

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Northern
States Power Company d/b/a Xcel Energy for
a Certificate of Need and Route Permit for the
Scott County – Westgate 115 kV
Transmission Line Rebuild Project

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**FINDINGS OF FACT,
CONCLUSIONS OF LAW,
AND RECOMMENDATION**

By an Order issued May 24, 2012, the Minnesota Public Utilities Commission (Commission) requested that the Office of Administrative Hearings develop a record and prepare a report setting forth factual findings, conclusions, and recommendations on the merits of the Route Permit Application filed by Northern States Power Company, d/b/a Xcel Energy, in the above-captioned proceeding.¹ In addition, by an Order issued June 8, 2012, the Commission directed the Office of Administrative Hearings to conduct at least one public hearing on the related Application for a Certificate of Need.²

This matter came before Administrative Law Judge Ann O'Reilly (ALJ) for a public hearing on May 16, 2013, in Chanhassen, Minnesota.

Valerie T. Herring, Briggs and Morgan, P.A., appeared as counsel for Northern States Power Company, d/b/a Xcel Energy ("Xcel Energy" or "Applicant"). Tim Rogers, Manager of Siting and Land Rights; Chris Rogers, Land Rights Agent; Jeff Gutzmann, Transmission Engineer; Paul Lehman, Manager Compliance and Filings; Meghan Tisdell, Distribution System Planning Engineer; and Srinivas Vemuri, Senior Transmission Planning Engineer, also participated in the hearing on behalf of Xcel Energy.

David Birkholz, Environmental Review Manager, appeared on behalf of the Department of Commerce, Energy Facility Permitting Unit (EFP).

Steve Rakow, PhD, Rates Analyst, appeared on behalf of the Department of Commerce, Division of Energy Resources (DER).

¹ Ex. 1 (Order Referring Application to the Office of Administrative Hearings for Summary Proceedings).

² Ex. 2 (Order Accepting Application as Complete and Initiating Informal Review Process).

Mike Kaluzniak, Senior Facilities Planner, appeared on behalf of the Public Utilities Commission.

Also facilitating the public hearing were Tricia DeBleekere, Facilities Planner for the Commission, and Tracy M.B. Smetana, Public Advisor to the Commission.

The hearing record closed following the receipt of all Reply Briefs on July 22, 2013.

STATEMENT OF THE ISSUES

Certificate of Need Issues

(1) Has Xcel Energy satisfied the criteria set forth in Minn. Stat. § 216B.243, Minn. R. 7849.0120, and other applicable statutes³ for a Certificate of Need?

(2) Has a more reasonable and prudent alternative been identified during the Certificate of Need review process that can address the stated need, or can the demand for electricity be met more cost effectively through load management measures?

(3) Is a Certificate of Need required for the system alternative identified during the Certificate of Need and Route Permit review process?

Route Permit Issues

(4) Does the Proposed Route for the Scott County-Westgate 69 kV to 115 kV Upgrade Transmission Project (Proposed Project) meet the selection criteria set forth in Minn. Stat. § 216E.03 and Minn. R. ch. 7850 for a Route Permit?

(5) Does a route alternative along Highway 7, replacing Segments 5-8 of the Proposed Route, better meet the selection criteria established in Minn. Stat. § 216E.03, subd. 7, and Minn. R. ch. 7850?⁴

(6) Does a route alternative along Highway 41, replacing Segment 3 of the Proposed Route, better meet the selection criteria established in Minn. Stat. § 216E.03, subd. 7, and Minn. R. ch. 7850?

(7) Does a system and route alternative along Highway 5 better meet the selection criteria established in Minn. Stat. § 216E.03, subd. 7, and Minn. R. ch. 7850?

³ Unless otherwise noted, all Minnesota Statutes and Minnesota Rules references are to the 2012 editions.

⁴ Ex. 1 at 4 (Order Accepting Route Application).

(8) Have other issues raised by parties, participants, and the public that are relevant to the Application been adequately addressed?⁵

Based upon the Findings of Fact and Conclusions below, the Administrative Law Judge makes the following:

SUMMARY OF RECOMMENDATIONS

It is respectfully recommended that the Minnesota Public Utilities Commission should:

1. Take no action on Xcel Energy's Application for Certificate of Need because a more reasonable and prudent alternative (the Revised Highway 5 System Alternative) was identified that can meet the stated need. In addition, the demand for energy can be met more cost effectively through load management measures provided by the Revised Highway 5 System Alternative. Because the Revised Highway 5 System Alternative does not qualify as a "large energy facility" under Minn. Stat. § 216B.2421, subd. 2, no Certificate of Need is required for this alternative.

2. Determine that all relevant statutory and rule criteria necessary to issue a Route Permit have been satisfied and that, on this record, there are no statutory or other requirements that preclude issuance of a Route Permit for the Revised Highway 5 System Alternative.

3. Grant a Route Permit to Xcel Energy for the Revised Highway 5 System Alternative, as depicted in Revised Exhibit A to Xcel Energy's Reply Brief, including modifications and additions to the Bluff Creek Substation to accommodate the new and upgraded transmission line facilities.

4. Require Xcel Energy, as a mitigation measure and a condition in the Route Permit, to bury the 3.6 miles of new 34.5 kV distribution line required in the Revised Highway 5 System Alternative.

5. Require Xcel Energy to meet certain other special conditions set forth in the Conclusions below.

6. Require Xcel Energy to undertake such construction and maintenance practices so as to minimize the impacts to natural resources within the Project Area.

7. Require Xcel Energy to obtain all required local, state, and federal permits and licenses, to comply with the terms of those permits or licenses, and to comply with all applicable rules and regulations.

⁵ *Id.*

8. Require Xcel Energy to take those actions necessary to implement the Commission's Orders in this proceeding.

Based on information in the Certificate of Need and Route Permit Applications to the Commission; the Environmental Assessment prepared by EFP; the testimony at the public hearing; the written comments received; the exhibits received in the public hearing; and documents filed on edockets,⁶ the Administrative Law Judge makes the following:

FINDINGS OF FACT⁷

I. APPLICANT

1. The Applicant for the Certificate of Need Application and the Route Permit Application is Northern States Power Company, doing business as Xcel Energy.⁸

2. The Permittee for the Project named in the Route Permit Application is Northern States Power Company, a Minnesota corporation.⁹

3. Northern States Power Company, doing business as Xcel Energy, is a Minnesota corporation headquartered in Minneapolis, Minnesota.¹⁰ Northern States Power Company is a wholly owned subsidiary of Xcel Energy, Inc., a utility holding company with headquarters in Minneapolis, Minnesota.¹¹

4. Northern States Power Company (hereafter referred to as "Xcel Energy" or "Applicant") owns and operates a number of energy generation facilities including coal, oil, natural gas, hydro, refuse-derived fuel, and nuclear power plants.¹² Xcel Energy serves approximately 1.3 million electric customers in Minnesota.¹³

II. PROCEDURAL SUMMARY

5. On April 19, 2011, Xcel Energy filed a Notice Plan Petition (Notice Plan) for the Scott County-Westgate Transmission Line Upgrade Project (Proposed Project).¹⁴ The Notice Plan provided a plan to notify potentially affected members of the public in compliance with Minn. R. 7829.2550.¹⁵

⁶ Edoackets is the electronic filing system utilized by the Minnesota Public Utilities Commission.

⁷ Citations to the transcripts or hearing record in these Findings of Fact are not inclusive of all applicable evidentiary support in the record.

⁸ Ex. 20 (Application for Certificate of Need); Ex. 22 (Route Permit Application).

⁹ Ex. 22 at 7 (Route Permit Application).

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

¹⁴ Ex. 16 (Notice Plan Petition).

¹⁵ *Id.*

6. DER filed comments regarding the Notice Plan on May 9, 2011.¹⁶ The DER recommended that the Commission approve the Notice Plan, with two additional conditions.¹⁷ The two conditions included widening the 500-foot corridor to 1,000 feet, and providing notice to the area between Sparrow Road and Highway 101.¹⁸

7. On May 13, 2011, Xcel Energy filed Reply Comments concerning the Notice Plan, in response to the DER's comments.¹⁹

8. On June 17, 2011, Xcel Energy submitted a Request for Exemption from certain certificate of need application content requirements (Exemption Request) to obtain exemption from certain data required for a certificate of need application by Minn. R. ch. 7849.²⁰

9. The DER filed comments on Xcel Energy's Exemption Request on August 3, 2011.²¹ The DER recommended that the Commissioner grant Xcel Energy's Exemption Request.²²

10. On August 8, 2011, the Commission issued an Order approving Xcel Energy's Notice Plan, which Order included two additional conditions recommended by the DER.²³

11. On September 22, 2011, Xcel Energy filed a letter notifying the Commission of its intent to file a Route Permit Application pursuant to the alternative permitting process set forth in Minn. R. 7849.2900.²⁴

12. The Commission issued an Order approving Xcel Energy's Exemption Request on November 16, 2011.²⁵

13. On March 9, 2012, Xcel Energy filed a Certificate of Need Application for the Scott County–Westgate 115 kV Upgrade Project.²⁶ The proposal set forth in the Certificate of Need Application shall be referred to herein as the "Original System Alternative."

¹⁶ Comments of DER on the Notice Plan, eFiled on May 9, 2011, in Docket No. E002/CN-11-332 as Document ID 20115-62357-01.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Ex. 17 (Xcel Energy's Reply Comments on Notice Petition).

²⁰ Ex. 18 (Exemption Petition).

²¹ Comments of DER on Exemption Request, eFiled on August 3, 2011, in Docket No. E002/CN-11-332 as Document ID 20118-64960-01.

²² *Id.*

²³ Order Approving Notice Petition, eFiled on August 8, 2011, in Docket No. E002/CN-11-332 as Document ID 20118-65146-01.

²⁴ Ex. 19 (Notice of Intent to File Route Permit Application).

²⁵ Order Granting Applicant's Exemption Request, eFiled on November 16, 2011, in Docket No. E002/CN-11-332 as Document ID 201111-68376-01.

²⁶ Ex. 20 (Certificate of Need Application).

14. On March 21, 2012, Xcel Energy made a compliance filing demonstrating that it had fulfilled all of the requirements of the Notice Plan approved by the Commission.²⁷

15. On April 12, 2012, Xcel Energy filed a Route Permit Application seeking approval of its Proposed Route for the Original System Alternative.²⁸

16. On April 30, 2012, EFP staff filed comments and recommendations regarding the completeness of the Route Permit Application.²⁹

17. Comments on the completeness of the Certificate of Need Application were filed by the DER on May 3, 2012, which recommended that the Commission find the Certificate of Need Application complete upon the filing of additional information by Xcel Energy.³⁰ The additional information requested included alternatives for conductors and demand-side energy management programs.³¹

18. Reply Comments on the Completeness of the Application for Certificate of Need were filed by Xcel Energy on May 17, 2012, in which Xcel Energy agreed to provide the additional information requested by the DER.³²

19. On May 23, 2012, Xcel Energy filed a Supplement to the Certificate of Need Application providing information related to alternatives for conductors and demand side energy management programs.³³

20. On May 24, 2012, Xcel Energy filed Affidavits of Publication and Mailings of its Notice of Filing the Route Permit Application, as required under Minn. Stat. § 216E.04, subd. 4; and Minn. R. 7850.3300 and 7850.2100.³⁴

21. On May 24, 2012, the Commission issued an Order Referring Application to the Office of Administrative Hearings for Summary Proceedings.³⁵ The Order found Xcel Energy's Route Permit Application substantially complete and referred the matter to the Office of Administrative Hearings for summary proceedings under Minn. R. 7850.3800.³⁶ The Commission designated Michael Kaluzniak of the Commission

²⁷ Ex. 21 (Notice Plan Compliance).

²⁸ Ex. 22 (Route Permit Application).

²⁹ Comments of EFP on Route Permit Application Completeness, eFiled on April 30, 2012, in Docket No. E002/TL-11-948 as Document ID 20124-74283-01.

³⁰ Comments of DER on Certificate of Need Application Completeness, eFiled on May 3, 2012, in Docket No. E002/CN-11-332 as Document ID 20125-74427-01.

³¹ *Id.*

³² Ex. 23 (Xcel Energy's Reply Comments on Completeness).

³³ Ex. 24 (Supplement to Certificate of Need Application).

³⁴ Ex. 25 (Affidavits of Publication and Mailings).

³⁵ Ex. 1 (Order Accepting Route Permit Application as Complete).

³⁶ *Id.*

staff to act as the public advisor in this matter.³⁷ Finally, the Commission determined that an advisory task force was not necessary.³⁸

22. In addition, on June 8, 2012, the Commission issued an Order Accepting Application as Complete and Initiating Informal Review Process.³⁹ The Order accepted the Certificate of Need Application as complete and directed the use of the informal review process to develop the record for Commission action without contested case proceedings under Minn. Stat. § 15.47, *et seq.*, unless contested case proceedings were later determined to be necessary.⁴⁰

23. On June 18, 2012, EFP issued a Notice of Public Information and Environmental Assessment (EA) Scoping Meeting.⁴¹

24. EFP held two Public Information and EA Scoping Meetings on July 18, 2012, at the Minnetonka High School in Minnetonka, Minnesota.⁴² Approximately 100 people attended one of the two meetings.⁴³ Approximately 30 stakeholders provided oral comments at the EA Scoping Meetings, and over 40 stakeholders, state agencies, and local governments provided written comments on the scope of the EA.⁴⁴ The overwhelming majority of these stakeholders opposed the Original System Alternative and its effects on the fully-developed and established Lake Minnetonka communities of Deephaven, Excelsior, and Greenwood.⁴⁵

25. During the EA Scoping Meetings, two members of the public proposed a route for the 115 kV line along Highway 5 as an alternative to upgrading a 15-mile portion of the existing 69 kV line between Structure #57 and the Westgate Substation.⁴⁶

26. As a result of this public input, Xcel Energy identified a new system alternative that utilizes an existing 115/115 kV transmission line along Highway 5 that is currently being operated as a 115/34.5 kV line (which shall be referred to herein as the “Highway 5 System Alternative”).⁴⁷ The Highway 5 System Alternative requires construction of a new 115/69 kV substation near the existing Bluff Creek Substation and construction of additional distribution and transmission facilities.⁴⁸

³⁷ *Id.*

³⁸ *Id.*

³⁹ Ex. 2 (Order Accepting Certificate of Need Application as Complete and Initiating Informal Review Process).

⁴⁰ *Id.*

⁴¹ Ex. 3 (EFP Notice of EA Scoping Meeting).

⁴² *Id.*

⁴³ Ex. 7 at 2 (EA Scoping Decision).

⁴⁴ Ex. 5 (Public and Agency Comments on the Scope of the EA); Ex. 6. *See also*, Public comments filed in Docket No. E002/CN-11-332 as Document IDs 20126-75966-01; 20127-77447-01; 20128-77509-02; 20128-77596-01; 20128-77669-01; and 20128-77935-01.

⁴⁵ *Id.*

⁴⁶ Ex. 7 at 2 (EA Scoping Decision).

⁴⁷ Ex. 27 at 4-5 (Xcel Energy’s Reply Comments).

⁴⁸ *Id.* at 5.

27. Xcel Energy's preliminary analysis of the Highway 5 System Alternative indicated that "with some key additional transmission and distribution developments," the Highway 5 System Alternative could meet the needs identified in the Certificate of Need Application.⁴⁹ However, Xcel Energy determined that the alternative needed additional engineering analysis.⁵⁰

28. On August 15, 2012, the EFP issued the EA Scoping Decision that set forth the Proposed Route for the Original System Alternative and other issues to be addressed in the EA.⁵¹ The Scoping Decision also included five route alternatives to the Original System Alternative:

- (1) Highway 41 Alternative;
- (2) Highway 7 Alternative #1;
- (3) Highway 7 Alternative #2;
- (4) Highway 7 Alternative #3; and
- (5) Highway 7 Alternative #4.⁵²

29. The EA Scoping Decision mentioned the Highway 5 System Alternative but did not consider it as a route alternative because Xcel Energy did not have sufficient information to determine if that route would meet the need presented in the Certificate of Need Application.⁵³ The EA Scoping Decision notes that the Highway 5 System Alternative "will be discussed as a system alternative to the proposed project."⁵⁴

30. On September 10, 2012, EFP mailed notice of the EA Scoping Decision to the service list, the project list, and to landowners impacted by the Original System Alternative and the five route alternatives included in the EA Scoping Decision.⁵⁵ This notice did not include landowners impacted by the Highway 5 System Alternative.⁵⁶

31. On October 25, 2012, Xcel Energy filed a letter requesting amendment of the Scoping Decision to include a route alternative for the Highway 5 System Alternative.⁵⁷

⁴⁹ Ex. 10 at 2 (Xcel Energy's Request to Amend EA).

⁵⁰ *Id.*

⁵¹ Ex. 7 (EA Scoping Decision).

⁵² *Id.* at 6.

⁵³ Ex. 7 at 2; Ex. 10 at 2.

⁵⁴ Ex. 7 at 2.

⁵⁵ Ex. 8 and 9 (Notice of EA Scoping Decision with Certificate of Service; Letter to Affected Landowners with Certificate of Service.).

⁵⁶ *Id.*

⁵⁷ Request for Scoping Decision Amendment, eFiled on October 25, 2012, in Docket No. E002/CN-11-332 as Document ID 201210-80097-01; and in Docket No. E002-TL-11-948 as Document ID 201210-80097-02).

32. EFP considered Xcel Energy's request pursuant to Minn. R. 7850.3700, subp. 3, which provides:

The commissioner of the Department of Commerce shall determine the scope of the environmental assessment within ten days after close of the public comment period and shall mail notice of the scoping decision to those persons on the project contact list within five days after the decision. *Once the commissioner has determined the scope of the environmental assessment, the scope shall not be changed except upon a decision by the commissioner that substantial changes have been made in the project or substantial new information has arisen significantly affecting the potential environmental effects of the project or the availability of reasonable alternatives.*⁵⁸

33. Based upon Rule 7850.3700, EFP issued an EA Scoping Decision Amendment on October 30, 2012, to include a route alternative for the Highway 5 System Alternative.⁵⁹ The Deputy Commissioner noted that:

The Highway 5 Alternative was developed based on substantial new engineering information provided by Xcel Energy, which shows that the alternative meets the identified need and appears reasonable.

34. On November 2, 2012, EFP mailed a letter to landowners affected by the Highway 5 Alternative.⁶⁰ The letter did not include a copy of the Notice of EA Scoping Decision or the EA Scoping Decision Amendment, but provided hyperlinks to the same.⁶¹ This was the first notice provided to landowners who would be affected by the Highway 5 Alternative. The letter advised affected landowners how to be included on the project mailing list so as to receive notice of the public hearing and other notices.⁶²

35. The DER filed comments regarding Xcel Energy's Certificate of Need Application on November 9, 2012.⁶³ The DER reviewed the Highway 5 System Alternative as a "hybrid" route alternative and referred to it as the "Highway 5 Hybrid."⁶⁴ In its comments, the DER recommended that the Commission determine that the Highway 5 Alternative best meets the criteria specific in Minn. R. 7849.0120(B), and that such alternative does not require a Certificate of Need because it does not meet the definition of "large energy facility" under Minn. Stat. § 216B.2421, subd. 2.⁶⁵

⁵⁸ Emphasis added.

⁵⁹ Ex. 11 (EA Scoping Decision Amendment).

⁶⁰ Ex. 12 (Letter to Affected Landowners with Certificate of Service).

⁶¹ *Id.*

⁶² *Id.*

⁶³ Comments of DER Recommending No Action, eFiled on November 9, 2012, in Docket No. E002/CN-11-332 as Document ID 201211-80499-01.

⁶⁴ *Id.*

⁶⁵ *Id.* at 28.

36. The DER noted that the Highway 5 System Alternative should have been identified by Xcel Energy earlier in the process, as part of the *Southwest Twin Cities Phase 2 Study Update*, to reduce costs to all parties.⁶⁶ The DER wrote:

Clearly the Company [Xcel Energy] should be expected to review changing the operating voltage to the level a line is built for, but not currently operating at, when studying transmission issues. The very purpose of 'overbuilding' a line in the manner described by Xcel is to enable future load growth to be served in a least-cost, least-environmental-impact, and least-societal-impact manner. By failing to review the existing system for opportunities to use such overbuilt lines, the Company neglected to review reasonable alternatives. In turn, that lead the Company to select a project which is unnecessarily expensive and which requires unnecessary CN and route permit proceedings which otherwise would not have been necessary.

Given that the instant proceeding does not involve a rate recovery request, no recommendation regarding cost recovery should be made at this time. Instead, the Department recommends that the Commission require Xcel to separately specify, in future rate recovery proceedings, any costs related to the instant CN proceeding and the associated route permit proceeding...At this time[,] the Department intends to review any such costs as to the reasonableness of their recovery.

37. Based upon its evaluation of the Highway 5 System Alternative, the DER recommended that the Commission take no action on the Certificate of Need for the Original System Alternative and direct Xcel Energy to pursue the Highway 5 System Alternative.⁶⁷

38. In addition, the DER recommended that:

(1) Xcel Energy provide a more detailed transmission study in reply comments;

(2) the Commission require Xcel Energy to specify, in future rate recovery proceedings, any costs related to the Certificate of Need and Route Permit proceedings in PUC Docket Nos. E002/CN-11-332 and E002/TL-11-948; and

(3) Xcel Energy explain in reply comments its rationale and justification for the recommended transformer selections.⁶⁸

⁶⁶ *Id.* at 27-28.

⁶⁷ *Id.* at 28.

⁶⁸ *Id.*

39. Public comments received in response to the EA Scoping Decision and EA Scoping Decision Amendment overwhelmingly opposed the Original System Alternative and supported alternative routes or the Highway 5 Alternative.⁶⁹

40. On January 9, 2013, Xcel Energy filed its Reply Comments on the Certificate of Need Application.⁷⁰ An engineering study comparing the Original System Alternative and the Highway 5 Alternative was included as part of the Reply Comments.⁷¹ Based on the results of this engineering study, Xcel Energy concluded:

Based on an analysis of the relevant factors, the Company acknowledges that selection of either the Proposed Project [Original System Alternative] or the Highway 5 Alternative will meet transmission needs of the area and that neither option is clearly superior to the other. While the Proposed Project [Original System Alternative] better enables the transmission system to meet future needs and rebuilds aging 69 kV facilities that are nearing capacity, the Highway 5 Alternative offers lower NPV [net present value] per MW [megawatt] of load served and distribution benefits. While both alternatives are reasonable and prudent alternatives to meet the identified need[,] the Company now supports the Highway 5 Alternative.⁷²

41. EFP issued its Notice of EA on February 25, 2013, and issued the EA that same day.⁷³

42. On March 4, 2013, EFP Published Notice of Availability of the EA in the Environmental Quality Board (EQB) Monitor.⁷⁴

43. On April 10, 2013, the Commission issued a Notice of Public Hearing on both the Certificate of Need Application and Route Permit Application.⁷⁵ The Notice of Public Hearing set two public hearings to occur in the City of Chanhassen on May 16, 2013, and provided for a written comment period through May 31, 2013.⁷⁶

44. The Commission provided mailed notice of the public hearings to the service list, project list, and local government units on April 10, 2013.⁷⁷

⁶⁹ Public comments filed in Docket No. E002/CN-11-332 as Document IDs 201211-80362-01; 201211-80589-01; 201211-80729-01; 201211-80810-01; 201212-81305-01; and 20133-84404-01.

⁷⁰ Ex. 27 (Xcel Energy's Reply Comments).

⁷¹ *Id.* at Ex. 1

⁷² *Id.* at 8.

⁷³ Ex. 14 (Notice of Availability of EA); Ex. 13 (EA).

⁷⁴ Ex. 15 (Notice of Availability of EA published in the EQB Monitor).

⁷⁵ Notice of Public Hearing, eFiled on April 10, 2013, in Docket No. E002/CN-11-332 as Document ID 20134-85567-02; and in Docket No. E002/TL-11-948 as Document ID 20134-85567-01.

⁷⁶ *Id.*

⁷⁷ Notice of Public Hearing Certificate of Service, eFiled on April 10, 2013, in Docket No. E002/CN-11-332 as Document ID 20134-85567-04; and in Docket No. E002/TL-11-948 as Document ID 20134-85597-01.

45. On May 9, 2013, Xcel Energy mailed the Notice of Public Hearing to landowners located adjacent to the routes and system alternatives under consideration, including the Highway 5 System Alternative.⁷⁸

46. On May 10, 2013, the Administrative Law Judge issued a Scheduling Order setting forth comment and briefing deadlines.⁷⁹ The Scheduling Order was amended on May 13, 2013, to accommodate the parties.⁸⁰

47. The Direct Testimony by Tim Rogers, Meghan Tisdell, Mark Wehlage, and Srinivas Vemuri was filed by Xcel Energy on May 14, 2013.⁸¹

48. On May 16, 2013, two public hearings were held at the Chanhassen Recreation Center, 2310 Coulter Boulevard, Chanhassen, MN 55317.⁸²

49. Transcripts of the public hearings were prepared and were placed in four public libraries in the Project area for access by the public.⁸³

50. The post-hearing comment period closed on May 31, 2013 at 4:30 p.m.⁸⁴

III. OVERVIEW OF NEED

51. The rapidly-developing southwestern suburbs of the Twin Cities have experienced significant load growth in recent years.⁸⁵ This growth has surpassed the current transmission system's capacity to meet the area's load-serving needs when certain transmission system facilities are out-of-service.⁸⁶ Specifically, the load growth has resulted in overload conditions on the existing 115 and 69 kV transmission facilities between the Scott County and Westgate Substations, and could also result in future low voltages in this area.⁸⁷

⁷⁸ Affidavit of Mailing, eFiled on May 16, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-87078-01; and in Docket No. E002/TL-11-948 as Document ID 20135-87079-01.

⁷⁹ Scheduling Order, eFiled on May 10, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-86888-02; and in Docket No. E002/TL-11-948 as Document ID 20135-86888-01.

⁸⁰ Amended Scheduling Order, eFiled on May 13, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-86940-02; and in Docket No. E002/TL-11-948 as Document ID-86940-01.

⁸¹ Exs. 29 (Rogers Direct and Schedules); 30 (Tisdell Direct and Schedule); 31 (Vemuri Direct and Schedule); and 32 (Wehlage Direct and Schedule).

