3 traverses Goodhue, Olmsted, and Wabasha in southeast Minnesota. Segment 3 is primarily in a rural setting, with two cities, Pine Island and Oronoco, along the proposed routes.[364]

335. Segment 4 goes through Goodhue, Olmsted, and Wabasha County in southeast Minnesota. Segment 4 is primarily in a rural setting, with two cities, Pine Island and Oronoco, along the proposed routes.[365]

336. In the early to mid-1800s, the Project area was populated primarily by Dakota and Ojibwe tribes. Most of the land in the local vicinity of the Project were ceded to the U.S. government under the 1851 Treaty.[366]

337. Today, only the Prairie Island Indian Community (PIIC) owns property crossed by the routes proposed for the Project. They own property southeast of Pine Island adjacent to Highway 52, in Segment 4, which is referred to as Elk Run. The Elk Run property is within PIIC ancestral territory and holds both historical and cultural significance. The property includes areas that the PIIC intends to preserve because of the rare native land cover and the cultural activities community members undertake there.[367]

338. The original route width of the Segment 4 CapX Co-locate Option intersected the northeastern portion of the Elk Run property. Accordingly, the route width of the Segment 4 CapX Co-locate Option was extended east to permit the final alignment to avoid the Elk Run property entirely.[368]

a. *345 kV Route Options*

[361] Ex. PUC-31 at 104 (FEIS).
[362] Ex. PUC-31 at 104 (FEIS).
[363] Ex. PUC-31 at 258 (FEIS).
[364] Ex. PUC-31 at 536 (FEIS).
[365] Ex. PUC-31 at 655 (FEIS).
[366] Ex. PUC-31 at 103 (FEIS).
[367] Ex. Xcel-15 at 190 (Application); Ex. PUC-31 at 654-55 (FEIS).
[368] Ex. PUC-31 at 656 (FEIS).

339. No adverse impacts to cultural resources are anticipated to occur as a result of the construction or operation of the 345 kV portion of the Project.[369]

b. *161 KV Route Options*

340. In their scoping comment letter, the PIIC stated that construction of the Segment 4 CapX Co-Locate Option would be in very close proximity to land of significant prairie biodiversity and intact botanical genetics. It also noted that the Segment 4 CapX Co-Locate Option would undermine the purpose of its acquisition of Elk Run, by extending infrastructure burdens on to a historically disadvantaged Tribal community. PIIC maintains that these impacts can be avoided or minimized by selecting Segment 4 West, Segment 4 West Modification, or Segment 4 East.[370]

341. No other adverse impacts to cultural resources are anticipated to occur as a result of the construction or operation of the 161 kV portion of the Project.[371]

5. Recreation

342. Recreational opportunities in and near the proposed routes for the Project include local parks, the Sakatah Singing Hills State Trail, public watercourses, and snowmobile trails.[372]

343. Recreational activities near the proposed routes for the Project could including picnicking, hiking, cross-country skiing, biking, bird watching, fishing, hunting, canoeing/kayaking, and snowmobiling.[373]

a. *345 kV Route Options*

344. For Segments 1 and 2, there are local parks within the route width, but not the right-of-way, and impacts to these local parks are not anticipated for Route Options A, B, or C. Intermittent impacts to these parks would occur during construction, and long-term impacts would include aesthetic impacts.[374]

345. The route width for Route Option A and Route Option B cross the Sakath Singing Hills State Trail for 4.2 miles. Existing infrastructure, including roads and transmission lines, crosses the trail in multiple locations. Impacts to the trail are anticipated to be minimal.[375]

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[369] Ex. PUC-31 at 103, 256, and 534 (FEIS); Ex. Xcel-15 at 192 (Application).
[370] Ex. PUC-31 at 657 (FEIS).
[371] Ex. PUC-31 at 652 (FEIS); Ex. Xcel-15 at 192 (Application).
[372] Ex. PUC-31 at 122, 271, 546, and 669 (FEIS).
[373] Ex. PUC-31 at 123 (FEIS).
[374] Ex. PUC-31 at 522 (FEIS).
[375] Ex. PUC-31 at 125 and 522 (FEIS).

346. The Cannon River is a designated state water trail and wild and scenic river. It is located within the route width of Route Option A and Route Option B. There is an existing transmission line at the proposed crossing location.[376]

347. The Straight River is a state water trail and is located within the route width of Route Options A, B, and C. There are no existing transmission lines at the crossings.[377]

348. The Zumbro River is a state water trail and is located within the route width of Route Option C. There are existing transmission lines at the three crossings.[378]

349. Impacts to the Cannon River, Straight River, and Zumbro River are anticipated to be minimal.[379]

350. The Minnesota River Valley Scenic Byway follows the Minnesota River and crosses Route Options A, B, and C. Minimal impacts to the scenic byway are anticipated.[380]

351. Impacts on recreation along Segment 3 are anticipated to be minimal and temporary during construction of the Project.[381]

b. *161 kV Route Options*

352. For Segment 4, the 161 kV transmission line might be visible from recreation areas, including a publicly accessible trail system, public watercourses, and snowmobile trails. Recreational resources within the route width of the proposed routes for Segment 4 that might be subject to impacts include a publicly accessible trail system, public watercourses (including a designated state water trail), and snowmobile trails. Intermittent impacts would occur during construction and long-term impacts would include aesthetic impacts.[382]

353. Approximately 8.1 miles of the Douglas State Trail is within the route width of Route Options A and B. Existing infrastructure, including roads and transmission lines, cross the trail in multiple locations. Impacts to the trail are anticipated to be minimal.[383]

354. Route Options A, B, and C cross the Zumbro River, a designated state water trail, in multiple locations, while the route width for Route Option D only crosses the river once. There are existing transmission lines at most of the crossings, including the one crossing in Route Option D.[384]

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[376] Ex. PUC-31 at 522 (FEIS).
[377] Ex. PUC-31 at 522 (FEIS).
[378] Ex. PUC-31 at 522 (FEIS).
[379] Ex. PUC-31 at 522 (FEIS).
[380] Ex. PUC-31 at 522 (FEIS).
[381] Ex. PUC-31 at 635 (FEIS).
[382] Ex. PUC-31 at 795 (FEIS).
[383] Ex. PUC-31 at 795 (FEIS).
[384] Ex. PUC-31 at 795 (FEIS).

355. Other recreational resources noted during the scoping process include a private airstrip, the Rochester Archery Club, and the Rochester Aero Model Society. Additionally, the City of Oronoco commented that Route Option C (within Segment 4 East) would impact an Oronoco City Park and the Lake Shady lakebed.[385]

B. Socioeconomics

356. The construction and operation of the Project is expected to have minimal long-term impacts on local (county and municipal) economies due to the relatively short-term time frame for construction. Construction of the Project will last approximately two to three years and will employ 50-100 construction workers.[386]

357. The Applicant pledges that it will pay prevailing wages for applicable construction jobs within the Project area.[387]

358. The Project will support multiple employment sectors (including utilities, construction, manufacturing) and provide employment opportunities during both construction and later operation. During construction, local businesses may experience increases in revenue due to increased purchase of goods and services. Local construction crew expenditures will result in a temporary, positive impacts on local economies.[388]

359. Long-term benefits of the Project include ensuring continued, reliable electric service for communities served by the Project and economic benefits through incremental increases in revenues from utility property taxes. Additionally, the Project will support increases in renewable energy production and enhance the capacity for the transmission system to accommodate growing communities, which may benefit local economies.[389]

360. No adverse socioeconomic impacts are anticipated as a result of construction or operation of the Project.[390]

C. Environmental Justice

361. Environmental justice involves the fair treatment and meaningful involvement of people (regardless of race, national origin, or income) in the development, implementation, and enforcement of environmental laws, regulations, and policies.[391]

362. Minn. Stat. § 216B.1691, subd. 1(e) (2024), defines an "environmental justice area" as an area that meets one or more of the following criteria: (1) 40 percent or more of the area's total population is nonwhite; (2) 35 percent or more of households in

[385] Ex. PUC-31 at 671 (FEIS).
[386] Ex. Xcel-15 at 186 (Application); Ex. PUC-31 at 127, 274, 410, 549, and 673-674 (FEIS).
[387] Ex. Xcel-15 at 186 (Application); Ex. PUC-31 at 127, 274, 410, 549-550, and 674 (FEIS).
[388] Ex. Xcel-15 at 186 (Application); Ex. PUC-31 at 127, 274, 410, 550, and 674 (FEIS).
[389] Ex. Xcel-15 at 186 (Application).
[390] Ex. Xcel-15 at 186 (Application); Ex. PUC-31 at 127, 274, 410, 550, and 674 (FEIS).
[391] Ex. Xcel-15 at 186 (Application).

the area have an income that is at or below 200 percent of the federal poverty level; (3) 40 percent or more of the area's resident's over the age of five have limited English proficiency; or (4) the area is located within Indian County, as defined in United States Code, title 18, section 1151.[392]

363. An environmental justice analysis is typically conducted through the analysis of socioeconomic indicators to determine whether adverse environmental and human health impacts could disproportionately affect low-income or minority (American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic) populations. Guided by the statutory criteria, areas with disproportionately high minority populations or low-income residents are considered environmental justice areas.[393]

364. The Final EIS assessed potential environmental justice impacts by reviewing socioeconomic information to determine whether any census tracts within the Project area qualify as an environmental justice area. Then, qualifying census tracts were reviewed to consider whether residents in those tracts might be disproportionally affected by Project-related impacts.[394]

1. *345 kV Route Options*

365. For Segment 1, census tracts 1703 and 1704 in Blue Earth County were identified as environmental justice areas of concern. In those tracts, respectively, roughly 39 percent and 36 percent of the population have income that is less than 200 percent of the federal poverty level. These two census tracts are crossed by Segment 1 South. Upon closer review, disproportionate impacts to census tracts 1703 and 1704 are not anticipated because the proposed transmission line could be double-circuited with existing transmission lines through these tracts.[395]

366. For Segment 2, census tract 708.01 in Rice County was identified as an environmental justice area of concern because roughly 41.5 percent of the population identifies as a person of color. This census tract crosses Segment 2 North and Segment 2 South, which is included in both the Applicant's Preferred Route and Route Option A.[396]

367. Notwithstanding the crossing, disproportionate impacts to census tract 708.01 are not anticipated. Segment 2 North could be double-circuited with an existing 161 kV line where the anticipated alignment occurs. Similarly, while Segment 2 South also intersects the census tract, the anticipated alignment is outside of the tract. Further, there is existing transmission line infrastructure in this area.[397]

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[392] Minn. Stat. § 216B.1691, subd. 1(e).
[393] Ex. Xcel-15 at 186 (Application).
[394] Ex. PUC-31 at 108-09 (FEIS).
[395] Ex. PUC-31 at 109, 111 (FEIS).
[396] Ex. PUC-31 at 261 (FEIS).
[397] Ex. PUC-31 at 261, 263 (FEIS).

