BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Phyllis Reha	Vice Chair
J. Dennis O'Brien	Commissioner
David Boyd	Commissioner
Betsy Wergin	Commissioner

Joseph G. Sedarski
Northern States Power Company,
a Minnesota Corporation
Xcel Energy Services, Inc.
414 Nicollet Mall, MP-8
Minneapolis, MN 55401

SERVICE DATE: April 6, 2012

DOCKET NO. E-002/TL-11-223

In the Matter of the Application for a HVTL Route Permit for the Orono Substation Expansion and New 115 kV Transmission Line Project

The above entitled matter has been considered by the Commission and the following disposition made:

Approved and adopted the Findings of Fact, Conclusions of Law and Order for the Xcel Energy Orono Substation Replacement and new 115 kV Transmission Project (PUC Docket No. E-002/TL-11-223) which:

1. **Determines that the environmental assessment and record created at the public hearing address the issues identified in the EA Scoping Decision;**
2. **Designates the proposed HVTL route and replacement of the Orono Substation as the route/site for the construction and implementation of the Orono Substation Replacement and 115 kV Transmission Line Project and associated facilities; and**
3. **Issues a HVTL Route Permit, with appropriate conditions, to Northern States Power Company, a Minnesota corporation (Xcel Energy).**

The Commission agrees with and adopts the recommendations of the Department of Commerce, which are attached and hereby incorporated into the Order. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

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BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

COMMENTS AND RECOMMENDATIONS OF THE MINNESOTA DEPARTMENT OF COMMERCE ENERGY FACILITY PERMITTING STAFF

DOCKET NO. E002/TL-11-223

Meeting Date:	April 5, 2012……Agenda Item #
Company:	Northern States Power Company, a Minnesota corporation (Xcel Energy)
Docket No.	PUC Docket Number: E002/TL-11-223
	In the Matter of the Application for a HVTL Route Permit for the Orono Substation Expansion and New 115 kV Transmission Line Project.
Issue(s):	Should the Commission find that the environmental assessment and the record adequately address the issues identified in the scoping decision? Should the Commission issue a route permit identifying a specific route and permit conditions for the Orono Substation Expansion and New 115 kV Transmission Line Project?
DOC Staff:	Suzanne Lamb Steinhauer…….651-296-2888

Relevant Documents

Northern States Power Company HVTL Route Permit Application ..... June 6, 2011
Commission Application Acceptance Order ..... June 30, 2011
Environmental Assessment Scoping Decision..... September 14, 2011
Environmental Assessment.....November 30, 2011
Environmental Assessment (Corrected Appendix B)..... December 13, 2011
Noise Assessment ..... January 13, 2012
Administrative Law Judge's Public Hearing Summary ..... March 5, 2012

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The enclosed materials are work papers of the Department of Commerce (Department) Energy Facility Permitting (EFP) staff. They are intended for use by the Public Utilities Commission (Commission) and are based on information already in the record unless otherwise noted.

Documents Attached.

1. Site map illustrating the study area in which the route will be located.
2. Proposed Findings of Fact, Conclusions, Order.
3. Proposed HVTL Route Permit.

(Note: Relevant documents and additional information can be found on eDockets (E002/TL-11-223)

Statement of the Issue

Should the Commission find that the Environmental Assessment (EA) and the record adequately address the issues identified in the Scoping Decision? Should the Commission issue a high voltage transmission line (HVTL) route permit identifying specific routes and other permit conditions for the proposed Orono Substation Replacement and 115 kV Transmission Line Project?

Introduction

On June 7, 2011, Northern States Power Company, a Minnesota corporation (Xcel Energy or Applicant), submitted a high voltage transmission line (HVTL) Route Permit application to the Commission for the proposed Orono Substation Replacement and 115 kV Transmission Line Project (Project).

Project Description

The Project, as proposed by the Applicant, would replace the existing 69 kV Orono Substation with a new 115 kV Substation at the same location, but with a larger footprint. The Project would connect the new substation to the existing Xcel Energy 115 kV transmission line 0831 through a new double circuit 115 kV transmission lines of approximately 2,040 feet. The Project would also remove approximately 0.4 miles of 115 kV transmission line and replace it with approximately 0.2 miles of new single circuit 115 kV transmission line. While not part of the Route Permit requested by Xcel Energy, approximately 400 feet of the existing Great River Energy 69 kV transmission line BD would be rerouted around the new Orono Substation.

Xcel Energy proposes to use steel single-pole structures with spans of approximately 300 to 500 feet between poles; structure heights are anticipated to range from 70 to 90 feet for the single-circuit structures to 75 to 115 feet for the double-circuit structures. In the route permit application, Xcel Energy requested a 400 foot route width for the entire length of the proposed transmission line route, 200 feet on each side of the centerline of the proposed route. Over the course of the proceedings, Xcel Energy identified a somewhat narrower route, varying from 100 to 200 feet in width, described in detail in Finding 14, and shown in the Route Map attached to the proposed permit. The anticipated right-of-way for the new transmission line would be 75 feet.

The Project is located entirely within the city of Orono in Hennepin County. The Project will cost approximately $5.3 million dollars.

State Regulatory Process and Procedures

Minnesota Statutes § 216E.03, subd. 2, provides that no person may construct a high voltage transmission line without a route permit from the Commission. An HVTL is defined as a transmission line of 100 kV or more and greater than 1,500 feet in length in Minnesota Statutes § 216E.01, subd. 4.

The proposed transmission line in the route permit application is an HVTL and therefore a route permit is required prior to construction.

The route application was reviewed under the Alternative Permitting Process (Minn. R.7850.2800 to 7850.3900) of the Power Plant Siting Act (Minnesota Statutes § 216E). The Alternative Permitting Process is shorter than the full permitting procedures and does not require the Applicant to propose alternative routes to the preferred route, but does require the Applicant to disclose rejected route alternatives and an explanation of why they were rejected.

Route Permit Application and Acceptance

On June 7, 2011, Northern States Power Company, a Minnesota corporation (Xcel Energy or Applicant) applied for a high-voltage transmission line route permit to construct a new 115 kV transmission line and modifications to the existing Orono Substation Replacement and 115 kV Transmission Line Project in the city of Orono in Hennepin County, Minnesota.

The Commission released an order on June 30, 2011, finding the route permit application to be complete and initiating the alternative review process. There was no Advisory Task Force established for this routing docket.

Public Information and Environmental Assessment Scoping Meeting

The Department's EFP staff is responsible for conducting the environmental review for route permit applications to the Commission (Minn. Rules 7850.3700). Environmental review for a project of this size requires a public information/scoping meeting, development of a *Scoping Decision* and the preparation of an environmental assessment (EA). An EA examines the potential human and environmental impacts of a proposed project, alternative routes for the project, and potential mitigative measures.

Minnesota Rule 7850.2300, subpart 2, requires notice of the public information and scoping meeting to appear 10 days before the meeting is held. On July 26 and 27, 2011, EFP staff sent notice of the place, date and times of the Initial Public Information and Scoping meeting to those persons on the project contact list maintained pursuant to Minn. Rule 7850.2300, subpart 1.B. Xcel Energy, on behalf of EFP staff, published the Notice of Public Information and Scoping Meeting in the in the *Wayzata Lakeshore Weekly News* on August 2, 2011.

On Wednesday, August 10, 2011, EFP staff held a public information and scoping meeting at the Orono City Council Chambers in Orono, Minnesota.

Approximately seven people attended the public information and scoping meeting; two individuals took the opportunity to speak on the record. A court reporter was present to document oral statements. Written comments were due no later than Friday, August 26, 2011. EFP received four comment letters during the scoping comment period. Xcel Energy also submitted a comment letter after the close of the comment period.

Issues raised during the scoping period included: alternative routes and substation sites, purpose and need for the project, aesthetic impacts, impacts to wetlands and water resources, tree removal, relationship of the project to land use and planning, noise and air pollution, election of the proposed route, structure types, and potential for future expansion. After the close of the comment period Xcel Energy also submitted a letter addressing alternative substation sites proposed during the scoping period.

These items and issues, along with the typical HVTL routing impacts, have been incorporated into the EA Scoping Decision.

Scoping Decision

The items, issues and alternatives raised during the scoping meeting and comment period were reviewed in preparation of the proposed EA Scoping Decision.

An alternative route through the Baker Park Reserve and four alternative substation sites were proposed during the scoping period. The EA Scoping Decision identified two routes to be evaluated: The Xcel Energy Proposed Route, and the Baker Park Reserve Route Alternative. No alternative substation sites were included in the EA Scoping Decision. No additional substation sites were included in the EA Scoping Decision.

The Department released its EA Scoping Decision on September 14, 2011. EFP staff provided a Notice of Scoping Decision to all parties on the project contact list.

Environmental Assessment

An EA must be prepared for all high-voltage transmission projects being reviewed under the alternative permitting process. The procedures EFP staff must follow in preparing the EA are described in Minnesota Rule 7850.3700. The EA contained information on the human and environmental impacts of the proposed project as identified in the scoping decision document. It also addressed required methods to avoid, minimize, and mitigate such impacts for all routes considered. The EA is the only state environmental review document required to be prepared for this project. EFP staff released the EA on November 30, 2011. A corrected version of Appendix B of the EA was e-filed on December 13, 2011; the print version supplied for public review contained the correct version of Appendix B. EFP staff noticed the availability of the EA in mailings to interested persons and local government officials on November 30, 2011. Notice of the availability of the EA was published in the *EQB Monitor* on December 12, 2011.

Public Hearing

EFP staff made request to the Minnesota Office of Administrative Hearings for an administrative law judge (ALJ) to preside over the public hearing and provide a summary of testimony. EFP staff issued a Notice of Public Hearing on November 30, 2011, and provided the Notice to all individuals on the project contact list and to local officials. The notice of the public hearing was

published in the *Wayzata Lakeshore Weekly News* on November 29, 2011, and in the *Plymouth, Wayzata, Orono, and Long Lake Sun Sailor* on December 1, 2011.

A public hearing was held on December 15, 2011, at the Orono City Council Chambers. ALJ Eric L. Lipman presided over the hearing; the comment period was open for written comments through January 6, 2012, and was extended until January 31, 2012, to allow for comments on the Noise Assessment prepared by Xcel Energy.

Approximately 10 members of the public attended the public hearing; six persons took the opportunity to speak on the record. Ten comment letters were submitted to the ALJ during the comment period for the public hearing. The ALJ released a Summary of Testimony and Written Comments on March 5, 2012. Staff from the Minnesota Pollution Control Agency also submitted a comment letter during the comment period; this letter was inadvertently left of out the ALJ summary report and was filed separately by EFP staff. The MPCA letter is included as Exhibit 23 in the Exhibit List attached to the proposed Findings.

Public Hearing Comments
Comments and questions received during the public hearing related to the location of the substation, screening and other mitigation for the replacements substation, suitability of the Baker Park Reserve as a route alternative, minimizing impacts from the Painter Creek crossing, use of swan flight diverters, impacts to water quality, and potential soil and groundwater contamination.

Standards for Permit Issuance
The Power Plant Siting Act sets standards and criteria and outlines the factors to be considered in determining whether to issue a permit for a high voltage transmission line (Minn. Stat. § 216E and Minn. R. 7850.4000). The law also allows the Commission to place conditions on high voltage transmission line permits (Minn. Stat. § 216E.03 and Minn. R. 7850.4600).

EFP Staff Analysis and Comments

EFP staff has prepared the attached proposed Findings of Fact, Conclusions of Law, and Order and proposed Route Permit. The Findings show that the alternative permitting process has been conducted in accordance with Minn. R. 7850.2800 to 7850.3900, identify route impacts and mitigation measures, and make conclusions of law and order. The proposed route permit includes measures to ensure the line is constructed in a safe, reliable manner and that impacts are minimized or mitigated.

EFP staff reached its conclusions and recommendations based on the analysis in the EA and the comments received in this record.