⁸² Notice of Public Hearing, eFiled on April 10, 2013, in Docket No. E002/CN-11-332 as Document ID 20134-85567-02; and in Docket No. E002/TL-11-948 as Document ID 20134-85597-01.

⁸³ Affidavit of Mailing Transcript to Public Libraries, eFiled on June 17, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-88224-01; and in Docket No. E002/TL-11-948 as Document ID 20136-88225-01.

⁸⁴ Amended Scheduling Order, eFiled on May 13, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-86940-02; and in Docket No. E002/TL-11-948 as Document ID 20135-86940-01.

⁸⁵ Ex. 32 at 2 (Wehlage Direct).

⁸⁶ *Id.*

⁸⁷ *Id.*

52. The loss of the Eden Prairie-Westgate 115/115 kV double circuit transmission line is the most critical transmission line outage.⁸⁸ This line is the only tie between the Eden Prairie 345-115 kV Substation, which serves the largest load in the area, and the Westgate 115-69 kV Substation.⁸⁹ When the Eden Prairie-Westgate 115/115 kV double circuit line is out of service, the 345 kV source to the area is disconnected.⁹⁰ As a result, the entire load at the Westgate Substation must be served from the Scott County Substation, resulting in overloads or potential overloads on the transmission lines in the area, and in low voltages between the Minnesota River Substation and the Westgate Substation.⁹¹ Forecast data indicates that an outage of the Westgate – Eden Prairie double circuit 115 kV line could result in several 115 kV line overloads near the Scott County Substation by 2016.⁹²

53. Depending on the duration of a low voltage condition, equipment such as electronic power supplies could malfunction or fail when output voltage drops below certain levels, damaging customer equipment such as process controls, motor drive controls, and automated machines.⁹³

54. Thermal overload on transmission lines is not acceptable as it could damage the facilities due to excessive heat.⁹⁴ It could also cause safety concerns due to unsafe ground clearance of transmission lines.⁹⁵ Moreover, overload on facilities that operate at a voltage greater than 100 kV is a violation of North American Electric Reliability Corporation (NERC) standards.⁹⁶ Without the proposed transmission upgrades, overloading and low voltage conditions is anticipated to worsen as the area experiences continued growth and development.⁹⁷

IV. TWO SYSTEM ALTERNATIVES TO MEET IDENTIFIED NEED: ORIGINAL SYSTEM ALTERNATIVE AND REVISED HIGHWAY 5 SYSTEM ALTERNATIVE

55. Xcel Energy conducted several transmission studies to identify solutions to these transmission system deficiencies in the western portion of the Twin Cities metropolitan area.⁹⁸ The first of these studies, the *Southwest Twin Cities Load Serving Study*, was conducted in 2009, and analyzed the portion of transmission system serving Chaska, Chanhassen, Excelsior, Deephaven, Minnetonka, and Eden Prairie.⁹⁹ Another engineering study of this area was completed in 2011, *Southwest Twin Cities Phase 2 Study Update*, using updated load data.¹⁰⁰ The 2011 study confirmed the need for new

⁸⁸ Ex. 20 at 6 (Certificate of Need Application).

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ Ex. 20 at 24 (Certificate of Need Application).

⁹⁴ *Id.* at 6.

⁹⁵ *Id.* at 24.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ Ex. 32 at 3 (Wehlage Direct).

⁹⁹ *Id.*

¹⁰⁰ *Id.*

transmission facilities in the area to serve forecasted load.¹⁰¹ Based on the results of these studies, Xcel Energy filed an Application for a Certificate of Need Application and Route Permit for the Original System Alternative.¹⁰²

56. The Original System Alternative involves converting or upgrading approximately 20 miles of existing 69 kV transmission line to 115 kV capacity between the Scott County, Excelsior, Deephaven, and Westgate Substations.¹⁰³ The existing 69 kV line runs north from the Scott County Substation through Chanhassen; then runs northeast through Excelsior on Highway 7 and the communities of Greenwood and Deephaven along Lake Minnetonka; and then back south through Minnetonka and Eden Prairie to the Westgate Substation on Highway 5 in Eden Prairie.¹⁰⁴

57. During the scoping process for the EA, two members of the public proposed a route for the 115 kV line along Highway 5 as an alternative to upgrading the 15-mile portion of the existing 69 kV line between Structure #57 at Highway 5 in Chanhassen and the Westgate Substation near Highway 5 in Eden Prairie.¹⁰⁵ The Highway 5 alternative would use the existing 115 kV facilities along Highway 5 between Pole Structure #57 and the Westgate Substation, instead of upgrading the 69 kV line through Greenwood, Deephaven, and Excelsior.¹⁰⁶

58. As a result of this public input, Xcel Energy identified a new system alternative, the “Highway 5 System Alternative,” that would meet the immediate electrical needs of the area and would not require a Certificate of Need.¹⁰⁷ The Highway 5 System Alternative utilizes an existing 115/115 kV transmission line along Highway 5 that is currently being operated as a 115/34.5 kV line.¹⁰⁸ Conversion of the 34.5 kV line to 115 kV use would require construction of approximately 3.6 miles of new 34.5 kV distribution line from the Westgate Substation.¹⁰⁹ \

59. Xcel Energy prepared a Study Addendum that provides a comparison of the Original System Alternative and the Highway 5 System Alternative which was efiled on January 23, 2013, as part of Xcel Energy’s Reply Comments in the Certificate of Need docket.¹¹⁰

60. After filing its Reply Comments in January 2013, Xcel Energy received comments from the city of Chaska regarding the Highway 5 System Alternative.¹¹¹

¹⁰¹ *Id.*

¹⁰² Ex. 20 (Certificate of Need Application); Ex. 22 (Route Permit Application).

¹⁰³ Ex. 32 at 3 (Wehlage Direct).

¹⁰⁴ Ex. 33 (Xcel Energy’s Power Point Presentation from May 16, 2013, Public Hearing).

¹⁰⁵ Ex. 32 at 4 (Wehlage Direct).

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ Ex. 30 at 5 (Tisdell Direct).

¹¹⁰ Ex. 32 at 4 (Wehlage Direct).

¹¹¹ Comments from City of Chaska, eFiled on April 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20134-85493-02.

Chaska opposed the Highway 5 Alternative due to the requirement to build a new substation near the Bluff Creek Substation.¹¹² (The existing Bluff Creek Substation is currently at its design capacity and there is inadequate space to expand the substation to provide room for the new distribution and transmission facilities using the current preferred designs.¹¹³ As a result, Xcel Energy initially proposed a new substation as part of the Highway 5 System Alternative.)¹¹⁴

61. Xcel Energy met with representatives of the city of Chaska to discuss the Highway 5 System Alternative.¹¹⁵ During those discussions, Chaska indicated that it preferred Xcel Energy enlarge the existing Bluff Creek Substation, rather than construct a new substation adjacent to the existing Bluff Creek Substation.¹¹⁶

62. Xcel Energy and Chaska agreed to work together to make the consolidated substation option viable.¹¹⁷ Xcel Energy determined that the existing distribution facilities at Bluff Creek can be used to support Xcel Energy's load and an expansion of the substation to the north and south can provide space for additional distribution facilities.¹¹⁸

63. Xcel Energy then developed a high profile design for the transmission side of the substation to compress the area needed for transmission facilities.¹¹⁹ After working with Chaska to develop a plan to expand the Bluff Creek Substation, the Highway 5 Alternative became Xcel Energy's preferred alternative design and this variation (the expansion of the Bluff Creek Substation) is referred to as the "Revised Highway 5 System Alternative."¹²⁰

64. The expanded Bluff Creek Substation is designed to accommodate the same facilities as the proposed new substation.¹²¹ As a result, the Revised Highway 5 System Alternative performs comparably to the Highway 5 System Alternative evaluated in the Study Addendum.¹²² The Revised Highway 5 System Alternative provides the same 250 MW of load serving capability as the Highway 5 System Alternative because there is a short distance between the Bluff Creek Substation and the new 115-69 kV substation, proposed as part of the Highway 5 System Alternative.¹²³ In addition, the Revised Highway 5 System Alternative costs approximately \$1 million less "initially and in the long term" than the Highway 5 System Alternative due to the elimination of the need for the construction of a new substation.¹²⁴

¹¹² *Id.*

¹¹³ Ex. 32 at 5 (Wehlage Direct).

¹¹⁴ *Id.*

¹¹⁵ *Id.* at 4-5.

¹¹⁶ *Id.*

¹¹⁷ *Id.* at 5.

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *Id.* at 6.

¹²² Ex. 31 at 3 (Vemuri Direct).

¹²³ *Id.*

¹²⁴ Ex. 32 at 3.

65. No additional land owners will be affected by the Revised Highway 5 System Alternative, so no additional notice was required.¹²⁵

V. DESCRIPTIONS OF THE TWO SYSTEM ALTERNATIVES

Original System Alternative

66. The Original System Alternative entails upgrading approximately 20 miles of 69 kV transmission line to 115 kV capacity including the following upgrades and additions:

- Change the voltage of approximately 5.3 miles of 115/69 kV transmission line to 115/115 kV operation between the Scott County Substation and Structure #57 near the Bluff Creek Substation;
- Convert approximately 3.6 miles of 69 kV transmission line to 115 kV transmission line between Structure #57 and the Excelsior Substation;
- Convert approximately 3 miles of 69 kV transmission line to 115 kV capacity between the Excelsior and Deeplaven substations;
- Convert approximately 7.5 miles of 69 kV transmission line to 115 kV capacity between the Deeplaven and Westgate substations; and
- Upgrade the Excelsior and Deeplaven substations to 115 kV capacity.¹²⁶

67. Steel poles with horizontal braced post insulators are proposed to be used for the majority of the rebuild portion of the Original System Alternative.¹²⁷ Other structure types that may be used along the rebuild portions include horizontal posts, H-frame, and Y-frame structures.¹²⁸ A cantilever design may also be used.¹²⁹ The design would require installation of a single pole transmission structure with all davit arms and conductors installed on the side of the pole that overhangs the public road right-of-way.¹³⁰

68. The steel structures proposed for the 69 kV to 115 kV rebuild portions of the Original System Alternative will be approximately 60 to 90 feet tall with spans of approximately 200 to 400 feet for post structures, and 400 to 900 feet for H-frame and Y-frame structures.¹³¹

¹²⁵ Ex. 30 (Tisdell Direct).

¹²⁶ Ex. 29 at 3-4 (Rogers Direct).

¹²⁷ Ex. 13 at 13 (EA).

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ *Id.*

69. Xcel Energy proposes to use 795 KCmil 26/7 aluminum core steel supported cables or conductors of comparable capacity.¹³²

70. Xcel Energy requests a route width of 200 feet for the Proposed Route for the Original System Alternative.¹³³

71. Xcel Energy proposes to rebuild the transmission line with the existing 50-foot right-of-way wherever reasonably possible for the Original System Alternative, but may require right-of-way of up to 75 feet in some areas.¹³⁴

72. Xcel Energy estimates that the initial facilities cost of the Original System Alternative is approximately \$25.5 million, estimated with a +/- 30 percent accuracy.¹³⁵ Thus, the cost could be as low as \$17.85 million or as high as \$33.15 million.

Revised Highway 5 System Alternative

73. The Revised Highway 5 System Alternative runs from the Bluff Creek Substation in Chaska, north to Pole Structure #57, then west along Highway 5 through Chanhassen to the Westgate Substation in Eden Prairie.¹³⁶

74. The Revised Highway 5 System Alternative requires the following:

- Expansion of the existing Bluff Creek Substation to accommodate four rows of 115 kV breakers and a new 115-69 kV transformer;
- Construction of a new 69 kV transmission line from the Bluff Creek Substation to Structure #57;
- Upgrading of the Westgate Substation 115-69 kV transformer to 112 MVA;
- Installation of new 115 kV terminations at the Scott County and Westgate Substations;
- Modifications of the transmission line at Westgate, Bluff Creek, and Scott County Substations,
- Installation of a new 3.6 mile 34.5 kV distribution line from the Westgate Substation;

¹³² Ex. 20 at 12 (Certificate of Need Application).

¹³³ Ex. 13 at 11 (EA).

¹³⁴ *Id.* at 13.

¹³⁵ Ex. 31 at 7 (Vemuri Direct).

¹³⁶ Ex. 33 (Xcel Energy's Power Point presentation from the public hearing on May 16, 2013).

- Installation of a new 115-34.5 kV transformer at Bluff Creek Substation; and
- Upgrading of a small section of conductor on the Westgate – Deephaven 69 kV transmission line.¹³⁷

75. Xcel Energy estimates that the initial facilities cost of the Revised Highway 5 System Alternative is approximately \$28 million, estimated with a +/- 30 percent accuracy.¹³⁸ Thus, the cost could be as low as \$19.6 million or as high as \$35.5 million.

76. The Revised Highway 5 System Alternative does not rebuild the existing 69 kV line between Structure #57 and the Excelsior, Deephaven, and Westgate Substations to 115 kV capacity.¹³⁹ This existing 69 kV line is expected to need to be rebuilt based on loading, age, and condition within the next 10 to 15 years.¹⁴⁰ This line is more than 70 years old and Xcel Energy estimates that it will reach the end of its useful life within approximately the next 10 years.¹⁴¹

77. In addition, the 69 kV line is currently loaded to 60 MVA which is near its capacity limit of 68 MVA.¹⁴² Assuming a reasonable one percent load growth in the area, the line will reach capacity in 10 to 15 years.¹⁴³ When the line is rebuilt, it may be rebuilt at 115 kV.¹⁴⁴ If rebuilt at 69 kV, larger conductors, and larger structures to support the weight of these conductors, will likely be needed.¹⁴⁵ If the existing 69 kV line is rebuilt to a higher than 69 kV capacity, it is expected that this rebuilt line will meet the load-serving needs of the area for the next 40 years.¹⁴⁶ If the 69 kV line is rebuilt to a higher 69 kV capacity line (as opposed to a 115 kV line), it will fall outside state permitting requirements under which the current Route Permit and Certificate of Need Application processes are operating.¹⁴⁷

VI. COMPARISON OF THE TWO SYSTEM ALTERNATIVES

78. Both the Original System Alternative and the Revised Highway 5 System Alternative meet the immediate transmission needs in the Project area.¹⁴⁸

¹³⁷ Ex. 31 at 5 (Vemuri Direct).

¹³⁸ *Id.* at 7.

¹³⁹ Ex. 27 at 7 (Xcel Energy Reply Comments).

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ Hearing Transcript (1:30 p.m. session) at 54, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01.

¹⁴⁵ Ex. 27 at 7 (Reply Comments).

¹⁴⁶ *Id.*

¹⁴⁷ Hearing Transcript (1:30 session) at 52, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01.

¹⁴⁸ Ex. 31 at 3 (Vemuri Direct).

79. The estimated initial capital cost difference between the two alternatives is: \$25.48 million for the Original System Alternative and \$28.03 million for the Revised Highway 5 System Alternative (estimated with +/- 30 percent accuracy).¹⁴⁹ The Revised Highway 5 System Alternative is the less expensive alternative when the net present value (NPV) of the total project costs are compared and the NPV per MW of incremental load served are compared.¹⁵⁰

80. The NPV for the Revised Highway 5 System Alternative is \$44 million and the NPV for the Original System Alternative is \$45 million, rendering the Revised Highway 5 System Alternative less expensive by \$1 million.¹⁵¹ In addition, because the Revised Highway 5 System Alternative provides 250 MW of load-serving capability, compared to the 200 MW provided by the Original System Alternative, the NPV per MW of load served is lower for the Revised Highway 5 System Alternative.¹⁵² The NPV per MW served for the Revised Highway 5 System Alternative is \$0.176 and the NPV per MW served for the Original System Alternative is \$.023.¹⁵³ Thus, from a NPV per MW served analysis, the Revised Highway 5 System Alternative is the least costly alternative.¹⁵⁴

81. In comparing the future transmission expansion capability of the Original System Alternative and the Revised Highway 5 Alternative, the Original System Alternative better positions the transmission system to accommodate future load growth because it: (1) solves the need to rebuild the 69 kV loop in the future due to either overloading or age and condition; and (2) provides more opportunities to further expand the 115 kV transmission system.¹⁵⁵

82. The majority of the load-serving transmission lines in the Twin Cities metropolitan area are 115 kV lines and the major substations in the Project area are primarily 34.5/115 kV capacity.¹⁵⁶ The Revised Highway 5 System Alternative leaves in place the existing 69 kV line between Structure #57 and the Excelsior, Deephaven, and Westgate Substations.¹⁵⁷ As a result, the Revised Highway 5 System Alternative creates an isolated 69 kV transmission line in this part of the metropolitan area.¹⁵⁸ Any future expansion of the transmission system in this area would be limited to 69 kV because there would be no 115 kV infrastructure at the Excelsior or Deephaven substations to connect a new 115 kV line.¹⁵⁹

¹⁴⁹ *Id.* at 7.

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.* at 7-8.

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ Ex. 27 at 7 (Reply Comments).

¹⁵⁶ *Id.* at 8.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

83. The Original System Alternative calls for the existing 69 kV line to be upgraded to 115 kV.¹⁶⁰ By upgrading the 69kV line to 115 kV, future expansion of the transmission system at the 115 kV level would be allowed.¹⁶¹ The 115 kV voltage would be sufficient to provide the load-serving needs of this area for up to the next 40 years.¹⁶²

84. The Original System Alternative and the Revised Highway 5 System Alternative ultimately have very similar long-term impacts on the distribution systems.¹⁶³ Under both system alternatives, Xcel Energy plans to install additional 34.5 kV capacity in the Project area.¹⁶⁴ Locating this additional 34.5 kV distribution source near the customer loads will reduce feeder lengths, thus improving reliability and reducing losses.¹⁶⁵ The need for this source is even more critical under the Revised Highway 5 System Alternative to maintain reliability because the replacement feeder will have reduced capacity (compared to the present circuit).

85. While the Revised Highway 5 System Alternative does not require immediate upgrades to the distribution facilities at the Deephaven and Excelsior Substations to accommodate 115 kV capacity, upgrades would, nevertheless, be needed at the Excelsior Substation in approximately 2019, and at the Deephaven Substation in approximately 2027.¹⁶⁶

86. Under either system alternative, Xcel Energy anticipates beginning construction on the Project soon after permits are obtained and hopes to complete the Project by spring 2015.¹⁶⁷

VII. ROUTE ALTERNATIVES FOR EACH SYSTEM ALTERNATIVE

A. Proposed Route for Original System Alternative

87. Xcel Energy's Proposed Route for the Original System Alternative is approximately 20 miles in length and is divided into 10 segments:¹⁶⁸

- **Segment 1:** Segment 1 is a conversion of approximately 5.3 miles of existing 115/69 kV transmission line to 115/115 kV operation.¹⁶⁹ The existing 115/69 kV line begins at the Scott County Substation (located north of U.S. Highway 169 between the intersection of County Road 69 and Chestnut Boulevard) and ends at Structure #57 (located to the east of Bluff Creek Substation).¹⁷⁰

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ Ex. 30 at 6 (Tisdell Direct).

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ Ex. 29 at 16 (Rogers Direct).

¹⁶⁸ *Id.* at 4.

¹⁶⁹ Ex. 22 at 10 (Route Permit Application).

¹⁷⁰ *Id.*

The route extends to the northwest from the Scott County Substation approximately 0.18 miles. It then proceeds north approximately 1.35 miles, where it crosses the Minnesota River into the City of Chaska, passing between commercial and agricultural properties. The line then runs north from the Minnesota River approximately 3.77 miles through residential and commercial development along the eastern edge of Chaska, crossing Flying Cloud Drive, Highway 212, Pioneer Trail, and Lyman Boulevard, terminating at Structure #57. This section of line was permitted locally for 115/115 kV operation.¹⁷¹ Conversion to 115/115 kV operation will not require the rebuilding or replacement of any existing structures.¹⁷²

- **Segment 2:** Segment 2 removes and replaces approximately 1.29 miles of existing 69 kV transmission line with a 115 kV transmission line between Structure #57 and Structure #47. The route begins at Structure #57 (located on the south side of the Twin Cities & Western Railroad Company (TC&W) railroad tracks, approximately 0.44 miles east of the point where the rail line intersects Carver County Highway 18/Lyman Boulevard, and proceeds north approximately 0.73 miles, passing residential and commercial development. It then heads northwest approximately 0.16 miles to State Highway 5. The route then parallels the north side of Highway 5 approximately 0.38 miles to the west, terminating at Structure #54.¹⁷³
- **Segment 3:** Segment 3 removes and replaces approximately two miles of existing 69 kV transmission line with a 115 kV transmission line from Structure #54 to the intersection of State Highway 41 and State Highway 7. This segment proceeds directly north from Structure #54 through residential development for approximately 1.6 miles to State Highway 41. The route parallels State Highway 41 for approximately 0.41 miles to Structure #74, located at the intersection of State Highway 7.¹⁷⁴
- **Segment 4:** Segment 4 removes and replaces approximately 0.95 miles of existing 69 kV transmission line with a 115 kV transmission line along the northern side of Highway 7 between the intersection of Highway 41 and State Highway 7 and the Excelsior Substation (located in a central area of the city of Excelsior).¹⁷⁵ This route runs along the north side of the roadway for all but the easternmost 500 feet, which passes between commercial properties into the Substation.
- **Segment 5:** Segment 5 removes and replaces approximately 1.73 miles of existing 69 kV transmission line with a 115 kV transmission line between the Excelsior Substation and Structure #135 (located near the boundary between

¹⁷¹ *Id.* at 15.

¹⁷² *Id.*

¹⁷³ *Id.* at 10.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

the Cities of Greenwood and Deephaven). This segment extends from the Excelsior Substation to the east along the north side of Highway 7; then extends to the north, first along the west side of Minnetonka Boulevard through the Cities of Excelsior and Greenwood, and next along the east side of Fairview Street in Greenwood.¹⁷⁶

- **Segment 6:** Segment 6 removes and replaces approximately 1.28 miles of existing 69 kV transmission line with 115 kV transmission line between Structure #135 (see above) and the Deephaven Substation (located at the intersection of Minnetonka Boulevard and Vinehill Road near the boundary between Deephaven and Minnetonka). The route will extend to the east and parallel both Minnetonka Boulevard and the Lake Minnetonka LRT Regional Trail.¹⁷⁷
- **Segment 7:** Segment 7 removes and replaces approximately one mile of existing 69 kV transmission line with 115 kV transmission line between the Deephaven Substation (see above) and Structure #175 (located at the intersection of the Lake Minnetonka LRT Regional Trail and Hennepin County Highway 101 in Minnetonka). The route extends to the east from the Deephaven Substation through residential development, paralleling the southern edge of the Lake Minnetonka LRT Regional Trail.¹⁷⁸
- **Segment 8:** Segment 8 removes and replaces approximately 2.38 miles of existing 69 kV transmission line with 115 kV transmission line between Structure #175 (see above) and Structure #226 (located on the west side of Scenic Heights Drive, near Scenic Heights Elementary School in Minnetonka). The route parallels Hennepin County Highway 101 to the south through both residential and commercial development, crossing Highway 7 and continuing through residential development to Purgatory Park. The route extends east from this point, passing through Purgatory Park toward Scenic Heights Drive.¹⁷⁹
- **Segment 9:** Segment 9 removes and replaces approximately two miles of existing 69 kV transmission line with 115 kV transmission line between Structure #226 (see above) and Structure #270 (located on the northwestern corner of the Eden Prairie High School campus in Eden Prairie). The route proceeds south from Structure #226 through residential development along Scenic Heights Drive to the intersection with County Highway 62/Towline Road. It extends west along Highway 62 to the intersection with Duck Lake Road. The route then continues to the south, paralleling Duck Lake Road

¹⁷⁶ *Id.* at 10-11.

¹⁷⁷ *Id.* at 11.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

until passing over the TC&W Railroad line and continuing toward Structure #270 on the Eden Prairie High School campus.¹⁸⁰

- **Segment 10:** Segment 10 removes and replaces approximately 1.87 miles of existing 69 kV transmission line with 115 kV transmission line between Structure #270 (see above) and the Westgate Substation in Eden Prairie. The route proceeds to the east across the Eden Prairie High School campus and crosses to the east side of County Highway 4/Eden Prairie Road. The route heads to the south, turning east to parallel Valley View Road. The end of the segment, and the route, is where the line turns and runs directly south to the Westgate Substation.¹⁸¹

B. Route Alternatives to Original System Alternative

88. In addition to Xcel Energy's Proposed Route, there are five route alternatives for the Original System Alternative.¹⁸² These route alternatives are described below:

- **Highway 41 Route Alternative:** The Highway 41 Route Alternative replaces Segment 3 of Xcel Energy's Proposed Route for the Original System Alternative between the intersection of Highway 41 and Highway 7 to the intersection of Highway 5 and Galpin Boulevard.¹⁸³ The route alternative follows Highway 5 west to where it intersects with Highway 41, and then follows Highway 41 north to connect with the existing 69 kV line near Brendan Pond.¹⁸⁴ Compared to Segment 3 of the Proposed Route, the Highway 41 Route Alternative would create a new and longer transmission line corridor (three miles versus two miles), resulting in new impacts to landowners and environmental resources.¹⁸⁵
- **Highway 7 Route Alternatives:** There are four route alternatives that utilize a portion of Highway 7.¹⁸⁶ These Highway 7 route alternatives replace all or part of Segments 5, 6, 7, and 8 of Xcel Energy's Proposed Route for the Original System Alternative.¹⁸⁷ Two of the Highway 7 route alternatives call for building a new substation that would serve the needs of the existing Deephaven Substation.¹⁸⁸
 - **Highway 7 Alternative #1:** This route alternative follows Highway 7 east from the Excelsior Substation to Vinehill Road, then goes north

¹⁸⁰ *Id.* at 11-12.

¹⁸¹ *Id.* at 12.

¹⁸² Ex. 29 at 10 (Rogers Direct).

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.* at 11.

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

along Vinehill Road to the Deephaven Substation. Highway 7 Alternative #1 then follows the existing 69 kV line east out of the Deephaven Substation.