368. Overall, for Segments 1 and 2, no environmental justice impacts are anticipated for the Route Option A, B, or C.[398]

369. Similarly, construction, maintenance, and operation of Segment 3 is not anticipated to result in any environmental impacts. No environmental justice areas were identified in Segment 3.[399]

2. *161 kV Route Options*

370. No environmental justice impacts are anticipated for the 161 kV route options, however, while no reservations are located near Segment 4, the PIIC owns property that is partially located near Route Option C and Route Option D.[400]

371. The PIIC requested that other route options for Segment 4 be selected to avoid potential impacts to the property.[401]

D. Public Service and Infrastructure

372. Public services within the Project area include police, fire, and ambulance services; hospitals; water and wastewater services; school districts; utilities and utility infrastructure; and other public services.[402]

373. During construction of the Project, impacts to roads, railroads, and utility service are anticipated to be short-term, intermittent, and localized. Impacts to water wells, septic systems, and pipelines are not expected to occur.[403]

374. Sections 5.3.4 and 5.3.14 of the Sample Route Permit contain mitigation measures related to transportation, utilities and public services.[404]

375. The Applicant committed to ongoing coordination with MnDOT, local and county road authorities, railroad companies, and the FAA. Moreover, the Applicant will meet with MnDOT, county highway departments, township road supervisors, and city road personnel to address any issues that occur during construction near roadways.[405]

376. The Applicant also committed to avoid, or limit, roadway closures to the maximum extent practicable. It will use conductor safety guides over roads or helicopters for stringing activities where possible. Further, the Applicant pledged to use safety

[398] Ex. PUC-31 at 108, 263, and 395 (FEIS).
[399] Ex. PUC-31 at 538-39 (FEIS).
[400] Ex. PUC-31 at 659 (FEIS).
[401] Ex. PUC-31 at 660 (FEIS).
[402] Ex. PUC-31 at 128-131(FEIS).
[403] Ex. PUC-31 at 132 (FEIS).
[404] Ex. PUC-31 at 133 (FEIS).
[405] Ex. PUC-31 at 133-34 (FEIS).

signage, installation of temporary barrier structures, and spotters during clearing or stringing activities.[406]

377. Additionally, impacts to traffic would be mitigated by limiting construction traffic to the project right-of-way and existing access points to the maximum extent feasible. Impacts from dust will be minimized by using BMPs (such as soil matting, wetting) as described in the Application.[407]

E. Effects on Public Health and Safety

378. Minnesota Rule 7850.4100(B) (2025) requires consideration of the Project's effect on public health and safety.[408]

1. Construction and Operation of the Project

379. The Project will be designed according to local, state, and National Electrical Safety Code standards for clearances (off the ground, utility infrastructure and buildings), the strength of materials, and right-of-way widths. Construction crews and contractors must comply with local, state, and National Electrical Safety Code standards for facility installation and standard construction practices. Industry safety procedures will be followed during and after installation of the transmission line, including clear signage during all construction activities.[409]

380. The proposed transmission line will be equipped with protective devices (circuit breakers and relays located in substations where transmission lines terminate) to safeguard the public in the event of an accident or if a utility infrastructure falls to the ground. The protective equipment will de-energize the transmission line should such an event occur. In addition, the substation facilities will be properly fenced and accessible only by authorized personnel.[410]

381. As a result of this suite of safeguards and protective measures, impacts to public health and safety are not anticipated.[411]

2. Electric and Magnetic Fields

382. Electric and magnetic fields (EMF) are invisible emanations of energy associated with use of electrical power. For the lower frequencies associated with power lines, there are two key components: electric fields (which are measured in kVm) and magnetic fields (which are measured in milligauss (mG)).[412]

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[406] Ex. PUC-31 at 133 (FEIS).
[407] Ex. PUC-31 at 133 (FEIS); Ex. Xcel-15 at 215-16 (Application).
[408] Minn. R. 7850.4100(B).
[409] Ex. Xcel-15 at 174 (Application).
[410] Ex. Xcel-15 at 174 (Application).
[411] Ex. Xcel-15 at 174 (Application).
[412] Ex. Xcel-15 at 158 (Application).

383. Electric fields are dependent upon the voltage of a transmission line, whereas magnetic fields are dependent upon the current carried by a transmission line. Accordingly, the strength of the electric field is proportional to the voltage of the transmission line, and the intensity of the magnetic field is proportional to the current flow through the conductors. Transmission lines operate at a power frequency of 60 hertz (cycles per second).[413]

384. Because the EMF associated with a transmission line is proportional to the amount of electrical current passing through the power line, it will decrease as distance from the line increases. This means that the strength of EMF that reaches a house adjacent to a transmission line ROW will be significantly weaker than it would be directly under the transmission line. Electric fields are easily shielded by conducting objects, such as trees and buildings, further shielding electric fields.[414]

385. The possible impact of EMF exposure on human health has been investigated by public health professionals for the past several decades. The Commission, based on research conducted by others, has repeatedly found that there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects.[415]

386. Still, as a confidence building measure, the Commission has imposed an electric field limit of 8 kV/m when measured at a height of one meter above the ground, below the center of the transmission line. The Commission has not adopted a similar limit for magnetic fields from transmission lines.[416]

387. The maximum electric field associated with the Project is calculated to be 6.9 kV/m.[417]

388. No impacts to human health due to EMF are anticipated as a result of the Project.[418]

3. Stray Voltage and Induced Voltage

389. Stay voltage is a condition that can potentially occur on a property or on the electric service entrances to structures from distribution lines, not transmission lines as proposed here. The term generally describes a voltage between two objects where no voltage difference should exist. In this context, the term refers to voltage that exists between the neutral wire of the service entrance, or of premises wiring, and the grounded objects in buildings.[419]

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[413] Ex. Xcel-15 at 158 (Application).
[414] Ex. PUC-31 at 282 (FEIS).
[415] Ex. PUC-31 at 283 (FEIS); Ex. Xcel-15 at 172 (Application).
[416] Ex. PUC-31 at 283-284 (FEIS).
[417] Ex. PUC-31 at 284 (FEIS).
[418] Ex. PUC-31 at 135, 282, 425, 556, and 680 (FEIS).
[419] Ex. PUC-31 at 145 (FEIS).

390. A transmission line does not create stray voltage because it does not directly connect to businesses, residences, or farms.[420]

391. The Applicant commits to working with landowners that experience issues with stray voltage following construction of the Project.[421]

392. No impacts to human health are anticipated from stay voltage due to construction of the Project.[422]

393. Induced voltage occurs when electric fields from a transmission line extend to a conductive object near the transmission line. Conductive objects include tractors, automobiles, insulated pipelines, electric fences, or telecommunication lines.[423]

394. The transmission line would follow NESC standards, which require the steady-state (continuous) current between the earth and an insulated object located near a transmission line to be below 5 milliamps (mA). A shock at 5 mA is considered unpleasant, but not dangerous, and still allows a person to release the energized object that they are holding and that is causing the shock. Also, as noted above, the Commission imposed a maximum electric field limit of 8 kV/m when measured at one meter above the ground. These standards are designed to prevent serious hazards from shocks that can occur when touching large objects under an AC transmission line of 500 kV or more.[424]

395. Further, Section 5.3.4 of the Sample Route Permit contains the following mitigation related to grounding, electric field, and electronic interference:

> The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes root mean square (rms) alternating current between the ground and any non-stationary object within the ROW, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the ROW, except electric fences that parallel or cross the ROW, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the NESC. The Permittee shall address and rectify any induced current problems that arise during transmission line operation."[425]

[420] Ex. PUC-31 at 145 (FEIS).
[421] Ex. PUC-31 at 146 (FEIS).
[422] Ex. PUC-31 at 145, 292, 430, 565, and 691 (FEIS).
[423] Ex. PUC-31 at 146-47 (FEIS).
[424] Ex. PUC-31 at 147 (FEIS).
[425] Ex. PUC-31 at Appendix H (FEIS).

396. The Applicant committed to meeting these electrical performance standards. Appropriate measures would be taken to prevent induced voltage problems when the Project parallels or crosses large objects.[426]

397. No impacts to human health are anticipated from induced voltage due to the Project.[427]

F. Effects on Land-Based Economies

398. Minnesota Rule 7850.4100 (C) requires consideration of the Project's effects on land-based economies, specifically agriculture, forestry, tourism, and mining.

1. Agriculture

399. Within the Project area, agriculture is the predominant land-use. When utility structures are placed within an agricultural field, they would interfere with farming operations. Potential impacts are assessed through consideration of total agricultural land use, presence of prime farmlands, and current agricultural practices.[428]

a. *345 kV Route Options*

400. The majority of the land within the route width is agricultural and impacts to agriculture can only be mitigated. Prudent routing (*e.g.,* ROW sharing by double-circuiting or paralleling with existing infrastructure) can reduce impacts to agriculture.[429]

401. Route Option A shares or parallels existing infrastructure for 90 percent of its length. Route Option B shares or parallels existing infrastructure for 64 percent of its length. Route Option C shares or parallels existing infrastructure for 86 precent of its length. [430]

402. The following table provides the acres of agricultural land and prime farmland impacted for each route option for Segments 1 and 2.[431]

Potential Agricultural and Prime Farmland Impacts for Segments 1 and 2

Route Option	Route Option B (Applicant's Preferred Route for Segments 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Agricultural land (acres in ROW)	1,061	1,024	1,208

[426] Ex. Xcel-15 at 174 (Application).
[427] Ex. PUC-31 at 147, 294, 431, 567, and 692 (FEIS).
[428] Ex. PUC-31 at 150 (FEIS).
[429] Ex. PUC-31 at 522 (FEIS).
[430] Ex. PUC-31 at 522 (FEIS).
[431] Ex. PUC-31 at 520 (FEIS).

Prime Farmland (acres in ROW)	907	967	1,436

403. Overall, agricultural impacts are anticipated to be minimal for the 345 kV proposed routes.[432]

404. Segment 3 is located within an existing right-of-way and no new agricultural impacts are anticipated during the operation of the Project. During construction of the Project, temporary impacts to agricultural operations may occur.[433]

b. *161 kV Route Options*

405. The majority of the land within the route width for the proposed 161 kV line is agricultural and impacts can only be mitigated. All routing options share or parallel ROW with existing infrastructure for 70 percent or more of their respective lengths.[434]

406. The following table provides the acres of agricultural land and prime farmland impacted for each route option for Segments 4.[435]

Potential Agricultural and Prime Farmland Impacts for Segment 4

Route Option	Route Option A (Segment 4 West Mod. and South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Agricultural land (acres in ROW)	153	170	119	159
Prime Farmland (acres in ROW)	190	193	154	108

407. Overall, agricultural impacts are anticipated to be minimal for the 161 kV proposed routes.[436]

[432] Ex. PUC-31 at 522 (FEIS).
[433] Ex. PUC-31 at 635 (FEIS).
[434] Ex. PUC-31 at 798 (FEIS).
[435] Ex. PUC-31 at 796 (FEIS).
[436] Ex. PUC-31 at 798 (FEIS).