The record supports several specific items that merit consideration relative to special conditions in the HVTL Route Permit for the Orono Substation Expansion and New 115 kV Transmission Project. These items include:

Location of Substation. Residents in the Huntington Farm neighborhood have requested that Xcel Energy pursue other locations for a substation. In comments submitted during the scoping

period, Mr. Michael Kuruvilla Kallivayalil submitted four alternative substation locations (Finding 47).

EFP Staff Analysis. Xcel Energy acquired the 16 acre parcel in 1989 and the existing 69 kV substation, with a fenced area of approximately 0.1 acres, has been in operation since 1990. In acquiring a larger parcel than needed for the actual substation location in a developing area it would appear that Xcel Energy was demonstrating prudent future planning. The actual developable area of the parcel is limited by the presence of wetlands on the site. Xcel Energy has designed the footprint of the replacement substation in a manner that minimizes impacts to wetlands and allows that MPCA noise standards to nearby receptors can be met with the addition of 14 to 16 foot noise walls around the transformer location.

The Project is proposed to ensure a more robust transmission system in the west metro area. Because of the development and growth of the west metro, there is a relative paucity of undeveloped sites removed from residential development of the size that Xcel Energy would want to develop a 115 kV substation. The alternative substation sites proposed during scoping were reviewed by EFP staff prior to staff's recommendation to the Deputy Commissioner of the Department. Although no routes for the additional transmission to the alternate substation sites were developed, it appears that the alternate sites would require approximately 800 to 4,900 feet of additional double circuit 115 kV transmission line compared to Xcel Energy's proposed route. Because the proposed substation sites were all located east of Xcel Energy's Transmission Line 0831, it is probable, though not certain, that transmission to these substations would also follow a route along U.S. Highway 12 as does the Project. In addition to the transmission line, development of a new substation site would also require re-location of two existing electric distribution lines in, resulting in impacts to new landowners in addition to those affected by the transmission line. In reviewing alternative substation sites EFP staff did not identify anything to suggest that a new substation location would have great potential for a project with fewer impacts, but rather a shift the burden to a new unidentified set of landowners.

The developed site of the replacement substation is much larger, 1.2 acres, than the present 0.1 acre site and the concern of neighborhood residents at the change is very understandable. EFP staff proposes a process for public comment on the substation mitigation plan as discussed below.

Substation Mitigation. Residents of the Huntington Farm neighborhood and the city of Orono have identified visual and noise impacts from the replacement substation as a primary concern. The replacement substation will be substantially larger than the existing substation, a fenced area of approximately 1.2 acres compared to the existing 0.1 acre fenced site. Xcel Energy prepared a Noise Assessment evaluating noise impacts from installing a new transformer at the replacement substation and a possible additional transformer that may be added at some point in the future. Xcel Energy's submittals provided some initial proposals to screen the substation from views from homes to the west and south and from travelers along Hennepin County Road 6 through use of berms and vegetation. The city of Orono has requested that Xcel Energy develop a landscaping plan using a combination of berms and vegetative screening to minimize impacts to area residents and travelers along Hennepin County Road 6 and Orchard Park Road.

EFP Staff Analysis*:* The developed site of the replacement substation is much larger, 1.2 acres, than the present 0.1 acre site and the concern of neighborhood residents at the change is very understandable.

Xcel Energy's noise assessment concluded that construction of a concrete wall of between 14 and 16 feet around the transformer location, would ensure that noise from the new 115/13.8 kV transformer as well and a possible additional transformer that is not a part of this project but may be added at a future date.

Xcel Energy's preliminary site layout and grading plan anticipates the addition of conifer trees along the grade on the western edge of the substation area and the addition shrubs and deciduous trees along the southern edge of the substation area. The landscaping plan also identifies the option of a berm along the western side of the substation site. Although a berm along the western side of the substation site can be constructed within Xcel Energy's parcel, if residents prefer a larger berm, additional land from the Huntington Farm Home Owners Association would be required to establish a larger base for the berm.

EFP staff recommends that Xcel Energy be required to develop a Replacement Substation Design Plan to minimize aesthetic and noise impacts to area residents and those travelling along Hennepin County Road 6. As detailed at Special Condition 5.3 of the proposed HVTL Site Permit, EFP staff recommends that Xcel Energy provide a preliminary design plan for the substation within 60 days of the permit issuance. The preliminary design plan would identify mitigation measures to address noise and aesthetic concerns identified in the record and provide more detailed substation design information. Area residents, the city of Orono, and the Commission would have a minimum of 30 days to review and provide comments on the preliminary plan to Xcel Energy. Xcel Energy would submit the final replacement substation design, including a discussion of the comments received and rationale for their final design decisions, as part of the plan and profile filing required under section 3.1 of the permit.

Baker Park Reserve Route Alternative. As discussed above, the EA evaluated two routes, Xcel Energy's Proposed Route and the Baker Park Reserve Route Alternative. The Baker Park Reserve Route Alternative was suggested for evaluation at the request of residents of the Huntington Farm neighborhood. The two routes share the first 866 feet out of the substation and the last 590 feet consisting of the relocation of Transmission Line 0831. The difference between the two routes is that the Baker Park Reserve Route Alternative would add an additional crossing of the BNSF Railroad and U.S. Highway 12 to establish a new right-of-way of approximately 944 feet in length within the Baker Park Reserve.

EFP Staff Analysis*:* The Baker Park Reserve Route Alternative is supported by some residents of the Huntington Farm Neighborhood Association and opposed by the Three Rivers Park District and the DNR.

For both routes, the nearest home is approximately 180 feet from the substation and approximately 275 feet from the single circuit portion of the project. Both routes would replace one existing structure in the Baker Park Reserve. Compared to the Xcel Energy

Proposed Route, the Baker Park Reserve Route Alternative would create more direct impacts to a regional park by adding up to three additional double-circuit structures to the park and convert land currently used for recreational purposes to a utility easement. Because that federal funds created by the Land and Water Conservation Fund were used for the acquisition of the Baker Park Reserve, the National Park Service would need to approve conversion to other than public outdoor recreation uses. The National Park Service would only consider approval if all alternatives to the conversion have been evaluated and rejected. Although the National Park Service has not been approached in this matter, the case for shifting the line from Home Owner's Association property to public lands would not on the surface appear to meet National Park Service criteria. If approval is granted, Xcel Energy would need to acquire and provide replacement land of at least equal value and use.

For the above reasons, EFP staff does not believe the record supports selection of the Baker Park Reserve Route Alternative. Although not a deciding factor, Xcel Energy has reached an agreement with the BNSF railroad to overlap a portion of the Xcel Energy Route Alternative with railroad right-of-way, minimizing the width of the right-of-way required from Huntington Farm Home Owners Association property.

Swan Flight Diverters. In scoping comments the DNR requested that the Applicant install bird flight diverters to minimize potential collisions with birds. Xcel Energy proposes to install swan flight diverters along the entire length of the line.

EFP Staff Analysis*:* After consultation with the DNR, Xcel Energy will install Swan Flight Diverters, pre-formed spiral shaped devices made of polyvinyl chloride that are wrapped around the shield wire, every 25 feet along the entire length of the project. EFP Staff proposes a special condition, Permit at 5.2, requiring installation of Swan Flight Diverters at locations shown in maps attached to the route permit.

Painter Creek Crossing: Xcel Energy has a license (DNR - License No. 378-I, July 2, 1954) to cross Public Lands and Waters for the existing Painter Creek crossing of Line 0831. Because the crossing location of the existing Line 0831 will be replaced with a new location for the Project, Xcel Energy will consult with DNR to determine whether a new crossing license will be required. If a new license is required Xcel Energy will obtain that license from the DNR. If no new license is required, Xcel Energy will comply with existing permit conditions during construction of the Project. DNR comments indicate a desire to coordinate with the transmission permitting process.

EFP Staff Analysis*:* The conditions of the DNR license, either new, amended, or the existing license, will specify the details of the crossing, such as angle of crossing, approach to stream banks and height of poles, as design for the line develops.

After reviewing typical HVTL permit language EFP staff recommends modifications to standard permit language addressing vegetation removal and wetland and water resources to clarify that, although the details of each water crossings are appropriately addressed in the crossing license, the HVTL permit does require that water crossings will be accomplished in a manner that minimizes environmental impact to the extent that sound

engineering principles and system reliability is not compromised. EFP staff proposes the following addition to Permit Section 4.2.5:

4.2.5. Vegetation Removal in the Right-of-Way

The Permittees shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences and vegetation in areas such as trail <u>and stream</u> crossings, where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

Tall tree species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission facility will be removed.

In many cases certain low and slow growing species that do not exceed a mature height of 15 feet can be planted in the right-of-way to blend the difference between the right-of-way and adjacent wooded areas, to the extent that the low growing vegetation that will not pose a threat to the transmission facility or impede construction.

EFP staff proposes the following addition to Permit Section 4.2.8:

4.2.8. Wetlands and Water Resources

Structures shall be located to span watercourses, wetlands, and floodplains to the extent practicable and consistent with sound engineering principles. Minimal grading of areas around pole locations may be required to accommodate construction vehicles and equipment.

<u>Construction of Public Water crossings shall be consistent with construction methods identified in Minn. Rule 6135.1300, as required by the Minnesota Department of Natural Resources in the License to Cross Public Lands and Waters. Permittee shall minimize disturbance to natural streambed and shoreline vegetation and restrict clearance of banks, shorelines and adjacent lands to the minimum necessary for equipment to complete the installation to the extent that such actions do not violate sound engineering principles or system reliability criteria.</u>

The Permittees shall endeavor to access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts wherever possible.

Construction in wetlands and riparian areas shall be scheduled during frozen ground conditions, when practicable. When construction during winter is not possible, construction mats (wooden mats or a composite mat system) shall be used to protect wetland vegetation. All-terrain construction vehicles designed to minimize soil impact in damp areas may also be used.

No staging or stringing set up areas shall be placed within or adjacent to wetlands or water resources, as practicable. The structures shall be assembled on upland areas before they are brought to the site for installation.

Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area. The Permittees shall also utilize erosion control methods identified in Section 4.2.7 (Erosion Control), as warranted. Areas disturbed by construction activities shall be restored to pre-construction conditions (soil horizons, contours, vegetation, etc.).

Archaeological Survey

The Phase Ia report recommended, and the Stat Historic Preservation Office (SHPO) concurred, that an archaeological survey be performed in two areas within the project area.

EFP Staff Analysis*:* EFP staff proposes a Special Condition, HVTL Permit at 5.4, requiring than a archaeological survey be performed as identified by SHPO to identify any previously unknown archaeological resources.

Overall Special Conditions

In addition to the conditions noted above, EFP staff has added the following text to Section 5.0 of the permit, Special Conditions, to clarify that any special conditions take precedence over other conditions in the permit should there be a conflict between the two:

5.0 Special Conditions

<u>Special conditions shall take precedence over any of the other conditions of this Permit if there should be a conflict between the two.</u>

The Permittee shall provide a report to the Commission as part of the plan and profile submission that describes the actions taken and mitigative measures developed regarding the project and the following Special Conditions.

Based on the analysis above, EFP staff makes the following recommendation.