Highway 7 Alternative #1 requires construction of a new 115 kV line along Vinehill Road while Xcel Energy's Proposed Route uses an existing 69 kV transmission line corridor in Segments 5 and 6.¹⁸⁹ Vinehill Road is heavily wooded, and placement of a transmission line along the corridor would require significant tree and vegetation clearing.¹⁹⁰ It is estimated that the Highway 7 Alternative #1 would require approximately 8.9 acres of wooded area to be cleared.¹⁹¹ In addition, while the Highway 7 Alternative #1 would result in new impacts along Vinehill Road and Highway 7, the existing structures of the 69 kV line in Segments 5 and 6 of the Proposed Route would not be removed because there is a distribution line located on these structures.¹⁹²

➤ **Highway 7 Alternative #2:** This route alternative follows Highway 7 east from the Excelsior Substation to Vinehill Road, then goes north along Vinehill Road to the Deephaven Substation. The transmission line would return along Vinehill Road as a double-circuited 115/115 kV line. From the intersection of Vinehill Road and Highway 7, this route alternative then follows Highway 7 east to connect with the existing 69 kV line at the intersection of Highway 7 and Highway 101.

Highway 7 Alternative #2 requires construction of a double circuit 115/115 kV line along Vinehill Road.¹⁹³ This double circuit line could require even more tree and vegetation clearing along Vinehill Road than the Highway 7 Alternative #1.¹⁹⁴ Also, similar to Highway 7 Alternative #1, while the Highway 7 Alternative #2 would result in new impacts along Vinehill Road and Highway 7, the structures of the existing 69 kV line in Segments 5, 6, 7, and 8A of the Proposed Route would not be removed.¹⁹⁵ Finally, the cost of this alternative is slightly higher than the Original System Alternative constructed along Proposed Route (\$60 million versus \$65 million).¹⁹⁶

➤ **Highway 7 Alternative #3:** This route alternative includes building a new substation at a new location near the intersection of Highway 7 and Highway 101 that would serve the needs of the existing Deephaven Substation. This route alternative places a new 115 kV transmission line

¹⁸⁹ *Id.* at 13.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ *Id.*

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

along Highway 7 between the Excelsior Substation and the new Substation.

Highway 7 Alternative #3 would relocate Segments 5, 6, 7, and 8A of Xcel Energy's Proposed Route to Highway 7 and create a new substation at the intersection of Highway 7 and Highway 101.¹⁹⁷ While this alternative would create new impacts along Highway 7, the structures of the existing 69 kV line along Segments 5, 6, 7, and 8A of the Proposed Route would remain in place.¹⁹⁸ Likewise, Xcel Energy would retain ownership of the land constituting the existing Deephaven Substation.¹⁹⁹ While it is possible that the existing transmission facilities could be removed from the substation, a small amount of distribution facilities will likely remain in place.²⁰⁰ In addition, there would be new impacts from the creation of new distribution facilities out of the new substation along Highway 7.²⁰¹ Finally, the cost for the Highway 7 Alternative #3 is 20 percent greater than the Original System Alternative constructed along the Proposed Route (\$73 million versus \$60 million).²⁰² The greater costs of this alternative are the result of new easements along Highway 7, construction of a new substation, and the development of distribution from the new substation.²⁰³

➤ **Highway 7 Alternative #4:** This route alternative includes building a new substation at a new location near the intersection of Highway 7 and Vinehill Road that would serve the needs of the existing Deephaven Substation. This route alternative places a new 115 kV transmission line along Highway 7 between the Excelsior Substation and the intersection of Highway 7 and Highway 101.

Highway 7 Alternative #4 would relocate Segments 5, 6, 7, and 8A of the Proposed Route to Highway 7 and create a new substation at the intersection of Highway 7 and Vinehill Road.²⁰⁴ Like the Highway 7 Alternative #3, this alternative would create new impacts along Highway 7 but would not eliminate the need for the structures of the existing 69 kV transmission line on Segments 5, 6, 7, and 8A of the Proposed Route.²⁰⁵ In addition, similar to the Highway 7 Alternative #3, some distribution facilities will likely remain in place at the Deephaven Substation.²⁰⁶ The Highway 7 Alternative #4 is also the most expensive route alternative at

¹⁹⁷ *Id.* at 14.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ *Id.* at 15.

\$75.17 million, which is a 25 percent greater than the costs of the Original System Alternative constructed along the Proposed Route.²⁰⁷

(Hereafter these are collectively referred to herein as the “Highway 7 Route Alternatives.”)

89. If the Original System Alternative is selected by the Commission, Xcel Energy supports the use of the Proposed Route over the route alternatives.²⁰⁸

C. Proposed Route for Revised Highway 5 System Alternative

90. There is only one route under consideration for the Revised Highway 5 System Alternative; that is, the “Highway 5 Route Alternative.”²⁰⁹

91. The Highway 5 System Alternative utilizes an existing 115/115kV transmission line located along a railroad corridor and Highway 5 that is currently being operated as a 115/34.5 kV line.²¹⁰

92. The route for the Revised Highway 5 System Alternative would replace Segments 2 through 10 of Xcel Energy’s Proposed Route for the Original System Alternative.²¹¹ The route follows the Proposed Route between the Scott County Substation and Structure #57.²¹² At Structure #57, the route then diverges east from the Proposed Route to follow a railroad corridor and Highway 5 to the Westgate Substation using the existing 115/115 kV structures.²¹³ This section of double circuit line was permitted locally for 115/115 kV operation.²¹⁴ Conversion to 115/115 kV operation will not require the rebuilding or replacement of any existing structures.²¹⁵

93. In addition to expanding the Bluff Creek Substation, the Revised Highway 5 System Alternative requires construction of 3.6 miles of additional distribution and transmission facilities.²¹⁶

94. As of the hearing on May 16, 2013, Xcel Energy had not yet identified the specifications and locations for the 3.6 miles of new distribution feeder line required for

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ *Id.* at 6.

²¹⁰ *Id.*

²¹¹ *Id.* at 8.

²¹² *Id.*

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ *Id.*

²¹⁶ *Id.*

the Revised Highway 5 System Alternative.²¹⁷ EFP noted that such information was material for consideration of the Revised Highway 5 System Alternative.²¹⁸

95. In its Post Hearing Brief, Xcel Energy identified a “possible route” for the distribution line in Exhibit A.²¹⁹ Xcel Energy’s initial proposed route for the distribution line would start at the expanded Bluff Creek Substation, run to Structure #57, then run south along Arboretum Boulevard/Highway 5 where it would parallel the 115 kV line.²²⁰ The distribution line would then cross over Arboretum Boulevard/Highway 5 at the intersection of Highway 101, and run north along Arboretum Boulevard/Highway 5 where it would again parallel the 115 KV line.²²¹ At Terry Pine Drive, the distribution line would cross back over Highway 5 and run along the south side of Highway 5.²²² Here, the distribution line would diverge from the path of the 115 kV line, which continues along the north side of Highway 5.²²³ The distribution line would run along the south side of Highway 5 (in the berm between Highway 5 and Terrey Pine Drive) and the 115 kV line would run along the north side of Highway 5.²²⁴ Thus, the 115 kV line and the distribution line would parallel both sides of Highway 5 until the distribution line crosses back over Highway 5 just east of Eden Prairie Road, where it rejoins to run along with the 115 kV line on the north side of Highway 5 until the Westgate Substation.²²⁵

96. Xcel Energy noted that, the proposed route for the distribution line overlaps the Minnesota Department of Transportation (MnDOT) right-of-way and would require a Utility Permit.²²⁶

97. Xcel Energy further noted that in the area of Terrey Pine Drive,²²⁷ approximately 2,530 feet of trees and shrubs would need to be cleared for the proposed distribution line.²²⁸ Xcel Energy explained that it evaluated the possibility of placing the distribution line on the north side of Highway 5 (where the 115 kV line is located) to

²¹⁷ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03.

²¹⁸ See EFP Reply Arguments and Analysis, eFiled on July 22, 2013, in Docket No. E002/CN-331 as Document ID 20137-89439-02; and in Docket No. E002/TL-11-948 as Document No. 20137-89439-01.

²¹⁹ Xcel Energy’s Initial Post-Hearing Brief at Exhibit A, eFiled on July 8, 2013, in Docket No. E002/CN-331 as Document ID 20137-88944-04; and in Docket No. E002/TL-11-948 as Document No. 20137-88945-04.

²²⁰ *Id.*

²²¹ *Id.*

²²² *Id.*

²²³ *Id.*

²²⁴ *Id.*

²²⁵ *Id.*

²²⁶ Xcel Energy Reply Brief at 4-5, eFiled on July 22, 2013, in Docket No. E002/CN-331 as Document ID 20137-89423-03 and in Docket No. E002/TL-11-948 as Document No. 20137-89423-04.

²²⁷ Xcel Energy refers to “Terry Pine Drive” and “Terry Pines Drive.” Residents and Google Maps reference the road as Terrey Pine Drive.

²²⁸ Xcel Energy’s Initial Post-Hearing Brief at Exhibit B, eFiled on July 8, 2013, in Docket No. E002/CN-331 as Document ID 20137-88944-04; and in Docket No. E002/TL-11-948 as Document No. 20137-88945-04.

avoid vegetation clearance, but determined there was not enough space to accommodate overhead lines given the existing infrastructure and residences.²²⁹

98. In post-hearing comments, MnDOT, the cities of Eden Prairie and Chanhassen, and the residents along Terrey Pine Drive opposed the location of the distribution line along Highway 5 between Eden Prairie Road and Dell Road (see comments below).²³⁰

99. The cities and public commentators were particularly concerned about the impact that overhead distribution lines would have on the aesthetics of the area and the vegetation planted in the Terrey Pine Drive berm, which shields Terrey Pine Drive from Highway 5.²³¹

100. In addition, MnDOT noted that the paralleling of Highway 5 by the 115 kV line to the north and the distribution line to the south (in the area of Terrey Pine Drive) would not be permitted due to possible expansion and ongoing maintenance by MnDOT.²³²

101. In response, Xcel Energy explained that its standard construction is above-ground but that it could underground the 3.6 miles of distribution line as a mitigation measure.²³³ Xcel Energy stated that if a municipality required such underground construction via local ordinance, such municipality could be responsible for the cost difference between the overhead and underground construction, estimated by Xcel Energy to be “approximately \$900,000.00.”²³⁴ Xcel Energy did not initially acknowledge that such mitigation measure could be required as a Route Permit condition.²³⁵

102. At the hearing, an Xcel Energy representative stated that it included in its original cost estimate for the Revised Highway 5 System Alternative the cost of undergrounding half of the 3.6 miles of distribution line.²³⁶ Xcel Energy explained that the estimated total cost of the distribution line was \$1.5 million, which assumed that half of the line would be built underground.²³⁷ Thus, to underground the entire 3.6 miles would add a cost of approximately \$600,000.00, not \$900,000.00, to the project.²³⁸

²²⁹ Xcel Energy’s Initial Post Hearing Brief at 27, eFiled on July 8, 2013, in Docket No. E002/CN-331 as Document ID 20137-88944-02 and in Docket No. E002/TL-11-948 as Document No. 20137-88945-02.

²³⁰ *Id.*

²³¹ *Id.*

²³² MnDOT Written Comments, eFiled on July 15, 2013, in Docket No. E002/TL-11-948 as Document ID 20137-89107-01; and in Docket No. E002/CN-11-332 as Document ID 20137-89296-01.

²³³ *Id.* at 28.

²³⁴ *Id.*

²³⁵ *Id.*

²³⁶ Public Hearing Transcript (6:00 p.m. session) at 167, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03.

²³⁷ *Id.*

²³⁸ *Id.*

103. Dr. Steve Rakow, on behalf of the DER, explained that so long as the cost of undergrounding the distribution line did not exceed \$5.5 million dollars, the Revised Highway 5 System Alternative is still the least cost alternative of all alternatives presented.²³⁹ Accordingly, adding \$600,000.00 to \$900,000.00 in costs to bury all 3.6 miles of distribution line does not change the fact that the Revised Highway 5 System Alternative is the least cost alternative presented.²⁴⁰

104. Following the receipt of comments, Xcel Energy met with MnDOT to discuss its concerns and the requirements to obtain a Utility Permit.²⁴¹ Based on that meeting, Xcel Energy revised its plan for the distribution lines.²⁴² Under its new plan, Xcel Energy would bury all but approximately 1,000 feet of distribution line.²⁴³ The 1,000 feet of above-ground distribution line would be located along Ventura Lane where the distribution line leaves the Westgate Substation.²⁴⁴

105. Xcel Energy explained that “it is likely that nearly the entire 3.6 miles of the distribution line will need to be placed underground to comply with MnDOT permitting requirements.”²⁴⁵

106. In addition, Xcel Energy noted that its revised plan would run the distribution line underground on the *north* side of Highway 5 near Terrey Pine Drive, along the existing 115 kV line (as opposed to the original proposal which showed above-ground distribution lines on the *south* side of Highway 5 in the Terrey Pine Drive berm).²⁴⁶ The change in location and the undergrounding of the lines would “avoid impacts to trees and shrubs on the south side of Highway 5 in the Terrey Pine Drive berm.”²⁴⁷

107. Xcel Energy further stated:

[I]f undergrounding is ordered by the Commission or required to meet other state agency permit requirements, the Company expects that the underground 34.5 kV line will be treated as standard facilities per the Company’s Tariff.²⁴⁸

108. Xcel Energy acknowledged that when it first developed the Revised Highway 5 System Alternative, it assumed that undergrounding the 34.5 kV distribution

²³⁹ *Id.* at 102-104; *See also*, DER Comments, eFiled on November 9, 2012, in Docket No. E002/CN-332 as Document ID 20125-74427-01.

²⁴⁰ *Id.*

²⁴¹ Xcel-Energy Reply Brief at 6, eFiled on July 22, 2013, in Docket No. E002/CN-332; as Document ID 20137-89423-03; and in Docket No. E002/TL-11-948 as Document No. 20137-89423-04.

²⁴² *Id.*

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.* at 6-7.

²⁴⁶ *Id.*

²⁴⁷ *Id.* at 7.

²⁴⁸ *Id.*

line would likely be required.²⁴⁹ Accordingly, it included in its initial cost estimates the cost of undergrounding half of the line.²⁵⁰ Xcel Energy concluded:

While MnDOT permitting requirements will likely require nearly the entire 3.6 miles of the 34.5 kV line to be placed underground, the Revised Highway 5 System Alternative remains the most economical system alternative even with the additional undergrounding cost. For purposes of comparing system alternatives, Xcel Energy budgeted \$1.5 Million for the 34.5 kV line that assumed a half overhead and half underground design. In the July 8th brief and findings, Xcel Energy provided a budget of \$1.7 million to underground the entire 3.6 miles. This small cost increase of \$200,000 does not alter the ranking system of alternatives based on a Net Present Value per MW comparison. With the extra \$200,000 for undergrounding factored in, the Revised Highway 5 System Alternative has a Net Present Value per MW of \$0.18/MW versus \$0.23/MW for the Original System Alternative.²⁵¹

109. In the end, Xcel Energy concludes that burying the entire 3.6 miles of distribution line would only increase the cost of the Revised Highway 5 System Alternative by \$200,000, not \$600,000 or \$900,000.²⁵² In addition, the relatively small increase in cost would not change the fact that the Revised Highway 5 System Alternative is still the least cost alternative on a NVP per MW basis.²⁵³

110. Xcel Energy notes, however, that the preliminary route and design, as designated on its Revised Exhibit A to its Reply Brief “is not final” and that it will “continue to work with MnDOT to finalize a design and route that will meet the agency’s permitting requirements.”²⁵⁴

VIII. PUBLIC AND LOCAL GOVERNMENT PARTICIPATION

A. Public Comments

111. Approximately 100 people attended the public information and EA Scoping meetings on July 18, 2012, in Minnetonka, Minnesota.²⁵⁵ EFP received over 40 comment letters to review and consider during preparation of the scope of the EA.²⁵⁶

²⁴⁹ *Id.* at 7-8.

²⁵⁰ *Id.*

²⁵¹ *Id.* at 8.

²⁵² *Id.*

²⁵³ *Id.*

²⁵⁴ *Id.* at 6.

²⁵⁵ Ex. 13 at 8 (EA).

²⁵⁶ *Id.*

112. Two public hearings were held on May 16, 2013. Approximately forty individuals spoke at the public hearings.²⁵⁷ Additionally, over 165 written comments were filed in this matter.²⁵⁸

1. *Opposition to Original System Alternative/Support for Revised Highway 5 System Alternative*

113. The below-identified individuals submitted written comments and/or presented oral commentary at the hearings in opposition to the Original System Alternative Proposed Route, and in support for the Revised Highway 5 System Alternative.²⁵⁹ These individuals shall be collectively referred to herein as the “Highway 5 Proponents.”

²⁵⁷ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03.

²⁵⁸ Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20135-87643-01, 20135-87676-01, 20136-87763-04, 20136-87764-02, 20136-87775-02, 20136-87821-01, 20136-87985-02; and in Docket No. E002/TL-11-948 as Document IDs 20135-87643-02, 20135-87672-01, 20135-87672-02, 20135-87672-03, 20135-87672-04, 20135-87674-01, 20136-87763-01, 20136-87763-03, 20136-87764-01, 20136-87775-01, 20136-87825-01, 20136-87985-01.

²⁵⁹ Written Comments submitted by: David Bak, Deephaven, MN; Barbara Belknap, Deephaven, MN; William and Marybeth Darusmont, Greenwood, MN; Dr. Andrew Doroschak, Deephaven, MN; Dianne Dunn, Minnetonka, MN; Bonnie Hollenhorst, Deephaven, MN; Laura Johnson, Minnetonka, MN; Carolyn Williams, Greenwood, MN; James Butcher, Greenwood, MN; Tom Gartner, Greenwood, MN; Nohad and Suzan Loabneh, Greenwood, MN; Elvon Darusmont, Greenwood, MN; Dawn and Donald Berry, Greenwood, MN; Bill Slattery, Greenwood, MN; Tracie Reynolds, Greenwood, MN; Scott Sandstrom, Deephaven, MN; Brad and Adeline Shinkle, Minnetonka, MN; Paulette Tollefson, Excelsior, MN; Steve Hancock, Excelsior, MN; Scott Winnick, Deephaven, MN; Carol Kuster, Deephaven, MN; MaryAnn O’Malley, Deephaven, MN; Judy and Elliot Sirota, Greenwood, MN; Catherine and Michael Langer, Minnetonka, MN; Gladys Laughlin, unknown; Michele Lesmeister, unknown; Judy Gregg, Excelsior, MN; Jeff and Cathy Davenport, Deephaven, MN; Pat McCarthy, Excelsior, MN; Mary McCarthy, Excelsior, MN; Joan and Tom Moser, Greenwood, MN; Kristi Conrad, Greenwood, MN; Tom Trout, Deephaven, MN; Dr. Robert and Carolyn Cassola, Deephaven, MN; David and Kathy Fisher, Deephaven, MN; Jenny Hardacre, Deephaven, MN; Jim Sheppard, Deephaven, MN; Paul Larkin, Greenwood, MN; Erica Shepard, Deephaven, MN; Joel and Colleen Simpson, Deephaven, MN; Dick and Nancy Rademacher, Deephaven, MN; Kathleen and James Robertson, Deephaven, MN; Ray Richelsen, Greenwood, MN; Fred and Lorie Badiyan, Greenwood, MN; Jan and John Gray, Greenwood, MN; Molly Anderson, Deephaven, MN; Tim and Kristina Waters, Shorewood, MN; Betsy and Peter Johnson, Greenwood, MN; Shelby Young, Minnetonka, MN; Catherine Dolan, Deephaven, MN; Elizabeth Bennett, Greenwood, MN; Tom Fletcher, Greenwood, MN; Lucinda Pratt, Unknown; John Beard, Unknown; T. White, Greenwood, MN; Penne and Hal Holt, Greenwood, MN; Philip and Mariah Holt, Greenwood, MN; Ted Uanna, Greenwood, MN; Marle and Sandy Setterholm, Greenwood, MN. Oral Comments presented by: Keith Stuessi, Greenwood, MN; Bill Slattery, Greenwood, MN; Jim McCleary, Deephaven, MN; Alice Reimann, Greenwood, MN; Tom Fletcher, Greenwood, MN, representing himself and the City of Greenwood; Jim Woodburn, Deephaven, MN; Allan Haag, Deephaven, MN, representing himself and the Chimo Association (The Chimo Association is comprised of approximately 100 residents.); Bob Newman, Greenwood, MN; Nancy Middleton, Excelsior, MN; Anne Spaeth, Greenwood, MN; Thomas Schmitt, Greenwood, MN; Randall Kelsey, Deephaven, MN; T. White, Greenwood, MN; Ken Lee, Greenwood, MN; Jeannie Bowers, Greenwood, MN.

114. The Highway 5 Proponents assert that the Revised Highway 5 System Alternative is the more logical and economical choice for addressing the increased need for energy in the southwestern metropolitan area for the following reasons:

- The Original System Alternative Proposed Route would have significant human and environmental impacts on the residential communities of Excelsior, Deephaven, and Greenwood, which are largely fully developed and densely populated communities bordering Lake Minnetonka.
- The Proposed Route would cause substantial tree loss and would impact the scenic beauty of the area, including Lake Minnetonka recreational areas and the Lake Minnetonka LRT Regional bike path/walking trail, both of which are heavily utilized by the public.
- The Proposed Route would have a detrimental impact on the wildlife and animal habitats in the Lake Minnetonka area.
- The Proposed Route would result in substantial mature tree loss, negatively impacting the beauty of neighborhoods in the Excelsior, Deephaven, and Greenwood communities.
- The proposed expansions to the existing substations would create additional noise pollution in the area.
- The growth and development in the southwest suburbs, which has resulted in the increased demand for electricity, has occurred mainly in the communities along Highway 5 (Chanhassen and Eden Prairie), as opposed to the fully-developed and established areas of Excelsior, Deephaven, and Greenwood. Demand loads for the Excelsior and Greenwood Substations have decreased in recent years. Accordingly, the energy facilities necessary to accommodate the increased need should be placed in, and impact most, the areas of increased growth.
- The Revised Highway 5 System Alternative is a shorter, direct route, which uses established and existing facilities, as opposed to new impacts and significant construction/upgrades.
- The Revised Highway 5 System Alternative has fewer human and environmental impacts when compared to the Proposed Route, which affects over 500 homes and spans, circuitously, over 20 miles.
- The Revised Highway 5 System Alternative has “less than five percent above-ground transmission line upgrades,” as compared to

the extensive upgrades required for the Original System Alternative.

- The Original System Alternative would require construction of approximately 455 new high voltage transmission towers along a 20 mile stretch, 61 of which would be placed in wetland ecosystems; whereas the transmission facilities for the Revised Highway 5 Alternative are already in place and involve fewer new impacts.
- Upgrades to the Excelsior and Greenwood Substations, required by the Original System Alternative, would negatively affect residential neighborhoods; whereas, expansion of the Bluff Creek Substation (as required by the Revised Highway 5 System Alternative) would occur in a largely commercial/industrial area.
- The unknown health effects related to EMF exposure make placement of high voltage transmission lines in residential neighborhoods and near schools potentially dangerous. The Proposed Route runs through or in close proximity to four schools.
- The negative impact on home values and neighborhood aesthetics caused by transmission lines will affect over 500 homes which are within 200 feet of the Original System Alternative; as compared to the largely commercial areas affected by the Revised Highway 5 System Alternative, where the transmission lines are already in place and the impacts have already been made. It is estimated that only 36 homes are within 200 feet of the transmission poles in the Revised Highway 5 System Alternative.
- The Original System Alternative intrudes on 13 parks and nature preserves, 11 waterways, and 38 separate wetlands; whereas the Revised Highway 5 System Alternative has significantly fewer new impacts.
- The size of the poles and transmission lines for the Proposed Route would be significant in scale in relation to the size of the neighborhood streets and surroundings in which they would be placed.

- The Revised Highway 5 System Alternative has a lower initial cost, a lower per kWh cost for consumers, and a lower NPV cost than the Original System Alternative.²⁶⁰

2. *Opposition to the Highway 41 Alternative Route/Support for Revised Highway 5 System Alternative*

115. The below-identified individuals submitted written comments and/or presented oral commentary at the hearings in opposition to the Highway 41 Route Alternative, and support for the Revised Highway 5 System Alternative.²⁶¹ These individuals shall be referred to herein as the “Highway 41 Route Opponents.”

116. The Highway 41 Route Opponents argue that the Highway 41 Route Alternative presents significantly greater human and environmental impacts than the Revised Highway 5 System Alternative for the following reasons:

- The Highway 41 Route Alternative would require new right-of-way acquisition and the construction of new facilities, as opposed to the Revised Highway 5 System Alternative, which utilizes existing facilities and right-of-way.

²⁶⁰ Public Hearing Transcript (1:30 session), eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

²⁶¹ Written Comments submitted by: Cindy Barnowski, Chanhassen, MN; Gwen and Dan Michael, Chanhassen, MN; Patti Griese, Chanhassen, MN; Shane and Katie Robbins, Chanhassen, MN; Rechelle Hollowaty, Chanhassen, MN; Brenda Geier, Chanhassen, MN; Mark Van Driel, Chanhassen, MN; Jennifer Pederson, Chanhassen, MN; Paul Ottoson, Chanhassen, MN; Kristine Checheris, Chanhassen, MN; Steven and Nancy Hanousek, Chanhassen, MN; Michael and Debra Benkovich, Chanhassen, MN; Scott and Becky Cater, Chanhassen, MN; James Callaghan, Chanhassen, MN; Holly Olsen, Chanhassen, MN; Ray Alstadt, Chanhassen, MN; Jacqie Daugherty, Chanhassen, MN; Laura and Phil Haarstad, Chanhassen, MN; Hau Tran, Chanhassen, MN; Darcy and Harris Cooper, Chanhassen, MN; E. Jerome Carlson, Chanhassen, MN; Tom and Ruth Rolfs, Chanhassen, MN; Phong Luong, Chanhassen, MN; Herman Wipperfurth, Chanhassen, MN; Oral Comments presented by: David Fulkerson, Chanhassen, MN; Phong Luong, Chanhassen, MN; Charles Bobertz, Chanhassen, MN; Patrick Schwamm, Chanhassen, MN; Herman Wipperfurth, Chanhassen, MN; Bruce Olson, Chanhassen, MN; Chris Cowan, Chanhassen, MN; Dan Longacre, Chanhassen, MN; Scott Bittner, Chanhassen, MN; Debra Benkovich, Chanhassen, MN; Dennis Clark, Chanhassen, MN; Hau Tran, Chanhassen, MN; Chad Porspakka, Chanhassen, MN.