2. Forestry

408. Forestry is a land-based economy that was assessed in the Final EIS to determine whether the Project would impact the forestry industry. Potential impacts are assessed through identification of commercial operations.[437]

a. *345 kV Route Options*

409. No notable forestry resources were identified within the route width of Route Options A, B, or C. Therefore, no impacts to forestry are anticipated.[438]

410. Route Segment 3 does cross the Richard J. Dorer Memorial Hardwood State Forest for approximately two miles within the existing right-of-way.[439] This ROW is currently cleared. Segment 3 would continue the permanent loss of forestry resources in this corridor.[440]

b. *161 kV Route Options*

411. No notable forestry resources were identified within the route width of Route Options A, B, C, or D. Therefore, no impacts to forestry are anticipated.[441]

3. Tourism

412. The EIS for assessed potential impacts to the tourism land-based economy based on potential tourist sites within the local vicinity of the Project. Potential impacts were assessed through identification of known resources used by non-residents that would likely bringing in non-local revenue to the area.[442]

a. *345 kV Route Options*

413. Tourism impacts in nearby towns and recreational opportunities in publicly accessible lands and waters are anticipated to be either negligible or minimal for Route Options A, B, and C.[443]

414. Impacts to tourism due to the construction, operation, and maintenance of Segment 3 are anticipated to be negligible or minimal.[444]

b. *161 kV Route Options*

[437] Ex. PUC-31 at 154 (FEIS).
[438] Ex. PUC-31 at 522 (FEIS).
[439] Ex. PUC-31 at 635 (FEIS).
[440] Ex. PUC-31 at 635 (FEIS).
[441] Ex. PUC-31 at 798 (FEIS).
[442] Ex. PUC-31 at 156 (FEIS).
[443] Ex. PUC-31 at 522 (FEIS).
[444] Ex. PUC-31 at 635 (FEIS).

415. Recreational opportunities within Segment 4 include publicly accessible lands and waters used for outdoor activities. Impacts to the tourism-based economy anticipated to be negligible to minimal due to the construction, operation, and maintenance of the 161 kV route options.[445]

4. Mining

416. Potential impacts to the mining industry are assessed through identification of existing mining operations and assessing potential impacts to those operations by introduction of the Project.[446]

a. *345 kV Route Options*

417. No active gravel pits were identified within the route width of Route Options A, B, or C. Any impacts to mining are anticipated to be minimal for the route options for Segment 1 and 2.[447]

418. No active gravel pits were identified within the route width of Segment 3; therefore, no impacts are anticipated.[448]

b. *161 kV Route Options*

419. Two gravel pits, a borrow pit, sand quarry, a prospect mine, and a bedrock quarry were identified within the route widths of Route Options A and B.[449]

420. Based upon a review of aerial imagery: the gravel pits and sand quarry appear to be inactive; the borrow pit, prospect mine, and bedrock quarry appear to have active operations; and the anticipated alignment of Route Options A and B do not cross any workspaces of active mining operations. [450]

421. Three prospect mines, two bedrock quarries, and a sand quarry were identified within the route width of Route Option C. The prospect mines and quarries both appear to be inactive.[451]

422. No active gravel pits were identified within the route width of Route Option D. Accordingly, impacts to mining are anticipated to be minimal.[452]

423. Aggregate mines and prospective mining sites could be negatively impacted by construction of the transmission line, if the structures interfere with access to aggregate resources or the ability to remove them. If impacts to mining operations are

[445] Ex. PUC-31 at 799 (FEIS).
[446] Ex. PUC-31 at 155 (FEIS).
[447] Ex. PUC-31 at 522 (FEIS).
[448] Ex. PUC-31 at 635 (FEIS).
[449] Ex. PUC-31 at 799 (FEIS).
[450] Ex. PUC-31 at 799 (FEIS).
[451] Ex. PUC-31 at 799 (FEIS).
[452] Ex. PUC-31 at 799 (FEIS).

foreseeable, the Applicant would address those impacts with the mining operator. For example, the Applicant has already met with the operators of the Milestone Materials Rochester Landscape Supply Center, an active aggregate mining operation, to discuss the Project. No impacts on that facility operations are anticipated.[453]

G. Effects on Archeological and Historic Resources

424. Minnesota's high voltage transmission line rules require consideration of the effects of the Project on archaeological and historic resources, also referred to collectively as "cultural resources."[454]

425. To determine potential impacts on archeological and historic resources of the Project, the EIS assessed such impacts within one mile of the route alternatives. Direct impacts to these resources could result from construction activities, such as operating vehicles and equipment near the ROW; clearing the ROW; developing substations, access roads and temporary construction areas; and installation of structures.[455]

426. Section 5.3.15 of the Sample Route Permit contains the following condition related to archaeological and historic resources:

> The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Transmission Facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Transmission Facility impacts on the resource consistent with State Historic Preservation Office and State Archaeologist requirements.
>
> Prior to construction, the Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall immediately halt construction and promptly notify local law enforcement and the State Archaeologist. The Permittee shall not resume construction at such location until authorized by local law enforcement or the State Archaeologist. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.[456]

a. *345 kV Route Options*

[453] Ex. PUC-31 at 702 (FEIS).
[454] Minn. R. 7850.4100(D).
[455] Ex. PUC-31 at 157 (FEIS).
[456] Ex. PUC-9 at 8-9 (Sample Route Permit).

427. With respect to archeological resources, Route Option C's route width contains two National Registry of Historic Places (NRHP)-eligible archaeological sites as compared to no sites within the route width for Route Options A and B.[457]

428. Route Option C's route width has more unevaluated sites for the NRHP (28) compared to Route Option A (7) and Route Option B (3).[458]

429. Route Option C's route width contains more potential historic cemeteries (12) than Route Option A (9) or Route Option B (3). However, the exact locations of these cemeteries are not now known.[459]

430. For historic resources, Route Option C's route width has more previously documented NRHP-eligible historic architectural resources (14) compared to Route Option A (3) and Route Option B (none).[460]

431. Route Option C's route width includes more historic architectural resources which are unevaluated for the NRHP (37) compared to Route Option A (17) and Route Option B (2).[461]

432. The following table compares the number archaeological sites, historic architectural resources, and historic cemeteries within the route width of the three route options for Segments 1 and 2.[462]

Archaeological and Historic Resources in Segments 1 and 2

Route Option	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Archaeological sites in route width (count in route width)	3	7	34
Historic architectural resources in route width (count in route width)	10	19	54

[457] Ex. PUC-31 at 523 (FEIS).
[458] Ex. PUC-31 at 523 (FEIS).
[459] Ex. PUC-31 at 523 (FEIS).
[460] Ex. PUC-31 at 523 (FEIS).
[461] Ex. PUC-31 at 523 (FEIS).
[462] Ex. PUC-31 at 520 (FEIS).

Historic cemeteries (count in route width)	3	9	12

433. Route Option B encounters the fewest archaeological and historic architecture within the route width as compared to Route Options A and C.[463]

434. One potential historic cemetery is within Segment 3's route width, but the exact location of the cemetery is not known.[464]

435. As part of the effort to protect this resource, as well as other cultural resources in the Project Area, the Applicant will conduct surveys to identify potential impacts and suggest effective mitigation efforts. Because of that work, impacts to all archaeological and historic resources in Segments 1 and 2 are anticipated to be avoided or mitigated. [465]

b. *161 kV Route Options*

436. For archeological resources, the route widths in Route Options C and contain the same (one) NRHP-eligible archaeological site; whereas the route widths for Route Options A and B do not contain any NRHP-eligible sites.[466]

437. Route Options A and B have more unevaluated sites for the NRHP (4) compared to Route Option C (2), and Route Option D (1).[467]

438. Route Option A's route width contains more potential historic cemeteries (3), than Route Option B (2), Route Option C (1), and Route Option D (1). However, the exact locations of the cemeteries are not known. [468]

439. For historic resources, there is one eligible historic architectural resource within the route width of Route Option C: the NRHP-eligible resource, the William-Rucker Farmstead (Olmstead County, Oronoco Township 13, denominated OL-ORT-00013). This farmstead intersects the route width along U.S. Highway 52, south of Oronoco, along a portion of the segment that would not be double-circuited or parallel an existing transmission line.[469]

440. The following table compares the number of archaeological sites, historic architectural resources, and historic cemeteries within the ROW or route width of the Segment 4 route options.[470]

[463] Ex. PUC-31 at 520 (FEIS).
[464] Ex. PUC-31 at 636 (FEIS).
[465] Ex. PUC-31 at 523, 636 (FEIS).
[466] Ex. PUC-31 at 799 (FEIS).
[467] Ex. PUC-31 at 799 (FEIS).
[468] Ex. PUC-31 at 799 (FEIS).
[469] Ex. PUC-31 at 799 (FEIS).
[470] Ex. PUC-31 at 795 (FEIS).

Archaeological and Historic Resources in Segment 4

Route Option	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Archaeological sites in route width (count in ROW, count in route width)	3	3	5	2
Historic architectural resources in route width (count in ROW, count in route width)	9	5	29	3
Historic cemeteries (count in route width)	3	2	1	1

441. The Applicant will conduct surveys to identify potential impacts and suggest effective mitigation efforts. Because of that work, impacts to all archaeological and historic resources in Segment 4 are anticipated to be avoided or mitigated.[471]

H. Effects on Natural Environment

442. Minnesota's high voltage transmission line routing factors require consideration of the Project's effects upon the natural environment; including its effects upon air quality, water quality, flora and fauna.[472]

1. Air Quality

443. The federal Clean Air Act regulates emissions into the air from stationary and mobile sources. The Act directs the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ground-level ozone (O_3), particular matter (PM10/PM2.5), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and lead (Pb).[473]

[471] Ex. PUC-31 at 799 (FEIS).
[472] Minn. Stat. § 216E.03, subd. 7(b)(1)-(2); Minn. R. 7850.4100, subp. E.
[473] Ex. PUC-31 at 170 (FEIS).

444. The EPA designates particular areas of the country as being “in attainment” or “nonattainment” with air quality standards. All counties that are traversed by the Project to be “in attainment” for all NAAQS.[474]

445. Construction of the Project will result in intermittent and temporary emissions of criteria pollutants. The releases would primarily consist of emissions from construction equipment and vehicles, and would include pollutants such as CO_2, nitrogen oxides (NO_x), and PM. Dust generated from earth disturbing activities also gives rise to PM10/PM2.5.[475]

446. Double-circuiting with an existing transmission line would result in fewer PM10/PM2.5 emissions due to less ground disturbance.[476]

447. Adverse effects on the surrounding environment are expected to be negligible from the temporary disturbances during construction and the intermittent nature of the emission-producing and dust-producing construction work.[477]

448. Modest emissions would be associated with the Project operation and maintenance activities, which can generate particulate roadway dust.[478]

449. The impacts of these emissions can be mitigated. The Applicant would employ construction-related practices to control fugitive dust. This could include application of water or other commercially available non-chloride dust control agents on unpaved areas, reducing the speed of vehicular traffic on unpaved roads, and covering open-bodied haul trucks.[479]

450. During operation, small amounts of NO_X and O_3 would be created due to corona from the operation of transmission lines. The production rate of O_3 due to corona discharges decreases with humidity and less significantly with changes in temperature. Rain causes an increase in O_3 production.[480]

451. In addition to weather conditions, design of the transmission line also influences the O_3 production rate. The O_3 production rate decreases significantly as the conductor diameter increases and is greatly reduced for bundled conductors when compared to single conductors. Conversely, the production rate of O_3 increases with applied voltage. The emission of O_3 from the operation of the transmission line proposed for the Project is expected to be minimal.[481]