Commission Decision Options

A. Approve and adopt the Findings of Fact, Conclusions of Law and Order for the Xcel Energy Orono Substation Replacement and new 115 kV Transmission Project (PUC Docket No. E002/TL-11-223) which:

1. Determines that the environmental assessment and record created at the public hearing address the issues identified in the EA Scoping Decision;

2. Designates the proposed HVTL route and replacement of the Orono Substation as the route/site for the construction and implementation of the Orono Substation Replacement and 115 kV Transmission Line Project and associated facilities; and

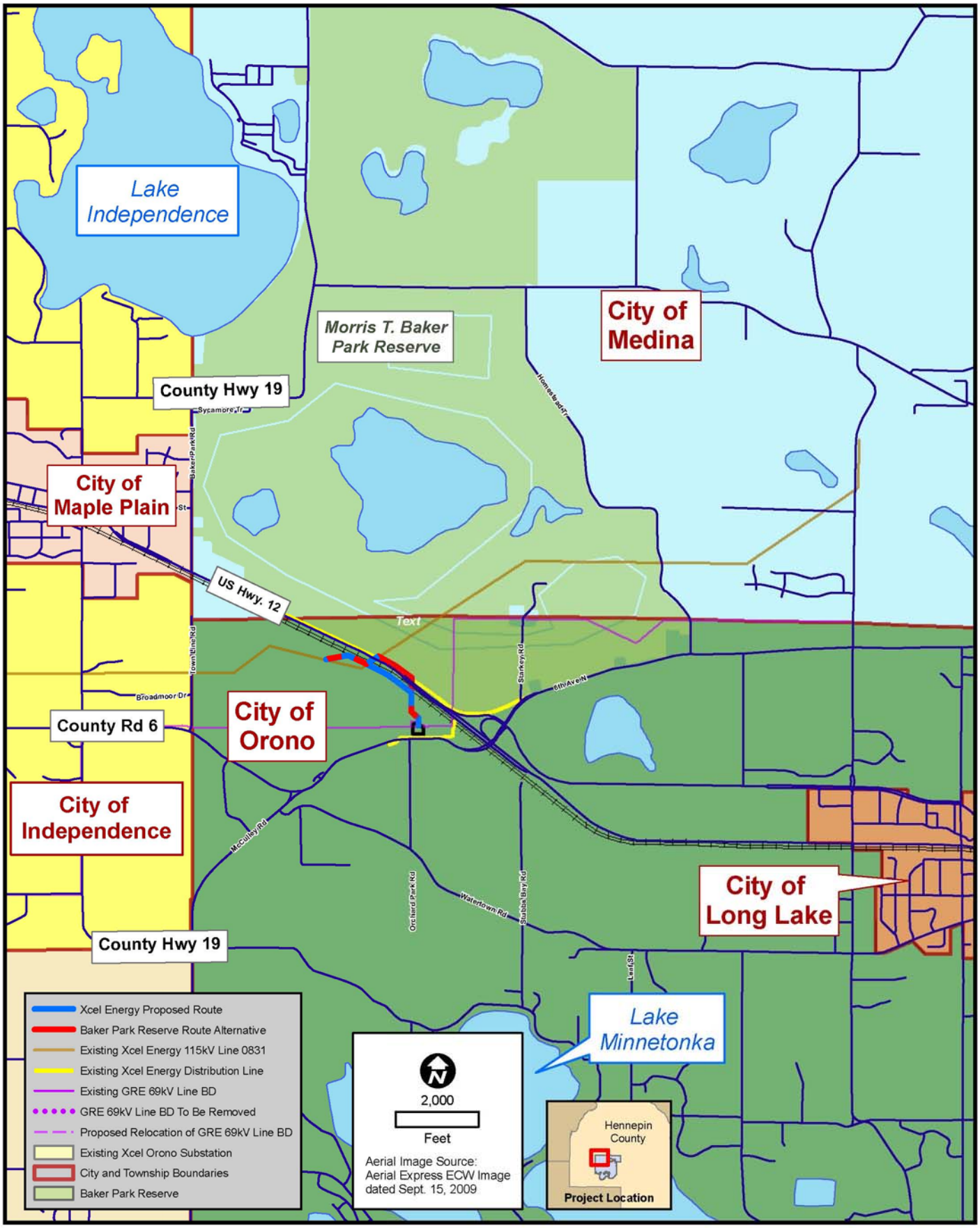
3. Issues a HVTL Route Permit, with appropriate conditions, to Northern States Power Company, a Minnesota corporation (Xcel Energy).

B. Amend the Findings of Fact, Conclusions and Order and Route Permit as deemed appropriate.

C. Make some other decision deemed more appropriate.

EFP Staff Recommendation: Option A.

Orono 115 kV Transmission Project
Figure 1: General Vicinity Map



BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Phyllis Reha	Vice Chair
David Boyd	Commissioner
J. Dennis O'Brien	Commissioner
Betsy Wergin	Commissioner

In the Matter of the Route Permit Application for the Orono Substation Expansion and New 115 kV Transmission Line Project in Orono, Minnesota.	ISSUE DATE: April 6, 2012 DOCKET NO. E002/TL-11-223 FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER ISSUING A ROUTE PERMIT TO NORTHERN STATES POWER COMPANY, A MINNESOTA CORPORATION, FOR A 115 KILOVOLT TRANSMISSION LINE AND ASSOCIATED FACILITIES

The above matter came before the Minnesota Public Utilities Commission on April 5, 2012, acting on an application by Northern States Power Company, a Minnesota Corporation (Xcel Energy) for a route permit to construct a new 0.6-mile long 115 kV overhead transmission line in the northern part of the city of Orono in Hennepin County, Minnesota.

A public hearing was held on December 15, 2011, at the Orono City Council Chambers in Orono, Minnesota. The hearing was presided over by Judge Eric L. Lipman, Administrative Law Judge (ALJ) for the Minnesota Office of Administrative Hearings (OAH). The hearing continued until all persons who desired to speak had done so. The comment period closed on January 31, 2012, at 4:30 p.m.

STATEMENT OF ISSUE

Should the Commission find that the environmental assessment and the record adequately address the issues identified in the scoping decision? Should the Commission issue a route permit identifying a specific route and permit conditions for the Orono Substation Expansion and New 115 kV Transmission Line Project?

Based upon all of the proceedings herein, the Commission makes the following:

FINDINGS OF FACT

Applicant

1. Northern States Power Company, a Minnesota corporation (Xcel Energy or Applicant), submitted an application for a route permit to the Minnesota Public Utilities Commission. Northern States Power Company, a Minnesota corporation, is a wholly-owned subsidiary of Xcel Energy Inc., a utility holding company with its headquarters in Minneapolis. Xcel Energy will construct, own, and operate the Orono Substation Expansion and New 115 kV Transmission Line Project (project). Xcel Energy is a Minnesota corporation with its headquarters in Minneapolis, Minnesota. Xcel Energy is also a wholly owned subsidiary of Xcel Energy Inc.[1]

Project Description

2. The project is located in Township 118N, Range 23 W, Sections 29, 30, and 32 in the northeastern portion of the city of Orono in Hennepin County, Minnesota.[2]

3. The project would replace the existing 69 kV Orono Substation with a new 115 kV substation at the same location, but with a larger footprint. The project would connect the new substation to the existing Xcel Energy 115 kV transmission line 0831 through a new double circuit 115 kV transmission line of approximately 2,040 feet (0.4 miles). The project would also remove approximately 1,030 feet of 115 kV transmission line and replace it with approximately 1,100 feet (0.2 miles) of new single circuit 115 kV transmission line.[3]

4. Xcel Energy states in its route permit application that the project is proposed to improve local and system reliability, reduce the risk of overloads, and allow for additional load growth in the future. The Orono Substation is currently fed at 69 kV from two directions: Dickinson and Crow River from the west and Medina from the east. In response to historical and anticipated load growth in the west metro area many 69 kV facilities are being upgraded to 115 kV. Planned upgrades anticipate conversion of the existing 69 kV line between the Medina and Plymouth substations to 115 kV would mean that the eastern source feeding the Orono Substation would be lost, resulting in a radial feed (only one source) into the substation. Radial loads have lower reliability than those with two sources. With the loss of the 115/69 kV connection at Medina, there is not enough capacity on the 69 kV system to support the load in the area. If the Crow River 69 kV line were to be taken out of service, either through a system fault or inadvertent breaker operation, the result would be low voltages and system overloads. Xcel Energy

[1] Exhibit (Ex.) 2 at pp.1, 6 (Route Permit Application [Application]).
[2] Ibid. at p. 1
[3] Ex. 12 at p.1 (Environmental Assessment [EA])

planning criteria require voltages on the transmission system to stay at 90 percent of nominal voltage and lines are required to be loaded to less than 100 percent of their emergency capacity after a contingency. Leaving the Orono Substation on the 69 kV system would violate both of these Xcel Energy criteria.[4]

5. The project would consist of the following:

   - Replacement of the existing 69 kV Orono Substation with a new 115 kV substation at the same location, but with a larger footprint to accommodate the new 115 kV transmission line.

   - Construction of approximately 0.4 miles of new double circuit 115 kV transmission line between Xcel Energy line 0831 and the Orono Substation.

   - Relocation of approximately 0.2 miles of the existing Xcel Energy single circuit 115 kV transmission line 0831.[5]

6. While not part of the Route Permit requested by Xcel Energy, approximately 400 feet of the existing Great River Energy (GRE) 69 kV transmission line BD would be rerouted around the expanded Orono Substation.[6]

7. The Xcel Energy Proposed Route would exit the Orono Substation, head north for 866 feet as a double circuit line and then turn to the northwest along the southern edge of the BNSF railroad right-of-way for approximately 1,205 feet to the existing 115 kV transmission Line 0831. At this point, the project would replace three existing transmission structures and approximately 1,030 feet of single circuit 115 transmission Line 0831with two new structures and approximately 1,095 feet of single circuit 115 kV transmission line, re-routing the existing line off of two residential parcels and onto adjacent Huntington Farm Home Owners Association (HFHOA) property adjacent to the BNSF railroad. A new double-circuit corner structure would connect the single- and double-circuit portions of the project.[7] Xcel Energy would also install fiber optic shield wire along the entire length of the project for possible future use. [8]

8. As presented in the route permit application, Xcel Energy also identified and analyzed four alternative routes (Alternative Route 1, Alternative Route 2, Alternative Route 3, and Alternative Route 4).[9] The alternatives were rejected by Xcel Energy as they did not fulfill its objectives or provide any greater advantage with respect to the Proposed Route, pursuant to Minnesota Rule 7850.3100.

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[4] Ex. 12 at p. 5 (EA)
[5] Ex. 2 at pp. 9-10 (Application)
[6] Ibid. at p. 10
[7] Ex. 12 at p. 7 (EA)
[8] Ex. 17 at Schedule 11 (Sedarski Direct)
[9] Ex. 2 at pp. 16-18, and Appendix G (Application)

9. During the scoping process, members of the public requested further evaluation of a route alternative that minimized impacts to private property by shifting the route burden to public lands. The Baker Park Reserve Route Alternative evaluated in the EA is the same as Alternative Route 2 described in Appendix G of the Route Permit Application. The Baker Park Reserve Route Alternative follows the same route as the Xcel Energy Proposed Route for the first 866 feet out of the substation, but continues northward for approximately 326 feet across the Burlington Northern and Santa Fe (BNSF) Railroad, U.S. Highway 12, and an existing Xcel Energy distribution line. Upon exiting U.S. Highway 12 right-of-way, the route enters the Three Rivers Park District's Baker Park Reserve. From here the route continues westerly approximately 974 feet across Baker Park Reserve property connecting to existing Xcel Energy 115 kV transmission Line 0831. The route would then cross back over to the south side of U.S. Highway 12. As with the Xcel Energy Proposed Route described above this alternative would also include the relocation of transmission line 0831. The total length of this alternative with the relocation of Transmission Line 0831 is the same as the Xcel Energy Proposed Route, approximately 0.6 miles.[10]

10. During the Scoping Process, four site alternatives to expanding the Orono Substation were proposed.

    - *Alternative Substation Site 1*: This site is comprised of three small parcels owned by the Minnesota Department of Transportation (MnDOT) between U.S. Highway 12 and Sixth Avenue South and is zoned the same as Xcel Energy's current substation site. These parcels are not large enough for development of the proposed substation of 1.6 acres and additional area necessary for setbacks. The actual developable area of these parcels is likely to be further reduced based on observed wetlands on the parcels and possible additional setbacks or buffers from U.S. Highway 12. The estimated length of transmission line from this site is approximately 0.54 miles, or approximately 0.15 miles more than Xcel Energy's proposed route.

    - *Alternative Substation Site 2*: This site is comprised of three parcels owned by the Park Gun Club. This site is zoned as "Rural Residential, one home to 2 acres." The Park Gun Club is a nonconforming use in that location and is prevented from making any changes to its current use, including the layout of the shooting range. It does not appear that there is sufficient space within the parcel to locate both the gun club with its current layout and the substation, resulting in a likely displacement of Gun Club. Orono zoning does not permit gun clubs within the city; the club would not be able to re-locate within Orono. Anecdotal information indicates that gun clubs are very difficult to

[10] Ex. 12 at p. 7 (EA)

locate within metropolitan areas. The estimated length of transmission line from this site is approximately 0.76 miles, or approximately 0.4 miles more than Xcel Energy's proposed route.