- The need for new acquisition and construction also results in significant additional costs for Xcel Energy and its customers.
- The Highway 41 Route Alternative would require the removal of a significant number of large, mature trees and vegetation that shield the neighborhoods in the area from Highway 41.
- The Highway 41 Route Alternative would compromise the views enjoyed by a number of homes in the Highover and Highcrest Meadows developments, where individuals purchased homes precisely because of the views.
- Unlike the Revised Highway 5 System Alternative, which passes through largely commercial areas, the Highway 41 Route Alternative would pass in close proximity to several residential neighborhoods filled with children and families. In addition, the poles would be in very close proximity to many individual homes.
- The EMF exposure and decrease in property values associated with high voltage transmission lines would negatively affect the residential properties and people living in vicinity of the Highway 41 Route Alternative. This is of particular concern because of the close proximity the transmission lines and poles would have to existing homes.
- Home values in the area are high and the property values would be significantly impacted by new transmission poles.
- The Original System Alternative would negatively impact approximately 500 homes, whereas the impacts of the Revised Highway 5 System Alternative are already established.
- The Highway 41 Route would have new and negative impacts to natural environment, wildlife habitats, trails, and recreational areas along the route, including wetlands, park areas, and ponds; whereas the impacts associated with the Revised Highway 5 System Alternative are largely known and established because the transmission facilities are already in place.²⁶²

²⁶² Public Hearing Transcript (1:30 session), eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01;

117. As a result, the Highway 41 Route Alternative Opponents support the Revised Highway 5 System Alternative.²⁶³

3. Opposition to the Revised Highway 5 System Alternative/Requests for Buried Distribution Lines

118. The below-identified individuals submitted written comments and/or presented oral commentary at the hearings in opposition to the Revised Highway 5 System Alternative, and requested that if the Highway 5 Alternative was selected, that all new distribution lines be buried.²⁶⁴ These individuals shall be collectively referred to herein as the “Highway 5 Opponents.”

201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.*Id.*

²⁶³ *Id.*

²⁶⁴ Written Comments submitted by: Wayne Jorgenson, Eden Prairie, MN; Bruce and Sharon Williams, Eden Prairie, MN; Anita Locher, Eden Prairie, MN; John Davis,* Eden Prairie, MN; Brian Boysen,* Eden Prairie, MN; Dan and Robin Edmunds, Chanhassen, MN; Tim Walker, Eden Prairie, MN; Barbara Baer, Eden Prairie, MN; Marianne Falk, Eden Prairie, MN; Glenn Fristed, Eden Prairie, MN; Angie Psaltis, Eden Prairie, MN; Philip Reilly, Eden Prairie, MN; Vivaya Gore, Eden Prairie, MN; Jerry Martin, Eden Prairie, MN; Dallas and Dawn Burns, Eden Prairie, MN; Dr. Frederick Haas, Chanhassen, MN; Doug and Stephanie Jewett, Eden Prairie, MN; Thomas and Kathryn Juhnke, Eden Prairie, MN; John Tyler, Eden Prairie, MN; Debra Skaar, Eden Prairie, MN; Sherri and Pat Loney, Eden Prairie, MN; Charles Weber, Eden Prairie, MN; James and Bonnie Olson, Eden Prairie, MN; Anna and Vladimir Gomelsky, Eden Prairie, MN; Mike Petersen, Eden Prairie, MN; Michele and Dan Dorst, Eden Prairie, MN; Dwain and Wendy Greer, Eden Prairie, MN; Clark and Karen Lewis, Eden Prairie, MN; Barry and Terrey Naugle, Eden Prairie, MN; Paula Reilly, Eden Prairie, MN; Bruce and Sharon Williams, Eden Prairie, MN; Dennis Smith,* Eden Prairie, MN; Carol Jorgenson, Eden Prairie, MN; Wayne Jorgenson, Eden Prairie, MN; Terrey Naugle,* Eden Prairie, MN; John and Allison Schultz, Eden Prairie, MN; Moiz Akhtar, Eden Prairie, MN; Jerry and Kim Martin, Eden Prairie, MN; Marcia Kolb, Eden Prairie, MN; Susan and Tim Walker, Eden Prairie, MN; Bob Becker, Eden Prairie, MN; Marianne Falk, Eden Prairie, MN; Angie and Tim Klouda, Eden Prairie, MN; Sherry Loney, Eden Prairie, MN; Patrick Loney, Eden Prairie, MN; Roger Sims, Eden Prairie, MN; Marna Reilly, Eden Prairie, MN; Hien Do and Tuyet Nguyen, Eden Prairie, MN; Paula Reilly, Eden Prairie, MN; Judy Hollenback, Eden Prairie, MN; Margaret Madden, Eden Prairie, MN; Ronald Erdman-Loutz, Eden Prairie, MN; Frank Madden, Eden Prairie, MN; Mike and Jennifer Max, Eden Prairie, MN; Scott Hiller, Eden Prairie, MN; Lois Bohnsack, Eden Prairie, MN; Val Rydland, Eden Prairie, MN; Wendy Guer, Eden Prairie, MN; Sandra Nelson, Eden Prairie, MN; Peter Kosmas, Eden Prairie, MN; Cindy Hoffman, Eden Prairie, MN; Melanie Rowe, on behalf of Kindercare Childcare Center, Eden Prairie, MN; Melissa Freudenberg, Eden Prairie, MN; Sharyl Kalal, Eden Prairie, MN; Carrie Beaton, Eden Prairie, MN; George and Marie Rizkalla, Eden Prairie, MN; Joleen Peterson, Eden Prairie, MN; Kathryn Byhornski, Eden Prairie, MN; Nina MacKay, Eden Prairie, MN; Ian MacKay, Eden Prairie, MN; Jule and Jay Coughlan, Eden Prairie, MN; John Tyler, Eden Prairie, MN; John Shultz, Eden Prairie, MN; David Schulze, Eden Prairie, MN; Bruce Bykowski, Eden Prairie, MN; Kathryn Smith, Eden Prairie, MN; Heather Sigh, Eden Prairie, MN; Gretchen Enniga, Eden Prairie, MN; Laura and Robert Pasiuk, Eden Prairie, MN; Eric Hayes, Eden Prairie, MN; and various other submissions with illegible signatures. Oral Comments presented by: Sherri Loney, Eden Prairie, MN; Robert Pasiuk, Eden Prairie, MN; Tim Walker, Eden Prairie, MN; Pedro Afafe, Eden Prairie, MN; Jeff Labore, Eden Prairie, MN. (* denotes those who support Highway 7 Route Alternatives.)

119. The Highway 5 Opponents oppose the Revised Highway 5 System Alternative, arguing that the EMFs associated with above-ground high voltage transmission lines endanger the life and health of residents in their vicinity.²⁶⁵ In addition, the Highway 5 Opponents argue that additional above-ground transmission and distribution lines in the area will have a negative effect on property values, aesthetics, and wildlife in the area.²⁶⁶

120. The Highway 5 Opponents note that because the facilities included in the Original System Alternative will likely need to be replaced or upgraded in the next 10 years, it is more efficient and cost effective for Xcel Energy to make those upgrades now, rather than move forward with the Revised Highway 5 System Alternative and later upgrade the Original System Alternative.²⁶⁷

121. Some of the Highway 5 Opponents recommend that Xcel Energy and EFP consider an alternative route along Highway 212, which, they argue, would have fewer impacts on human settlement and the natural environment.²⁶⁸

122. In addition, the Highway 5 Opponents note that it would be unfair for the Commission to select the Revised Highway 5 System Alternative when the location and the specifics of the distribution lines are largely unknown, have not been solidified by Xcel Energy, and have not been made subject to public review and comment at the time of the hearing.²⁶⁹

123. The Highway 5 Opponents assert that if the Revised Highway 5 System Alternative is selected, that the following requirements should be imposed:

- That Xcel Energy bury all distribution lines in Eden Prairie, particularly from Eden Prairie Road to Dell Road, a distance of approximately 1.3 miles, which is largely residential;

²⁶⁵ Public Hearing Transcript (1:30 session), eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

²⁶⁶ *Id.*

²⁶⁷ *Id.*

²⁶⁸ *Id.*

²⁶⁹ *Id.*

- That Xcel Energy change the distribution lines to run along the north side of Highway 5 (as opposed to the south side of Highway 5), so as to protect a berm of trees along Terrey Pine Drive;
- That Xcel Energy underground all distribution lines in the 3.6 mile stretch from Eden Prairie Road to Dell Road; and
- That Xcel Energy replace all trees and shrubs, in like, number, and kind, which are disturbed by the construction of underground distribution lines along Terrey Pine Drive.²⁷⁰

124. The Highway 5 Opponents argue that Xcel Energy represented at the public hearing that it included in its budget for the Revised Highway 5 System Alternative half of the cost of burying the 3.6 miles of distribution lines.²⁷¹ Xcel Energy asserted that half the cost of burying the line was \$1.5 million.²⁷² Thus, it would cost Xcel Energy (and ultimately its customers), an additional \$600,000.00 to bury all 3.6 miles of distribution line – a sum that is not significant in comparison to the overall cost of the Project.²⁷³ Xcel Energy vacillated on its position on this element of the Project during post-hearing briefing, at first opposing the burying of distribution lines and then noting its acceptance of burying the lines as a mitigation measure.²⁷⁴ The Highway 5 Opponents argue that such a last minute reversal by Xcel Energy is unfair and suspect, and unduly burdens the property owners affected by the new distribution lines.²⁷⁵

125. The Highway 5 Opponents further argue that the proposed location for the new distribution lines should start on the north side of Highway 5, cross over Highway 5, run along the south side along the Terrey Pine Drive berm, then cross back over Highway 5 to the north for the remainder of the route.²⁷⁶ Thus, the Highway 5

²⁷⁰ *Id.*

Public Hearing Transcript at 171 (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03.

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ See Xcel Energy's Initial Post-Hearing Brief and Reply Brief.

²⁷⁵ Public Hearing Transcript (1:30 session), eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

²⁷⁶ *Id.*

Opponents argue, undergrounding the distribution lines on the north side of Highway 5 would make a shorter and more direct route, and would avoid the destruction of the tree barrier along Terrey Pine Drive.²⁷⁷

126. The Highway 5 Opponents explain that several years ago, over 100 trees and shrubs were planted on the Terrey Pine Drive berm by 12 homeowners from the Terrey Pine Homeowners Association at a cost of over \$30,000.00.²⁷⁸ These trees have now grown to be between six and 20 feet high and buffer the residential properties along Terrey Pine Drive from Highway 5.²⁷⁹ The Terrey Pine Drive berm not only provides a buffer for traffic noise, it also has aesthetic value to the residents in the area.²⁸⁰ Unless the lines are buried underground on the north side of Highway 5, the Revised Highway 5 System Alternative would require the removal of these trees and shrubs.²⁸¹ Accordingly, the Highway 5 Opponents request that Xcel Energy be required to bury the lines on the north side of Highway 5; or bury the lines on the south side of Highway 5 and replace the trees with trees of similar size and kind.²⁸²

127. Some of the Highway 5 Opponents argue that the late identification of the Revised Highway 5 System Alternative placed them at a disadvantage to organize and oppose the route, or suggest alternatives.²⁸³ Also, they expressed concern over the lack of notice and the insufficient information provided about the distribution lines needed as part of the Revised Highway 5 System Alternative.²⁸⁴

128. Finally, the Highway 5 Opponents state that the Revised Highway 5 System Alternative places an unfair and disproportionate burden on the affected property owners who would be forced to accept the burden of high voltage transmission lines near their homes, when the benefit of the increased transmission spans a much larger region.²⁸⁵ To counter this burden, the Highway 5 Opponents request the burying of the distribution lines, the cost of which should be disbursed to all Xcel Energy customers receiving the benefit of the transmission upgrades.²⁸⁶

4. Other Comments Received

129. On May 23, 2013, Union Pacific Railroad (Union Pacific) submitted comments expressing concern about the impact the Revised Highway 5 System

²⁷⁷ *Id.*

²⁷⁸ *Id.*

²⁷⁹ *Id.*

²⁸⁰ *Id.*

²⁸¹ *Id.*

²⁸² *Id.*

²⁸³ *Id.*

²⁸⁴ *Id.*

²⁸⁵ *Id.*

²⁸⁶ *Id.*

Alternative may have on its property and requested additional information and detail to further evaluate the project.²⁸⁷ No additional comment was submitted by Union Pacific.

130. Carol Overland, an attorney with Legalectric, expressed general concern about the lack of consideration of a “single, more efficient, higher voltage solution in the western Twin Cities area,” which was referenced by EFP in its briefing papers, but was not disclosed as a system alternative by either Xcel Energy or the EFP.²⁸⁸ According to Overland, three separate transmission upgrades are proceeding in three separate PUC dockets, including this current docket.²⁸⁹ However, neither Xcel Energy nor EFP was exploring the single system option.²⁹⁰ Overland explained that:

Transmission proposals must be fleshed out early, at the front end of the process to assure the resulting Certificate of Need and Routing processes are more than an exercise in futility. For notice and public participation to be meaningful, the “higher voltage solution” must be public from the outset.”²⁹¹

131. In sum, Overland voiced general concern over a process in which viable alternative routes or system alternatives are identified late in the process and the public is deprived of the ability to fully comment and evaluate those alternatives.²⁹²

B. Local Government Participation

1. City of Chaska

132. On April 3, 2013, the City of Chaska submitted a comment letter regarding the Highway 5 System Alternative.²⁹³ In its comments, Chaska expressed concern that the Highway 5 System Alternative was “hastily included” in the EA; was “not adequately covered during the public comment period”; and presents “deficiencies” that were not addressed in the EA.²⁹⁴ Chaska requested that the Highway 5 System Alternative be further considered “with adequate public hearings and additional information.”²⁹⁵

133. Chaska expressed concern that the Highway 5 System Alternative is merely a “temporary measure” that defers rebuilding the existing 69 kV transmission line

²⁸⁷ Letter from Renay Robinson, Director of Real Estate for Union Pacific Railroad, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87763-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87763.03.

²⁸⁸ Letter from Carol Overland to Commission, eFiled on May 25, 2012, in Docket No. E002/CN-11-332 as Document ID 20125-75028-01; and in Docket No. E002/TL-11-948 as Document ID 20125-75029-01.

²⁸⁹ *Id.*

²⁹⁰ *Id.*

²⁹¹ *Id.*

²⁹² *Id.*

²⁹³ City of Chaska Written Comments, eFiled April 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20134-85493-02; and in Docket No. E002/TL-11-948 as Document ID 20134-85493-01.

²⁹⁴ *Id.*

²⁹⁵ *Id.*

between the Excelsior and the Westgate substations until approximately 2023.²⁹⁶ Chaska noted that “[i]f other ‘taller, sturdier poles’ are going to be needed on the 69 kV section of the line and the 69 kV system will need to be upgraded or replaced in the future, it does not seem prudent to delay this upgrade now and only put a partial solution in place.”²⁹⁷

134. Chaska also expressed concern about the potential impacts of a new substation and the new distribution feeders required for the Highway 5 System Alternative, as well as the lack of any detail related to both the new substation and distribution system.²⁹⁸ Because the Highway 5 System Alternative was not fully evaluated in the EA, Chaska requested that the impacts of the alternative be specifically identified and considered before adoption of the Highway 5 System Alternative.²⁹⁹

135. At the hearing, Chaska expressed its support for the Revised Highway 5 System Alternative, as presented by Dan Geiger, the Electrical Director for the City of Chaska.³⁰⁰ Mr. Geiger explained that on April 30, 2013, Chaska, Xcel Energy, and Minnesota Valley Electric Cooperative met to discuss the distribution needs of the parties and the need for new transmission facilities at the Bluff Creek Substation.³⁰¹ According to Mr. Geiger, the Revised Highway 5 System Alternative was the outcome of that collaboration.³⁰²

136. In its comments, Chaska noted its willingness to work with Xcel Energy on expansion of the existing Bluff Creek Substation, which is required as part of this system alternative.³⁰³ In addition, Chaska acknowledged the need for new transmission facilities in the area, noting that “low voltage conditions can occur at the Bluff Creek and Minnesota River Substations when contingencies occur” and that the Revised Highway 5 System Alternative “will improve power quality to the majority of customers served by the [c]ity of Chaska including our sensitive large industrial customers located near the Bluff Creek Substation.”³⁰⁴

137. Mr. Geiger also thanked Xcel Energy for considering the needs of other utilities in the area and working with the city on a solution to better serve the community.³⁰⁵

²⁹⁶ *Id.*

²⁹⁷ *Id.*

²⁹⁸ *Id.*

²⁹⁹ *Id.*

³⁰⁰ Ex. 37 (May 15, 2013 Letter from city of Chaska).

³⁰¹ *Id.*

³⁰² Ex. 37 (May 15, 2013 Letter from city of Chaska).

³⁰³ *Id.*

³⁰⁴ *Id.*

³⁰⁵ Hearing Transcript (1:30 p.m. session) at 88, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01.

2. City of Chanhassen

138. On February 5, 2013, the City of Chanhassen submitted written comments to the Commission.³⁰⁶ Chanhassen acknowledged that a transmission upgrade is necessary to meet the current and future needs of the area.³⁰⁷ However, Chanhassen explained that the upgrade should be to the existing transmission line corridors, as opposed to creating new corridors, as would be required for the Highway 41 Route Alternative in the Original System Alternative.³⁰⁸

139. At the same time, Chanhassen voiced general opposition to the Revised Highway 5 System Alternative, despite the current existence of transmission lines in that area.³⁰⁹ Chanhassen stated that the expansion of transmission lines in the Highway 5 corridor would have “potential effect on the aesthetics, character, development, and future” of the city because of its investment in “creating harmony and unity” throughout the corridor.³¹⁰

140. Finally, Chanhassen voiced its opposition to the construction of a new substation at the intersection of Lyman Boulevard (CSAH 18) and Audubon Road (CSAH 15), which would not be required under the Revised Highway 5 System Alternative.³¹¹

141. Todd Gerhardt, City Manager for Chanhassen, provided testimony on behalf of the city at the May 16, 2013 hearing.³¹² Mr. Gerhardt expressed that Chanhassen now supports the Revised Highway 5 System Alternative provided that: (1) the distribution lines are buried from the Westgate Substation to pole structure #57; and (2) the expansion of the Bluff Creek Substation would alleviate the need for any new substations in Chanhassen.

142. On May 30, 2013, Chanhassen filed additional written comments with the Commission.³¹³ In its comments, Chanhassen changed its original position on the Project and expressed support for the Revised Highway 5 System Alternative.³¹⁴ Chanhassen explained, however, that its support of the Revised Highway 5 System Alternative is expressly contingent upon Xcel Energy burying the 34.5 kV distribution

³⁰⁶ City of Chanhassen Written Comments, eFiled on March 4, 2013, in Docket No. E002/TL11-948 as Document ID 20133-84409-01; and in Docket No. E002/CN-11-332 as Document ID 20133-84404-01.

³⁰⁷ *Id.*

³⁰⁸ *Id.*

³⁰⁹ *Id.*

³¹⁰ *Id.*

³¹¹ *Id.*

³¹² Hearing Transcript (1:30 p.m. session) at 103-104, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01.

³¹³ City of Chanhassen Written Comments, eFiled on June 3, 2013, in Docket No. E002/TL-11-948 as Document ID 20136-87823-01; and in Docket No. E002/CN-11-332 as Document No. 20136-87821-01.

³¹⁴ *Id.*

lines along or near Highway 5 from the Westgate Substation in Eden Prairie to pole structure #57 in Chanhassen.³¹⁵

143. Chanhassen also expressed its support for expanding the existing Bluff Creek Substation, as opposed to the construction of a new substation at Lyman Boulevard (CSAH 18) and Audubon Road (CSAH 15), provided that the expanded substation be “properly screened from the public.”³¹⁶

144. On July 19, 2013, Chanhassen submitted a third written comment.³¹⁷ Chanhassen reiterated its support for the Revised Highway 5 System Alternative, but stated that its support is expressly contingent upon the burying of distribution lines with no cost participation by the city, as was originally proposed by Xcel Energy.³¹⁸

145. Chanhassen explained that since 1992, the city has invested significant time and resources in the development of the Highway 5 business corridor so as to “preserve the rural character of Chanhassen” and “enhance a sense of community” in the area.³¹⁹ Chanhassen contends that unless the distribution lines from the Westgate Substation to pole structure #57 are buried, the Revised Highway 5 System Alternative will negatively affect the aesthetics and natural environment in the area.³²⁰

146. In addition, Chanhassen opposes any plan that would place the additional cost of burying the lines on the Cities of Chanhassen and Eden Prairie.³²¹ Instead, Chanhassen asserts that Xcel Energy customers should pay the added costs of burying the lines.³²²

147. Finally, Chanhassen suggests that MnDOT be consulted with respect to the placement of distribution lines within the public right-of-way.³²³

3. City of Excelsior

148. In a July 31, 2012 letter regarding the scope of the EA, the City of Excelsior requested that the EA evaluate the potential impacts of upgrading the Excelsior Substation and possible mitigation measures.³²⁴

149. No other comments were filed by Excelsior related to this Project.

³¹⁵ *Id.*

³¹⁶ *Id.*

³¹⁷ City of Chanhassen Written Comments, eFiled on July 24, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-89521-01; and in Docket No. E002/TL-11-948 as Document ID 201347-89522-01.

³¹⁸ *Id.*

³¹⁹ *Id.*

³²⁰ *Id.*

³²¹ *Id.*

³²² *Id.*

³²³ *Id.*

³²⁴ Ex. 5 (Public and Agency Comments on the Scope of the EA).

4. City of Deephaven

150. On February 8, 2013, the City of Deephaven submitted written comments articulating its support of the Revised Highway 5 System Alternative.³²⁵

151. Deephaven expressed particular concern about the “aesthetic impacts” that the Proposed Route would have on the residential neighborhoods in Deephaven and in the scenic Lake Minnetonka area.³²⁶

152. Deephaven identified several advantages of the Revised Highway 5 System Alternative, including: its equal cost; its significantly shorter route; its use of existing transmission lines; its fewer impacts on residential neighborhoods; and the commercial location of the Revised Highway 5 System Alternative.³²⁷

153. On May 21, 2013, Deephaven submitted additional written comments.³²⁸ In its comments, Deephaven stated its objection to Highway 7 Route Alternatives #1 and #2 due to the significant tree clearing that those alternatives would require.³²⁹

154. Deephaven compared the environmental impacts of the Proposed Route in the Original System Alternative with the Revised Highway 5 System Alternative, and concluded that the Revised Highway 5 System Alternative is a “vastly superior route in terms of overall project costs, project length, and it would substantially minimize both the human and environmental impact from this project.”³³⁰

155. Accordingly, Deephaven expressed its strong support for the Revised Highway 5 System Alternative.³³¹

5. City of Eden Prairie

156. Robert Ellis, Director of Public Works for the City of Eden Prairie, appeared at the May 16, 2013, hearing on behalf of the city.³³² Mr. Ellis articulated that if the Revised Highway 5 System Alternative is selected, then the city requests that all new facilities, including distribution lines, be buried.

³²⁵ City of Deephaven Written Comments, eFiled on February 19, 2013, in Docket No. E002/TL-11-948 as Document ID 20132-83932-01.

³²⁶ *Id.*

³²⁷ *Id.*

³²⁸ City of Deephaven Written Comments, eFiled June 3, 2013 in Docket No. E002/CN-11-332 as Document ID 20136-87763-04 at 23; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 16.

³²⁹ *Id.*

³³⁰ *Id.*

³³¹ *Id.*

³³² Hearing Transcript (1:30 p.m. session) at 120, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01.

157. On May 29, 2013, the City of Eden Prairie submitted written comments to the ALJ.³³³ Eden Prairie acknowledged the need for facility upgrades in the area and expressed its support for the Revised Highway 5 System Alternative.³³⁴ Eden Prairie noted that the Revised Highway 5 System Alternative “provides the shortest route along the widest right-of-way affecting the fewest number of residential units.”³³⁵

158. Eden Prairie, however, requested that the distribution facilities required for the Revised Highway 5 System Alternative be placed underground “in a manner that does not disturb existing trees and shrubs that have been planted to mitigate the negative impacts of living adjacent to Highway 5....”³³⁶

159. With respect to the Proposed Route, Eden Prairie expressed particular concern about Segments 9 and 10, which are located in a densely populated residential area and within close proximity to schools and wetlands.³³⁷ Eden Prairie noted that, should the Proposed Route be selected, Xcel Energy should be required to leave intact, or replace in-kind, the existing vegetation in the area.³³⁸ In addition, Eden Prairie requested that transformer noise from upgrades to the Westgate Substation be mitigated.³³⁹

160. On July 12, 2013, Eden Prairie submitted additional written comments.³⁴⁰ Eden Prairie reiterated that should the Revised Highway 5 System Alternative be selected, that the new 34.5 kV distribution lines be buried underground in a manner that does not disturb existing trees and shrubs, and that the costs of such work be borne by Xcel Energy and its customers, as opposed to the Cities of Eden Prairie and Chanhassen.³⁴¹

161. Eden Prairie articulated five reasons that Xcel Energy and its customers should bear the cost of burying the new distribution lines and facilities:

- The new distributions lines are part of the overall system upgrade and should be paid by Xcel Energy as part of the Project.
- The Revised Highway 5 System Alternative has the lowest NPV per MW, and thus results in cost savings to Xcel Energy customers.

³³³ City of Eden Prairie Written Comments, eFiled on June 3, 2013 in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 21; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 21.

³³⁴ *Id.*

³³⁵ *Id.*

³³⁶ *Id.*

³³⁷ *Id.*

³³⁸ *Id.*

³³⁹ *Id.*

³⁴⁰ City of Eden Prairie Written Comments, eFiled on July 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201374-89180-01; and in Docket No. E002/TL-11-948 as Document ID 20137-89182-01.