452. Emissions would be generated from fuel combustion during routine inspection and maintenance activities. The Applicant would perform an annual aerial

[474] Ex. PUC-31 at 170 (FEIS); *see also* 42 U.S. Code § 7407(d) (2024).
[475] Ex. PUC-31 at 171 (FEIS).
[476] Ex. PUC-31 at 171 (FEIS).
[477] Ex. PUC-31 at 169, 171 (FEIS).
[478] Ex. PUC-31 at 171 (FEIS).
[479] Ex. PUC-31 at 171 (FEIS).
[480] Ex. PUC-31 at 171 (FEIS).
[481] Ex. PUC-31 at 171 (FEIS).

inspection of the line. Additionally, every four years, crews would visually inspect the lines from the ground. Similarly, vegetation maintenance would generally occur once every four years. Emissions from routine inspection and maintenance activities would be minimal.[482]

453. During operations, air emissions would not require any air quality permits.[483]

454. Long-term impacts to air quality would also be minimal. They are associated with the creation of ozone and emissions of nitrous oxide along the high voltage transmission line and from the accompanying substations.[484]

a. *345 kV Route Options*

455. Construction of Route Options A, B, and C will result in minor short-term air quality impacts. These impacts follow from the operation of heavy-duty construction equipment, fugitive dust on unpaved roads, and excavation of transmission structure foundations. If construction activities generate problematic dust levels, the Applicant will employ familiar construction-related practices to contain fugitive dust.[485]

456. Similarly, for Segment 3, construction of the Project will also result in minor short-term air quality impacts from the operation of heavy-duty construction equipment and fugitive dust. The Applicant will employ familiar construction-related practices to contain fugitive dust.[486]

b. *161 kV Route Options*

457. Like the 345 kV route options, construction of the Route Options A, B, C, and D will result minor short-term air quality impacts from the operation of heavy-duty construction equipment and fugitive dust. The Applicant will employ familiar construction-related practices to contain fugitive dust.[487]

2. Greenhouse Gas Emissions

458. Project construction activities will result in temporary and intermittent increases in Greenhouse gas (GHG) emissions from fuel combustion in construction equipment and commuter vehicles. These emissions would be short-term and dispersed over the right-of-way. Accordingly, total emissions would be minimal and would not result in a direct impact to any single location.[488]

459. The use of fluorinated gas, sulfur hexafluoride (SF6), in high-voltage circuit breakers could potentially increase GHG emissions associated with the Project. Equipment containing SF6 is designed to avoid any SF6 emissions, although emissions

[482] Ex. PUC-31 at 171 (FEIS).
[483] Ex. PUC-31 at 171 (FEIS).
[484] Ex. PUC-31 at 169 (FEIS).
[485] Ex. PUC-31 at 169, 313, and 464 (FEIS).
[486] Ex. PUC-31 at 585 (FEIS).
[487] Ex. PUC-31 at 716 (FEIS).
[488] Ex. PUC-31 at 178 (FEIS).

do occur from faulty equipment. Potential emissions of SF6 are minimal and not expected to occur.[489]

a. *345 kV Route Options*

460. Minimization efforts to reduce Project GHG emission may include efficient vehicle and equipment mobilization; reducing vehicle idle time; appropriate use and upkeep of equipment; efficient deliveries of materials; use of battery power tools when feasible; and deployment of alternative fuel vehicles when feasible.[490]

461. Ultimately, the Applicant asserts that the Project will result in a net decrease of GHG emissions, as it would facilitate the replacement of fossil fuel generation with renewable resources.[491]

462. The Applicant would employ similar mitigation measures for Segment 3 to reduce GHG emissions during construction.[492]

b. *161 kV Route Options*

463. The same familiar GHG minimization efforts used for the 345 kV route options would be followed for the 161 kV route options.[493]

3. Climate Change

464. The impact analysis for climate change considers existing patterns in the region of influence and how the Project could both be impacted by climate change, as well as how the Project could affect climate change.[494]

a. *345 kV Route Options*

465. The Project is engineered to be resilient under changing climate factors and is designed to follow or exceed North America Electric Reliability Corporation reliability standards. As noted above, construction of the Project would result in some GHG emissions that contribute to climate change; however, the operation of the Project will link additional transmission capacity with new renewable energy resources.[495]

466. To aid the Commission in identifying current and future risks for climate change, the EIS analyzed the risk assessment for each county traversed by Route Option A, B, and C within Segments 1 and 2. Across the 345 kV route options for Segments 1

[489] Ex. PUC-31 at 180 (FEIS).
[490] Ex. PUC-31 at 178, 320, and 472 (FEIS).
[491] Ex. PUC-31 at 178, 320, and 472 (FEIS).
[492] Ex. PUC-31 at 594 (FEIS).
[493] Ex. PUC-31 at 724 (FEIS).
[494] Ex. PUC-31 at 172 (FEIS).
[495] Ex. PUC-31 at 175, 318, and 469 (FEIS).

and 2, the risk of flooding is minor or moderate for all counties; the risk of fires is moderate for all counties; and the wind, air quality, and heat risks are all minor.[496]

467. Segment 3 is likewise engineered to be resilient under changing climate conditions. The EIS analyzed the risk assessment for each of the counties that Segment 3 crosses to identify current and future climate change risks. Across Segment 3, the risk of flooding is minor or moderate for all counties; the risk of fires is moderate for all counties; and the wind, air quality, and heat risks are all minor.[497]

b. *161 kV Route Options*

468. The 161 kV Route Options are similarly engineered to be resilient under changing climate conditions.[498]

469. The EIS analyzed the risk assessment for each of the counties that Route Options A, B, C, and D cross within Segment 4 to help identify current and future risks of climate change. Across the 161 kV route options, the risk of flooding is minor or moderate for all counties; the risk of fires is moderate for all counties; and the wind, air quality, and heat risks are all minor.[499]

4. Water Quality and Resources

470. The Application and EIS analyzed impacts to water quality and resources, including groundwater, wetlands, and surface water that will be crossed by, or located in, the right-of-way of the proposed 345 kV and 161 kV route options.[500]

a. Groundwater

471. Minnesota is divided into six groundwater provinces, based upon differing bedrock and glacial geology.[501]

472. Installation of new concrete foundations might require dewatering before construction activities begin. Installing new structures could impact bedrock and groundwater if it cannot be avoided or if minimization measures are not implemented.[502]

473. The Minnesota Well Index provides information about wells and borings in the Project area. The Index includes such detail as the location, depth, geology, construction, and static water level at the time of construction.[503]

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[496] Ex. PUC-31 at 172, 315, and 466 (FEIS).
[497] Ex. PUC-31 at 590-591 (FEIS).
[498] Ex. PUC-31 at 718 (FEIS).
[499] Ex. PUC-31 at 718 (FEIS).
[500] Minn. R. 7850.4100(G).
[501] Ex. PUC-31 at 180 (FEIS).
[502] Ex. PUC-31 at 180 (FEIS).
[503] Ex. PUC-31 at 181 (FEIS).

474. The Wellhead Protection Area program protects source waters for public and non-public water supplies in Minnesota. This program also identifies the areas surrounding public water supply wells that contribute groundwater to drinking water supplies and identify surface or water contamination that can affect those supplies.[504]

475. The Applicant will coordinate with the MnDNR to confirm that geotechnical evaluations and structure installation placements do not disrupt groundwater hydrology. The Applicant will also obtain a Water Appropriation Permit from the MnDNR if groundwater dewatering activities would be greater than 10,000 gallons of water per day or one million gallons per year.[505]

i. 345 kV Route Options

476. A set of key water resources were identified within the potential route widths under review. There are two wells within Route Option A and B; three drinking water supply management areas within Route Option A and B; an underground natural gas aquifer storage and production facilities near Waterville, Minnesota; and numerous gas injection and withdrawal wells, water observation wells, and test wells within gas storage fields and lands under lease.[506]

477. According to the Minnesota Well Index, there are nine wells that appear to be associated with facility operations located within the Segment 1 South ROW, which is not part of Route Options A, B, or C.[507]

478. Multiple wells are located within the Project Area of Route Option C, as well as numerous drinking water supply management areas.[508]

479. For Segment 3, the Applicant will assess any wells identified within the right-of-way during construction to determine if they are open and seal them, in accordance with Minnesota requirements.[509]

480. Potential impacts to groundwater could occur during construction if artesian groundwater conditions are present and the confining layer is breached. Indirect impacts to groundwater can be mitigated by avoiding or minimizing impacts to surface waters, such as controlling soil erosion and sedimentation during construction activities.[510]

481. Overall impacts to groundwater resources are not anticipated because the Applicant pledges to store materials, including fuel and gasoline, in sealed containers to prevent spills, leaks, or other discharges.[511]

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[504] Ex. PUC-31 at 182 (FEIS).
[505] Ex. PUC-31 at 186, 326, and 479 (FEIS); *see also* Minn. Stat. § 103G.287, subd. 4(b) (2024).
[506] Ex. PUC-31 at 179, 181-182, 321, 324 (FEIS)
[507] Ex. PUC-31 at 182 (FEIS).
[508] Ex. PUC-31 at 476 (FEIS).
[509] Ex. PUC-31 at 599 (FEIS).
[510] Ex. PUC-31 at 182, 321, 476, and 598 (FEIS).
[511] Ex. PUC-31 at 182, 321 476, and 598 (FEIS).

482. There are 10 wells within the Project right-of-way for Route Options A, B, and C. Further, there are four drinking water supply management areas within Route Options A, B, and C. Route Option D has no wells or drinking water supply management areas within its right-of-way.[512]

483. As with its practice for the 345 kV routes, the Applicant will coordinate with MnDNR to confirm geotechnical investigation, and structure installation placement will not disrupt groundwater hydrology. The Applicant will also assess any wells identified within the right-of-way during Project construction to determine if they are open and seal them, if necessary.[513]

ii. 161 kV Route Options

484. The 161 kV route options will experience similar potential impacts and mitigation as the 345 kV route options.[514]

b. Wetlands

485. The Project could temporarily or permanently impact wetlands if these impacts cannot be avoided through Project design. In most cases, wetlands can be spanned to avoid placing structures within the wetland. When a wetland cannot be spanned, construction would occur within the wetland.[515]

486. The National Wetlands Inventory (NWI), as updated by the MnDNR, and referenced in the EIS, identifies wetland complexes.[516]

i. 345 kV Route Options

487. All three 345 kV route options for Segments 1 and 2 have relatively similar acreages of wetlands. Route Option A has the most wetland in the ROW (141 acres) and Route Option C has the least (129 acres).[517]

488. The ROW of all three route options intersects forested wetlands, with Route Option C intersecting the most (15 acres) and Route Option B intersecting the least (11 acres). Because Route Option C would parallel U.S. Highway 14 for most of its length, and Route Options A and B would double-circuit an existing transmission line for much of their lengths, most of the forested wetlands within the existing ROW for both options have already been cleared. However, there are three forested wetlands within the ROW of Route Option C that would require clearing adjacent to PWI watercourses.[518]

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[512] Ex. PUC-31 at 730 (FEIS).
[513] Ex. PUC-31 at 730-31 (FEIS).
[514] Ex. PUC-31 at 731-732 (FEIS).
[515] Ex. PUC-31 at 215 (FEIS).
[516] Ex. PUC-31 at 213 (FEIS).
[517] Ex. PUC-31 at 523 (FEIS).
[518] Ex. PUC-31 at 523 (FEIS).