- *Alternative Site 3*: This site is owned by the city of Orono. The site is zoned as "RR-1B," allowing one home per two acres. This 39 acre property was donated to the city in 2000 for use as a passive natural environmental park; the donation specified restrictive covenants limiting improvements to the park to allow only for passive recreational uses. The city's 2030 Land Use Plan identifies this site as "Park, Recreation, and Open Space." The parcel is bounded to the north by several residential lots. Routing would require avoidance of the cloverleaf intersection of U.S. Highway 12 and Wayzata Boulevard. The estimated length of transmission line from this site is approximately 0.5 miles, or approximately 0.1 miles longer than Xcel Energy's proposed route.

- *Alternative Site 4*: This privately-owned site is zoned as "RR-1B," allowing one home per two acres. The site is identified on the City's 2030 Land Use Plan as "High Density Residential." Depending upon the location of a substation on this parcel, use of this site would require approximately 6,500 feet of new double-circuit 115 kV transmission line, or approximately 3,400 feet more than the Proposed Route. As with Alternative Site 3, use of this site would require routing around the cloverleaf intersection of U.S. Highway 12 and Wayzata Boulevard. The estimated length of transmission line from this site is approximately 1.31 miles, or approximately 0.9 miles more than Xcel Energy's proposed route.[11]

11. All of the alternative substation sites would require acquisition of new land by Xcel Energy for the substation and easements for additional transmission line to meet the purpose and need of the project. Although no routes for the additional transmission to the alternate substation sites were developed, it appears that the alternate sites would require approximately 800 to 4,900 feet of additional double circuit 115 kV transmission compared to Xcel Energy's proposed route. Development of a new substation site would also require re-location of two existing electric distribution lines in addition to the transmission, resulting in additional impacts to new landowners. For the above reasons, none of the proposed alternative substation sites were chosen for further evaluation in the EA.[12]

<u>Route Width</u>

12. In the route permit application, Xcel Energy requested a 400 foot route width for the entire length of the proposed transmission line route, 200 feet on each side of

[11] Ex. 12 at pp. 7-8 (EA)
[12] Ibid.

the centerline of the proposed route.[13] Over the course of the proceedings, Xcel Energy identified a somewhat narrower route, varying from 100 to 200 feet in width, and described as follows: 100 feet on each side of existing Line 0831 from Structure 076 to 078 (200 feet total width) for removal and replacement work; 100 feet on each side of new single circuit 115 kV transmission line from Structure 078 to new Structure 077 (200 feet total width); 100 feet on south side and 50 feet on north side of new 115 kV transmission line from new Structure 077 to new Structures 076-1, 076-2, and 076-3; 100 feet on either side of new 115 kV transmission line from new Structure 076-3 into the replacement substation area, except that the route width along west property line of Xcel Energy site shall be 50 feet west of Xcel Energy property on HFHOA property and not on residential parcels.

Right-of-Way

13. The proposed transmission line will generally require a right-of-way of up to 75 feet (37.5 feet on either side of centerline). Xcel Energy indicates in its application that the project may be designed to fit within a narrower right-of-way in locations with existing rights-of-way or other engineering or site considerations.[14]

14. Xcel Energy indicates in its Route Permit Application that where the project parallels a roadway or railroad, Xcel Energy anticipates placing poles approximately 5 to 10 feet outside of road or railroad right-of-way, overlapping approximately 30 feet of anticipated right-of-way with road or railroad right-of-way. This would allow the transmission line to share a portion of the road right-of-way, resulting in an easement of lesser width to be required from the landowner.[15]

15. Approximately 974 feet of the Baker Park Reserve Alternative of the Baker Park Reserve Alternative Route parallels U.S. Highway 12.[16] In order to comply with Orono's Shoreland Overlay District would require that poles be placed a minimum of 30 feet outside of road right-of-way; this setback provision does not apply to railroad right-of-way.[17]

16. Approximately 1,795 feet of the proposed route parallels the BNSF Railroad. Approximately 590 feet of the Baker Park Reserve Alternative Route parallels the BNSF Railroad. Xcel Energy has been in conversation with BNSF since the fall of 2010 to discuss routing options of the project. Current design anticipates placement of poles five feet outside the BNSF right-of-way on the south side of the tracks. A permit application was submitted to BNSF and a permit was received on October

[13] Ex. 2 at p. 6 (Application)
[14] Ex. 16 at p. 9 (EA)
[15] Ibid., Ex. 17 at schedule 11 (Sedarski Direct)
[16] Ex. 12 at p. 7 (EA)
[17] Ibid. at p. 9

17, 2011 to allow the relocated transmission line poles to be set at 5 feet south of BNSF property and for a revised crossing over the railroad.[18]

17. When the transmission line would be located on private property in areas such as open fields or scattered forest land, an easement for the entire right-of-way (up to 75 feet) would be acquired from the affected landowner(s). Xcel Energy anticipates that approximately 2,270 feet of new right-of-way would need to be acquired to construct the project.[19]

18. The 866 feet of both routes that is located on the Orono substation site owned by Xcel Energy would not require acquisition of new right-of-way.[20]

Structure Types

19. Xcel Energy proposes to use a combination of three different structure types. All of the proposed structures would be single pole structures constructed of galvanized or weathering steel with heights of between 70 and 115 feet, depending upon the structure type and location. All structures are anticipated to be self-supporting; Xcel Energy does not anticipate use of structures requiring guy wires.[21]

20. The majority of the structures, 076-1 to 076-5, would be 115/115 kV double-circuit structures. Xcel Energy would use single-pole davit arm structures with heights of 75 to 115 feet and spans of 300 to 500 feet between structures. Under the Baker Park Preserve Route Alternative two of the structures, 076-1 and 076-2, would be constructed to support the existing distribution on the north side of U.S. Highway 12; heights and spans for these underbuild structures would be similar to the main double-circuit structures.[22]

21. A new single-circuit angle structure, 077, would be installed in the portion of the line relocating Xcel Energy's existing line 0831. The new structure would be approximately 70 to 90 feet in height with spans of 300 feet to 500 feet.[23]

22. Single-pole cross Arm Y-frame structures would replace the existing Structure 076, in Baker Park Reserve, and 078, where Xcel Energy's existing line 0831 would be relocated.[24] The existing 0831 line is constructed primarily with H-frame structures; use of the Y-frame structures would allow the conductors from the 0831 line to maintain their configuration in a horizontal plane.

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[18] Ex. 17 at p. 7 (Sedarski Direct)
[19] Ex. 12 at p. 9 (EA)
[20] Ibid.
[21] Ibid. at pp. 10-11
[22] Ibid. at p. 11
[23] Ibid.
[24] Ibid.

Conductors

23. The phases for this project would be constructed with three single steel supported aluminum conductors (ACSS) which each consist of a single conductor comprised of seven steel core strands surrounded by 26 outer aluminum strands. The separate conductors are 795,000 circular mils or approximately 1.092 to 1.139 inches in diameter.[25]

24. Two 3/8th inch diameter extra high strength steel, seven strand shield wires will be installed to protect from lightning strike.[26] Xcel Energy would also install fiber optic shield wire along the entire length of the project for possible future use.[27]

Substation

25. The project would replace the existing 69 kV Orono Substation with an expanded 115 kV substation at the same location. Replacement of the existing 69 kV Orono Substation with an expanded 115 kV Orono Substation would take place in the southwest portion of the 16 acre parcel owned by Xcel Energy, encompassing the existing 69kV site. No additional land would need to be acquired or rights-of-way obtained for the substation work proposed in the route permit application.[28]

26. Depending upon the type of landscaping determined for final substation design, Xcel Energy may seek an agreement with the HFHOA to construct a berm extending up to 50 feet to the west of the Xcel Energy property line.[29]

27. Xcel Energy will grade a total area of approximately 1.6 acres, for the substation and re-aligned access road to ensure both a stable base for the substation equipment and proper drainage and runoff control.[30]

28. Project work at the substation would entail:

    - Removal of the termination structure for Great River Energy's (GRE) 69 kV transmission line; switchgear from the existing 69 kV substation will be reused in its existing location.
    - Installation of a mobile substation or use of GRE's existing 69 kV transmission line during construction to ensure that service is maintained until the 115 kV source is energized.
    - Installation of a new 115-13.8 kV substation with a 28 mega volt ampere (MVA), 118-14.3 kV transformer.

[25] Ex. 12 at p. 10 (EA)
[26] Ibid.
[27] Ex. 17 at Schedule 11 (Sedarski Direct).
[28] Ex. 12 at p. 17 (EA)
[29] Ex. 17 at p. 5 and Schedules 7 and 8 (Sedarski Direct)
[30] Ex. 12 at p. 17 (EA)

- Installation of two 115 kV line terminations, each with a motor–operated transmission line switch, one with a quick-break line dropping whip.
- Installation of two single-phase coupling capacitor voltage instrument transformers with carrier accessories.
- Installation of two 2000 amp line traps and tuners.
- Installation of six 76 kV maximum continuous operating voltage station class surge arresters.[31]

Project Schedule

29. Xcel Energy stated in their application that they anticipate that construction of the project would begin in the first quarter of 2012 with a second quarter 2013 in-service date based on information known as of the date of the route permit application filing. The schedule may be subject to revision as further information is developed.[32]

Project Cost

30. Xcel Energy estimates the total cost of the project, including expansion of the Orono Substation as well as cost of structures, insulators, conductors, labor, and cost of equipment used to construct the new line to be approximately $5.3 million for the Xcel Proposed Route and $5.4 million for the Baker Park Reserve Route Alternative. Project cost does not include right-of-way acquisition costs.[33]

31. Xcel Energy's typical annual operating and maintenance costs, for 115 kV transmission lines in its Upper Midwest system, incorporating line and inspections, vegetation management, and maintenance and repairs as needed, are approximately $300 to $500 per mile of transmission line right-of-way. Transmission line inspections are typically performed by airplane or helicopter on a regular basis. Inspections of substations and other equipment are generally performed on an annual or semi-annual basis depending on the type of equipment. Maintenance and repairs to substations are performed on an as-needed basis with costs varying from substation to substation.[34]

Procedural Summary

32. Xcel Energy initially sought local review of the project from the city of Orono and submitted a conditional use permit to the city on August 20, 2010. Xcel Energy notified the Commission of its intent to follow the local review process on September 1, 2010. On December 13, 2010, the Orono City Council voted to refer

[31] Ex. 12 at pp. 17-18 (EA), Ex. 17 at Schedule 11 (Sedarski Direct)
[32] Ex. 2 at pp. 10-11 (Application)
[33] Ex. 12 at p. 13 (EA)
[34] Ibid.

review and permitting of the routing and siting of the project to the Commission pursuant to Minn. Stat. 216E.05, subd. 1(b) and Minn. Rule 7850.5300 subp. 4.[35]

33. On March 17, 2011, in accordance with Minnesota Rule 7850.2800, subpart 2, the Applicant filed a letter with the Commission noticing their intent to submit a route permit application under the alternative permitting process set forth in Minnesota Statutes 216E.04 and Minnesota Rules 7850.2800 to 7850.3900.[36]

34. On June 6, 2011, the Applicant filed a route permit application with the Commission to replace the existing Xcel Energy Orono substation with a new 115 kV substation, construct approximately 0.4-miles of new double circuit 115 kV overhead transmission line and relocate 0.2 miles of existing 115 kV transmission line in the city of Orono in Hennepin County, Minnesota.[37]

35. Xcel Energy provided a Notice of a Submittal of an Application for a Route Permit on June 16, 2011, to those persons whose names are on the general list maintained by the Commission for this purpose, local and regional officials, and property owners in compliance with Minnesota Rule 7850.3300.[38]

36. Xcel Energy published Notice of a Submittal of an Application for a Route Permit in the *Wayzata Lakeshore Weekly News* on June 21, 2011, in compliance with Minnesota Rule 7850.3300.[39]

37. In its June 22, 2011, comments and recommendations, EFP staff recommended that the Commission accept the Applicant's route permit application for the project as complete and authorize the EFP staff to process the application under the alternative permitting process pursuant to Minnesota Rules 7850.2800 to 7850.3900, authorize EFP staff to name a public advisor, and determine that based on the available information an advisory task force is not necessary at this time.[40]

38. In its June 30, 2011, Order, the Commission accepted the application as complete and determined that the project is eligible for the alternative permitting process of the Power Plant Siting Act, Minnesota Statute 216E.04 and Minnesota Rules 7850.2800 to 7850.3900, authorized the EFP staff to name a public advisor, and determined that an advisory task force was not necessary at that time.[41]

39. Minnesota Rule 7850.3500, subpart1, requires notice of the public information and scoping meeting to be mailed to persons on the project contact list pursuant to Minn. Rule part 7850.2100, subpart1, at least 10 days before the meeting is held.