³⁴¹ *Id.*

- EFP similarly recommends the burying of distribution lines on a 3.6 mile stretch along Highway 5 to salvage existing trees, vegetation, and berm.
- The burying of lines is a reasonable and appropriate mitigation measure to be considered in routing decisions.
- Xcel Energy acknowledged at the May 16, 2013 public hearings that its budget and cost estimates for the Revised Highway 5 System Alternative already include half the cost of burying 3.6 miles of new 34.5 distribution line along Highway 5. Thus, to withdraw that component of the alternative at this late stage in the proceeding would be to compromise the public trust in the process.³⁴²

6. **City of Greenwood**

162. On February 11, 2013, the City of Greenwood submitted its first written comments on the Project.³⁴³ Greenwood expressed its “strong support” for the Revised Highway 5 System Alternative for the following reasons:

- It utilizes existing infrastructure (as opposed to new construction) and is a cost-effective solution for upgrading the system;
- The new substation and facilities required for the Revised Highway 5 System Alternative would be located in more commercial/industrial locations, as opposed to the residential and recreational areas of Greenwood.
- The new substation and facilities would add infrastructure in an area where the demand and development is increasing due to growth (Chanhassen and Eden Prairie); whereas, demand in the areas served by the Excelsior and Deephaven Substations has decreased because the area is stable and already fully developed.³⁴⁴

163. Deephaven also requested screening for existing and new substations to reduce the visual impact of these facilities.³⁴⁵

164. During a May 2012 Greenwood City Council meeting, Greenwood requested information regarding the existing electric and magnetic field calculations for

³⁴² *Id.*

³⁴³ City of Deephaven Written Comments, eFiled on February 19, 2013, in Docket No. E002/TL-11-948 as Document ID 20132-83932-01.

³⁴⁴ *Id.*

³⁴⁵ *Id.*

the Original System Alternative.³⁴⁶ In a May 23, 2012 letter, Xcel Energy provided the requested calculations.³⁴⁷

165. On August 1, 2012, Greenwood requested that Xcel Energy provide information on the cost to underground the 115 kV transmission line within Greenwood.³⁴⁸ Xcel Energy provided the requested information which was incorporated into the EA.³⁴⁹

166. On May 30, 2013, Greenwood submitted additional comments supporting the Revised Highway 5 System Alternative.³⁵⁰ Greenwood reiterated that the Revised Highway 5 System Alternative would utilize existing infrastructure and be cost-effective; that its route is shorter and more direct, causing fewer public and environmental impacts; and that its impacts are to the areas that have increasing demand for energy and are, thus, necessitating the upgrade (i.e, Chanhassen and Eden Prairie are where development and growth have increased, as opposed to Excelsior, Greenwood, Deephaven, where demand has decreased and growth has plateaued).³⁵¹

7. City of Shorewood

167. In a July 31, 2012 letter on the scope of the EA, the City of Shorewood expressed its opposition to the Highway 7 route alternatives.³⁵² The city requested that additional information be provided regarding EMF and undergrounding the 115 kV transmission line.³⁵³ In addition, Shorewood posed questions regarding construction of the proposed 115 kV transmission lines, as well as pole heights and designs.³⁵⁴

168. No additional written comments were submitted by Shorewood.

C. State Agency Participation

1. Minnesota Department of Natural Resources

169. On May 4, 2012, the Minnesota Department of Natural Resources (MnDNR) submitted a letter regarding its review of Xcel Energy's Route Permit Application.³⁵⁵ In this letter, the MnDNR requested Geographic Information System

³⁴⁶ Xcel Energy Letter to City of Greenwood, eFiled on May 23, 2012, in Docket No. E002/TL-11-948 as Document ID 20125-74928-01.

³⁴⁷ *Id.*

³⁴⁸ Ex. 5 (Public and Agency Comments on the Scope of the EA).

³⁴⁹ Ex. 13 at 35 (EA).

³⁵⁰ City of Greenwood Written Comments, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87763-02 at 55; and in Docket No. E002/TL-11-948 as Document ID 20136-87763-01 at 55.

³⁵¹ *Id.*

³⁵² Ex. 6.

³⁵³ *Id.*

³⁵⁴ *Id.*

³⁵⁵ MnDNR Written Comments on the Application, eFiled on May 4, 2012, in Docket No. E002/TL-11-948 as Document ID 20125-74501-01.

(GIS) shapefiles for the Project.³⁵⁶ MnDNR also requested additional information regarding the impact on vegetation in the substation expansion areas; vegetation mitigation and management procedures; locations for bird diverters; mitigation measures for rare and unique natural resources; invasive species management procedures; and Xcel Energy's application for a MnDNR Utility License to Cross Public Lands or Waters.³⁵⁷

170. Xcel Energy responded to the MnDNR's letter on June 18, 2012, and provided the information requested.³⁵⁸

171. On August 1, 2013, MnDNR submitted comment to the EFP "to inform scoping for the Environmental Assessment."³⁵⁹ In that letter, the MnDNR noted that 61 out of 455 new transmission poles in the Original System Alternative would be "located within floodplains, wetlands, or other water surface features."³⁶⁰ The MnDNR requested that the Project design be adjusted to relocate the poles out of these sensitive areas as much as possible and to remove all abandoned poles.³⁶¹

172. In addition, the MnDNR recommended including as much of the invasive species management plan as possible in the EA.³⁶² The MnDNR also provided recommendations regard the preservation of the state-listed threatened Blanding's Turtle, which are located within the Project area.³⁶³

173. On May 31, 2013, the MnDNR submitted additional comments focusing "primarily on review of the Environmental Assessment."³⁶⁴ In this letter, the MnDNR again recommended relocating poles outside of wetlands, floodplains, and sensitive areas and removing abandoned poles.³⁶⁵ In addition, the MnDNR emphasized the importance of an invasive species management plan for the Project and requested to review Xcel Energy's plan.³⁶⁶ Finally, the MnDNR reiterated its recommendations for preserving the Blanding's Turtles and noted its concurrence with the proposed bird diverter locations in the Original System Alternative.³⁶⁷

³⁵⁶ *Id.*

³⁵⁷ *Id.*

³⁵⁸ Xcel Energy Response to MnDNR's Written Comments on the Application, eFiled on June 18, 2012, in Docket No. E002/TL-11-948 as Document ID 20126-75763-01.

³⁵⁹ MnDNR Written Comments to Minnesota Office of Energy Security, eFiled on August 1, 2012, in Docket No. E002/TL-11-948 as Document ID 20128-77473-01.

³⁶⁰ *Id.*

³⁶¹ *Id.*

³⁶² *Id.*

³⁶³ *Id.*

³⁶⁴ MnDNR Written Comments eFiled on May 31, 2013, in Docket No. E002/TL-11-948 as Document ID 20135-87672-01; and in Docket No. E002/CN-11-332 as Document ID 20136-87763-02.

³⁶⁵ *Id.*

³⁶⁶ *Id.*

³⁶⁷ *Id.*

2. Metropolitan Council

174. The Metropolitan Council (Met Council) provided comments on May 16, 2013.³⁶⁸ The Met Council first noted that the Proposed Route for the Original System Alternative may have the potential to impact wastewater interceptors that cross the proposed Project route and, thus, requested an opportunity to review design plans before initiating construction of the Project.³⁶⁹

175. The Met Council next expressed concern for the impact the Original System Alternative would have on regional parks and natural preserves in the area.³⁷⁰ The Met Council noted that the Proposed Route for the Original System Alternative runs parallel to the Lake Minnetonka LRT Regional Trail for five miles through the communities of Excelsior, Greenwood, Deephaven, and Minnetonka.³⁷¹ This trail has over 410,000 public visits each year.³⁷² The Met Council explained:

Although this is an existing route for the 69 kV transmission line, the power lines were sited when the corridor was used for railroad transportation, not for recreational purposes. The proposed upgrade to 115 kV lines would require new structures that are taller and larger than the existing poles, which would have a greater visual impact on the regional trail users.³⁷³

176. Additionally, the Met Council noted that the Highway 41 Route Alternative in the Original System Alternative would result in new 115 kV transmission lines paralleling Lake Minnewashta Regional Park in Chanhassen.³⁷⁴ The park has over 163,000 annual visits and the pole structures would have a negative impact on those park users.³⁷⁵

177. As a result of the negative impacts associated with the Original System Alternative, the Met Council expressed its support for the Revised Highway 5 System Alternative.³⁷⁶ The Met Council noted:

This route alternative would shift the transmission line from a residential route to a commercial and transportation route and would thus avoid

³⁶⁸ Metropolitan Council Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14.

³⁶⁹ *Id.*

³⁷⁰ *Id.*

³⁷¹ *Id.*

³⁷² *Id.*

³⁷³ *Id.*

³⁷⁴ *Id.*

³⁷⁵ *Id.*

³⁷⁶ *Id.*

visual impacts to the Lake Minnetonka LRT Regional Trail and Lake Minnewashta Regional Park.³⁷⁷

178. The Met Council further stated that if the Highway 5 Route Alternative is not selected, the Met Council supports Highway 7 Route Alternatives #2, #3, and #4.³⁷⁸

3. Three Rivers Park District

179. On November 16, 2013, Three Rivers Park District (Three Rivers) filed comments with the Commission.³⁷⁹ Three Rivers explained that the Proposed Route for the Original System Alternative raises “significant concerns” due to the potential negative effects on the Lake Minnetonka LRT Regional Trail.³⁸⁰ Three Rivers noted that the trail is “very popular” and “heavily used,” with over 410,000 visits annually.³⁸¹ In addition, the majority of the Hennepin County Regional Railroad Authority Corridor, in which the trail is located, is wooded.³⁸² Such vegetation provides privacy screening for homeowners adjacent to the corridor.³⁸³ Construction of the proposed lines would “significantly impact the existing screening for adjacent landowners” and would have a negative effect on the users of the trail.³⁸⁴

180. Based upon the negative impacts to the Lake Minnetonka LRT Regional Trail which are associated with the Original System Alternative, Three Rivers stated its support for the Revised Highway 5 System Alternative.³⁸⁵

181. In addition, in its comments Three Rivers requested that:

- The Certificate of Need be amended to address the potential impacts of the Proposed Route on the Lake Minnetonka LRT Regional Trail and its users;
- The Certificate of Need be amended to fully examine alternative routes, particularly the Revised Highway 5 System Alternative, taking into account both long-term and short-term electricity needs; and

³⁷⁷ *Id.*

³⁷⁸ Metropolitan Council Written Comments, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 at Document ID 20136-87764-01 at 14.

³⁷⁹ Three Rivers Park District Written Comments, eFiled November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

³⁸⁰ *Id.*

³⁸¹ *Id.*

³⁸² *Id.*

³⁸³ *Id.*

³⁸⁴ *Id.*

³⁸⁵ *Id.*

- If the Proposed Route is selected, that the Commission require a modified vegetation management plan be developed in collaboration with the Hennepin County Regional Railroad Authority, Three Rivers, and the cities through which the route passes.³⁸⁶

4. University of Minnesota

182. The University of Minnesota (University) submitted comments on May 29, 2013, in opposition to the Highway 41 Route Alternative.³⁸⁷

183. The University owns property located on the northwest corner of Highway 41 and Highway 5, which is known as the Minnesota Landscape Arboretum.³⁸⁸ This property is “one of the University’s most important sites for its apple breeding program.”³⁸⁹

184. The University is opposed to the Highway 41 Route Alternative “to the extent that it would have any impacts on the University’s apple breeding program” at the Minnesota Landscape Arboretum.³⁹⁰ Specifically, the University “would oppose any disruption of its property, either on a temporary or permanent basis, particularly inside the deer fence surrounding the research orchards.”³⁹¹ The University warned that any disturbance of its property could cause years of research to be lost.³⁹²

5. Minnesota Department of Commerce, Energy Facility Permitting

185. On May 31, 2013, EFP filed comments responding to questions on the EA received at the May 16, 2013 hearing.³⁹³

186. In its comments, EFP provided additional information regarding potential impacts to property values, local flora, Brendan Pond, and the amount of tree clearing required for the Highway 41 Route Alternative.³⁹⁴

187. EFP also addressed the unknowns associated with the relocation of the 34.5 kV distribution line required in the Revised Highway 5 System Alternative.³⁹⁵ EFP

³⁸⁶ *Id.*

³⁸⁷ University of Minnesota Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87763-04 at 2; and in Docket No. E002/TL-11-948 as Document ID 20136-87763-03 at 2.

³⁸⁸ *Id.*

³⁸⁹ *Id.*

³⁹⁰ *Id.*

³⁹¹ *Id.*

³⁹² *Id.*

³⁹³ Minnesota Department of Commerce Energy Facilities Permitting Post-Hearing Comments, eFiled on May 31, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-87643-01; and in Docket No. E002/TL-11-948 as Document ID 20135-87643-02.

³⁹⁴ *Id.*

³⁹⁵ *Id.*

noted that Xcel Energy has given a cost estimate of \$1.5 million for relocating the 34.5 kV distribution line.³⁹⁶ Xcel Energy stated at the May 16, 2013 hearing that the \$1.5 million figure includes burying up to half of the line.³⁹⁷

188. EFP noted, “Because Xcel Energy has not provided any information on engineering the relocation, several questions remain that need to be addressed in the record.”³⁹⁸ As a result, EFP requested information on “where, when, and how” this distribution line will be relocated.³⁹⁹ EFP explained that the location of the distribution line has direct bearing on the potential impacts and mitigations.⁴⁰⁰

6. Minnesota Department of Transportation

189. The Minnesota Department of Transportation submitted written comments on August 1, 2012, regarding the scope of the EA.⁴⁰¹ In these comments, MnDOT expressed concern about route alternatives for the Original System Alternative located along Highway 7.⁴⁰² MnDOT stated that “[i]t is unclear at this time whether MnDOT would be able to issue a Utility Permit to Xcel in this location.”⁴⁰³

190. MnDOT also noted that it was unclear as to whether and where Xcel Energy would be replacing poles located on the MnDOT right-of-way and that there may be opportunity to improve safety or address other concerns by adjusting the location of some poles.⁴⁰⁴ However, it needed additional information about the location of the poles in order to address those issues.⁴⁰⁵

191. Finally, MnDOT requested that it be involved in the planning and coordinating of construction activities related to the Project.⁴⁰⁶

192. On July 15, 2013, MnDOT submitted additional comment based upon Xcel Energy’s post-hearing briefs.⁴⁰⁷ MnDOT expressed concern about Xcel Energy’s plan to relocate 34.5 kV distribution lines along Highway 5, as articulated by Xcel Energy in its Initial Brief as Exhibit A.⁴⁰⁸

³⁹⁶ *Id.*

³⁹⁷ *Id.*

³⁹⁸ *Id.*

³⁹⁹ EFP Post-Hearing Comments at 3, eFiled on May 31, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-87643-01; and in Docket No. E002/TL-11-948 at Document ID 20135-87643-02.

⁴⁰⁰ *Id.*

⁴⁰¹ MnDOT Written Comments on the Scope of the EA, eFiled on August 1, 2012, in Docket No. E002/TL-11-948 as Document ID 20128-77489-01.

⁴⁰² *Id.*

⁴⁰³ *Id.*

⁴⁰⁴ *Id.*

⁴⁰⁵ *Id.*

⁴⁰⁶ *Id.*

⁴⁰⁷ MnDOT Written Comments on Xcel Energy's Initial Brief, eFiled on July 15, 2013, in Docket No. E002/TL-11-948 as Document ID 20137-89107-01; and in Docket No. E002/CN-11-332 as Document ID 20137-89296-01.

⁴⁰⁸ *Id.*

193. MnDOT notes that the plan indicates that the distribution line may be directly within MnDOT's right-of-way.⁴⁰⁹ MnDOT warned that it would not permit a distribution line that falls within its "clearzone, the area in MnDOT's right-of-way which is needed to remain clear for safety and maintenance purposes."⁴¹⁰ In addition, MnDOT noted that the paralleling of Highway 5 by the 115 kV line to the north and the 34.5 kV distribution line to the south in the area of Terrey Pine Drive would not be permitted due to possible expansion and ongoing maintenance by MnDOT.⁴¹¹

IX. CRITERIA FOR A CERTIFICATE OF NEED

194. The criteria for evaluating an application for a Certificate of Need are set forth at Minn. Stat. § 216B.243 and elaborated in Minn. R. 7849.0120.

195. Minnesota Statutes section 216B.243, subdivision 3 provides that no proposed "large energy facility" shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures, and unless the applicant has otherwise justified its need.⁴¹²

196. In assessing need, the Commission shall evaluate:

- (1) The accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;
- (2) the effect of existing or possible energy conservation programs on long-term energy demand;
- (3) the relationship of the proposed line to regional energy needs;
- (4) promotional activities that may have given rise to the demand for this facility;
- (5) the benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;
- (6) possible alternatives for satisfying the energy demand or transmission needs, including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;

⁴⁰⁹ *Id.*

⁴¹⁰ *Id.*

⁴¹¹ *Id.*

⁴¹² Minn. Stat. § 216B.243, subd. 3.

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

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

(9) the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota;

(10) whether the applicant or applicants are in compliance with applicable provisions of Minn. Stat. §§ 216B.1691 and 216B.2425, subd. 7, and have filed or will file by a date certain an application for a Certificate of Need;

(11) whether the applicant has demonstrated that it has explored the possibility of generating power by means of renewable energy sources and that the alternative selected is less expensive than power generated by a renewable energy source; and

(12) the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk.⁴¹³

197. In addition, the Commission must grant an application for a Certificate of Need if the following criteria are established:

A. The probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:

- (1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;
- (2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;
- (3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand,

⁴¹³ Minn. Stat. § 216B.243, subd. 3.

particularly promotional practices which have occurred since 1974;

- (4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and
- (5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources.

B. A more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:

- (1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;
- (2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;
- (3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and
- (4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives.

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

- (1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;
- (2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;
- (3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and
- (4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality.

D. The record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.⁴¹⁴

A. Undisputed Stated Need

198. The need for the Project was first identified in *the Southwest Twin Cities Phase 2 Study Update Review*, dated July 8, 2011.⁴¹⁵ According to that report, the rapidly-developing southwestern suburbs of the Twin Cities have experienced significant load growth in recent years.⁴¹⁶ The growth in the area has surpassed the current transmission system's capacity to meet the area's load-serving needs when certain transmission system facilities are out-of-service.⁴¹⁷ The load growth in the area has resulted in overload conditions on the existing 115 kV and 69 kV transmission facilities between the Scott County and Westgate substations, and could also result in future low voltages in this area.⁴¹⁸

199. The loss of the Eden Prairie-Westgate 115/115 kV double circuit transmission line is the most critical transmission line outage.⁴¹⁹ This line is the only tie between the Eden Prairie 345-115 kV Substation, which serves the largest load in the area, and the Westgate 115-69 kV Substation.⁴²⁰ When the Eden Prairie-Westgate 115/115 kV double circuit line is out of service, the 34.5 kV source to the area is disconnected.⁴²¹ As a result, the entire load at the Westgate Substation must be served from the Scott County Substation, resulting in overloads or potential overloads on the transmission lines in the area, and in low voltages between the Minnesota River Substation and the Westgate Substation.⁴²² Forecast data indicates that an outage of the Westgate – Eden Prairie double circuit 115 kV line could result in several 115 kV line overloads near Scott County Substation by 2016.⁴²³

200. Depending on the duration of a low voltage condition, equipment such as electronic power supplies could also malfunction or fail when output voltage drops below certain levels, damaging customer equipment such as process controls, motor drive controls, and automated machines.⁴²⁴

⁴¹⁴ Minn. R. 7849.0120.

⁴¹⁵ Ex. 20 at 6.

⁴¹⁶ Ex. 32 at 2 (Wehlage Direct).

⁴¹⁷ *Id.*

⁴¹⁸ *Id.*

⁴¹⁹ Ex. 20 at 6 (Certificate of Need Application).

⁴²⁰ *Id.*

⁴²¹ *Id.*

⁴²² *Id.*

⁴²³ *Id.*

⁴²⁴ Ex. 20 at 24 (Certificate of Need Application).

201. Thermal overload on transmission lines is not acceptable as it could damage the facilities due to excessive heat.⁴²⁵ It could also cause safety concerns due to unsafe ground clearance of transmission lines.⁴²⁶ Moreover, overload on facilities that operate at a voltage greater than 100 kV, is a violation of North American Electric Reliability Corporation (NERC) standards.⁴²⁷ Without the proposed transmission upgrades, overloading and low voltage conditions is anticipated to worsen as the area experiences continued growth and development.⁴²⁸

202. In a response to a request for information by the DER, Xcel Energy stated:

Based on the 2011 load data, the total load at [the] Excelsior and Deephaven [Substations] exceeds the capacity of the Westgate Substation 115/69 kV transformer. The outage of Scott County – Excelsior 69 kV line during this condition would have caused the Westgate transformer to overload up to its emergency rating. Although the Westgate transformer did not overload in 2011, for planning purposes[,] it is considered a violation of planning criteria in 2011. Please note that there are no existing voltage violations on the system.⁴²⁹

203. The DER also analyzed the need stated in the Application for Certificate of Need and concluded that the actual load for the area exceeded the level at which reliable service can be provided.⁴³⁰ The DER further concluded that the existing level of demand indicates that transmission and/or distribution improvements are needed regardless of the forecast for future demand.⁴³¹ It is, therefore, undisputed that there is an overall need for the Project.

B. Measures to Meet Stated Need

204. Once a need for electricity production is identified, the remainder of the analysis in a Certificate of Need proceeding involves identifying the various ways to meet that need. The first element in that analysis is to determine whether the demand for electricity can be met more cost effectively through energy conservation and load-management measures.⁴³²

205. During this proceeding, the Revised Highway 5 System Alternative was identified. It is undisputed that both the Original System Alternative and the Revised

⁴²⁵ *Id.* at 6.

⁴²⁶ *Id.* at 24.

⁴²⁷ *Id.*

⁴²⁸ *Id.*

⁴²⁹ DER Comments at 7, eFiled on November 9, 2012, in Docket No. E002/CN-11-332 as Document ID 20125-74427-01.

⁴³⁰ DER Comments at 7, eFiled on November 9, 2012, in Docket No. E002/CN-11-332 as Document ID 20125-74427-01.

⁴³¹ *Id.*

⁴³² Minn. Stat. § 216B.243, subd. 3.

Highway 5 System Alternative meet the identified need to alleviate overloads and low voltage conditions on the transmission system in the southwest Twin Cities area.⁴³³

206. Xcel Energy, EFP and the DER all agree that the Revised Highway 5 System Alternative is the least cost alternative presented to meet the stated need.⁴³⁴ As such, these proceedings have identified that the demand for electricity can be met more cost effectively through the load-management measures provided in the Revised Highway 5 System Alternative. Therefore, there is no need to further analyze the criteria for a Certificate of Need.

207. In addition, a Certificate of Need is only required for “large energy facilities.”⁴³⁵ The Revised Highway 5 System Alternative does not qualify as a “large energy facility” under Minn. Stat. § 216B.2421, subd. 2. Therefore, there is no need to further analyze the various criteria for issuance of a Certificate of Need.

X. CONSIDERATIONS FOR A ROUTE PERMIT

208. A high-voltage transmission line may not be constructed without a Route Permit issued by the Commissioner.⁴³⁶ In addition, a high-voltage transmission line may be constructed only along a route approved by the Commissioner.⁴³⁷

209. The Power Plant Siting Act (PPSA), Minnesota Statutes Chapter 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.”⁴³⁸

210. Under the PPSA, the Commission and the ALJ must be guided by the following responsibilities, procedures, and considerations:

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

⁴³³ Ex. 31 at 6 (Wehlage Direct).

⁴³⁴ See Xcel Energy Reply Brief; EFP Reply Arguments and Analysis, and Initial Post Hearing Brief from the DER.

⁴³⁵ Minn. Stat. § 216B.243, subd. 3

⁴³⁶ Minn. Stat. § 216E.03, subd. 2.

⁴³⁷ *Id.*

⁴³⁸ Minn. Stat. § 216E.03, subd. 7.

- (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;⁴³⁹
- (5) analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;
- (6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;
- (7) evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivision 1 and 2;
- (8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;
- (9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;
- (10) evaluation of future needs for additional high-voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;
- (11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved; and
- (12) when appropriate, consideration of problems raised by other state and federal agencies and local entities.⁴⁴⁰

211. In addition, Minn. Stat. § 216E.03, subd. 7(e), provides that the Commission “must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons.”

⁴³⁹ Factor 4 is not applicable in the present case because Applicants are not proposing to site a large electric generating plant.

⁴⁴⁰ Minn. Stat. § 216E.03, subd. 7.

212. In addition to the PPSA, the Commission and the ALJ are governed by Minn. R. 7850.4100, 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;⁴⁴¹
- 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.⁴⁴²

213. There is sufficient evidence on the record for the ALJ to assess the Proposed Route using the factors set out above.

⁴⁴¹ This factor is not applicable in the present case because it applies only to power plant siting.

⁴⁴² Minn. R. 7850.4100.

XI. APPLICATION OF ROUTING FACTORS

214. For the Original System Alternative, there are six route alternatives under consideration: (1) Xcel Energy's Proposed Route; (2) the Highway 41 Alternative; (3) the Highway 7 Alternative #1; (4) the Highway 7 Alternative #2; (5) the Highway 7 Alternative #3; and (6) the Highway 7 Alternative #4.⁴⁴³

215. There is only one route alternative under consideration for the Revised Highway 5 System Alternative: the Highway 5 Route Alternative.⁴⁴⁴

216. Xcel Energy did not amend its original Route Permit Application to reflect the Highway 5 Route Alternative. Therefore, application of routing factors to the Highway 5 Route Alternative is largely dependent upon the EA, post-hearing briefing, and the public comment provided in this matter.

A. Effects on Human Settlement

217. Minnesota Statutes and Rules for high voltage transmission line routing require consideration of the proposed transmission line route's effect on human settlement, including displacement of residences and businesses; noise created during construction and by operation of the Project; and impacts to aesthetics, cultural values, recreation and public services.⁴⁴⁵

218. The land use in the Project Area for the Original System Alternative is a mix of both residential and commercial land uses.⁴⁴⁶ The Project Area for the Original System Alternative passes through eight municipalities located in two Minnesota counties (Hennepin and Carver Counties).⁴⁴⁷

219. The Project Area for the Revised Highway 5 System Alternative passes through three municipalities (Chaska, Chanhassen, and Eden Prairie), which are located in two Minnesota counties (Hennepin and Carver).

220. Each of the elements of effects on human settlement is detailed below.

1. Displacement

221. The National Electrical Safety Code (NESC) and Xcel Energy's standards require certain clearances between transmission line facilities and buildings for safe operation of the proposed transmission line facilities.⁴⁴⁸ Xcel Energy asserts that no residential or business displacement will occur as a result of the Proposed Route

⁴⁴³ Ex. 7 (Scoping Decision); Ex. 11 (Scoping Decision Amendment).