489. The ROW for Route Options A and B have nine crossings of wetlands that are wider than 1,000 feet. Route Option C has two crossings of wetlands that are wider than 1,000 feet. [519]

490. Two calcareous fens are located less than five miles from Route Options A and B.[520]

491. For Segment 3, the wetlands within this right-of-way are primarily non-forested, with only 10 acres of forested wetlands. Temporary impacts for access could occur to the wetlands, but impacts will be minimal.[521]

ii. 161 kV Route Options

492. Route Option A and B have the most wetland acreage within the ROW, 12 and 11 acres respectively, five acres of which is forested wetland. Route Option D has the least wetland acreage in the ROW (four acres). Route Option C has eight acres of wetland and is the only route option that does not have forested wetland within its ROW.[522]

493. Route Options A and B cross a wetland that is wider than 700 feet. Because an existing transmission line is not present, these routes could require pole placement within the wetland.[523]

c. Surface Water

494. The Project is within the Upper Mississippi and Minnesota River Basins and crosses two major watersheds. Many of these watercourses and waterbodies are designated as public watercourses and public water basins in the MnDNR public waters inventory (PWI).[524]

495. Major watercourses in the route width include Long Lake, Eagle Lake, Fish Lake, Mud Lake, Tentoka Lake, Lower Sakatah Lake, Wells Lake, Sprague Lake, Lily Lake, and several unnamed lakes.[525]

i. 345 kV Route Options

496. The table below summarizes the surface waters within the ROW and route widths of three end-to-end routes studied in the EIS for Segments 1 and 2. For Segments 1 and 2, Route Option A has the most watercourse crossings (84) and Route Option C

[519] Ex. PUC-31 at 523 (FEIS).
[520] Ex. PUC-31 at 523 (FEIS).
[521] Ex. PUC-31 at 636 (FEIS).
[522] Ex. PUC-31 at 799 (FEIS).
[523] Ex. PUC-31 at 799 (FEIS).
[524] Ex. PUC-31 at 206-07 (FEIS).
[525] Ex. PUC-31 at 207 (FEIS).

has the least (62). Notably, however, Route Option A would cross approximately half of these watercourses due to double-circuiting existing transmission lines.[526]

497. Route Option C would cross a trout stream, while Route Options A and B avoid trout streams. Route Options A and B have 10 PWI basin/wetland crossings, while Route Option C only has one; however, these PWI crossings are in areas that could be double-circuited.[527]

Surface Water Crossings for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
National Hydrography Dataset stream crossings (count)	73	84	62
PWI stream crossings (count)	23	32	9
Trout stream crossings (count)	0	0	1
Impaired stream crossings (count)	12	15	6
National Hydrography Dataset Lake crossings	4	4	4
Impaired lake crossings	1	1	0
PWI basin/wetland crossings	10	10	1
Forested wetlands (acres in ROW)	11	12	15
Total wetlands (acres in ROW)	135	141	129
Wetland crossings greater than 1,000 feet (count	9	9	2

498. All three route options would cross waterbodies that are greater than 1,000 feet wide (e.g., Eagle Lake) and could require placement of structures within them if they cannot be spanned.[528]

[526] Ex. PUC-31 at 520 (FEIS).
[527] Ex. PUC-31 at 520 (FEIS).
[528] Ex. PUC-31 at 520 (FEIS).

499. Wetlands within the ROW of Segment 3 are mostly non-forested with 10 acres being forested wetlands. Temporary impacts for access could occur to the wetlands, but impacts may be minimized by using best management practices.[529]

ii. 161 kV Route Options

500. The table below denotes the surface waters within the right-of-way and route widths of four end-to-end routes for Segment 4 studied in the EIS:[530]

Surface Water Crossings for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
National Hydrography Dataset stream crossings (count)	20	21	23	30
PWI stream crossings (count)	5	5	3	1
Impaired stream crossings (count)	3	3	3	0
National Hydrography Dataset Lake crossings	0	0	5	1
PWI basin/wetland crossings	0	0	5	1
Forested wetlands (acres in ROW)	5	5	0	1
Total wetlands (acres in ROW)	12	11	8	4

501. Route Option D has 30 stream crossings, the most of any route crossing, while the other three options have between 20 and 23 crossings. Route Options A and B would have the most PWI watercourse crossings. Route Option C would have the most waterbody crossings, including PWI basins. Route Options A and B would not cross any waterbodies.[531]

[529] Ex. PUC-31 at 636 (FEIS).
[530] Ex. PUC-31 at 796 (FEIS).
[531] Ex. PUC-31 at 796 (FEIS).

502. Many of the watercourse crossings would occur in areas that would be double-circuited with, or paralleling, existing transmission lines or highway ROW.[532]

5. Flora

503. Vegetation resources across the Project are dominated by agricultural vegetation and crops, including grain, soybeans, hay, haylage, sweet corn, corn for silage, green peas, corn for grain, and oats for grain.[533]

504. Construction of the Project may result in short-term impacts (such as clearing, compacting, or otherwise disturbing vegetation), during construction and maintenance activities. Potential long-term impacts on vegetation would occur where structures are located or where conversion of forested vegetation to low-growing vegetation would be required.[534]

505. The Project area is located within the Eastern Broadleaf Forest Province. This is a forested vegetation province that serves as an ecotone between semi-arid prairie of the southwest and semi-humid conifer-deciduous forests of the northwest. The Project crosses four ecological subsections of the Province, including the Big Woods, Oak Savanna, Rochester Plateau, and Blufflands subsections.[535]

506. Construction and maintenance activities have the potential to result in the introduction or spread of noxious weeds. Other potential impacts to flora include vegetation disturbance along wind breaks, woodlots, fence rows, grassland swales, and other natural areas. Disturbance may follow from cutting, mowing, and removal of vegetation, crushing of vegetation with construction equipment, and grading soils. This disturbance will be temporary during construction.[536]

507. Other than agricultural lands, most of the vegetation in the right-of-way of all of the route options is forested landcover. The table below summarizes the number of acres of forested landcover in the 345 kV route options for Segments 1 and 2.[537]

[532] Ex. PUC-31 at 796 (FEIS).
[533] Ex. PUC-31 at 213, 349, 503, 620, and 756 (FEIS).
[534] Ex. Xcel-15 at 288 (Application); Ex. PUC-31 at 212 (FEIS).
[535] Ex. Xcel-15 at 286 (Application).
[536] Ex. Xcel-15 at 289 (Application).
[537] Ex. PUC-31 at 520 (FEIS).

Forested Landcover in the ROW of the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Forested landcover in the ROW (acres)	75	94	42

508. All three route options would impact forested vegetation, with Route Option A having the most forested vegetation in the ROW (94 acres) and Route Option C having the least amount of forested vegetation in the ROW (42 acres). Because all three route options would follow existing transmission line or road ROW for most of their lengths, the impacted forested areas have already been fragmented.[538]

509. However, there are densely forested areas in the ROW of Route Option C in areas that do not follow an existing ROW. Accordingly, these forested areas would become fragmented.[539]

510. The ROW for Segment 3 is already free of woody vegetation, but additional impacts to vegetation could occur from construction activities and use of heavy equipment.[540]

511. The table below summaries the number of acres of forested landcover in the four 161 kV route options for Segment 4.[541]

Forested Landcover in the ROW of the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Forested landcover in the ROW (acres)	18	22	15	19

512. Route Option B has the most forested vegetation within the ROW (22 acres) and Route Option C has the least (15 acres). Given the proposed double-circuiting or

[538] Ex. PUC-31 at 523 (FEIS).
[539] Ex. PUC-31 at 523 (FEIS).
[540] Ex. PUC-31 at 636 (FEIS).
[541] Ex. PUC-31 at 796 (FEIS).

paralleling of existing transmission line or road rights-of-way, most of the fragmentation of forested areas has already occurred where ROWs intersect forested vegetation.[542]

6. Fauna

513. The wildlife in the vicinity of the Project is typical of that found in rural, agricultural, and suburban areas that undergo development. Typical wildlife species within the route width include: mammals, such as deer, fox, squirrels, raccoons, and beavers; birds, such as turkeys, hawks, pheasants, and ducks; reptiles and amphibians, such as toads, salamanders, frogs, turtles, and snakes; and fish, such as large-mouth bass, bluegills, and brown bullheads.[543]

514. Construction activities that generate noise, dust, or soil disturbances could result in short-term, indirect impacts on wildlife. Larger and more mobile animals, such as deer, foxes, and various species of birds, will be able to vacate the immediate area of construction and are likely to return upon completion of construction. Similarly, nocturnal species and aquatic species will unlikely be permanently impacted by construction and should return to preconstruction conditions following completion of the Project.[544]

515. Smaller species such as reptiles, amphibians, and small mammals could suffer more impacts from construction because of their inability to vacate the construction area. The construction, operation, and maintenance of the Project will be designed to minimize potential adverse impacts to wildlife resources.[545]

516. The table below summarizes the wildlife resources within the route width and ROW for the three end-to-end 345 kV route options for Segments 1 and 2:[546]

Wildlife Resources in the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Wildlife Management Areas (acres in ROW, acres in route width)	10 79	10 79	0
Important Bird Areas (acres in ROW, acres in route width)	4 42	4 42	0
Grassland Bird Conservation Areas (acres in ROW, acres in route width)	443 2,958	509 3,400	67 446

[542] Ex. PUC-31 at 796 (FEIS).
[543] Ex. Xcel-15 at 289-291 (Application).
[544] Ex. Xcel-15 at 290-291 (Application).
[545] Ex. Xcel-15 at 290-291 (Application).
[546] Ex. PUC-31 at 520 (FEIS).

State Game Refuge (acres in ROW, acres in route width)	17 127	17 127	64 428
Waterfowl Production area (acres in ROW, acres in route width)	0 <1	0 <1	0
Designated Shallow Wildlife Lakes (count in ROW, count in route width)	1	1	1
Aquatic Management Areas crossings (count in ROW, count in route width)	1 1	1 1	0
Wildlife Action Network Corridors (acres in ROW, acres in route width)	123 841	181 1,219	92 754

517. The route width and ROW of all three route options would intersect wildlife resources. Route Options A and B would generally intersect more acres of wildlife resources but would mostly do so while double-circuiting existing transmission lines. While the ROW may need to be expanded to accommodate the double-circuiting, these areas have already been fragmented.[547]

518. Route Option C would mostly follow U.S. Highway 14 and as such, would also mostly intersect wildlife resources in areas that have already been fragmented. There is one location where the anticipated alignment of Route Option C would cross a densely forested Wildlife Action Network corridor in an area where there is not an existing transmission line or road ROW. As a result, this corridor would be fragmented. In addition, the majority of Route Option C would not follow an existing transmission line corridor. Accordingly, Route Option C could result in more avian impacts relative to Route Options A and B, which follow existing transmission line corridors for most of their length.[548]

519. Segment 3 would intersect with a National Wildlife Refuge, an Important Bird Area, a Wildlife Management Area, and Wildlife Action Network corridors. Segment 3 would double-circuit with an existing transmission line for its entire length and the proposed double-circuiting would require an additional horizontal plane to the transmission line, which could increase potential impacts to avian species.[549]

520. The table below summarizes the wildlife resources within the route width and ROW for the four end-to-end 161 kV route options for Segment 4:[550]

[547] Ex. PUC-31 at 523 (FEIS).
[548] Ex. PUC-31 at 523 (FEIS).
[549] Ex. PUC-31 at 636 (FEIS).
[550] Ex. PUC-31 at 796 (FEIS).