[35] Ex. 2 at p. 14 and Appendix C (Application).
[36] Ex. 1 (Notification of Intent)
[37] Ex. 2 at p. 1 (Application)
[38] Ex. 4 (Applicant Mailed Notice of Route Permit Application Filing)
[39] Ibid.
[40] Ex. 3 (Comments and Recommendations of EFP Staff on Application Acceptance)
[41] Ex. 5 (Commission Order on Route Permit Application Acceptance)

On July 26 and 27, 2011, EFP staff issued and mailed a Notice of Public Information and Scoping Meeting to those persons whose names are on the project list.[42]

40. Xcel Energy, on behalf of EFP staff, published the Notice of Public Information and Scoping Meeting in the in the *Wayzata Lakeshore Weekly News* on August 2, 2011.[43]

Public Meeting

41. In accordance with Minnesota Rule 7850.3500, subpart 1, EFP staff held a public information and scoping meeting on August 10, 2011, at the Orono City Council Chambers in Orono, Minnesota.

42. Approximately seven people attended the public information and scoping meeting. In total, two people provided oral comments and/or asked questions about the proposed project at the public scoping meeting. Topics and issues raised by the public at the meeting included: visual impact, structure heights, possible future expansion, extent of the cleared area, alternate substation locations, and a route alternative through Baker Park Preserve to minimize impacts to residences.[44]

43. The public comment period on the scope of EA closed on August 26, 2011. EFP received four comment letters during the scoping comment period. Xcel Energy also submitted a comment letter after the close of the comment period.[45]

44. A letter from the Minnesota Department of Natural Resources (DNR) raised issues such as the wetland impacts, tree removal, impacts to the Baker Park Preserve and potential impacts to trumpeter swans. The DNR also indicated a preference for the Proposed Route or Route Alternative 1 described in the application. DNR did recommended further coordination to minimize impacts to Painter Creek and use of bird flight diverters to minimize the risk of bird collisions.[46]

45. The city of Orono submitted comments outlining issues they wanted to see addressed in the EA. These issues include: aesthetic impacts, relationship of the project to the land use and planning, project purpose and need, impacts to vegetation and habitat, impacts to cultural and sensitive ecological resources, impact to wetlands and water resources, plans for management of stormwater runoff, traffic, noise and air pollution, and cumulative potential effects from the

[42] Ex. 6 (Mailed Notice of Public Information and Scoping Meeting)
[43] Ex. 7 (Published Notice of Public Information and Scoping Meeting).
[44] Ex. 8 (Oral Comments from Public Information and Scoping Meeting)
[45] Ex. 9 (Scoping Comment Letters), Ex. 10 (Northern States Power Company comments on EA scope)
[46] Ex. 9 (Scoping Comment Letters)

project. The letter did not propose any alternative routes or identify a preferred alternative.[47]

46. Xcel Energy's letter proposed use of Y-frame structures at two locations and requests that the EA evaluate the proposed Y-frame structures.[48]

47. Michael Kuruvilla Kallivayalil, a resident of the Huntington Farm neighborhood and president of the HFHOA, submitted comments expressing concern with the location of the substation, impacts to wetlands, health and safety impacts from the project, and economic impacts to landowners from the project. Mr. Kallivayalil proposed four additional substations locations.[49]

48. The scoping decision document for the EA was signed by the deputy commissioner of the Department of Commerce on September 12, 2011, filed with the Commission and made available to the public as provided in Minnesota Rule 7850.3700, subpart 3, on September 14, 2011. The scoping decision evaluated two routes, the Xcel Energy Proposed Route and the Baker Park Reserve Route Alternative. No alternative substation locations were included for evaluation in the scoping decision. [50]

Environmental Assessment

49. The EA was filed with the Commission and made available on November 30, 2011. A corrected version of Appendix B of the EA was e-filed on December 13, 2011; the print version supplied for public review contained the correct version of Appendix B.[51] The EA was prepared in accordance with Minnesota Rule 7850.3700, and contained all the information required.

50. On November 30, 2011, EFP staff mailed a Notice of Public Hearing and Availability of EA to those persons whose names are on the project contact list and to local and regional officials in compliance with Minnesota Rule 7850.3700, subpart 6.[52]

51. Pursuant to Minnesota Rule 7850.3700, subpart 6, EFP staff published a Notice of Availability of EA in the December 12, 2011 edition of the *EQB Monitor*.[53]

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[47] Ex. 9 (Scoping Comment Letters)
[48] Ibid.
[49] Ibid.
[50] Ex. 11 (EA Scoping Decision).
[51] Ex. 12 (EA)
[52] Ex. 13 (Mailed Notice of Availability of EA with Certificate of Service).
[53] Ex. 14 (*EQB Monitor* Notice of Availability of EA)

Public Hearing

52. On November 30, 2011, EFP staff mailed a Notice of Public Hearing to those persons whose names are on the project contact list and to local and regional officials in compliance with Minnesota Statute § 216E.03, subdivision 6.[54]

53. Pursuant to Minnesota Statute § 216E.03, subdivision 6, Xcel Energy, on behalf of EFP staff, published a Notice of Public Hearing and Availability of EA in the *Wayzata Lakeshore Weekly News* on November 29, 2011 and in the *Plymouth, Wayzata, Orono, and Long Lake Sun Sailor* on December 1, 2011.[55]

54. Administrative Law Judge (ALJ) Eric L. Lipman, from the Minnesota Office of Administrative Hearings, presided over the public hearing conducted on December 15, 2011. The public hearing was held at Orono City Council Chambers in Orono, Minnesota. The ALJ provided an opportunity for members of the public to ask questions or comment on the proposed project verbally and/or to submit question/comments in writing.[56]

55. According to the ALJ Summary of Public Testimony, ten members of the public attended the public hearing. All persons who desired to speak were afforded a full opportunity to make a statement on the record.[57]

56. Pursuant to Minnesota Rule 7850.3800, subpart 3A, EFP state permit manager Suzanne Steinhauer was at the public hearing and described the alternative route permitting process, the proposed project, and introduced the EA and other relevant documents for the record.

57. Representatives from Xcel Energy present at the hearing included: Joseph Sedarski, Senior Permitting Analyst; Gene Kotz, project manager; Ed Smith substation engineer; Justin Michlig; and Jeff Gutzmann transmission line designer. Valerie Herring from the law firm of Briggs & Morgan appeared at the public hearing on behalf of Xcel Energy in this matter.

58. Michael Kaluzniak, Planning Director, was at the public hearing on behalf of the Minnesota Public Utilities Commission.

59. The comment period was open for written comments through January 6, 2012, and was extended until January 31, 2012, to allow for comments on the Noise

[54] Ex. 13(Notice of Public Hearing with Certificate of Service) and 14(Notice of Public Hearing, certified letters to local officials).
[55] Ex. 16 (Published Notice of Public Hearing)
[56] Ex. 19 (Public Hearing Transcript).
[57] Ex. 25 (Administrative Law Judge Summary of Public Testimony [ALJ Report]) at p. 1

Assessment prepared by Xcel Energy Public comments on the proposed project were accepted by the ALJ until January 31, 2012.[58]

60. The public hearing transcript was filed by the Office of Administrative Hearings designated court reporter on January 23, 2012.[59]

61. During the public hearing, six members of the public presented their views regarding the proposed routing for the project. The ALJ received ten written comments by the January 31, 2012, submittal deadline.[60] Staff from the MPCA also submitted comments during the comment period; these comments were inadvertently left out of the ALJ summary report and were filed separately by EFP staff.[61]

62. The ALJ filed the Summary of Public Testimony on March 5, 2012. The ALJ report contains a summary of oral public comments provided during the hearing and, with the exception of a comment received from the Minnesota Pollution Control agency staff (Finding 61) written comments received by the close of the comment period.[62]

Summary of Oral Comments

63. Michael and Leena Kallivayalil, residents of the Huntington Farm neighborhood, assert that the Applicant's proposal for substation expansion relies too heavily on the fact that it already owns the underlying property, when, other nearby properties would be better suited to host the larger, upgraded station. Further, the Kallivayalils argue that the shielding techniques proposed by the Applicants are not adequate to address the visual and other impacts from an expanded substation.[63]

64. Melissa Fogelberg, a resident of the Huntington Farm neighborhood, joins the Kallivayalils in arguing that the substation expansion should not occur at the existing substation site. Specifically, Ms. Fogelberg argues that the applicant's proposal is at odds with both the City of Orono's land use plans as well as the efforts of the Minnesota Department of Transportation to improve the aesthetics of the Highway 12 corridor. Further, she submitted that any uncertainty as to the impacts to human health from electromagnetic field emissions from such facilities should be resolved in favor of homeowners by siting such stations as far away as possible from residential areas. She urges the Commission to withhold approval until the Applicant "has adequately, vigorously and diligently pursued other

[58] Ex. 26 at p. 3 (ALJ Report)
[59] Ex. 19 (Public Hearing Transcript)
[60] Ex. 26 at pp. 4-5 (ALJ Report)
[61] Ex. 23 (MPCA Comments)
[62] Ex. 26 (ALJ Report)
[63] Ibid. at p. 3

locations for the substation." Ms. Fogelberg also stated that the mitigation measures proposed by the Applicants are inadequate to shield a facility of the proposed substation's size and dimension, in the alternative, she urges the Commission to consider the type of shielding methods used for substations in Britain and Japan.[64]

65. Kelly Grissman, Senior Manager of Planning for the Three Rivers Park District, testified as to the impacts that one of the transmission line routing alternatives would have to the Baker Regional Park Reserve. The Reserve is a 3,000 acre set of parcels that provide natural habitat, recreation and a trail system in Orono, Minnesota. Ms. Grissman asserted that the proposed routing would not benefit the reserve. Moreover, she argued that because the buffer zones which separate habitat and recreational areas in the reserve from Highway 12, would be narrowed under the routing alternative, that alternative would degrade the Reserve's plans and uses.[65]

66. Paul Fraser, a resident of the Huntington Farm neighborhood, concurred with Ms. Fogelberg's assessment that more could be done to shield and reduce the visual impacts from an expanded substation. Mr. Fraser argued that because the uses that are adjacent to the substation site are a park reserve and a residential area, more mitigation should be required before any application is approved by the Commission.[66]

67. Tom Luninski, a resident of Orono, inquired as to whether there would be a change in the capacity of the transmission line as a result of the project. Members of the Applicant panel confirmed that Xcel had no plans to change or upgrade the 0831 transmission line over the course of a 20-year planning period.[67]

Summary of Written Comments

68. On December 13, 2011, Northern States Power Company submitted the testimony of Joseph Sedarski.[68]

69. Peter and Carla Schoon, residents of the Huntington Farms neighborhood and members of its neighborhood association, urged selection of a route alternative that runs along the north side of Highway 12. Additionally, the Schoons asserted that not enough effort was being made to minimize visual impacts of the proposed line and substation.[69]

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[64] Ex. 26 at p. 3 (ALJ Report)
[65] Ibid.
[66] Ibid. at pp. 3-4
[67] Ibid. at p. 4
[68] Ex. 17 (Sedarski Testimony)
[69] Ex. 26 at p. 4 (ALJ Report)