⁴⁴⁴ Ex. 13 (EA).

⁴⁴⁵ Minn. Stat. § 216E.03, subd. 7(b); Minn. R. 7850.4100(A).

⁴⁴⁶ Ex. 22 at 60 (Route Permit Application).

⁴⁴⁷ *Id.*

⁴⁴⁸ Ex. 22 at 61 (Route Permit Application).

because it intends to build within the existing 50-foot right-of-way.⁴⁴⁹ However, Xcel Energy is requesting a 75-foot right-of-way, which is larger than the 50-foot right-of-way that exists currently.⁴⁵⁰ Accordingly, while Xcel Energy asserts that it intends to rebuild within the existing right-of-way, there may well be a need for limited, new right-of-way acquisition.⁴⁵¹

222. In addition, because of the construction of new facilities required for the Highway 7 Route Alternatives and the Highway 41 Route Alternative, new right-of-way acquisition would inevitably be necessary if these route alternatives are chosen.⁴⁵² It is unclear in the record how much displacement the acquisition of new right-of-way would require.

223. No residential or business displacement will occur as a result of the Highway 5 Route Alternative because the high voltage facilities are already in place.⁴⁵³

224. While there will not be residential or business displacement as a result of the Proposed Route, there is considerable impact on human settlement related to the Proposed Route, as well as all of the route alternatives in the Original System Alternative. (See Adverse Human and Natural Environmental Effects section below.) Whereas, the impact on human settlement by the Highway 5 Route Alternative is minimal due to the fact that the Revised Highway 5 System Alternative utilizes high voltage facilities that are already in place. (See discussion below.)

2. Noise

225. The Minnesota Pollution Control Agency (MPCA) has established standards for the regulation of noise levels.⁴⁵⁴ For residential, commercial, and industrial land, the MPCA noise limits are 60-65 A-weighted decibel (dBA) during the daytime and 50-55 dBA during the nighttime.⁴⁵⁵

226. Transmission lines produce noise under certain conditions.⁴⁵⁶ The level of noise depends on conductor conditions, voltage level, and weather conditions. Generally, activity related noise levels during the operation and maintenance of transmission lines are minimal and do not exceed the MPCA noise limits outside the right-of-way.⁴⁵⁷

⁴⁴⁹ *Id.* at 62; Ex. 13 at 13 (EA).

⁴⁵⁰ Ex. 13 at 13.

⁴⁵¹ *Id.*

⁴⁵² *See generally*, Ex. 22 (Route Permit Application).

⁴⁵³ Ex 13 at 84 (EA).

⁴⁵⁴ Ex. 22 at 63 (Route Permit Application).

⁴⁵⁵ *Id.*.

⁴⁵⁶ *Id.*

⁴⁵⁷ *Id.*

227. Transmission lines can generate a small amount of sound energy during corona activity.⁴⁵⁸ Noise emission from a transmission line occurs during certain wet weather conditions and generally involves only crackling.⁴⁵⁹ Noise levels produced by a 115 kV transmission line is generally less than outdoor background levels and are, therefore, not usually audible.⁴⁶⁰

228. The audible noise levels for the Highway 5 Route Alternative, the Proposed Route, and the five route alternatives for the Original System Alternative are not predicted to exceed the MPCA noise limits.⁴⁶¹

229. There are approximately 621 residences and businesses located within 400 feet of the Proposed Route.⁴⁶² The closest residence is approximately three feet from the existing 115/69 kV line, which is proposed to be increased to a 115/115 kV line.⁴⁶³

230. Other noise associated with the operation of transmission facilities is transformer “hum” at substations.⁴⁶⁴ Both the Original System Alternative and the Revised Highway 5 System Alternative require modifications to the Scott County and Westgate Substations.⁴⁶⁵ Accordingly, both system alternatives would have the same noise impact with respect to these substations.

231. The Proposed Route requires modifications to the Excelsior and Deephaven Substations.⁴⁶⁶ The nearest home to the Excelsior Substation is 70 feet away.⁴⁶⁷ The Deephaven Substation is approximately 200 feet from the nearest home and 160 feet from the Deephaven Elementary School.⁴⁶⁸ Additional substation noise is an element of concern for residents living near the Deephaven and Excelsior Substations, as expressed in public comments.

232. The Highway 7 Alternatives #3 and #4 would require building a new substation, thus, creating a new noise source.⁴⁶⁹

233. The Highway 5 Route Alternative requires expansion of, and modifications to, the existing Bluff Creek Substation.⁴⁷⁰ The nearest residence is located approximately 1,080 feet from the fence of the existing Bluff Creek Substation.⁴⁷¹ The

⁴⁵⁸ *Id.*

⁴⁵⁹ *Id.*

⁴⁶⁰ *Id.*

⁴⁶¹ *Id.* at 63-65.

⁴⁶² *Id.* at 63.

⁴⁶³ *Id.*

⁴⁶⁴ Ex. 13 at 30 (EA).

⁴⁶⁵ Ex. 22 at 27-30 (Route Permit Application); Ex. 31 at 5 (Vemuri Direct).

⁴⁶⁶ Ex. 22 at 28-29.

⁴⁶⁷ Ex. 22 at 64.

⁴⁶⁸ *Id.*

⁴⁶⁹ Ex. 29 at 11 (Rogers Direct).

⁴⁷⁰ *Id.* at 8.

⁴⁷¹ *Id.*

City of Chaska has worked with Xcel Energy in developing a plan for the expansion of the Bluff Creek Substation that is agreeable to the city.⁴⁷² In addition, expansion and modifications of the Bluff Creek Substation will comply with state noise standards established by the MPCA.⁴⁷³

234. Accordingly, in terms of additional noise pollution, the Proposed Route and Highway 7 Route Alternatives #3 and #4 have the most impact; the Highway 5 Route Alternative has the least new impact.

3. Aesthetics

235. Due to the use of existing facilities, the potential aesthetic impacts of the Highway 5 Route Alternative would be considerably less than the potential impacts from the Proposed Route or any of the route alternatives in the Original System Alternative.⁴⁷⁴

236. First, the Highway 5 Route Alternative is considerably shorter than the Proposed Route or any of the route alternatives to the Original System Alternative.⁴⁷⁵ The Proposed Route spans over 20 miles and affects over 500 homes.⁴⁷⁶ The Highway 5 Route Alternative spans less than 10 miles and affects only approximately 36 homes.⁴⁷⁷

237. Second, the Highway 5 Route Alternative requires substantially less new construction than any of the routes included in the Original System Alternative.⁴⁷⁸ The Proposed Route requires replacement of existing 69 kV structures with much taller and larger 115 kV structures.⁴⁷⁹ All other route alternatives in the Original System Alternative require the construction of new transmission facilities and the acquisition of new right-of-way.⁴⁸⁰

238. The Highway 5 Route Alternative requires very limited new construction because the 115 kV structures are already in place along the Highway 5 corridor.⁴⁸¹ New construction for the Highway 5 Route Alternative would be limited to installing a short (0.5 mile) section of new 69 kV line between Structure #57 and the Bluff Creek Substation; installation of 3.6 miles of new 34.5 kV distribution lines; expansion of the Bluff Creek Substation (as described above); and transmission line modifications at the Scott County, Bluff Creek, and Westgate Substations.⁴⁸² Given this limited construction

⁴⁷² Ex. 37 (Letter from City of Chaska).

⁴⁷³ Ex. 29 at 8 (Rogers Direct).

⁴⁷⁴ *Id.* at 9.

⁴⁷⁵ *Id.*

⁴⁷⁶ Ex. 13 at 48 (EA).

⁴⁷⁷ *Id.* at 89.

⁴⁷⁸ Ex. 29 at 9 (Rogers Direct).

⁴⁷⁹ *Id.*

⁴⁸⁰ See Ex. 22.

⁴⁸¹ Ex. 29 at 9 (Rogers Direct).

⁴⁸² *Id.*

of new facilities, the Highway 5 Route Alternative will have the least effect on aesthetics.⁴⁸³

239. Third, the Highway 5 Route Alternative is located in a largely commercial area, whereas the Proposed Route is located in a predominantly residential and recreational area.⁴⁸⁴ There are 482 residences located within 50 feet of the anticipated centerline of the Proposed Route, while there are only 36 residences located within 200 feet of the anticipated centerline of the Highway 5 Route Alternative -- only 2 of which are within 50 feet.⁴⁸⁵

240. Fourth, the Proposed Route requires substantial removal and/or clearing of mature trees in the communities of Deephaven, Greenwood, and Excelsior.⁴⁸⁶ These trees serve as a buffer for residents from the Lake Minnetonka Regional LRT Trail and traffic on Minnetonka Boulevard, as well as contribute to the beauty of the Lake Minnetonka area.⁴⁸⁷

241. The existing 69 kV transmission lines along the Proposed Route were originally installed along a railroad corridor.⁴⁸⁸ However, the conversion of the corridor to a recreational trail and the increased residential development in the area around Lake Minnetonka have changed the overall aesthetic and use of the area.⁴⁸⁹ The replacement of existing 69 kV lines with much larger 115 kV transmission lines would be incongruent and out-of-scale with the structures and development in the area.⁴⁹⁰

242. Similarly, the Highway 41 Route Alternative requires new construction and placement of high voltage transmission lines where none before existed.⁴⁹¹ The proposed placement of the poles is in close proximity to numerous homes and nature preserves, including the Lake Minnewashta Regional Park.⁴⁹² These new impacts will not only affect human settlement but the natural environment as well.⁴⁹³

243. Fifth, the Proposed Route has more negative impact on the natural environment. The Proposed Route would require construction of approximately 455 new high voltage transmission towers, 61 of which would be placed in wetland ecosystems.⁴⁹⁴ In contrast, because the 115 kV transmission towers are already in

⁴⁸³ *Id.*

⁴⁸⁴ *Id.*

⁴⁸⁵ Ex. 13 at Table 47 (EA).

⁴⁸⁶ See Public Comment Section above.

⁴⁸⁷ *Id.*

⁴⁸⁸ Three Rivers Park District Written Comments, eFiled November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

⁴⁸⁹ *Id.*

⁴⁹⁰ *Id.*

⁴⁹¹ Metropolitan Council Written Comments, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 at Document ID 20136-87764-01 at 14.

⁴⁹² *Id.*

⁴⁹³ *Id.*

⁴⁹⁴ Ex. 13.

place, the Highway 5 Route Alternative has no new environmental impacts associated with the placement of high voltage towers.

244. The only new aesthetic impact of the Highway 5 Route Alternative involves the location and placement of 3.6 miles of 34.5 kV distribution lines. Because MnDOT utility permitting requirements will likely require Xcel Energy to bury the distribution lines and locate them parallel to the 115 kV line on the north side of Highway 5 across the highway from Terrey Pine Drive, the aesthetic impact can be mitigated by Route Permit conditions requiring the undergrounding of the entire distribution line and the replacement of disturbed vegetation in like kind.⁴⁹⁵

4. Cultural Values

245. Cultural values include those perceived community beliefs or attitudes in a given area, which provide a framework for community unity.⁴⁹⁶

246. Cultural representation in community events appears to be closely tied to geographic features (such as Lake Minnetonka), seasonal events, national holidays, recreational and park facilities (such as the Lake Minnetonka Regional LRT Trail and the Minnewashta Park), and municipal events, as opposed to those based on ethnic heritage.⁴⁹⁷ Examples of regional cultural events include the annual Fourth of July celebrations in Chanhassen, Eden Prairie, and Excelsior; the Chan Jam Music Festival and Summer Concert Series in Chanhassen; the Art on the Lake and By the Bay Music Festival in Excelsior.⁴⁹⁸

247. No impacts are anticipated to cultural values by the Highway 5 Route Alternative, the Proposed Route, or the five route alternatives for the Original System Alternative.⁴⁹⁹ However, the Proposed Route, the Highway 7 Route Alternatives, and the Highway 41 Route Alternatives would have greater impacts on geographic features and recreational and park facilities, which are important to the culture of the area, than would the Highway 5 Route Alternative, as discussed in the Recreation Section below.

5. Recreation

248. The Original System Alternative intersects or abuts a total of 14 parks and preserves within the 200-foot-wide Project Area.⁵⁰⁰ In addition, 28 bikeways intersect the Project Area.⁵⁰¹

⁴⁹⁵ See Xcel Energy Reply Brief, eFiled on July 22, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-89423-02; and in Docket No. E002/TL-11-948 as Document ID 20137-89423-04.

⁴⁹⁶ Ex. 22 at 68 (Route Permit Application).

⁴⁹⁷ See Public Comments summarized above.

⁴⁹⁸ Ex. 22 at 69 (Route Permit Application).

⁴⁹⁹ *Id.*

⁵⁰⁰ *Id.*

⁵⁰¹ *Id.* at 72.

249. The Highway 7 Route Alternatives have the fewest impacts on parks and recreational areas.⁵⁰² Both the Proposed Route and the Highway 41 Route Alternative have significant impacts on two, highly utilized park facilities.⁵⁰³

250. The Proposed Route Alternative runs parallel to the Lake Minnetonka LRT Regional Trail for five miles.⁵⁰⁴ This trail enjoys over 410,000 annual visits.⁵⁰⁵ According to both the Met Council and Three Rivers Park District, construction of new 115 kV transmission lines along this trail would have a negative visual impact for trail users and would affect the enjoyment of the trail's natural environment, which makes the trail so popular.⁵⁰⁶

251. Similarly, the Highway 41 Route Alternative would result in new 115 kV transmission lines paralleling the Lake Minnewashta Park.⁵⁰⁷ The park enjoys over 163,000 annual visits.⁵⁰⁸ According to the Met Council, the high-voltage transmission lines would inevitably impact the natural beauty of the park and the enjoyment of its users.⁵⁰⁹

252. In contrast, the Highway 5 Route Alternative is not expected to directly impact any recreational resources.⁵¹⁰ The only new facilities required for the Highway 5 Route Alternative is the expansion of the Bluff Creek Substation and the construction of 3.6 miles of new distribution lines. If the distribution lines are undergrounded, none of the new construction for the Highway 5 Route Alternative will impact the recreational use of the area.

6. Public Services, Transportation, and Infrastructure

253. There are eight cities in the Project Area: Chanhassen; Chaska; Eden Prairie; Shorewood; Excelsior; Greenwood; Deephaven; and Minnetonka.⁵¹¹ There are

⁵⁰² Ex. 13 at 65-82 (EA).

⁵⁰³ Metropolitan Council Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14; Three Rivers Park District Written Comments, eFiled on November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

⁵⁰⁴ Three Rivers Park District Written Comments, eFiled on November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

⁵⁰⁵ *Id.*

⁵⁰⁶ Metropolitan Council Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14; Three Rivers Park District Written Comments, eFiled on November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

⁵⁰⁷ Metropolitan Council Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14.

⁵⁰⁸ *Id.*

⁵⁰⁹ *Id.*

⁵¹⁰ Ex. 13 at 88 (EA).

⁵¹¹ *Id.* at 49.

no public utility or road improvement projects currently planned for the areas identified in the Original System Alternative.⁵¹²

254. The Met Council notes, however, that the Proposed Route “may have the potential to impact Council wastewater Interceptors that cross the proposed Project route,” and requested an opportunity to review design plans before initiating construction of the Project.⁵¹³ Xcel Energy does not object to this request.⁵¹⁴

255. Public comment notes that construction along Minnetonka Boulevard and in densely developed areas of the Proposed Route may cause disruption to residents and traffic, especially in the areas of Minnetonka, Deephaven, Excelsior, Shorewood, and Greenwood.⁵¹⁵

256. MnDOT also expressed concern about the Highway 7 Route Alternatives, stating that “[i]t is unclear at this time whether MnDOT would be able to issue a Utility Permit to Xcel” in those locations.⁵¹⁶

257. As to the Highway 5 Route Alternative, MnDOT expressed concern about the location of the 34.5 kV distribution lines that must be relocated along Highway 5.⁵¹⁷ MnDOT warned that the lines may be within MnDOT’s right-of-way and “clearzone,” and would not be permitted due to safety concerns.⁵¹⁸ Further, MnDOT noted that it would not permit transmission lines to parallel both sides of Highway 5.⁵¹⁹

⁵¹² *Id.* at 49-50.

⁵¹³ Metropolitan Council Written Comments, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14.

⁵¹⁴ Xcel Energy Initial Post Hearing Brief at 29, eFiled on July 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-88944-02; and in Docket No. E002/TL-11-948 as Document ID 20137-88945-02.

⁵¹⁵ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

⁵¹⁶ MnDOT Written Comments on the Scope of the EA, eFiled on August 1, 2012, in Docket No. E002/TL-11-948 as Document ID 20128-77489-01.

⁵¹⁷ MnDOT Written Comments on Xcel Energy's Initial Brief, eFiled on July 15, 2013, in Docket No. E002/TL-11-948 as Document ID 20137-89107-01.

⁵¹⁸ *Id.*

⁵¹⁹ *Id.*

258. Xcel Energy subsequently met with MnDOT and developed a revised preliminary route and design for the 3.6 miles of relocated 34.5 kV distribution line in Eden Prairie.⁵²⁰ In the revised plan, “all but approximately 1,000 feet of 34.5 kV line will be placed underground to comply with MnDOT’s permitting requirements....”⁵²¹ Accordingly, Xcel Energy has addressed this issue with MnDOT. Route Permit conditions which require compliance with MnDOT permitting rules and which require the undergrounding of the distribution line will resolve this issue.

B. Effects on Public Health and Safety

259. Minnesota high voltage transmission line routing factors require consideration of the Project’s effect on health and safety.⁵²² There are several factors that affect public health and safety, including construction and operation of the high-voltage facilities and electro-magnetic field (EMF) exposure.

1. Construction and Operation of Facilities

260. Xcel Energy identified and agrees to implement the appropriate safeguards during construction and operation to avoid any impacts to human health.⁵²³

261. Xcel Energy has agreed that the Project will be designed in compliance with local, state, NESC, and Xcel Energy’s standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and right-of-way widths.⁵²⁴

262. Xcel Energy has committed to follow established company and industry safety procedures during and after installation of the transmission facilities.⁵²⁵ This will include clear signage during all construction activities.⁵²⁶

263. According to Xcel Energy, the transmission lines are equipped with protective devices to safeguard the public from the transmission line if an accident occurs and a structure or conductor falls to the ground.⁵²⁷ The protective devices are breakers and relays located where the transmission line connects to the substation.⁵²⁸ The protective equipment would de-energize the line, should such an event occur.⁵²⁹ In

⁵²⁰ Xcel Energy Reply Brief at 6-7 and Revised Exhibit A, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-89423-02 and 06; and in Docket No. E002/CN-11-332 as Document ID 20137-89423-03 and 05.

⁵²¹ *Id.* at 6.

⁵²² Minn. Stat. § 216E.03, subd. 7(b)(1); Minn. R. 7850.4100(B).

⁵²³ Ex. 22 at 55 (Route Permit Application).

⁵²⁴ *Id.*; Ex. 13 at 35 (EA).

⁵²⁵ Ex. 22 at 55; Ex. 13 at 35 (EA).

⁵²⁶ *Id.*

⁵²⁷ *Id.*

⁵²⁸ *Id.*

⁵²⁹ *Id.*

addition, the substation facilities would be fenced and access limited to authorized personnel.⁵³⁰ This is equally true for all route alternatives.

264. In addition, stray voltage and inducted voltage are not expected to be issues in any of the route alternatives in this Project.⁵³¹ Accordingly, the construction and operation of the facilities for any of the route alternatives are not expected to negatively impact the public health and safety.

2. Electro-Magnetic Fields

265. The possible impact of EMF exposure on human health was an issue of much concern, as represented in the public comments.⁵³² The health effects of EMF exposure have been the subject of study by public health professionals for over 25 years.⁵³³ Epidemiological and toxicological studies have shown only weak associations between EMF exposure and health risks; none have established a direct, causal relationship.⁵³⁴ A general consensus has been formed to continue research on the health effects of EMFs.⁵³⁵

266. At this time, there are no federal standards regulating EMF exposure.⁵³⁶ Nonetheless, the Commission has imposed a maximum electric field limit of 8 kV/m measured at one meter above the ground at the edge of the right-of-way.⁵³⁷

⁵³⁰ Ex. 13 at 35 (EA).

⁵³¹ Initial Argument/Analysis of Minnesota Department of Commerce Energy Facility Permitting, eFiled on June 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-88940-02; and in Docket No. E002/TL-11-948 as Document ID 20137-88940-01.

⁵³² Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

⁵³³ Ex. 13 at 41-43.

⁵³⁴ *Id.*

⁵³⁵ *Id.*

⁵³⁶ *Id.*

⁵³⁷ Ex. 13 at 37 (EA).

267. The calculated electric fields for all route alternatives are significantly less than the maximum limit of 8 kV/m that has been imposed by the Commission.⁵³⁸ As a result, EFP and Xcel Energy assert that they do not anticipate any significant public health impacts related to any route alternative.⁵³⁹

C. Effects on Land-Based Economies and Direct and Indirect Economic Impacts

268. Minnesota's high voltage transmission line routing criteria require consideration of the Project's impacts to land-based economies, specifically agriculture, forestry, tourism, and mining.⁵⁴⁰

269. No route alternative would have any impact on the land-based economies of forestry or mining, as neither of these industries is active within the planned rights-of-way for any route alternative.⁵⁴¹

270. Only one of the route alternatives – the Highway 41 Alternative -- impacts agriculture. The University operates an apple orchard in the Minnesota Landscape Arboretum, located at the corner of Highway 41 and Highway 5.⁵⁴² The Highway 41 Route Alternative could impact the University's apple breeding program at that location.⁵⁴³ According to the University, any disruption of its property could result in the loss of 30 years of apple breeding research.⁵⁴⁴ Accordingly, this is a significant concern for the Highway 41 Route Alternative.

271. None of the other route alternatives would impact agriculture. The only agricultural cropland in the Project Area is within Segment 1 of the Proposed Route.⁵⁴⁵ There will be no construction in this segment.⁵⁴⁶ Instead, the existing 115 kV-69 kV transmission line will be re-energized to 115 kV-115 kV.⁵⁴⁷ Thus, no cropland will be disturbed.

⁵³⁸ Ex. 29 at Schedule 6 (Rogers Direct); Ex. 13 at 44 (Table 11); Initial Argument/Analysis of Minnesota Department of Commerce Energy Facility Permitting, eFiled on June 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-88940-02; and in Docket No. E002/TL-11-948 as Document ID 20137-88940-01.

⁵³⁹ Initial Argument/Analysis of Minnesota Department of Commerce Energy Facility Permitting, eFiled on June 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-88940-02; and in Docket No. E002/TL-11-948 as Document ID 20137-88940-01.

⁵⁴⁰ Minn. Stat. § 216E.03, subd. 7(b)(5); Minn. R. 7850.4100(C).

⁵⁴¹ Ex. 13 at 47.

⁵⁴² University of Minnesota Written Comments, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87763-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87763-03.

⁵⁴³ *Id.*

⁵⁴⁴ *Id.*

⁵⁴⁵ Ex. 13 at 46.

⁵⁴⁶ *Id.*

⁵⁴⁷ *Id.*

272. The public expressed concern about the potential effect on tourism related to the Proposed Route.⁵⁴⁸ A large portion of the Proposed Route is located in the Lake Minnetonka area.⁵⁴⁹ This area attracts thousands of individuals each year who use the lake for fishing and other recreational activities.⁵⁵⁰ Opponents of the Proposed Route note that the construction of larger high voltage transmission lines in the area would affect the users of the lake, as well as the 410,000 visitors to the Lake Minnetonka LRT Regional Trail each year.⁵⁵¹ The Highway 41 Alternative would have a similar impact on the 160,000 annual visitors to the Lake Minnewashta Regional Park.⁵⁵² Thus, both the Proposed Route and the Highway 41 Route Alternative would impact tourism in the areas.

273. In contrast, the Highway 5 Route Alternative would not negatively impact the land-based economies of agriculture, forestry, tourism, or mining.⁵⁵³ The majority of the facilities for the Highway 5 Route Alternative are already existing.

D. Effects on Archeological and Historic Resources

274. Minnesota Rules part 7850.4100(D) requires consideration of the effects on historic and archaeological resources.

275. No impacts to archaeological or historic resources are anticipated as a result of construction of the Project along the Proposed Route, the five route alternatives, or the Highway 5 Route Alternative.⁵⁵⁴

⁵⁴⁸ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

⁵⁴⁹ *Id.*

⁵⁵⁰ *Id.*

⁵⁵¹ *Id.*

⁵⁵² *Id.*

⁵⁵³ Ex. 13 (EA).

⁵⁵⁴ Ex. 22 at 77-78 (Route Permit Application); Ex. 13 (EA) at 51.

E. Effects on the Natural Environment

276. Minnesota's high voltage transmission line routing factors require consideration of the various route alternatives' effects on the natural environment, including effects on air and water quality resources and flora and fauna.⁵⁵⁵

1. Air Quality

277. There are minimal air quality impacts associated with transmission line construction and operation.⁵⁵⁶ The only potential air emissions from a transmission line result from corona.⁵⁵⁷ Corona can produce ozone and oxides of nitrogen in the air surrounding the conductor.⁵⁵⁸ Corona consists of the breakdown or ionization of the air in a few centimeters or less immediately surrounding conductors.⁵⁵⁹ For 115 kV transmission lines, the conductor gradient surface is usually below the air breakdown level, and well below the federal and state standards for ozone.⁵⁶⁰

278. Construction of all route alternatives will result in temporary air quality impacts caused by, among other things, construction vehicle emissions and fugitive dust from right-of-way preparation.⁵⁶¹ Overall, none of the proposed route alternatives result in significant impacts to air quality.⁵⁶² Because the Highway 5 Route Alternative would require the least amount of new construction, it would have the least impact on air quality.

2. Water Quality and Resources

279. The Project Area crosses the 100- and 500-year floodplains of the Minnesota River, Lower Lake Minnetonka, and two unnamed Public Water Wetlands.⁵⁶³ In addition, the Project Area crosses the 100-year floodplain of Bluff Creek, Purgatory Creek, Carson's Bay of Lake Minnetonka, and Duck Lake.⁵⁶⁴

280. The Project Area intersects nine Public Wetlands, four Public Waters, and four Watercourses, as defined by the MnDNR Public Water Inventor (PWI).⁵⁶⁵ Eighty-eight separate wetlands were identified within the 200-foot-wide Project area, comprising 65 acres of wetlands.⁵⁶⁶

⁵⁵⁵ Minn. Stat. §§ 216E.03, subd. 7(b)(1) and (2); Minn. R. 7850.4100(E).