Wildlife Resources in the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Grassland Bird Conservation Areas (acres in ROW, acres in route width)	33 328	33 328	0 0	0 0
Wildlife Action Network Corridors (acres in ROW, acres in route width)	25 255	25 255	9 109	23 269

521. The ROW of Route Options A and B intersect a Grassland Bird Conservation Area (GBCA), whereas the rights-of-way of Route Options C and D avoid the GBCA. Notwithstanding the crossing, the impacts to the GBCA would be minimized because Route Options A and B enter the conservation area within an existing transmission line corridor, as part of a double-circuiting of a 161 kV line.[551]

522. The ROW of all four route options would intersect several Wildlife Action Network corridors. Importantly, however, all route options cross Wildlife Action Network corridors alongside an existing transmission line or road ROW, within wildlife corridors that are already fragmented.[552]

I. Effects on Rare and Unique Natural Resources

523. Minnesota Rule 7850.4100(F) (2025) requires consideration of the Project's effects on rare and unique resources.[553]

524. As used in the applicable rule, "rare and unique natural resources" include federally and state-protected species and sensitive ecological resources.[554]

525. The EIS evaluated potential impacts to protected species by reviewing the documented occurrences within one mile of the Project area. The EIS also evaluated potential impacts to sensitive ecological resources within the route width, on the grounds that these resources could provide suitable habitat for protected species.[555]

526. The MnDNR has established several categories for sensitive ecological resources in Minnesota. The MnDNR also designates Scientific and Natural Areas to

[551] Ex. PUC-31 at 799 (FEIS).
[552] Ex. PUC-31 at 799 (FEIS).
[553] Minn. R. 7850.4100(F).
[554] Ex. PUC-31 at 11, 189 (FEIS).
[555] Ex. PUC-31 at 189 (FEIS).

protect natural features with exceptional scientific or educational value. These areas include native plants, populations of rare species, and important geology.[556]

527. The table below summarizes the rare and unique natural resources in the three 345 kV route options for Segments 1 and 2:[557]

Rare and Unique Natural Resources in the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
State Threatened or Endangered Species (documented records in NHIS database; count in ROW, count in route width)	6 12	6 12	7 10
Scientific and Natural Areas (acres in ROW, acres in route width)	2 28	2 28	0
Sites of Biodiversity Significance (acres in ROW, acres in route width)	41 363	47 388	21 357
Native Plant Communities (acres in ROW, acres in route width)	23 191	27 212	7 177
Designated Old Growth (acres in ROW, acres in route width)	<1 6	<1 6	0
Railroad rights-of-way prairie crossings (count)	1	1	3
Lakes of Biological Significant (count in ROW, count in route width)	1 3	1 3	1 1

[556] Ex. PUC-31 at 195 (FEIS).
[557] Ex. PUC-31 at 521 (FEIS).

528. All three route options have a similar number of Natural Heritage Inventory System (NHIS) sitings within the ROW and route width. Route Options A and B would intersect the Townsend Woods Scientific and Natural Area, in an area where it could be double-circuited. Route Option C, however, would avoid this resource [558]

529. The ROW of Route Options A and B intersect more acres of Sites of Biodiversity Significance (SBS) and native plant communities than Route Option C. However, Route Options A and B generally intersect sensitive ecological resources in areas that could be double-circuited with an existing transmission line.[559]

530. Route Option C intersects more railroad rights-of-way prairie than Route Options A and B. For the most part, Route Option C traverses these sensitive ecological resources while paralleling U.S. Highway 14, an existing transmission line or railroad ROW. However, in a few situations, the anticipated alignment for Route Option C would cross a sensitive ecological resource in a new corridor; such as through the Kaplan Woods SBS and associated southern floodplain forest.[560]

531. The ROW of Segment 3 will intersect with a National Wildlife Refuge, an Important Bird Area, a Wildlife Management Area, and Wildlife Action Network corridors. Segment 3 will be double-circuited for its entire length. The double-circuiting influences the analysis in two ways. These wildlife resources have already been fragmented, however, adding an additional horizontal plane to the transmission line could increase impacts to avian species.[561]

532. The table below summarizes the rare and unique natural resources in the four 161 kV route options for Segment 4:[562]

Rare and Unique Natural Resources in the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
State Threatened or Endangered Species (documented records in NHIS database; count in ROW, count in route width)	4 7	4 7	3 4	1 1

[558] Ex. PUC-31 at 524 (FEIS).
[559] Ex. PUC-31 at 524 (FEIS).
[560] Ex. PUC-31 at 524 (FEIS).
[561] Ex. PUC-31 at 636 (FEIS).
[562] Ex. PUC-31 at 796 (FEIS).

Sites of Biodiversity Significance (acres in ROW, acres in route width)	1 39	1 39	<1 30	9 110
Native Plant Communities (acres in ROW, acres in route width)	1 33	1 33	0 8	3 28

533. Route Options C and D have fewer NHIS records within the ROW and route width than Route Options A and B.[563]

534. Blanding's turtle, Blanchard's cricket frog, glade mallow, and a mussel species have been documented within the ROW of Route Options A and B. Tuberous Indian-plantain has been documented within the ROW of Route Options C and D; two mussel species have also been documented within the ROW of Route Option C. Because all route options would span watercourses, impacts to protected mussel species are not anticipated. [564]

535. Similarly, all four route options could impact terrestrial protected species if they are present in the ROW during construction.[565]

536. The ROW of Route Option D intersects nine acres of Sites of Biodiversity Significance and three acres of native plant communities. Accordingly, among the four route options, Route Option D has the greatest impacts under this factor.[566]

J. Application of Various Design Considerations

537. Minnesota Rule 7850.4100(G) requires consideration of whether the applied design options maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity. [567]

538. As demonstrated in the sections and below, the Project is designed to use existing ROWs to the extent practicable.[568]

539. The Project is also designed to meet current and projected future needs of the local and regional transmission network. For example, to accommodate future expansion, the Project was designed to route the new 345 kV transmission line near the West Faribault Substation. This routing will allow for a potential future connection of a 345 kV connection into the West Faribault Substation as may be needed to support additional

[563] Ex. PUC-31 at 800 (FEIS).
[564] Ex. PUC-31 at 800 (FEIS).
[565] Ex. PUC-31 at 800 (FEIS).
[566] Ex. PUC-31 at 800 (FEIS).
[567] Minn. R. 7850.4100(G).
[568] Ex. Xcel-15 at 157 (Application).

renewable generation in the area. It also minimizes future impacts to the surrounding area as energy needs grow.[569]

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

540. Minnesota's high voltage transmission line routing factors require consideration of the Project's use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries. The table below summarizes the paralleling of transmission lines, roads and railroads, existing survey lines, natural division lines, and agricultural field boundaries for the three end-to-end 345 kV route options for Segments 1 and 2.[570]

Use or Parallelling with Existing Rights-of-Way for the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segments 1 North and 2 North)	Route Option C (Highway 14 or Route Segment 17)
Transmission line (miles, percent)	41.5 (55%)	68.9 (83%)	21.2 (22%)
Roads (miles, percent)	12.9 (17%)	32.2 (38%)	67.3 (71%)
Railroad (miles, percent)	2.9 (4%)	2.9 (4%)	8.2 (9%)
Pipeline (miles, percent)	0	0	0
Total ROW sharing or paralleling with existing infrastructure (transmission line, road, railroad, and pipeline) (miles, percent)	48.8 (64%)	75.1 (90%)	81.5 (86%)
Total ROW paralleling with division lines (parcel, section, and field lines) (miles, percent)	59.5 (78%)	68.4 (82%)	81.4 (86%)
Total ROW sharing or paralleling (all)	69.3 (91%)	80.3 (96%)	89.1 (94%)

541. Cumulatively, Route Option A "parallels existing infrastructure" (for example, transmission lines, roads, or railroads) for 90 percent of its length. Route Option B parallels existing infrastructure for 64 percent of its length. Route Option C parallels existing infrastructure for 86 percent of its length.[571]

[569] Ex. Xcel-15 at 26 (Application).
[570] Minn. Stat. § 216E.03, subd. 7(b)(8)-(9) (2024); Minn. R. 7850.4100(H) (2025); Ex. PUC-31 at 519 (FEIS).
[571] Ex. PUC-31 at 524 (FEIS).

542. Segment 3 would parallel existing transmission lines, roads, or railroads for 100 percent of its length.[572]

543. The table below summarizes the paralleling of transmission lines, roads and railroads, existing survey lines, natural division lines, and agricultural field boundaries for the four 161 kV route options for Segment 4.[573]

Use or Parallelling with Existing Rights-of-Way for the 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Transmission line (miles, percent)	16.4 (74%)	13.8 (61%)	4.0 (20%)	13.7 (84%)
Roads (miles, percent)	9.5 (43%)	7.4 (33%)	12.2 (61%)	<0.1 (0%)
Railroad (miles, percent)	0	0	0	0
Pipeline (miles, percent)	0	0	0	0
Total ROW sharing or paralleling with existing infrastructure (transmission line, road, railroad, and pipeline) (miles, percent)	18.2 (82%)	16.1 (71%)	13.9 (70%)	13.7 (84%)
Total ROW paralleling with division lines (parcel, section, and field lines) (miles, percent)	19.3 (87%)	20.0 (89%)	18.9 (95%)	7.8 (48%)
Total ROW sharing or paralleling (all)	21.2 (96%)	21.8 (97%)	19.2 (96%)	14.7 (90%)
Total length following no infrastructure or division lines (miles, percent)	1.0 (4%)	0.7 (3%)	0.8 (4%)	1.7 (10%)

544. Cumulatively, Route Option A parallels existing infrastructure (transmission lines, roads, or railroads) for 82 percent of its length. Route Option B parallels existing infrastructure for 71 percent of its length. Route Option C parallels existing infrastructure for 70 percent of its length. Route Option D parallels existing infrastructure for 84 percent of its length.[574]

[572] Ex. PUC-31 at 637 (FEIS).
[573] Ex. PUC-31 at 795 (FEIS).
[574] Ex. PUC-31 at 800 (FEIS).