70. Timothy Jason Admonius, a resident of the Huntington Farms neighborhood and a member of its neighborhood association, wrote to urge alternatives to the proposed route, but not that which would route the transmission line into the Baker Regional Park Reserve north of Highway 12.[70]

71. Paul and Melissa Fogelberg, submitted written comments in advance of the public hearing. Those comments detail the inquiries and conclusions the Fogelbergs have made about alternatives to the proposed substation expansion. Specifically, the Fogelbergs assert that the benefits of avoiding additional land acquisition costs do not justify siting a substation of the size proposed by the Applicant at County Road 6 and Highway 12. The Fogelbergs urge a searching review by the Commission of the alternatives to the preferred substation location, and if there are no alternatives, permitting adjacent landowners to have a role in planning mitigation measures. The Folgelberg comments include photographs of substation mitigation methods that they assert have been effective in other locales.[71]

72. Michael and Leena Kallivayalil, residents of the Huntington Farm neighborhood, submitted written comments that followed their earlier testimony at the public hearing. In their written remarks, the Kallivayalil's again urged the selection of available properties in Orono that were not adjacent to residential neighborhoods for the substation expansion. Pointing to the potential health impacts, and the potential impacts to the value of nearby homes, the Kallivayalils' comments included a copy of the scoping comments (Finding 47).[72]

73. Boe Carlson, Acting Superintendent of the Three Rivers Park District, submitted comments as the owner and operator of the Baker Regional Park Reserve. Superintendent Carlson wrote to oppose the Baker Reserve routing alternative. He asserts that routing the transmission line through the park reserve would violate the Land and Water Conservation Fund Act, the restrictive covenants placed on the uses for reserve land, and the mission, policies and practices of the Reserve. Additionally, Superintendent Carlson argues that because of the adverse impacts associated with this route alternative – particularly to habitat – that this alternative is an inferior choice to other routing options.[73]

74. Kelly Grissman, Senior Manager of Planning for the Three Rivers Park District, asserted that the kind of noise assessments made with respect to the proposed substation, should likewise be made as to the noise impacts that would occur if the proposed transmission line were routed along the Baker Reserve routing alternative. Ms. Grissman urges the Commission to direct that these assessments be undertaken if the Baker Reserve routing alternative is "seriously being considered as a viable option …." She asserts that the removal of buffer areas associated with the

[70] Ex. 26 at p. 4 (ALJ Report)
[71] Ibid. at p. 4
[72] Ibid. at pp. 4-5
[73] Ibid. at p. 5

proposed alternative would trigger undue noise impacts to those using the park reserve.[74]

75. Michael P. Gaffron, Assistant City Administrator, submitted comments on behalf of the City of Orono. Like many of the residents of the Huntington Farms neighborhood, the City expressed concerns over the visual impacts of the proposed substation. Specifically, it urged the Commission to condition any approval of the application on the installation of effective, natural measures to screen the visual impacts of the proposed substation. In its comments it detailed a number of interventions that it regards as necessary – such as the installation of trees of certain types and height. Additionally, the City seeks an opportunity to have its engineer review finalized site plans before project construction begins.[75]

76. Jamie Schrenzel, Principal Planner for the Minnesota Department of Natural Resources' Environmental Review Unit, submitted comments on behalf of the DNR. She urged greater coordination between agency permitting activities, in general, and as to this project in particular, because the mitigation measures raise matters of common concern. Specifically, Ms. Schrenzel recommended that the mitigation plans require compliance with the winter construction methods required by Minn. R. 6135.1300, deployment of Swan Flight Diverters along the transmission line alignment so as to reduce collisions by trumpeter swans and annotation of project plans or materials so as to specify where these diverters will be placed.[76]

77. Craig Affeldt, Supervisor of the Environmental Review Unit of the MPCA, submitted comments on behalf of the agency. Because Katrina Lake is an impaired water for nutrient/eutrophication increased stormwater treatment may be necessary during construction and post construction. These requirements must be addressed in the National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit application prepared for the project. Mr. Affeldt also noted the presence of several properties near the project area with actual or potential soil or groundwater contamination. Any contaminated soil or water uncovered or disturbed during construction must be managed properly.[77]

<u>Environmental Assessment of Routes</u>

78. The EA evaluated the Xcel Energy Proposed Route (Finding 7) along with one route alternative, the Baker Park Reserve Alternative (Finding 9). The EA described, but did not evaluate alternative substation locations.[78]

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[74] Ex. 26 at p. 5 (ALJ Report)
[75] Ibid.
[76] Ibid.
[77] Ex. 23 (MPCA comment letter)
[78] Ex. 12 at pp. 5-7 (EA)

Human and Environmental Impacts

79. Both of the routes evaluated in the EA would result in changes to the existing environment and the potential for human and environmental impacts.

Socioeconomic and Cultural Values

80. Xcel Energy anticipates that construction of the transmission line would require approximately 6-25 workers over the course of approximately eight weeks. Xcel Energy also anticipates that construction of the substation would occur over the course of 9-15 months, with an average work force of approximately six workers. It is not expected that additional permanent jobs will be created the project.[79]

81. Construction of the project should also result in small, short-term positive economic impacts in the form of increased spending for lodging, meals and other consumer goods and services as well as purchase of some construction material. Short-term economic benefits from increased economic activity during the construction phase of the project are likely to be absorbed within the larger Twin Cities metro economy and not limited to the immediate project area.[80]

82. Long-term socioeconomic effects from the project would include an increase to the county's tax revenues as a result of the value of construction and the increased value of utility property resulting from the project. In addition to the relatively small increase to county tax revenues, the project would improve the overall transmission stability and ensure voltage stability.[81]

83. There is no indication that any minority of low-income population is concentrated in the project area. No disproportionate impacts on minority or low-income populations are anticipated.[82]

84. Research on the relationship between proximity to transmission lines and the effect on property values near transmission lines does not identify a clear cause and effect relationship between the two. Instead, the presence of a transmission line becomes one of several factors that interact to affect the value of a particular property. Because of the large number of factors that influence the value of a specific property, it is very difficult, if not impossible, to predict the effect that a specific transmission facility would have on a specific property.[83]

85. The use of a property for a transmission facility does transfer ownership of one of the bundle of property rights from the property owner to the easement holder. This

[79] Ex. 12 at p. 22 (EA), Ex. 17, at Schedule 11 (Sedarski Direct)
[80] Ex. 12 at p. 22 (EA)
[81] Ibid.
[82] Ibid. at pp. 21-22
[83] Ibid.at p. 23

loss of a portion of the potential use of the property requires compensation of the property owner for the use of the property. Potential impacts of property values would typically be mitigated through negotiation in an easement agreement between Xcel Energy and the landowner.[84]

Displacement

86. The National Electric Safety Code (NESC) requires certain clearances between transmission line facilities and buildings for safe operation of the transmission line. Xcel Energy would acquire a right-of-way of 75 feet, or 37.5 feet either side of a centerline, for the project.[85]

87. For both routes evaluated, the nearest home to the substation is approximately 180 feet south of Xcel Energy's property boundary, and the nearest home to the transmission line is 275 feet. One unoccupied outbuilding is 86 feet south of the proposed alignment.[86]

88. Displacement can occur when a structure is located within the proposed right-of-way for a transmission facility. No structure is located within the proposed right-of-way for either route evaluated. No displacement of homes or businesses from the project is anticipated.[87]

Aesthetics

89. Both routes cross a mixture of wooded and wetland areas. Depending upon the route, land uses are a mixture of utility, transportation, undeveloped residential and a regional park. The project is located near a residential development, and a portion of either route would cross property that is owned by the homeowners association and maintained as undeveloped. U.S. Highway 12, a 4-lane limited access highway, and the BNSF railway pass through the northern portion of the routes, while Hennepin County Road 6 is located to the south. There are two existing transmission lines near the project area, Xcel Energy's 115 kV transmission Line 0831 and GRE's 69 kV BD line.

90. Xcel Energy would replace three existing 115 kV structures along Xcel Energy's Line 0831with two cross-arm Y structures and one single-circuit horizontal post structure; the replacement structures will have heights of 70 to 90 feet. The structures being replaced along Xcel Energy's Line 0831 are wood H-frame structures with heights of approximately 60 to 75 feet. Xcel Energy would also install five new double-circuit 115 kV structures with heights of 75 to 115 feet. All structures would be constructed of galvanized or weathering steel. The structures

[84] Ex. 12 at p. 25 (EA)
[85] Ibid. at p. 23
[86] Ibid.
[87] Ibid.

on the GRE 69 kV transmission line are wood single pole structures with heights of approximately 60 feet.

91. The installation of the transmission line would require tree clearing within an approximately 75-foot right-of-way.[88]

92. Although the double-circuit structures are taller the use of double-circuit structures minimizes the number of structures and the width of right-of-way needed for the transmission portion of the project.[89]

93. The city of Orono has requested that transmission structures be finished in light colors rather than dark colors.[90]

94. The substation would include appropriate and sufficient lighting within the substation area in the event of an emergency during low light or night time conditions. During normal operation all of the substation lights will be left off and the substation will be dark, unless required by local units of government for other purposes such as security. During emergencies lights would be needed to facilitate the safety of personnel if work occurs in low light or after sunset; routine maintenance work is typically scheduled during daytime hours. Transmission structures are not lit.[91]

95. The city of Orono has requested that all substation lighting be shielded and downward-facing so that sources of light will not be visible from off-site.[92]

96. The project would be visible to residents in the project area as well as those travelling through along U.S. Highway 12 and Hennepin County Road 6/6th Avenue North.[93]

97. Xcel Energy would replace the existing 0.1 acre Orono Substation with a new substation with a fenced area of approximately 1.2 acres. The new substation would contain approximately eight pieces of electrical equipment and a new structure to house electrical control panels. The height of the new equipment would be approximately 13-18 feet, with several steel deadend structures approximately 67 feet in height and two shield poles approximately 100 feet in height. Installation of the expanded substation would also entail removal of scattered pockets of existing trees and other vegetation west and north of the existing substation location.[94]

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[88] Ex. 12 at p. 24 (EA)
[89] Ibid. at p. 25
[90] Ex. 22 (Hearing Comments, City of Orono)
[91] Ex. 12 at p. 25 (EA)
[92] Ex. 22 (Hearing Comments, City of Orono)
[93] Ex. 12 at p. 24 (EA)
[94] Ibid., and Ex. 17, at Schedule 11 (Sedarski Direct)

98. The city of Orono and residents of the Huntington Farms neighborhood have identified aesthetic impacts from the larger substation as a primary concern.[95]

99. The existing substation site is somewhat screened from the housing to the west by a rise along the west side of Xcel Energy's property. Xcel Energy has stated its intent to minimize vegetation clearing to the extent possible and to work with landowners to identify visual concerns related to the project and develop suitable mitigation measures.[96]

100. Xcel Energy's preliminary site layout and grading plan anticipates the addition of conifer trees along the grade on the western edge of the substation area and the addition shrubs and deciduous trees along the southern edge of the substation area. The landscaping plan also identifies the option of a berm along the western sides of the substation site.[97] Although a berm along the western side of the substation site can be constructed within Xcel Energy's parcel, if residents prefer a larger berm, additional land would be required.

101. HVTL permits require permittees to minimize the number of trees to be removed to the extent that such actions do not violate sound engineering principles or system reliability criteria. Certain low and slow growing species that do not exceed a mature height of 15 feet can be planted in the right-of-way to blend the difference between the right-of-way and adjacent wooded areas.