⁵⁵⁶ Ex. 13 at 51 (EA).

⁵⁵⁷ *Id.*

⁵⁵⁸ *Id.*

⁵⁵⁹ *Id.*

⁵⁶⁰ *Id.*

⁵⁶¹ Ex. 22 at 78 (Route Permit Application).

⁵⁶² Ex. 13 at 51 (EA).

⁵⁶³ *Id.* at 52.

⁵⁶⁴ *Id.*

⁵⁶⁵ *Id.*

⁵⁶⁶ Ex 13 at 52

281. The Proposed Route would require construction of approximately 455 new transmission structures.⁵⁶⁷ Approximately 61 of those poles fall within wetlands.⁵⁶⁸ As a result, the MnDNR recommends that the project design be adjusted to relocate the poles outside of wetlands, floodplains, and sensitive areas as much as possible.⁵⁶⁹

282. In addition, the MnDNR expressed concern about the spread of invasive species related to construction work in the Project Area.⁵⁷⁰ This is particularly true for the Proposed Route and the five alternatives to that route. In response to the MnDNR's comments, the EFP recommended that Xcel Energy develop an invasive species management plan as a condition of the Route Permit.⁵⁷¹ Xcel Energy agrees to this condition.⁵⁷²

283. The Highway 5 Route Alternative crosses Bluff Creek, Riley Creek, and two unnamed wetlands.⁵⁷³ The record is insufficient to fully address the impacts that the Highway 5 Route Alternative would have on water quality in the area. However, because the Highway 5 Route Alternative does not appear to require any construction near these water resources, no significant impacts to water resources are anticipated.

3. *Flora*

284. Transmission lines have the potential to impact vegetation primarily through removal or disturbance required for construction, maintenance, and safe operation of the line.

285. While Xcel Energy contends that impacts to flora would be "minimal" in the Proposed Route because it intends to work within the existing right-of-way of the 69 kV line, Xcel Energy is requesting right-of-way of up to 75 feet for some areas of the Proposed Route.⁵⁷⁴ This is 25 feet more than the existing right-of-way along the 69 kV line.⁵⁷⁵ Accordingly, there will inevitably be impact to flora if the Proposed Route is adopted, as asserted in the public comments.

286. The area along the existing 69 KV route is filled with mature trees and lush vegetation. Public comment expressed that tree and vegetation clearing along the Proposed Route would have a significant effect on the residents in the area, as well as on the users of the Lake Minnetonka LRT Regional Trail.⁵⁷⁶ According to Three Rivers

⁵⁶⁷ *Id.* at 53.

⁵⁶⁸ *Id.*

⁵⁶⁹ MnDNR Written Comments, eFiled on May 31, 2013, in Docket No. E002/TL-11-948 as Document ID 20135-87672-01, and in Docket No. E002/CN-11-332 as Document ID 20136-87763-02.

⁵⁷⁰ *Id.*

⁵⁷¹ Ex. 13 at 53 (EA).

⁵⁷² *Id.*

⁵⁷³ *Id.* at 87.

⁵⁷⁴ *Id.* at 13.

⁵⁷⁵ *Id.*

⁵⁷⁶ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as

Park District, the vegetation along the trail provides a privacy screen for homeowners adjacent to the trail, and contributes to the overall beauty of the trail for its users.⁵⁷⁷ This vegetation also provides a buffer for residents from heavy traffic that runs along Minnetonka Boulevard.⁵⁷⁸

287. The impact to flora from the construction of the Highway 41 Route Alternative would also be significant. Along the Highway 41 Route Alternative, there is potential for significant tree clearing along the eastern boundary of Lake Minnewashta Regional Park.⁵⁷⁹ The right-of-way would encroach on the park for approximately one mile.⁵⁸⁰ Xcel Energy estimated the total acreage of tree clearance for the Highway 41 Route Alternative at 9.74 acres.⁵⁸¹

288. Similarly, the Highway 7 Route Alternatives #3 and #4 both make use of Vinehill Road.⁵⁸² Xcel Energy estimated at least 8.9 acres of trees would need to be cleared for either of these alternatives.⁵⁸³ As described in public comment, the loss of

Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6, 36, and 38-58.

⁵⁷⁷ Three Rivers Park District Written Comments, eFiled on November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

⁵⁷⁸ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6, 36, and 38-58.

⁵⁷⁹ Minnesota Department of Commerce Energy Facilities Permitting Post-Hearing Comments, eFiled on May 31, 2013, in Docket No. E002/CN-11-332 as Document ID 20135-87643-01; and in Docket No. E002/TL-11-948 as Document ID 20135-87643-02.

⁵⁸⁰ *Id.*

⁵⁸¹ *Id.*

⁵⁸² *Id.*

⁵⁸³ *Id.*

mature tree coverage would have a significant effect on the residents and park users in both the Highway 41 and Highway 7/Vinehill Road areas.⁵⁸⁴

289. In contrast, the impact to flora that would be caused by the Highway 5 Route Alternative could be mitigated through Route Permit conditions requiring the burying of distribution lines. No construction would be required for the conversion of the 115 kV transmission lines along Highway 5.⁵⁸⁵ Therefore, there should be no new impacts to vegetation with respect to the 115 kV lines.⁵⁸⁶ However, the construction of the 34.5 kV distribution line along the south side of Highway 5 in the area of Terrey Pine Drive would have significant effect on flora.⁵⁸⁷ According to Xcel Energy, the construction of distribution lines along Terrey Pine Drive would result in the loss of approximately 1.16 acres of vegetation between Terrey Pine Drive and Highway 5.⁵⁸⁸

290. Residents around Terrey Pine Drive submitted substantial public comment about the effects that the proposed 3.6 miles of 34.5 kV distribution line would have on a berm of trees that private residents planted several years ago between Terrey Pine Drive and Highway 5.⁵⁸⁹ The cost for such vegetation was over \$30,000 and was

⁵⁸⁴ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

⁵⁸⁵ Ex. 13 at 85.

⁵⁸⁶ *Id.*

⁵⁸⁷ Xcel Energy Reply Brief at 6-7, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-89423-02; and in Docket No. E002/CN-11-332 as Document ID 20137-89423-03.

⁵⁸⁸ Xcel Energy's Initial Post-Hearing Brief at Ex. B, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-88945-04; and in Docket No. E002/CN-11-332 as Document ID 20137-88944-04.

⁵⁸⁹ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6; 36, and 38-58.

funded by 12 private residents.⁵⁹⁰ The berm provides privacy and a buffer from traffic on Highway 5, and is important to the residents in the area, as documented by the 80+ public comments received from Eden Prairie residents.⁵⁹¹ Removal of the trees and vegetation along Terrey Pine Drive would have a significant negative effect on the residents in the area.⁵⁹²

291. The impact to flora caused by the construction of the 34.5 kV distribution line, as part of the Highway 5 Route Alternative, was also of concern to the City of Eden Prairie.⁵⁹³ Eden Prairie requests that the Commission require as a mitigation measure that the 34.5 kV distribution line be buried in a manner that does not disturb existing trees and shrubs; and that such costs be borne by Xcel Energy and its customers, as opposed to the city.⁵⁹⁴

292. Xcel Energy asserts that, after discussions with MnDOT, it now intends to bury all but 1000 feet of the 34.5 kV distribution line to comply with MnDOT permitting requirements.⁵⁹⁵ Xcel Energy writes:

Of note, the 34.5 kV distribution line will likely need to be underground on the north side of Highway 5 near Terry Pines Drive in the City of Eden Prairie and undergrounding this section will avoid impacts to trees and shrubs on the south side of Highway 5. Undergrounding of the 34.5 kV facilities could also be ordered by the Commission if it were to determine that undergrounding is necessary to minimize impacts to residences and vegetation. The Company would not oppose such a condition.⁵⁹⁶

293. Adding a condition in the Route Permit that Xcel Energy bury the 34.5 kV distribution line and replace all vegetation that is disturbed as a mitigation measure, would remedy the effects to the flora presented by the Highway 5 Route Alternative.⁵⁹⁷

294. EFP proposed three mitigation measures to reduce impacts to flora: (1) constructing facilities during the fall and winter months to minimize plant damage; (2) inspecting and cleaning equipment to avoid the introduction of invasive plant species;

⁵⁹⁰ *Id.*

⁵⁹¹ *Id.*

⁵⁹² *Id.*

⁵⁹³ City of Eden Prairie Written Comments dated May 29, 2013, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02, and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01; City of Eden Prairie Written Comments dated July 12, 2013, eFiled on July 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201374-89180-01; and in Docket No. E002/TL-11-948 as Document ID 20137-89182-01.

⁵⁹⁴ *Id.*

⁵⁹⁵ Xcel Energy Reply Brief at 6-7, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-89423-02; and in Docket No. E002/CN-11-332 as Document ID 20137-89423-03.

⁵⁹⁶ *Id.* at 7.

⁵⁹⁷ *Id.*

and (3) revegetating disturbed soils with low-growing native plant species.⁵⁹⁸ Xcel Energy does not object to inclusion of these mitigation measures in the Route Permit but requested that the phrase “when practicable” be added to the first condition.⁵⁹⁹

4. Fauna

295. The croplands, grasslands, wetlands, and woodlands in the area provide habitat for a variety of wildlife.⁶⁰⁰ Wildlife and other organisms that inhabit the Project Area include small mammals such as mice, voles, and ground squirrels; large mammals such as white-tailed deer, waterfowl and other water birds like pelicans and egrets, songbirds, raptors, upland game birds; and reptiles/amphibians such as frogs, salamanders, snakes, and turtles.⁶⁰¹ (Note: a discussion of the impact on rare or threatened species is set forth in the next section.)

296. Impacts to fauna as a result of the Project will be minimal.⁶⁰² Wildlife that resides within the construction zone will temporarily relocate to adjacent habitats during the construction process.⁶⁰³

297. The Proposed Route, the Highway 7 Route Alternative, and the Highway 41 Route Alternative have the most impact on fauna because they all require new construction. In addition, each of these routes is located in areas that contain wetlands and wildlife/nature preserves.⁶⁰⁴ This is particularly true for the Proposed Route and the Highway 41 Route Alternative.⁶⁰⁵

298. In contrast, there is minimal potential for displacement of wildlife and loss of habitat from construction of the Highway 5 Route Alternative as the 115 kV facilities are already in place.⁶⁰⁶

299. Raptors, waterfowl, and other bird species could be impacted by the Project through collision with transmission line conductors.⁶⁰⁷ Waterfowl are typically more susceptible to transmission line collision, especially if the line is placed between agricultural fields or between wetlands and open water.⁶⁰⁸ The electrocution of large

⁵⁹⁸ EFP Initial Post-Hearing Arguments and Analysis at 13, eFiled on July 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-88940-02; and in Docket No. E002/TL-11-948 as Document ID 20137-88940-01.

⁵⁹⁹ Xcel Energy Reply Brief, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-89423-02; and in Docket No. E002/CN-11-332 as Document ID 20137-89423-03.

⁶⁰⁰ Ex. 13 at 56 (EA).

⁶⁰¹ *Id.*

⁶⁰² *Id.*

⁶⁰³ *Id.*

⁶⁰⁴ *See generally*, Ex. 13.

⁶⁰⁵ *Id.*

⁶⁰⁶ *Id.*

⁶⁰⁷ Ex. 22 at 85 (Route Permit Application).

⁶⁰⁸ Ex. 13 at 56 (EA).

birds, such as raptors, is more commonly associated with small distribution lines than large transmission lines.⁶⁰⁹

300. The Project was assessed for areas with potential avian issues.⁶¹⁰ Areas where bird diverters, known as Swan Flight Diverters (SFDs), might be warranted have been identified in the EA.⁶¹¹ The MnDNR reviewed the locations of SFDs and concurred with the locations.⁶¹²

301. EFP suggests that the Route Permit include language requiring Xcel Energy to consult with the MnDNR about placement of SFDs on the transmission lines for the route selected.⁶¹³ With respect to the Highway 5 Route Alternative, Xcel Energy included proposed locations for SFDs on Revised Exhibit A of its Reply Brief, and agrees to consult with the MnDNR regarding the locations.⁶¹⁴

F. Effects on Rare and Unique Natural Resources

302. Minnesota's high voltage transmission line routing factors require consideration of the proposed route's effect on rare and unique natural resources.⁶¹⁵

303. There are 65 known occurrences of rare or unique resources identified within two miles of the Proposed Project.⁶¹⁶ Twenty-five of the 65 rare or unique species are located within 0.5 miles of the Project Area.⁶¹⁷ Forty-two are within two miles of Segment 1 of the Proposed Route, a portion of the Project where no structural changes or disturbance will occur as part of the Project.⁶¹⁸

304. In general, impacts to rare and unique resources would be avoided in the Proposed Route because it involves rebuilding along an existing 69 kV line within an existing utility corridor.⁶¹⁹ Even less impact to fauna would occur with respect to the Highway 5 Route Alternative, as it involves simply re-energizing an existing line concentrated in a small geographic area.⁶²⁰

⁶⁰⁹ *Id.*

⁶¹⁰ Ex. 13 at 56.

⁶¹¹ *Id.*

⁶¹² MnDNR Written Comments, eFiled May 31, 2013, in Docket No. E002/TL-11-948 as Document ID 20135-87672-01; and in Docket No. E002/CN-11-332 as Document ID 20136-87763-02.

⁶¹³ EFP Initial Post-Hearing Arguments and Analysis at 13, eFiled on July 8, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-88940-02; and in Docket No. E002/TL-11-948 as Document ID 20137-88940-01.

⁶¹⁴ Xcel Energy Reply Brief at 3, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-89423-02; and in Docket No. E002/CN-11-332 as Document ID 20137-89423-03.

⁶¹⁵ Minn. Stat. § 216E.03, subd. 7(b)(1); Minn. R. 7850.4100(F).

⁶¹⁶ Ex. 13 at 57 (EA).

⁶¹⁷ *Id.*

⁶¹⁸ *Id.*

⁶¹⁹ *Id.*

⁶²⁰ *Id.* at 84.

305. The MnDNR has identified that the state-listed threatened Blanding's Turtles and two state-listed fish have been reported in the vicinity of the Original System Alternative.⁶²¹ No new bald eagles' nests were located in the Project Area.⁶²²

306. The MnDNR provided recommendations regarding the preservation of the Blanding's Turtle and state-listed fish species.⁶²³ The MnDNR recommends: (1) avoiding use of fertilizers and pesticides within wetlands; (2) using effective erosion control to keep sediment from reaching wetlands and lakes, and (3) using wildlife friendly erosion control.⁶²⁴ Also, the MnDNR recommends that if Blanding's Turtles are encountered, Xcel Energy should notify the MnDNR Regional Nongame Specialist.⁶²⁵

307. Xcel Energy consents to the inclusion of these mitigation measures in the Route Permit.⁶²⁶ Accordingly, the impacts to rare and unique natural resources should be minimal if the DNR recommendations are adopted by Xcel Energy and made conditions of the Route Permit.

G. Application of Various Design Considerations

308. Minnesota's high voltage transmission line routing factors require consideration of the Project's applied design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity.⁶²⁷

309. The Original System Alternative updates existing 69 kV lines to 115 kV capacity, enabling future expansion of the system.⁶²⁸

310. The Revised Highway 5 System Alternative defers upgrades to the 69 kV system, but immediately upgrades the current distribution system in the area and meets the energy identified needs.⁶²⁹

⁶²¹ *Id.* at 57.

⁶²² *Id.*

⁶²³ MnDNR Written Comments to the Office of Energy Security, eFiled August 1, 2012, in Docket No. E002/TL-11-948 as Document ID 20128-77473-01; MnDNR Written Comments, eFiled May 31, 2013, in Docket No. E002/TL-11-948 as Document ID 20135-87672-01, and in Docket No. E002/CN-11-332 as Document ID 20136-87763-02.

⁶²⁴ MnDNR Written Comments, eFiled May 31, 2013, in Docket No. E002/TL-11-948 as Document ID 20135-87672-01; and in Docket No. E002/CN-11-332 as Document ID 20136-87763-02.

⁶²⁵ *Id.*

⁶²⁶ Xcel Energy Reply Brief at 3, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-89423-02; and in Docket No. E002/CN-11-332 as Document ID 20137-89423-03.

⁶²⁷ Minn. R. 7850.4100 G.

⁶²⁸ Ex. 13 at 21 (EA).

⁶²⁹ *Id.*

311. The Revised Highway 5 System Alternative is designed to provide 250 MW of incremental load growth.⁶³⁰ The Original System Alternative is designed to provide 200 MW.⁶³¹

312. Due to the age of the 69 kV facilities in the Original System Alternative, which are nearing the end of their useful life, the system will still require upgrades to the existing lines by approximately 2023.⁶³² Thus, even if the Revised Highway 5 System Alternative is selected, future upgrades will be required for the Proposed Route.⁶³³

313. The majority of load-serving transmission lines in the Twin Cities metropolitan area are 115 kV lines.⁶³⁴ The Highway 5 Route Alternative leaves in place the existing 69 kV line between Structure #57 and the Excelsior, Deephaven, and Westgate Substations.⁶³⁵ As a result, it leaves in place an isolated 69 kV transmission line.⁶³⁶ Whereas the Proposed Route updates the existing 69 kV line to 115 kV and allows for future expansion in the area.⁶³⁷

314. As a result, the Proposed Route accommodates future load growth by: (1) solving the need to rebuild the 69 kV loop in the future due to either overloading or age and condition; and (2) providing more opportunities to further expand the 115 kV transmission system as a whole.⁶³⁸

315. While the Proposed Route better positions the transmission system, as a whole, to accommodate future load growth, the Highway 5 Route Alternative meets the energy needs of the area and has fewer impacts on the environmental, aesthetics, and human settlement, as discussed above.

316. With respect to design options that can mitigate adverse environmental effects, the burying of distribution lines in the Revised Highway 5 System Alternative will minimize the environmental impacts related to the Highway 5 Route Alternative (see above).

H. Use or Paralleling of Survey Lines, Natural Division Lines, and Agricultural Field Boundaries

317. Minnesota's high voltage transmission line routing factors require consideration of the proposed routes' use or paralleling of existing governmental survey

⁶³⁰ Ex. 27 at 14 (Xcel Energy's Reply Comments).

⁶³¹ Ex. 32 at 6.

⁶³² Ex. 13 at 84.

⁶³³ *Id.*

⁶³⁴ Ex. 17 at 7-8.

⁶³⁵ *Id.*

⁶³⁶ *Id.*

⁶³⁷ *Id.*

⁶³⁸ Ex. 17 at 7-8.

lines, natural division lines, and agricultural field boundaries so as to minimize interference with agricultural operations.⁶³⁹

318. Using existing corridors reduces and minimizes impacts on planned future residential areas, commercial properties, and environmental and sensitive resources.⁶⁴⁰

319. The Proposed Route consists of converting existing 115/69 kV transmission lines to 115/115 kV line, and removing and replacing existing 69 kV transmission lines.⁶⁴¹ The Highway 5 Route Alternative simply converts an existing 115/34.5 kV line to 115/115 kV capacity.⁶⁴² The construction of 3.6 miles of new distribution line required for the Highway 5 Route Alternative is not located in an agricultural area and does not have impact on governmental survey lines, natural division lines, or agricultural field boundaries.⁶⁴³

320. Thus, neither the Proposed Route nor the Highway 5 Route cause new disturbances to survey lines, natural division lines, or agricultural field boundaries.

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

321. Minnesota's high voltage transmission line routing factors require consideration of the proposed routes' use of existing transportation, pipeline and electrical transmission system rights-of-way.⁶⁴⁴

322. As set forth above, both the Proposed Route and the Highway 5 Route Alternative reuse existing high-voltage transmission line routes, parallel highway rights-of-way, or in some instances, both.⁶⁴⁵

323. In contrast, the Highway 41 and Highway 7 Route Alternatives require the acquisition of new right-of-way.⁶⁴⁶ Accordingly, the Highway 41 and Highway 7 Route Alternatives are inferior to either the Proposed Route or the Highway 5 Route Alternative in terms of requiring new right-of way acquisition.

324. The Proposed Route may, in some places, require 25 feet of additional right-of-way.⁶⁴⁷ In contrast, the Highway 5 Route Alternative utilizes the existing 115 kV

⁶³⁹ Minn. Stat. § 216E.03, subd. 7(b)(9); Minn. R. 7850.4100(H).

⁶⁴⁰ Ex. 22 at 21 and 35 (Route Permit Application).

⁶⁴¹ *Id.* at 18.

⁶⁴² Ex. 27 at 4-5.

⁶⁴³ Xcel Energy's Initial Post-Hearing Brief at Ex. A, eFiled on July 22, 2013, Docket No. E002/TL-11-948 as Document ID 20137-88945-04; and in Docket No. E002/CN-11-332 as Document ID 20137-88944-04.

⁶⁴⁴ Minn. Stat. § 216E.03, subd. 7(b)(8); Minn. R. 7850.4100(J).

⁶⁴⁵ DER Comments at 9, eFiled on November 9, 2012, in Docket No. E002/CN-11-332 as Document ID 20125-74427-01.

⁶⁴⁶ Ex. 22 at 24 (Route Permit Application).

⁶⁴⁷ Ex. 13 at 13 (EA).

transmission lines and requires no new right-of-way.⁶⁴⁸ Accordingly, the Highway 5 Route Alternative maximizes the use of existing transmission rights-of-way.

J. Electrical System Reliability

325. Minnesota's high voltage transmission line routing factors require consideration of the Project's impact on electrical system reliability.⁶⁴⁹

326. The Project is designed to provide increased electrical system reliability by either replacing aging lines (as in the case with the Proposed Route) or increasing the capacity of existing lines (as in the case of the Highway 5 Route Alternative).⁶⁵⁰ Both the Proposed Route and the Highway 5 Route Alternative are designed to meet NERC reliability requirements.⁶⁵¹ Thus, both the Proposed Route and the Highway 5 Route Alternative equally achieve overall system reliability.

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

327. Minnesota's high voltage transmission line routing factors require consideration of the proposed routes' cost of construction, operation, and maintenance.⁶⁵²

328. Construction cost estimates are subject to change as they can be affected considerably by several variables such as the timing of construction, availability of construction crews and components, and the final route selected by the Commission.

329. The estimated total project cost of the Original System Alternative is \$60.18 million.⁶⁵³ The estimated total project cost of the Highway 5 System Alternative along the Highway 5 Route Alternative is \$61.51 million.⁶⁵⁴

330. The estimated total project cost of the Highway 7 Route Alternatives #1 and #2 is slightly higher than the Original System Alternative's Proposed Route (\$63.18 million for Alternative #1 and \$65.18 million for Alternative #2 vs. \$60.18 million for the Proposed Route).⁶⁵⁵ The estimated total project cost for the Highway 7 Route Alternative #3 is 20 percent greater than the Original System Alternative's Proposed Route (\$73.07 million vs. \$60.18 million).⁶⁵⁶ The Highway 7 Alternative #4 is the most expensive route alternative at \$75.17 million, which is 25 percent greater than the costs of the Original System Alternative's Proposed Route.⁶⁵⁷

⁶⁴⁸ Ex. 27 at 4-5 (Xcel Energy Reply Comments).

⁶⁴⁹ Minn. Stat. § 216E.03, subd. 7(b)(10); Minn. R. 7850.4100(K).

⁶⁵⁰ Ex. 22 at 13 and 33 (Route Permit Application); Ex. 27 at 6 (Xcel Energy Reply Comments).

⁶⁵¹ *Id.*

⁶⁵² Minn. R. 7850.4100(L).

⁶⁵³ Ex. 13 at 16 (EA).

⁶⁵⁴ *Id.* at 90.

⁶⁵⁵ *Id.* at 69 and 73.

⁶⁵⁶ *Id.* at 77.

⁶⁵⁷ *Id.* at 81.

331. The total project cost of the Highway 41 Route Alternative is \$62.96 million.⁶⁵⁸ Hence, the Highway 7 Route Alternatives and the Highway 41 Route Alternative are the most expensive route alternatives.⁶⁵⁹

332. The estimated initial capital cost of the Revised Highway 5 System Alternative is \$28.03 million, resulting in a NPV of \$44 million, and a NPV per MW served of \$0.176.⁶⁶⁰ With a requirement that all 3.6 miles of distribution line be buried underground, the NPV per MW increases to \$0.18 per MW.⁶⁶¹

333. In contrast, the estimated initial capital cost of the Original System Alternative is \$25.48 million, resulting in a NPV of \$45 million, and a NPV per MW served of \$0.23.⁶⁶² Accordingly, the Revised Highway 5 System Alternative is the least cost alternative, even with a requirement that all 3.6 miles of distribution line be constructed underground.

334. The DER analysis of the cost difference between the Highway 5 Route Alternative⁶⁶³ and the Proposed Route found that the Highway 5 Route Alternative was the least cost alternative “by a significant margin.”⁶⁶⁴ DER estimated that the initial capital cost of the Highway 5 Route Alternative was \$21.76 million, with a NPV of \$33.78 million and a NPV per MW served of \$0.135.⁶⁶⁵ DER estimated that the initial capital cost of the Proposed Route was \$26.05 million, with a NPV of \$36.02 million and a NPV per MW served of \$0.180.⁶⁶⁶

335. The DER concluded that:

[A]s long as the initial capital cost of the Highway 5 Hybrid alternative does not increase by more than \$5.5 million, the internal cost of the Proposed [Route] and the internal cost of energy to be supplied by the Proposed [Route] are greater than the Highway 5 Hybrid alternative.⁶⁶⁷

336. Thus, because the cost of burying all 3.6 miles of distribution line in the Highway 5 Route Alternative is only \$200,000.00, the Highway 5 Route Alternative is the least cost alternative for both Xcel Energy and its customers.⁶⁶⁸

⁶⁵⁸ Id at 64.

⁶⁵⁹ Id.

⁶⁶⁰ Ex. 31 at 4 (Verumi Direct).

⁶⁶¹ Xcel Energy Reply Brief at 8, eFiled on July 22, 2013, in Docket No. E002/CN-332 as Document ID 20137-89423-03; and in Docket No. E002/TL-948 as Document ID 20137-89423-04.

⁶⁶² Ex. 13 at 16 (EA).