L. Use of Existing Transportation, Pipeline, and Electrical Transmission System Rights-of-Way

545. Minnesota high voltage transmission line routing factors require consideration of the Project's use of paralleling of existing transportation, pipeline, and electrical transmission system rights-of-way.[575]

546. The table below summarizes the opportunities for double-circuiting with existing transmission lines for the three 345 kV route options for Segments 1 and 2.[576]

Opportunities for Double-Circuiting the 345 kV Route Options for Segments 1 and 2

Route Options	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option C (Highway 14 or Route Segment 17)
Double-circuit with existing 69 kV line (miles, percent)	5.5 (7%)	26.7 (32%)	0
Double-circuit with existing 115 kV line (miles, percent)	33.5 (44%)	35.0 (42%)	4.0 (4%)
Double-circuit with existing 161 kV line (miles, percent)	<0.1	<0.1	<0.1
Double-circuit with existing 345 kV line (miles, percent)	0 (0%)	0 (0%)	13.9 (15%)
Total opportunity for double-circuiting (miles, percent)	39.0 (51%)	61.7 (74%)	17.9 (19%)

547. Route Option A provides the greatest opportunity for double-circuiting, and Route Option B has the second greatest opportunity for double-circuiting.[577]

548. Segment 3 would be double-circuited within an existing 345 kV transmission line for 43.4 miles, which is 100 percent of its length.[578]

549. The table below summarizes the opportunities for double-circuiting with existing transmission lines for the four 161 kV end-to-end route options:[579]

[575] Minn. R. 7850.4100(J).
[576] Ex. PUC-31 at 519 (FEIS).
[577] Ex. PUC-31 at 519 (FEIS).
[578] Ex. PUC-31 at 636 (FEIS).
[579] Ex. PUC-31 at 795 (FEIS).

Opportunities for Double-Circuiting for the 161 kV Route Options

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Double-circuit with existing 69 kV line (miles, percent)	5.1 (23%)	2.5 (11%)	2.5 (13%)	0
Double-circuit with existing 161 kV line (miles, percent)	11.3 (51%)	11.3 (50%)	0	0
Total opportunity for double-circuiting (miles, percent)	16.4 (74%)	13.8 (61%)	2.5 (13%)	0

550. Route Option A offers the greatest opportunity for double-circuiting, followed by Route Option B and C. Route Option D has no miles of double-circuiting as it will be constructed adjacent to the existing 345/345 kV Hampton – La Crosse line.[580]

M. Electrical System Reliability

551. Minnesota's high voltage transmission line routing factors require consideration of the Project's impact upon the reliability of the state's electrical system.[581]

552. The North American Electric Corporation has established mandatory reliability standards for American utilities. For new transmission lines, these standards require the utility to evaluate whether the grid would continue to operate adequately under various contingencies.[582]

553. The purpose of the Project is to construct a transmission line that will provide additional capacity as more renewable resources are added to Minnesota's transmission system, reduce line congestion, and improve electric system reliability throughout the region. The Project would increase transfer capability across the MISO Midwest subregion to allow reliability to be maintained for all hours under varying dispatch patterns driven by differences in weather conditions.[583]

[580] Ex. PUC-31 at 795 (FEIS).
[581] Minn. R. 7850.4100(K).
[582] Ex. Xcel-15 at 91 (Application).
[583] Ex. ERRA-10 at 227 (FEIS).

N. Costs of Constructing, Operating, and Maintaining the Facility

554. Minnesota's high voltage transmission line routing factors require consideration of the Project's cost of construction, operation, and maintenance.[584]

555. Xcel Energy's total estimated cost to construct the Project is based upon the specific costs for each route alternative included in the EIS. There are several main components of the cost estimate, including: (1) transmission line structures and materials; (2) transmission line construction and restoration; (3) transmission line and substation permitting design; (4) transmission line ROW acquisition; and (5) substation materials, substation land acquisition, and construction. Each of these components also may include a risk reserve.[585]

556. Below is a table of total estimated construction costs for the Project:

Total Estimated Construction Costs for the Project[586]

Project Components	Low Capital Expenditures ($Millions)	High Capital Expenditures ($Millions)
Mankato – Mississippi River 345 kV Transmission Line	$376.6	$490.7
Wilmarth Substation Modifications	$8.6	$9.1
North Rochester Substation	$10.5	$11.5
North Rochester to Chester 161 kV Transmission Line	$41.1	$69.7
Eastwood Substation Modifications	$0	$8.7
Total	$436.8	$589.7

557. Xcel Energy also provided a comparison of the estimated costs of Route Option B with Route Option C for Segments 1 and 2. The estimated cost for Route Option B is $341.9 million as compared to $397.1 million for Route Option C.[587]

558. Xcel Energy also provided a comparison of the estimated costs of Route Option A to Route Option D for Segment 4. The estimated cost for Route Option A is $69.7 million as compared to $41.1 million for Route Option C.[588]

559. These costs include all transmission line and substation modification costs, including materials, associated construction, permitting and design costs, and risk

[584] Minn. R. 7850.4100(L).
[585] Ex. PUC-31 at 71 (FEIS).
[586] Ex. Xcel-35 at 2-3 (Wendland Surrebuttal).
[587] Ex. Xcel-35 at 4 (Wendland Surrebuttal).
[588] Ex. Xcel-30 at 8 (T. Wendland Direct).

reserves. The aerial inspections cost approximately $75 to $100 per mile, and the ground inspections cost approximately $200 to $400 per mile.[589]

560. Actual line-specific maintenance costs depend upon the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line.[590]

O. Adverse Human and Natural Environmental Effects Which Cannot be Avoided

561. Minn. R. 7850.4100(M) (2025) requires consideration of unavoidable human and environmental impacts. Resource impacts are unavoidable when an impact cannot be avoided even with mitigation strategies.[591]

562. Transmission lines are infrastructure projects that can have unavoidable adverse human and environmental impacts. These impacts from construction of the proposed Project can include traffic delays and fugitive dust on roadways; visual and noise disturbances; crop losses, soil compaction, and soil erosion; vegetative clearing; changes to forested wetland type and function; disturbance and temporary displacement of wildlife, as well as direct impacts to wildlife inadvertently struck or crushed during structure placement or other activities; modest reductions of habitat; converting the underlying land use; and greenhouse gas emissions.[592]

563. Unavoidable impacts associated with the operation of the proposed Project include visual impacts from structures and conductors; loss of land for other purposes, such as agriculture, in locations where structures are placed; injury or death of avian species that collide with, or are electrocuted by, conductors; interference with AM radio signals; decreases in some property values; scaling back of tall-growing vegetation; greenhouse gas emissions; and modest increases in electromagnetic fields.[593]

564. These potential impacts, and the measures that will be used to mitigate those impacts, are detailed in both the Application and EIS. However, as noted above, some impacts cannot be avoided, even when using the best mitigation strategies.[594]

[589] Ex. Xcel-15 at 348 (Application); Ex. Xcel-30 at 3 (T. Wendland Direct).
[590] Ex. Xcel-15 at 348 (Application).
[591] Ex. PUC-31 at 804 (FEIS).
[592] Ex. PUC-31 at 804 (FEIS).
[593] Ex. PUC-31 at 804 (FEIS).
[594] Ex. PUC-31 at 804 (FEIS); Ex. 15 at 320-322 (Application).

P. Irreversible and Irretrievable Commitments of Resources

565. Minnesota's high voltage transmission line routing factors require consideration of the irreversible and irretrievable commitments of resources that are necessary for the Project.[595]

566. Resource commitments are irreversible when it is impossible (or very difficult) to redirect that resource to a different future use. An irretrievable commitment of resources means that the resource cannot be recovered for use in the future.[596]

567. Irreversible impacts could include the land required to construct the transmission line. For example, certain land uses within the right-of-way will no longer be able to occur, especially at the substation. While it is possible that the structures, conductors, and substations could be removed and the right-of-way restored to previous conditions, this is unlikely during the next 50 years.[597]

568. Similarly, the loss of forested wetlands is considered irreversible, because replacing these wetlands would take a significant amount of time.[598]

569. Irretrievable impacts are primarily related to Project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources. The commitment of labor and fiscal resources used to complete construction is also considered irretrievable.[599]

Q. Summary Comparison of Route Alternatives

1. *345 kV Route Options*

570. The EIS provided a comparison of Route Options A, B, and C for Segments 1 and 2 based on routing criteria. The table below summarizes a comparison of certain routing criteria:

Summary Comparison of 345 kV Route Options for Segments 1 and 2

Route Options	Route Option A (Route Segment 1 North and Route Segment 2 North)	Route Option B (Applicant's Preferred Route for Segment 1 and 2)	Route Option C (Highway 14 or Route Segment 17)
Length (miles)	83.3	76.0	95.2

[595] Minn. Stat. § 216E.03, subd. 7(b)(11); Minn. R. 7850.4100(N).
[596] Ex. PUC-31 at 805 (FEIS).
[597] Ex. PUC-31 at 805 (FEIS).
[598] Ex. PUC-31 at 805 (FEIS).
[599] Ex. PUC-31 at 805 (FEIS).

Total opportunity for double-circuiting (miles, percent)	61.7 (74%)	39.0 (51%)	17.9 (19%)
Total ROW sharing or paralleling (miles, percent)	80.3 (96%)	69.3 (91%)	89.1 (94%)
Total Residences within 1,600 feet	334	218	254
Total Non-Residential Structures within 1,600 feet	842	546	769
Agricultural land (acres in ROW)	1,024	1,061	1,208
Prime Farmland (acres in ROW)	967	907	1,436
Archaeology and Historic Architecture count within route width	35	16	100
Total Wetlands (acres in ROW)	141	135	129
Estimated Construction Costs	>$341.9 Million	$341.9 Million	$397.1 Million[600]

571. Xcel Energy did not develop a precise cost estimate to construct Route Option A. Because Route Option A is longer than Route Option B, it stands to reason that it would be more costly to construct than Route Option B. This supposition is confirmed by the estimate for Route Option C, which is also longer than the Preferred Route.[601]

572. Xcel Energy supports Route Option B because, among other factors, this option better enables future expansion of the transmission system. Route Option B allows for the potential for a future 345 kV connection into the West Faribault Substation – a connection that would support greater renewable generation in this area while minimizing future impacts of a new line. Route Option B is located approximately 0.13 miles or 690 feet from the West Faribault Substation; whereas Route Option C is located 15 miles to the south. Thus, if Route Option C is selected, a new 15-mile 345 kV transmission line would be required for any future connection to the West Faribault Substation.[602]

573. Further, Route Option C also has the potential to make the routing of future transmission projects more difficult. To connect to the North Rochester Substation, Route

[600] Ex. PUC-31 at 519-521 (FEIS); *see also* Ex. Xcel-35 at 4 (Wendland Surrebuttal).
[601] Ex. PUC-31 at 524 (FEIS).
[602] *See* Ex. Xcel-15 at 26 (Application) ("By routing the new 345 kV transmission line as close as possible to the existing lower voltage transmission system near Faribault, there is the ability to make this connection to the backbone transmission system in the future while also minimizing additional impacts to the surrounding area."); Ex. Xcel-29 at 14 (Heine Direct and Schedules).