102. The city of Orono recommends that Xcel Energy develop a landscaping plan that uses a combination of berms and vegetation along the west, south and southeast boundaries of the substation site to screen substation structures to the greatest extent possible from residents located to the west, south and southwest of the substation, from traffic along County Road 6, and from northbound traffic along Orchard Park Road.[98]

Noise

103. The Minnesota Pollution Control Agency (MPCA) has established standards for the regulation of noise levels. The most stringent noise standards are 60 A-weighted decibel (dBA) L_{50} during the daytime and 50 dBA L_{50} during the nighttime.[99]

[95] Ex. 22 (Hearing comments)
[96] Ex. 12 at p. 25 (EA)
[97] Ex. 17 at p. 5 and schedule7 (Sedarski Direct)
[98] Ex. 22 (Hearing Comments, city of Orono)
[99] Ex. 12 at p. 27 (EA)

104. The project would result in short-term noise during construction. In order to comply with MPCA noise standards construction work would be limited to daytime hours, between 7 a.m. and 10 p.m.[100]

105. Heavy equipment would be equipped with sound attenuation devices such as mufflers to minimize noise levels.[101]

106. Xcel Energy anticipates that, on occasion, construction outside of daytime hours or on weekends may be scheduled to work around customer schedules or line outages.[102]

107. The city of Orono noise regulations limit construction activities to between 7 a.m. and 8 p.m. on weekdays and 8 a.m. to 8 p.m. on weekends.[103]

108. Noise associated with substation operation includes the operation of transformers and switchgear. Transformers produce a constant low-frequency humming noise while switchgear produces an impulsive or short duration noise.

109. The distance between the Xcel Orono Substation property boundary to nearby homes are approximately 180 feet to the south, across County Road 6, and approximately 270 feet to the west. The Noise Assessment monitored existing noise at nine sites at the Orono Substation and surrounding residences.

110. Xcel Energy anticipates replacing the existing 69 kV/13.8 kV transformer with a 115 kV/13.8 kV transformer as part of the project. Although not part of the project, Xcel Energy has also modeled the possible addition of another 115 kV/13.8 kV transformer that may be added at some point in the future.[104]

111. Using the measured existing noise levels, the Noise Assessment estimated noise from the new transformer(s) at the nine monitoring sites with and without sound walls around the transformers. Sound estimates after the addition of the project transformer at nearby homes are estimated to be in the range of 40.3 to 49.4 dBA without noise walls, and 35.1 to 44.3 dBA with noise walls.[105] With two 115 kV transformers at the substation, sound estimates at nearby homes range from 40.7 to 49.8 dBA without noise walls and 35.1 to 44.3 dBA with noise walls.[106]

112. Noise Standards developed by the Minnesota Pollution Control Agency (MPCA) establish a nighttime noise standard L50 of 50 dBA in residential areas.[107]

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[100] Ex. 12 at pp. 27-28 (EA)
[101] Ibid.
[102] Ibid.
[103] Ex. 22 (Hearing Comments, city of Orono)
[104] Ex. 24 at p. 7 (Noise Assessment)
[105] Ibid. at p. 10
[106] Ibid. at p. 12
[107] Ex. 12 at p. 28 (EA)

113. Concrete noise walls of the size and type evaluated in the Noise Assessment should ensure compliance with MPCA noise standards.[108]

114. Xcel Energy estimates that noise generated from the transmission line and associated facilities to be no more than 23.3 dBA L_5 at the edge of the right-of-way, which is below the most stringent Noise Area Classification level of 50 dB(A) L_{50} established by the MPCA.[109] This is also below the ambient levels measures as part of the Noise Assessment.[110]

Public Health and Safety

115. Xcel Energy will design the project to be in compliance with local, state, NESC, and Xcel Energy standards for clearance to ground, crossing utilities and buildings, strength of materials, and right-of-way widths, and permit requirements.[111]

116. The transmission line would be equipped with protective devices to safeguard the public if an accident occurs. The protective equipment is designed to de-energize the transmission line should such an event occur.[112]

117. Substations will be fenced and accessible only by authorized personnel.[113]

118. The issue of electric and magnetic fields was discussed in the environmental assessment.[114] A number of national and international health agencies (the Minnesota Department of Health, the World Health Organization, the National Institute of Environmental Health Sciences) have concluded in their research that there is insufficient evidence to prove a connection between electric and magnetic field exposures and health effects. Research has not been able to establish a cause and effect relationship between exposure to magnetic fields and human disease, nor a plausible biological mechanism by which exposure to electric and magnetic fields could cause disease.[115]

119. Xcel Energy has calculated magnetic fields for this project under average and peak load conditions. Models with forecasted peak loads are utilized to determine the maximum flows on transmission lines during normal operating conditions. Under average load conditions, estimated magnetic fields at one meter above the ground and directly beneath the transmission line range from approximately 8 to 67 milligauss depending upon structure type. Under peak load conditions, estimated

[108] Ex. 24 at pp. 10, 13 (Noise Assessment)
[109] Ex. 12 at p. 28 (EA)
[110] Ex. 24 at p. 5
[111] Ex. 2 at p. 40 (Application), Ex. 12 at pp.14, 20 (EA)
[112] Ex. 2 at p. 40 (Application)
[113] Ibid., Ex. 12 at p. 17, 20 (EA)
[114] Ex. 12 at pp. 29-38 (EA)
[115] Ibid. at pp. 36-37

magnetic fields range from approximately 13 to 70 miligauss depending upon structure type.[116] No Minnesota regulations have been established pertaining to magnetic fields from high-voltage transmission lines.[117]

120. The absence of any demonstrated impact by electric field and magnetic field exposure supports the conclusion that there is no demonstrated impact on human health and safety. No adverse effects from electric fields and magnetic fields on health are expected for persons living or working at locations along or near the proposed project.[118]

121. The electric field from a transmission line in some instances can reach a nearby conductive object, such as a vehicle or a metal fence, which is in close proximity to the transmission line. This may induce a voltage on the object, which is dependent on many factors, including the weather conditions, object shape, size, orientation, capacitance and location along the right-of-way. If a voltage is induced on an object insulated from the ground and a person touches the object, a small current (induced voltage) would pass through their body to the ground. Most shocks from induced current are considered more of a nuisance than a danger. The Minnesota Public Utilities Commission electric field limit of 8 kV/m was designed to prevent serious hazard from shocks due to induced voltage under transmission lines. The NESC sets an induced current limit of five milliamps (mA) for objects under transmission lines. Proper grounding of metal objects under and/or adjacent to the transmission line is the best method of avoiding these shocks.[119]

122. Stray voltage is an extraneous voltage that appears on grounded surfaces in buildings, barns and other structures, including utility distribution systems. Sources of stray voltage include a variety of on-farm wiring and grounding problems and off-farm problems related to connections on the electric distribution system. Sometimes a small voltage can develop at these grounding points and flow through the earth. This voltage is called a neutral-to-earth voltage (NEV). More precisely, stray voltage is a small voltage that is measured between two points that animals such as livestock can simultaneously come into contact with. When an animal simultaneously contacts these points a small current will flow through the animal These NEV currents may contribute to an excess of acceptable current in a livestock contact area on an adjoining farm. As such, stray voltage has primarily been raised as a concern on dairy farms because it may impact operations and milk production. Stray voltages are low-level voltages and should be distinguished from shocks felt by humans. Stray voltages are not lethal.[120]

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[116] Ex. 12 at p. 36, Table 14 (EA)
[117] Ibid. at p. 32, Table 10
[118] Ibid. at p. 36
[119] Ibid. at pp. 37-38
[120] Ibid. at p. 37

123. Stray voltage is by and large an issue associated with electrical distribution lines. Transmission lines do not create stray voltage as they do not directly connect to businesses, residences, or farms.[121]

124. Stray voltage (NEV) sources can be reduced in three fundamental ways: reduce the current flow on the neutral system; reduce the resistance of the neutral system; or improve the grounding of the neutral system. Making good electrical connections and making sure that these connections are maintained by the proper choice of wiring materials for wet and corrosive locations will reduce the resistance of the grounded neutral system and thereby reduce NEV levels.[122]

125. HVTL permits issued by the Commission require that all fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, will be grounded to the extent necessary to limit the induced short circuit current between ground and the object and to comply with the ground fault conditions specified in the NESC.

126. Implantable medical devices such as pacemakers, defibrillators, neurostimulators, and insulin pumps may be subject to interference from strong electric and magnetic fields. Most of the research on electromagnetic interference and medical devices is related to pacemakers. According to a 2004 Electric Power Research Institute (EPRI) report, implantable cardiac devices are much more sensitive to electric fields than to magnetic fields. In the report, the earliest interference from magnetic fields in pacemakers was observed at 1,000 mG, far greater than the magnetic fields associated with high-voltage transmission lines.[123]

127. Medtronic and Guidant, manufacturers of pacemakers and implantable cardioverter/defibrillators, have indicated that electric fields below 6 kV/m are unlikely to cause interactions affecting operation of modern bipolar devices. Older unipolar designs; however, are more susceptible to interference from electric fields with research suggesting that the earliest evidence of interference occurred in electric fields ranging from 1.2 to 1.7 kV/m. These initial interaction levels are higher than 1.013 kV/m maximum electric field predicted for this project. The risk of interference inhibition of unipolar cardiac pacemakers from high-voltage power lines in everyday life is small.[124]

Air Quality

128. There is minimal air quality impacts associated with transmission line operation. The only potential air emission s for a transmission line result from corona. Studies

[121] Ex. 24 at p. 37 (EA)
[122] Ibid.
[123] Ibid. at p. 38
[124] Ibid.

designed to monitor the production of ozone under transmission lines have been unable to detect any increase attributable to the transmission line facility.[125]

129. Minnesota sets an ozone limit of 0.08 parts per million (ppm) as the highest eight hour average; the federal limit is 0.075 ppm as the fourth-highest eight hour daily maximum average.[126]

130. Calculations according to the Bonneville Power Administration Corona and Field Effects Program Version 3 for a standard single-circuit 115 kV project predicted a maximum concentration of 0.006 ppm near the conductor and 0.002 ppm at one meter above ground during foul weather or worst case conditions with rain at one inch per hour.[127]

131. Air quality impacts caused by construction vehicle emissions and fugitive dust from right-of-way clearing and construction are expected to occur, but will be temporary and limited.[128]

132. Temporary impacts due to construction vehicle emissions and fugitive dust would be minimized by using best management practices to reduce dust emissions. Tracking control practices and wetting of roads and temporary roads would be done to control fugitive dust. Proper maintenance of the contractor's equipment would be done to prevent excessive emissions.[129]

133. There would be no anticipated permanent impacts on air quality as a result of the proposed project.

Transportation and Utilities

134. U.S. Highway 12 provides a major east-west corridor to the western Twin Cities Metropolitan area. U.S. Highway 12 widens from two to four lanes at the eastern edge of the project, approaching the intersection with Hennepin County Road 6 (also known as 6th Avenue North in this area). MnDOT has completed the U.S. Highway 12 Bypass project adjacent to and north of the project; no additional work in this area is planned at this time. Hennepin County Road 6 borders the project to the south and east.[130]

135. No new transportation facilities will be required for the project. Delivery of project components, such as poles and conductors, may have temporary impacts

[125] Ex. 12 at p. 39 (EA)
[126] Ibid.
[127] Ibid.
[128] Ibid. at pp. 39-40
[129] Ex. 2 at p. 53 (Application), Ex. 12 at p. 40 (EA)
[130] Ex. 12 at p. 40 (EA)

along U.S. Highway 12. Construction crews may use portions of the road shoulder while poles are installed and conductors are strung.[131]

136. The project will cross the U.S. Highway 12 at least once. In both routes evaluated, the current crossing would be used. If the Baker Park Reserve Route Alternative were selected, the route would also cross the highway proceeding north from the substation to the Baker Park Reserve and parallel U.S. Highway 12.[132]

137. If the project is located along the Baker Park Reserve Route Alternative, Xcel Energy's preference is to locate transmission structures approximately 10 feet north of MnDOT right-of-way, minimizing intrusion to the Baker Park Reserve. However, compliance with Orono's shoreland overlay zoning would require a setback of 30 feet from road rights of way, increasing intrusion into the Baker Park Reserve.[133]

138. Any crossing of U.S. Highway 12 would require approval from MnDOT. Poles would need to be placed outside the MnDOT clear zone for any road crossings or portions paralleling U.S. Highway 12. Xcel Energy would work with MnDOT to ensure that transmission structures are outside of MnDOT's clear zone and that all safety requirements are met.[134]