⁶⁶³ Described by the DER as the “Highway 5 Hybrid Alternative.”

⁶⁶⁴ Comments of the DER at 18, eFiled on May 3, 2012, in Docket No. E002/CN-11-332 as Document ID 20125-74427-01.

⁶⁶⁵ Id.

⁶⁶⁶ Id.

⁶⁶⁷ Id. at 20.

⁶⁶⁸ Id.

337. Note, however, that the Proposed Route will require system upgrades in approximately 2023.⁶⁶⁹

338. In addition to initial costs, there are annual operation and maintenance costs for any route alternative selected. Annual operating and maintenance costs for the 115 kV transmission voltages across Applicant's upper Midwest systems average approximately \$300 to \$500 per mile of transmission right-of-way.⁶⁷⁰ The principal operating and maintenance cost will be inspections, which are usually done by fixed-wing aircraft and by helicopter on a regular basis.⁶⁷¹ Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used and the age of the line.⁶⁷²

339. Substations, too, require a certain amount of maintenance to keep them functioning in accordance with accepted operating parameters and the NESC requirements.⁶⁷³ Transformers, circuit breakers, batteries, protective relays, and other equipment need to be serviced periodically in accordance with the manufacturer's recommendations.⁶⁷⁴ The substation site must be kept free of vegetation and adequate drainage must be maintained.⁶⁷⁵ These costs will be incurred for any route selected.

L. Unavoidable Adverse Human and Natural Environmental Effects

340. Minnesota's high voltage transmission line routing factors require consideration of the adverse human and natural environmental effects which cannot be avoided, for each proposed route.⁶⁷⁶

341. The Proposed Route impacts over 500 residences located within 200 feet of the Proposed Route.⁶⁷⁷ The impact to these residences is significant, as articulated in the plethora of public comment.⁶⁷⁸

⁶⁶⁹ Ex. 31.

⁶⁷⁰ Ex. 22 at 47 (Route Permit Application).

⁶⁷¹ Ex. 13 at 15 (EA).

⁶⁷² *Id.*

⁶⁷³ Ex. 22 at 47 (Route Permit Application).

⁶⁷⁴ *Id.*

⁶⁷⁵ *Id.*

⁶⁷⁶ Minn. Stat. §§ 216E.03, subd. 7(b)(5) and (6); Minn. R. 7850.4100(M).

⁶⁷⁷ Ex. 13 at 48 (EA).

⁶⁷⁸ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-

342. The proposed structures for the new 115 kV lines required for the Proposed Route would be significantly larger than the existing 69 kV facilities in the area.⁶⁷⁹ These larger 115 kV facilities would be located in largely residential areas along Lake Minnetonka in the communities of Deephaven, Greenwood, and Excelsior.⁶⁸⁰ As noted by the public commentary, the scale of the facilities, in comparison with the density of the residential areas, will have a negative aesthetic effect to these neighborhoods.⁶⁸¹ Also, the close proximity of the lines to residences and schools has a negative impact on human development in the area.⁶⁸²

343. In addition to the effect on human settlement, the Proposed Route would have adverse effects on the natural environment in the area. The Proposed Route would require construction of approximately 455 new high voltage transmission towers along a 20 mile stretch, 61 of those towers would be placed in wetland ecosystems.⁶⁸³ As a result, there would be impacts to the natural environment. These areas also contain several state-listed threatened species, including the Blanding's Turtles and two fish species.⁶⁸⁴

344. Moreover, as articulated by the Met Counsel and the Three Rivers Park District, the construction of 115 kV facilities and the loss of trees and vegetation in the area would have a negative effect on the users of Lake Minnetonka and the Lake Minnetonka LRT Regional Trail, as well as the homeowners along the trail who rely on the vegetation to provide a natural "screen" from the trail users.⁶⁸⁵

01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6, 36, and 38-58.

⁶⁷⁹ Ex. 13 at 14 and 33 (EA).

⁶⁸⁰ See generally, Ex. 13.

⁶⁸¹ Public Hearing Transcript (1:30 session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-02; and in Docket No. E002/TL-11-948 as Document ID 20136-87722-01; Public Hearing Transcript (6:00 p.m. session), eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04; Docket No. E002/TL-11-948 as Document ID 20136-87722-03; Public Hearing Written Comments, Docket No. E002/CN-11-332 as Document IDs 20136-87763-02; 20136-87763-04; 20137-89621-01; 20137-89614-01; 20137-89515-001; 20137-89519-01; 20137-89517-01; 20137-89494-01; 20137-89298-01; 20137-88715-01; 20136-87985-02; 20136-87764-02; 20136-87763-04; 20136-87775-02; 20136-87763-02; 20135-86805-02; 201212-81305-01; 201211-80810-01; 201211-80586-01; 201211-80362-01; 20128-77935-01; 20128-77669-01; 20128-77596-01; 20128-77509-02; 20127-77447-01; 20126-75966-01; Public Hearing Written Comments, Docket No. E002/TL-11-948 as Document IDs 20136-87763-03; 20136-87763-01; 20137-89622-01; 20137-89620-01; 20137-89520-01; 20137-89516-01; 20137-89518-01; 20137-89495-01; 20137-89299-01; 20137-88717-01; 20136-87985-01; 20136-87775-01; 20136-87764-01; 20135-87173-01; 20135-86805-01; 201211-80290-01; 20128-77935-02; 20128-77509-01; 20126-75966-02; Exs. 6, 36, and 38-58.

⁶⁸² *Id.*

⁶⁸³ Ex. 22 at 81 (Route Permit Application).

⁶⁸⁴ Ex. 13 at 57 (EA).

⁶⁸⁵ Metropolitan Council Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14; Three Rivers Park District Written Comments, eFiled November 16, 2013, in Docket No. E002/CN-11-332 as Document ID 201211-80729-01.

345. The Highway 7 Route Alternatives, too, would have a negative impact on human settlement and the natural environment. Because the Highway 7 Route Alternatives required the acquisition of new right-of-way and the construction of new facilities where none currently exist, there would be significant tree loss and vegetation clearing, especially along Vinehill Road.⁶⁸⁶ For example, Xcel Energy estimates that 8.9 acres of wooded area would have to be cleared if the Highway 7 Route Alternative #1 was selected.⁶⁸⁷ All other Highway 7 Route Alternatives similarly require substantial vegetation removal.⁶⁸⁸

346. The Highway 41 Route Alternative, too, would have negative, new impacts on human settlement and the natural environment. First, the Highway 41 Alternative is longer and occupies nearly 50 percent more acreage than the Proposed Route.⁶⁸⁹ Second, the Highway 41 Route Alternative is in a largely residential area and in close proximity to existing homes.⁶⁹⁰ Third, the Highway 41 Alternative requires new right-of-way acquisition.⁶⁹¹ Fourth, the Highway 41 Alternative would negatively impact the University of Minnesota's Landscape Arboretum and apple breeding program.⁶⁹² Fifth, as the Met Counsel noted, the Highway 41 Alternative would negatively impact the users of the Minnewasha park and its natural beauty.⁶⁹³

347. The Highway 5 Route Alternative would have the least impact on human development and the natural environment. Because the Highway 5 Route Alternative requires no new construction of 115 kV line, there would be no new impacts arising from construction of a new line. Most of the long term impacts of the transmission line, those related to land and visual impacts, have already largely been realized with the existing 115 kV transmission lines.⁶⁹⁴ However, new impacts would occur with respect to the placement of the 34.5 kV distribution lines, which were the subject of the majority of the comments received related to the Highway 5 Route Alternative.⁶⁹⁵

348. The new impacts caused by the 34.5 kV distribution lines can be mitigated through the use of Route Permit conditions requiring the burying of the distribution lines and the re-vegetation of areas, particularly along the Terrey Pine Drive berm.⁶⁹⁶

⁶⁸⁶ Ex. 13 at 66-82 and Figure 8 (EA).

⁶⁸⁷ *Id.* at 67.

⁶⁸⁸ *Id.* at 66-82.

⁶⁸⁹ *Id.* at 60.

⁶⁹⁰ *Id.* at 60-64.

⁶⁹¹ Ex. 14 at 64.

⁶⁹² University of Minnesota Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87763-04; and in Docket No. E002/TL-11-948 as Document ID 20136-87763-03.

⁶⁹³ Metropolitan Council Written Comments, eFiled June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87764-02 at 14; and in Docket No. E002/TL-11-948 as Document ID 20136-87764-01 at 14.

⁶⁹⁴ Ex. 13 at 92 (EA).

⁶⁹⁵ See Public Comments Section above.

⁶⁹⁶ See Xcel Energy Reply Brief, eFiled on July 22, 2013, in Docket No. E002/CN-11-332 as Document ID 20137-89423-02; and in Docket No. E002/TL-11-948 as Document ID 20137-89423-04.

349. Accordingly, permanent adverse human and natural environmental effects associated with the Highway 5 Route Alternative can be avoided through the burying of the distribution lines and re-vegetation.

M. Irreversible and Irretrievable Commitments of Resources

350. Minnesota's high voltage transmission line routing factors consideration of the irreversible and irretrievable commitments of resources that are necessary for each proposed route.⁶⁹⁷

351. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of those resources have on future generations.⁶⁹⁸ Irreversible effects result primarily from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame.⁶⁹⁹ Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of action.⁷⁰⁰

352. There are few commitments of resources associated with any of the proposed routes of this Project that are irreversible and irretrievable, but those few resources primarily relate to construction of the Project.⁷⁰¹

353. Only construction resources, such as concrete, steel, and hydrocarbon fuels, will irreversibly and irretrievably be committed to this Project.⁷⁰² This is equally true for all route alternatives. However, because the Highway 5 Route Alternative requires the least amount of new construction, it requires the commitment of the least amount of irreversible and irretrievable resources.

CONCLUSIONS

JURISDICTION

1. The Public Utilities Commission and Administrative Law Judge have jurisdiction to consider the Application for a Certificate of Need and the Application for a Route Permit.⁷⁰³

⁶⁹⁷ Minn. Stat. § 216E.03, subd. 7(b)(11); Minn. R. 7850.4100(N).

⁶⁹⁸ Ex. 13 at 92 (EA).

⁶⁹⁹ *Id.*

⁷⁰⁰ *Id.*

⁷⁰¹ Ex. 13 at 92 (EA).

⁷⁰² *Id.*

⁷⁰³ See, Minn. Stat. §§ 14.57 - 14.62 and 216E.02, subd. 2.

NOTICE REQUIREMENTS

354. Minnesota Rules part 7829.2550 requires an applicant for a Certificate of Need to submit a notice plan petition for approval by the Commission before filing a Certificate of Need Application.⁷⁰⁴

355. Xcel Energy submitted a Notice Plan Petition on April 19, 2011, and the Commission approved this Plan on August 8, 2011.⁷⁰⁵

356. Prior to filing the Application for a Certificate of Need on March 9, 2012, Xcel Energy provided all notices required by the Approved Notice Plan Petition.⁷⁰⁶

357. Minnesota statutes and rules require Applicant to provide certain notice to the public and local governments before and during the Application for a Route Permit.⁷⁰⁷

358. Xcel Energy provided notice to the public and local governments in satisfaction of Minnesota statutory and rule requirements.

359. Minnesota statutes and rules also require EFP and the Commission to provide certain notice to the public throughout the Certificate of Need and Route Permit processes.⁷⁰⁸

360. EFP and the Commission provided the notices in satisfaction of Minnesota statutes and rules.

ADEQUACY OF ENVIRONMENTAL ASSESSMENT

361. The Commission is required to determine the completeness of the EA.⁷⁰⁹ An EA is complete if the EA and the record created at the public hearing address the issues and alternatives identified in the Scoping Decision.⁷¹⁰

362. The evidence on the record demonstrates that the EA is adequate because the EA and the record created at the public hearing address the issues and alternatives raised in the Scoping Decision and Amended Scoping Decision.⁷¹¹

⁷⁰⁴ Minn. R. 729.2550.

⁷⁰⁵ Ex. 16 (Notice Plan Petition); Order Approving Notice Petition, eFiled on August 8, 2011, in Docket No. E002/CN-11-332 as Document ID 20118-65146-01.

⁷⁰⁶ Ex. 21 (Notice Plan Compliance Filing).

⁷⁰⁷ Minn. Stat. § 216E.03, subd. 3a; Minn. Stat. § 216E.03, subd. 4; Minn. R. 7850.2100, subp. 2; Minn. R. 7850.2100, subp. 4.

⁷⁰⁸ Minn. Stat. §§ 216B.243, subd. 4 and 216E.03, subd. 6; Minn. R. 7850.2300, 7849.1400, 7850.3700 Minn. Stat. § 216E.03, subd. 6.

⁷⁰⁹ Minn. R. 7850.3900, subp. 2.

⁷¹⁰ Minn. R. 7850.3900, subp. 2.

⁷¹¹ See Ex. 13 (EA).

CERTIFICATE OF NEED CONCLUSIONS

363. The Commission determined that the Certificate of Need Application was substantially complete and accepted the Application on May 8, 2012.⁷¹²

364. Applicants gave notice as required by Minn. R. 7829.2500.

365. A public hearing was held on May 16, 2013, at the Chanhassen Recreation Center in Chanhassen, Minnesota.⁷¹³ The public hearing was held in two sessions: the first session commenced at 1:30 p.m.; and the second session commenced at 6:00 p.m.⁷¹⁴ The times and place of the public hearing were convenient to the public. Applicants and the Commission gave proper notice of the public hearing, and the public was given the opportunity to speak at the hearing, as well as to submit written comments.⁷¹⁵ A Commission staff member was present at the hearings to facilitate public participation.⁷¹⁶ The public hearing satisfies the requirements of Minn. Stat. § 216B.243, subd. 4.

366. The criteria for evaluating an application for a Certificate of Need are set forth in Minn. Stat. § 216B.243, and elaborated in Minn. R. 7849.0120. Application of the criteria includes a determination of need and whether there is a more reasonable and prudent alternative to address that need.⁷¹⁷

Need

367. Applicants have demonstrated that there is a need for the Project to address the growing demand for electric power in the rapidly-developing southwest Twin Cities area. This growth has surpassed the current transmission system's capacity to meet the area's load-serving needs when certain transmission system facilities are out-of-service. Specifically, this load growth has result in overload conditions on the existing 115 and 69 kV transmission facilities between the Scott County and Westgate substations, and would also result in future low voltages in this area.

⁷¹² Ex. 21 at 3-4 (Notice Plan Compliance Filing).

⁷¹³ See Transcripts of Public Hearing, eFiled on June 3, 2013, in Docket No. E002/CN-11-332 as Document ID 20136-87722-04 (6:00 p.m. session) and 20136-87722-02 (1:30 p.m. session); and in Docket No. E002/TL-11-948 as Document ID 20136-87722-03 (6:00 p.m. session) and 20136-87722-01 (1:30 p.m. session).

⁷¹⁴ *Id.*

⁷¹⁵ *Id.*

⁷¹⁶ Minn. Stat. § 216B.243, subd. 4.

⁷¹⁷ See, e.g., Minn. R. 7849.0120 B.

More Reasonable and Prudent Alternative

368. During the public hearing process, a more reasonable and prudent alternative was identified that can address the identified need. Specifically, the Revised Highway 5 System Alternative is capable of addressing the need and is a more reasonable and prudent alternative to address the need because it does not require construction of new 115 kV transmission lines. Instead, it converts existing 115/34.5 kV and 115/69 kV transmission lines to 115/115 kV capacity.

369. The only new construction required by the Revised Highway System Alternative is 3.6 miles of 34.5 kV distribution line from the Westgate Substation, running west along Highway 5.⁷¹⁸ As a result, there are significantly fewer new impacts to human settlement and the environment, and fewer land use conflicts. These new impacts can largely be addressed through mitigation measures, such as burying the distribution lines.

370. Minnesota Statutes section 216B.243, subdivision 3 provides that no proposed large energy facility shall be certified for construction unless the applicant can show that *demand for electricity cannot be met more cost effectively through energy conservation and load-management measures*, and unless the applicant has otherwise justified its need.⁷¹⁹

371. The demand for electricity can, indeed, be met more cost effectively through load management measures; namely, the conversion of existing 115/34.5 and 115/69 kV transmissions lines to 115/115 kV capacity, as provided by the Revised Highway 5 System Alternative. As the DER determined, and as Xcel Energy has acknowledged, the Revised Highway 5 System Alternative is “the least-cost alternative, by a significant margin,” of all the alternatives presented.⁷²⁰

372. Accordingly, the Revised Highway 5 System Alternative is a more reasonable and prudent alternative to the Original System Alternative; and the demand for energy can be met more cost effectively through load management measures provided in the Revised Highway 5 System Alternative. Therefore, it is respectfully recommended that the Commission take no action on the Application for a Certificate of Need.

373. Finally, because the Revised System Alternative is not a “large energy facility,” as defined in Minn. Stat. § 216B.2421, subd. 2, there is no need for action on the Certificate of Need.

374. Pursuant to Minn. Stat. § 216B.243, no “large energy facility” shall be sited or constructed in Minnesota without the issuance of a Certificate of Need by the Commission. A “large energy facility” is defined as:

⁷¹⁸ *Id.*

⁷¹⁹ Minn. Stat. § 216B.243, subd. 3 (emphasis added).

⁷²⁰ Comments of DER at 18, eFiled on November 9, 2012, as Document ID 201211-80499-01.

(1) any electric power generating plant or combination of plants at a single site with a combined capacity of 50,000 kilowatts or more and transmission lines directly associated with the plant that are necessary to interconnect the plant to the transmission system;

(2) any high-voltage transmission line with a capacity of 200 kilovolts or more and greater than 1,500 feet in length;

(3) *any high-voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota or that crosses a state line;*

(4) any pipeline greater than six inches in diameter and having more than 50 miles of its length in Minnesota used for the transportation of coal, crude petroleum or petroleum fuels or oil, or their derivatives;

(5) any pipeline for transporting natural or synthetic gas at pressures in excess of 200 pounds per square inch with more than 50 miles of its length in Minnesota;

(6) any facility designed for or capable of storing on a single site more than 100,000 gallons of liquefied natural gas or synthetic gas;

(7) any underground gas storage facility requiring a permit pursuant to section 1031.681;

(8) any nuclear fuel processing or nuclear waste storage or disposal facility; and

(9) any facility intended to convert any material into any other combustible fuel and having the capacity to process in excess of 75 tons of the material per hour.”⁷²¹

375. The Original System Alternative includes converting approximately 20 miles of 69 kV transmission facilities to 115 kV capacity.⁷²² Accordingly, the Original System Alternative constitutes a “large energy facility” and requires a Certificate of Need from the Commission before construction can take place.

376. The Revised Highway 5 System Alternative includes:

⁷²¹ Minn. Stat. § 216B.2421, subd. 2(3).

⁷²² Ex. 20 at 2 (Certificate of Need Application).

(1) conversion of approximately 5.4 miles of existing 115/34.5 kV line to 115/115 kV operation from Structure #57 to the Westgate Substation;

(2) conversion of approximately 3,300 feet of existing 115/69 kV line to 115/115 kV operation from the Bluff Creek Substation to Structure #57;

(3) construction of approximately 900 feet of new 115 kV tap lines (two lines at 450 feet each); and

(4) construction of 3.6 miles of new distribution feeder line from the Westgate Substation along Highway 5.⁷²³

377. Thus, the Revised Highway 5 System Alternative does not constitute a “large energy facility” and does not require a Certificate of Need.⁷²⁴

378. Because the Revised Highway 5 System Alternative does not qualify as a “large energy facility,” there is no need to address the criteria for issuance of a Certificate of Need, and no action need be taken on Xcel Energy’s Application for a Certificate of Need.

379. Should the Commission select the Proposed Route or one of the route alternatives set forth in the Original System Alternative, the Commission can remand the issue of the Certificate of Need to the Office of Administrative Hearings for development of the record related to need. In such event, additional information will be required to justify the need, given the availability of the Revised Highway 5 System Alternative to meet the stated need.

ROUTE PERMIT CONCLUSIONS

380. The Commission determined that the Route Permit Application was substantially complete and accepted the Application on May 24, 2012.⁷²⁵

⁷²³ Xcel Energy Reply Brief at Revised Exhibit A, Docket No. E002/CN-332 as Document ID 20137-89423-05; and in Docket No. E002/TL-11-948 as Document No. 20137-89423-06.

⁷²⁴ Comments of DER, eFiled on November 9, 2012, in Docket No. E002/CN-11-332 as Document ID 201211-80499-01.

⁷²⁵ Ex. 1 (Commission Order Accepting Route Application).

381. EFP has conducted an appropriate Environmental Assessment (EA) of the Project for purposes of this route permit proceeding. The EA satisfies Minn. R. 7850.3700. Specifically, the EA addresses the issues and alternatives raised in the Scoping Decision and Amended Scoping Decision to a reasonable extent considering the availability of information and includes the items required by Minn. R. 7850.3700, subp. 4. In addition, the EA was prepared in compliance with the procedures in Minn. R. 7850.3700.

382. Xcel Energy gave notice as required by Minn. Stat. § 216E.03, subd. 3a; Minn. Stat. § 216E.03, subd. 4; Minn. R. 7850.2100, subp. 2; Minn. R. 7850.2100, subp. 4.

383. EFP gave notice as required by Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2; Minn. R. 7850.2500, subp. 2; Minn. R. 7850.2500, subp. 7; Minn. R. 7850.2500, subp. 8; and Minn. R. 7850.2500, subp. 9.

384. Two public hearings were held on May 16, 2013, the first commencing at 1:30 p.m. and the second commencing at 6:00 p.m. at the Chanhassen Recreation Center in Chanhassen, Minnesota. Chanhassen is a community located along the proposed high voltage transmission line route. Xcel Energy and the Commission gave proper notice of the public hearing, and the public was given the opportunity to speak at the hearing and to submit written comments. A Commission staff member was present at the hearing to facilitate public participation.⁷²⁶

385. All procedural requirements for the Route Permit have been satisfied.

386. The evidence on the record demonstrates that the Revised Highway 5 System Alternative, including its associated facilities, satisfies the route permit criteria set forth in Minn. Stat. § 216E.03, subd. 7, and Minn. R. 7850.4100.

387. The evidence in the record further demonstrates that the Revised Highway 5 System Alternative satisfies the route permit criteria set forth in Minn. Stat. § 216E.03, subd. 7 and Minn. R. 7850.4100.

388. In addition, the record demonstrates that the Revised Highway 5 System Alternative does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Act (MERA) or the Minnesota Environmental Policy Act (MEPA).

389. The evidence in the record demonstrates that the Highway 5 Route Alternative Route set forth in the Revised Highway 5 System Alternative is the best alternative on the record for the 115 kV transmission project between the Bluff Creek Substation and the Westgate Substation. Accordingly, the Commission should grant a Route Permit for the Highway 5 Route Alternative.

⁷²⁶ Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300.

390. The Commission's final Route Permit decision should include, at a minimum the following special conditions:

- a. Require, as a mitigation measure to prevent the loss of vegetation and minimize the impacts on the environment and human settlement, the entire 3.6 miles of distribution line along Highway 5 be buried underground;⁷²⁷
- b. Require Xcel Energy to finalize a plan for the location and placement of the underground 34.5 kV distribution line with MnDOT and to work with MnDOT in the planning and construction of the facilities;
- c. Require Xcel Energy to develop an invasive species management plan in consultation with the MnDNR prior to construction near public waters;
- d. Require Xcel Energy to consult with the MnDNR and obtain its approval regarding the placement and installation of bird flight diverters along the route prior to construction;
- e. Require Xcel Energy to consult with the MnDNR regarding the protection of the Blanding's Turtle, a state-listed threatened species, which measures shall include: (1) avoiding the use of fertilizers and pesticides within wetlands; (2) utilizing effective erosion control to keep sediment from reaching wetlands and lakes; and (3) implementing wildlife-friendly erosion control;
- f. Require Xcel Energy to allow the Metropolitan Council to review Project design plans before construction is initiated to ensure that the Project does not impact the Met Council's infrastructure;
- g. Require Xcel Energy to work with the Cities of Chaska and Chanhassen in developing an agreement for the expansion of the Bluff Creek Substation and any screening requested; and
- h. Require Xcel Energy to develop a vegetation plan to identify areas where there will be removal of trees and shrubs and to re-vegetate the areas with like vegetation. Such plan shall also require: (1) construction during fall and winter months, when practicable, to minimize plant damage; (2) inspection and cleaning of equipment to avoid the introduction of exotic plant species; and (3) re-vegetation of disturbed soils with low-growing native plant species.

⁷²⁷ As noted by Xcel Energy in its Reply Brief, the determination of cost recovery for this transmission project is outside the scope of this proceeding. However, as Xcel Energy acknowledges, if undergrounding is ordered by the Commission or required to meet other state agency permit requirements, such as the MnDOT permitting requirements, then Xcel Energy anticipates that the cost of underground line will be treated as standard facilities per Xcel Energy's Tariff. See Xcel Energy's Reply Brief at 7.

391. The Route Permit should require Applicants to obtain all required local, state, and federal permits and licenses, to comply with the terms of those permits or licenses, and to comply with all applicable rules and regulations.

392. The Commission's final Route Permit should include provisions to ensure that Xcel Energy employ such construction and management practices so as to avoid the displacement of homes and mitigate impacts to the natural environment.

Dated: September 30, 2013

s/Ann C. O'Reilly

ANN C. O'REILLY
Administrative Law Judge

Reported: Shaddix & Associated, transcribed

NOTICE

Under the PUC's Rules of Practice and Procedure, Minn. R. 7829.0100 to 7829.3200, exceptions to this Report, if any, by any party adversely affected must be filed within 15 days of the mailing date hereof with the Executive Secretary of the PUC, 350 Metro Square Building, 121 Seventh Place East, St. Paul, Minnesota 55101-2147. Exceptions must be specific, relevant to the matters at issue in this proceeding, and stated and numbered separately. Proposed Findings of Fact, Conclusions, and Order should be included, and copies thereof served upon all parties.

The PUC shall make its determination on the applications for the Certificate of Need and Route Permits after expiration of the period to file Exceptions as set forth above, or after oral argument, if such is requested and had in this matter. In accordance with Minn. R. 7850.2700, the PUC shall make a final decision on the Route Permits within 60 days after receipt of this Report.

Notice is hereby given that the PUC may accept, modify, condition, or reject this Report of the Administrative Law Judges and that this Report has no legal effect unless expressly adopted by the PUC.