Option C requires a new, approximately 13-mile long 345 kV line from Highway 14 near Byron to the North Rochester Substation. There is already an existing 345 kV line in this corridor, the Pleasant Valley – North Rochester 345 kV line.[603]

574. In December 2024, MISO approved its Tranche 2.1 portfolio of projects. One of the projects that was approved was the Pleasant Valley – North Rochester – Hampton 345 kV project, which involves rebuilding the existing Pleasant Valley – North Rochester 345 kV line as a double-circuit 345/345 line. The Tranche 2.1 portfolio of projects also includes a new 765 kV transmission line from Pleasant Valley to North Rochester. These two new projects are planned for the same corridor as Route Option C, such that selection of Route Option C will limit the routing opportunities for these two projects and to the complexity of completing them.[604]

575. By comparison, Route Option B avoids this corridor because it enters the North Rochester Substation from the northwest.[605]

576. As evidenced in the Application and the EIS, Route Option B:

- is consistent with the Commission's routing criteria;
- best balances potential impacts to residences, agriculture, archeological, historic and natural resources, and cost; and
- effectively minimizes the potential impacts in these areas.[606]

577. Route Segment 18 and Alignment Alternative 2 should be included in Route Option B as these options minimize tree clearing (Route Segment 18) and avoid a residential development that is under construction (Alignment Alternative 2).[607]

[603] Ex. Xcel-29 at 14 (Heine Direct and Schedules).
[604] Ex. Xcel-29 at 15 (Heine Direct and Schedules).
[605] *See* Ex. EERA-8 at Map 47 (FEIS).
[606] *See generally* Ex. PUC-31 (FEIS).
[607] Ex. PUC-31 at 233-235 (FEIS).

2. *161 kV Route Options*

578. The EIS provided a comparison of the Route Option A, B, C, and D based on certain routing criteria. The table below summarizes a comparison of certain routing criteria:

Summary Comparison of 161 kV Route Options for Segment 4

Route Options	Route Option A (Segment 4 West Mod. And South-South)	Route Option B (Segment 4 West Mod. And then South-North)	Route Option C (Segment 4 West and then South-North)	Route Option D (CapX Co-Locate)
Length (miles)	22.1	22.5	20.0	16.4
Total opportunity for double-circuiting (miles, percent)	16.4 (74%)	13.8 (61%)	2.5 (13%)	0
Total ROW sharing or paralleling (miles, percent)	18.2 (82%)	16.1 (71%)	13.9 (70%)	13.7 (84%)
Total Residences within 1,600 feet	196	172	234	40
Total Non-Residential Structures within 1,600 feet	269	235	322	92
Agricultural land (acres in ROW)	153	170	119	159
Prime Farmland (acres in ROW)	190	193	154	108
Total Archaeology and Historic Architecture within route width (count in route width)	18	10	35	6
Total Wetlands (acres in ROW)	12	11	8	4
Estimated Construction Costs	$69.7 Million	Not estimated	Not estimated	$41.1 Million[608]

[608] Ex. PUC-31 at 795-796 (FEIS).

579. Based upon the information presented in the Application and EIS, for Segment 4, Route Option D is:

- consistent with the Commission's routing criteria;
- best balances the potential impacts to residences, agriculture, archeological, historic and natural resources, and cost; and
- effectively minimize the potential impacts in these areas. [609]

IX. CONSIDERATION OF ISSUES PRESENTED BY STATE AGENCIES AND LOCAL UNITS OF GOVERNMENT

580. Minn. Stat. § 216E.03, subd. 7(b)(12) (2024) requires the Commission to examine, when appropriate, issues presented by federal, state and local agencies. The issues presented by federal, state, and local units of government are addressed in the findings above as part of the analysis of the Commission's routing factors.[610]

581. Special conditions on the Route Permit were proposed by the MnDNR in its two comment letters. The record supports inclusion of the conditions discussed below:

- Calcareous Fen: If any calcareous fens are identified within the Project area, the Applicant must work with the MnDNR to determine if any impacts will occur during any phase of the Project. If the Project is anticipated to impact any calcareous fens, the Applicant must develop a Calcareous Fen Management Plan in coordination with the MnDNR, as specified in Minn. Stat. § 103G.223. If a Calcareous Fen Management Plan is required, the approved plan must be submitted currently with the plan and profile.
- Avian Flight Diverters: The Applicant in cooperation with the MnDNR shall identify areas of the transmission line where bird flight diverters will be incorporated into the transmission line design to prevent large avian collisions attributed to visibility issues. Standard transmission design shall incorporate adequate spacing of conductors and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices. The Applicant shall submit documentation of its avian protection coordination with the plan and profile.
- Vegetation Management Plan: The Applicant shall coordinate with the Vegetation Management Plan Working Group to develop a Vegetation Management Plan for the Project.

[609] *See* Ex. PUC-31 at 795-796 (FEIS).
[610] Minn. Stat. § 216E.03, subd. 7(b)(12).

- Wildlife Friendly Erosion Control: The Applicant shall only use "bio-netting" or "natural netting" types of erosion control materials and mulch products without synthetic (plastic) fiber additives.

- Dust Control: To protect plants and wildlife from chloride products that do not break down in the environment, the Applicant is prohibited from using dust control products containing calcium chloride or magnesium chloride during construction and operation of the Project.

- Facility Lighting: The Applicant shall utilize downlit and shielded lighting and minimize blue hue to reduce harm to birds, insects, and other animals.[611]

X. NOTICE TO INTERESTED PERSONS

583. Minnesota statutes and rules require an applicant for a Route Permit provide certain notice to the public, as well as to local governments, before and after the filing of an application for a route permit.[612]

584. The Applicant provided notice to the public and to local governments in satisfaction of Minnesota statutory and rule requirements.[613]

585. The EERA and the Commission provided the notice in satisfaction of Minnesota statutes and rules.[614]

XI. ADEQUACY OF THE EIS

586. The Commission is required to determine the adequacy of the EIS.615

587. 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.616

588. The EIS provides responses to the comments received during the draft environmental impact statement review process.617

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[611] Comments at 2-4 (Minnesota Department of Natural Resources) (June 10, 2025) (eDocket No. 20256-219807-01).
[612] Minn. Stat. § 216E.03, subd. 3(a) and 4; Minn. R. 7850.2100, subps. 2 and 4.
[613] Ex. Xcel-15 at 323 and Appendix M (Application); Ex. Xcel-21 (Notice of Filing of Route Permit Application Compliance Filing).
[614] Ex. PUC-7 (Notice of Comment Period on Application Completeness); Ex. PUC- 13 (Public Information and Environmental Impact Statement Scoping Meetings); Ex. PUC-14 (EQB Monitor); Ex. PUC-26 (Notice of Informational Meetings, Public and Evidentiary Hearings, and Availability of Draft Environmental Impact Statement); and Ex. EERA-7 (Notice of Environmental Statement Scoping Decisions); Ex. Xcel-39 (Affidavits of Publication); Notice of Availability of Final Environmental Impact Statement and Comment Period (July 25, 2025) (eDocket No.20257-221385-01).
[615] Minn. R. 7850.2500, subp. 10.
[616] Ex. EERA-8 at 22 (DEIS).
[617] Ex. PUC-31 at Appendix A (FEIS).

589. The EIS was prepared in compliance with the procedures in Minnesota Rules.[618]

590. Based upon the foregoing Findings of Fact and the record in this proceeding, the Administrative Law Judge makes the following:

CONCLUSIONS OF LAW[619]

1. The Commission and the Administrative Law Judge have jurisdiction to consider the Applicant's Application pursuant to Minn. Stat. §§ 216B.16 and 216E.03 (2022).

2. The Commission determined that the Application was substantially complete and accepted it on June 26, 2024.

3. The EERA and EIP conducted an appropriate environmental analysis for the Project and this proceeding. The resulting FEIS satisfies applicable law, including Minn. Stat. § 216E.03, subd. 5 and Minn. R. 7850.2500.

4. The Applicant gave notice as required by Minn. Stat. § 216E.03, subd. 3(a) and 4 and Minn. R. 7850.2100, subps. 2 and 4.

5. The Commission or the EERA gave notice as required by Minn. Stat. § 216E.03, subd. 6, Minn. R. 7850.2300, subp. 2, and Minn. R. 7850.2500, subps. 2 and 7-9.

6. Public hearings were conducted in communities along the proposed routes. The Applicant, the EERA, and the Commission gave proper notice of the public hearings, as required by Minn. Stat. § 216E.03, subd. 6, and the public was given the opportunity to appear at the hearings and submit written comments.

7. All procedural requirements for issuing a Route Permit have been met.

8. The record demonstrates that: (1) Segment 1 North with Route Segment 18 and Alternative Alignment 2 (Route Option B in FEIS); (2) Segment 2 North with Connector Segment 2G and Segment 2 South (Route Option B in FEIS); (3) Segment 3; and (4) Route Segment 12 (also known as CapX Co-Locate Option or Option D in FEIS) for Segment 4, satisfies the Route Permit criteria set forth in Minn. Stat. § 216E.03, subd. 7(a) and 7(b) and Minn. R. 7850.4100.

9. The record evidence demonstrates that (1) Segment 1 North with Route Segment 18 and Alternative Alignment 2 (Route Option B in FEIS); (2) Segment 2 North with Connector Segment 2G and Segment 2 South (Route Option B in FEIS); (3) Segment

[618] Minn. R. 7850.1000 - 7850.5600.

[619] Any of the forgoing Findings of Fact that is more properly designated as a Conclusion of Law is hereby adopted as such.

3; and (4) Route Segment 12 (also known as CapX Co-Locate Option or Option D in FEIS) for Segment 4 are the best routes for the Project.

10. The record evidence demonstrates that constructing the Project along (1) Segment 1 North with Route Segment 18 and Alternative Alignment 2 (Route Option B in FEIS); (2) Segment 2 North with Connector Segment 2G and Segment 2 South (Route Option B in FEIS); (3) Segment 3; and (4) Route Segment 12 (also known as CapX Co-Locate Option or Option D in FEIS) for Segment 4, 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. There is no feasible and prudent alternative to the construction of the Project. Further, the Project is consistent with, and reasonably required for, the promotion of public health and welfare in light of the state's concern for protecting its air, water, land, and natural resources, as expressed in the Minnesota Environmental Rights Act.

12. The Applicant's requested route widths are reasonable and appropriate for the Project.

13. The Applicant's right-of-way request for a 150-foot-wide right-of-way for the 345 kV portion of the Project and a 100-foot right-of-way for the 161 kV portion of the Project is reasonable and appropriate.

14. The evidence in the record demonstrates that the general Route Permit conditions are appropriate for the Project, as modified in Section IX herein.

15. Based upon these Findings and Fact and Conclusions of Law, the Administrative Law Judge makes the following:

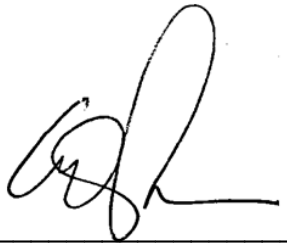
RECOMMENDATION

The Administrative Law Judge respectfully recommends that the Commission issue a Route Permit authorizing Xcel Energy to construct and operate the Project in Blue Earth, Goodhue, Le Sueur, Olmsted, Rice, and Wabasha counties in Minnesota, for the following route options:

- Segment 1 North with Route Segment 18 and Alternative Alignment 2 [referred to in the FEIS as Route Option B]
- Segment 2 North, Conductor Segment 2G, and Segment 2 South [referred to in the FEIS as Route Option B];
- Segment 3 (as proposed);
- Route Segment 12 (also known as the CapX Co-Locate Option) for Segment 4 [referred to in the FEIS as Route Option D]; and

- associated facilities.

Dated: October 30, 2025



ANN C. O'REILLY
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. 7829.1275, .2700 (2025), 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.