139. Signage during construction activities can help to minimize traffic disruption. Guard structures, such as temporary wood poles with a cross arm or line trucks with booms, can be used to protect traffic lanes. HVTL Permits require permittees to cooperate with county and city road authorities to develop appropriate signage and traffic management during construction [135]

140. The nearest airport is Maple Airport, a private airport located approximately three miles west of the project. It is not anticipated that the project would impact air traffic.[136]

141. The BNSF Railroad parallels the south side of U.S. Highway 12 through the project area. The project would cross the BNSF railroad at least once, at the current crossing of Transmission Line 0831. If the Baker Park Reserve Alternative were selected, the route would also cross the railroad proceeding north from the substation to the Baker Park Reserve. The Baker Park Reserve Route Alternative would not parallel BNSF right-of-way.[137]

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[131] Ex. 12 at p. 40 (EA)
[132] Ibid.
[133] Ibid.
[134] Ibid.at p. 41
[135] Ibid.
[136] Ibid.
[137] Ibid. at p. 40

142. The Xcel Energy Route Alternative would parallel the BNSF railroad for approximately 0.34 miles. Xcel Energy received a Certificate of Occupancy from BNSF for a rebuild of the existing crossing between Structures 076-1 and 076 and for the paralleling of transmission and railroad rights-of-way on June 24, 2011. The Occupancy Permit from BNSF details mitigation measures to minimize the potential for interference between the project and the railroad.[138]

143. Both Xcel Energy and Wright-Hennepin Electric Cooperative serve the city of Orono. The area immediately surrounding the proposed project is served by Wright-Hennepin Electric Cooperative. The project will not change electric service, but will increase reliability of the electric transmission grid.[139]

144. Metropolitan Council maintains a 12-inch sewer interceptor, forcemain interceptor 8352, buried approximately 12 feet between the BNSF railroad line and U.S. Highway 12. The project will cross the Metropolitan Council forcemain interceptor 8352 at least once. In both routes evaluated, the current crossing would be used and the interceptor would be easily spanned. If the Baker Park Reserve Alternative were selected, the route would also cross the interceptor proceeding north from the substation to the Baker Park Reserve.[140]

145. Prior to construction the location of the Metropolitan Council forcemain interceptor 8352 will be marked to ensure that construction activities avoid the interceptor.[141]

146. Xcel Energy will not install water or wastewater facilities at the substation.[142]

147. Construction of the project is not anticipated to directly or indirectly impact the area transportation corridors, airports, emergency infrastructure, or utilities.

Zoning and Compatibility

148. The Orono Zoning Code, at Section 78-946, lists public service structures integral to transmitting power as an allowed conditional use within all zoning districts. The portion of the project on Xcel Energy's property is zoned as RR-1A, allowing one family per five acres. The remainder of Xcel Energy's Route is located in an area zoned as Planned Residential Development. The portion of the Baker Park Reserve Alternative located within the Baker Park Reserve is zoned as RR-1B, allowing one family per two acres. The Orono 2030 Land Use Plan designates the land south of

[138] Ex. 12 at pp. 40-41(EA)
[139] Ibid. at p. 41
[140] Ibid.
[141] Ibid.
[142] Ibid.

U.S. Highway 12 as Rural, with one home per 5 acres, and the Baker Park Reserve as park or open space.[143]

149. Because the operating voltage of the project exceeds 23,000 volts, the project is considered a "high-voltage transmission line" under Section 14-36 of the Orono City Code. The City Code defines an expectation that utility service lines be placed underground to serve residential, commercial, or industrial customers in newly platted areas; however the project is part of a regional transmission upgrade and does not directly serve end-use consumers. Section 14-66(b) specifically exempts high-voltage transmission lines from underground placement. The City's Community Management Plan addresses Private Utilities under Community Management Plan, Part 4F, Public Services Plan. Most of the language in this section addresses utility service to new developments; the project is part of a regional transmission grid and does not serve a particular development.[144]

150. Orono has established a shoreland overlay district to provide appropriate standards for use and development of shorelands in order to preserve water quality as well as the economic, recreational and natural environmental values of the shorelands and waters they surround. The actual limits of the Shoreland Overlay District depend upon the ordinary high water level (OHWL) of the waterbodies in question; the OHWL has not been delineated. Several structures for both the Xcel Energy Proposed Route and the Baker Park Reserve Alternative appear to lie within Orono's Shoreland Overlay District. Under Orono's Municipal Code structures constructed within the Shoreland Overlay District must meet certain setbacks from public waters and roads. The code requires setbacks of 150 feet from the OHWL of Natural Environment lakes, including Lake Katrina and 100 feet from the OHWL of tributaries, including Painter Creek. The code also requires that structures be setback 30 feet from federal, state, county, public or private road rights-of-way.[145]

151. Compliance with setbacks required under Orono's Shoreland Overlay District would require that structures in Baker Park Preserve be set back at least 30 feet from MnDOT right-of-way along U.S. Highway 12.[146]

Recreation and Tourism

152. The Baker Park Reserve, part of the Three Rivers Park District, is comprised of approximately 2,700 acres in the cities of Orono and Medina. The southern portion of Baker Park Reserve is north and across U.S. Highway 12 from the Proposed Route; the Baker Park Reserve Route Alternative crosses through the park for approximately 940 feet. Baker Park provides a variety of recreational activities including hiking, camping, boating and canoeing, golfing, biking, and winter sports.

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[143] Ex. 12 at p. 41 (EA)
[144] Ibid. at p. 42
[145] Ibid.
[146] Ibid.

153. Both routes evaluated would replace one structure within the Baker Park Reserve, while the Baker Park Reserve Route Alternative would result in installation of an additional three structures in the park.

154. The Park Gun Club is also located within the Baker Park Reserve. Neither route would impact the Park Gun Club.

155. With the Xcel Energy Proposed Route direct impacts to Baker Park Reserve would be replacement of Structure 076 on the existing Xcel Energy Line 0831; indirect impacts would be visual, although most likely limited to the western portion of the project.[147]

156. The Baker Park Reserve Route Alternative would result in installation of up to four structures in the park; the replacement of Structure 076 as well as up to three structures additional structures on the north side of U.S. Highway 12. Depending upon the setback required from public road right-of-way the Baker Park Reserve Alternative would be centered either 10 or 30 feet outside the U.S. Highway 12 right-of-way and require an acquisition of an easement of 47.5 and 67.5 feet in width. Low-growing vegetation would be allowed to repopulate the easement after the line is constructed, but trees would not be allowed to re-establish within the easement. Under this alternative approximately 0.6 to 0.9 acres of trees would be cleared, depending upon the location of the centerline in relation to MnDOT right-of-way. The route in this area would not cross any of the recreational paths, but would be visible to users of the park.[148]

157. Because federal funds created by the Land and Water Conservation Fund were used for the acquisition of the Baker Park Reserve, the National Park Service would need to approve conversion to other than public outdoor recreation uses. The National Park Service would only consider approval if all alternatives to the conversion have been evaluated and rejected. If approved by the National Park Service, Xcel Energy would need to acquire and provide replacement land of at least equal value and use.[149]

Land Based Economies

158. The project would not cross any cultivated lands or pastures, forests, commercial logging operations, or mining operations. No impacts to agricultural, forestry, or mining resources are anticipated.[150]

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[147] Ex. 12 at p. 42 (EA)
[148] Ibid. at pp, 42-43
[149] Ex. 22 (Hearing Comments, Three Rivers Park District January 6, 2012 letter)
[150] Ex. 12 at pp. 43-44 (EA)

Geology and Soils

159. Bedrock in the project area varies from 100 to 400 feet in depth. Excavations for the substation and transmission structures are anticipated to be approximately 25 feet in depth. No geologic impacts are anticipated from the project.[151]

160. Temporary short-term disturbance of soils would result from site clearing and excavation activities at the substation site, structure locations, pulling and tensioning sites, setup areas and during transport of crews, machinery, materials and equipment over access routes primarily along transmission right-of-way.[152]

161. Xcel Energy will be required to manage any contaminated soil uncovered during construction.[153] Prior to construction Xcel Energy or their agent will conduct a public records search of land involved in the project. In evaluating specific parcels, soil boring will be taken to assess soil conditions.[154]

162. Based on preliminary grading plans for the substation site, Xcel Energy estimates that grading would require approximately 15,700 cubic yards of cut and, depending upon the dimensions of a berm that may be constructed at the substation site, between 3,800 and 6,100 cubic yards of fill.[155]

163. Because construction of the project require disturbing more than one of soil Xcel Energy will apply for a NPDES construction stormwater permit and would prepare a SWPPP. HVTL permits require the Permittee to employ erosion BMPs and to adhere to the terms and conditions of the NPDES permit and the Stormwater Pollution Prevention Plan (SWPP) prepared for the project for MPCA.[156]

164. Erosion control methods and BMPs pursuant to MPCA requirements will be utilized to protect topsoil and minimize erosion during construction. Common mitigation measures employed in transmission projects include:

- Utilizing seed to establish temporary and permanent vegetative cover on exposed soil. The Minnesota Department of Transportation (MnDOT) and DNR have researched various seed mixes and has identified mixes for specific site characteristics and uses.

- Mulch may be applied to form a temporary and protective cover on exposed soils. Mulch can help retain moisture in the soil to promote

[151] Ibid. at p. 44
[152] Ibid.
[153] Ex. 23 (MPCA Comment Letter)
[154] Ex. 2 at p. 27 (Application)
[155] Ex. 12 at p. 44 (EA)
[156] Ibid. at p. 47

vegetative growth, reduce evaporation, insulate the soil, and reduce erosion. A common mulch material used is hay or straw.

- Erecting or using sediment control fences that are intended to retard flow, filter runoff, and promote the settling of sediment out of runoff via ponding behind the sediment control. Examples include biorolls, sandbags, and silt fences.

- Using Erosion control blankets and turf reinforcement mats that are typically single or multiple layer sheets made of natural (wood) and/or synthetic materials that provide structural stability to bare surfaces and slopes.

- Scheduling construction in areas of wet soils during frozen ground conditions to minimize soil compaction.

- Using construction mats to minimize impacts to wet soils.[157]

165. Areas disturbed during construction will be repaired and restored to pre-construction contours so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation, provide for proper drainage, and prevent erosion.[158]

Water and Wetland Resources

166. Applicants do not plan to install any wells as part of the project. Excavations required for transmission structures and substation modifications are expected to be approximately 25feet deep. Wells in the project area range in depth from 100 to 200 feet. No groundwater impacts are anticipated from the project.[159]

167. Katrina Lake, located in Baker Park Reserve, approximately 540 feet north of the Baler Park Reserve Alternative, is identified as an impaired lake for nutrients.[160]

168. Indirect impacts to surface water resources from construction of the project could include sedimentation reaching surface waters during construction due to ground disturbance by excavation, grading, and construction traffic.[161]

169. Xcel Energy will implement Erosion and sediment control methods and BMPs pursuant to MPCA requirements will be utilized to protect surface water resources from runoff and sedimentation during construction (Findings 163, 164).[162]

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[157] Ex. 12 at p. 45 (EA)
[158] Ibid. at p. 46
[159] Ibid.
[160] Ibid.
[161] Ibid.

170. In addition to erosion control measures, fueling and lubricating of construction equipment away from waterways would ensure that fuel and lubricants do not enter waterways.[163]

171. Xcel Energy has a license (DNR - License No. 378-I, July 2, 1954) to cross Public Lands and Waters for the existing Painter Creek crossing of Line 0831. The crossing location of the existing Line 0831 will be replaced with a new location for the project,[164] Xcel Energy will consult with DNR to determine whether a new crossing license will be required or whether the existing crossing license will cover the new crossing.

172. The DNR has established rules (Minn. Rules part 6135.1300) to regulate utility crossings of public lands and waters in order to provide maximum protection and preservation of the natural environment and to minimize any adverse effects which may result from utility crossings. The rules outline consideration for structure appearance, minimizing width of right-of-way, screening of structures from river crossings, timing of construction crossings, assurance of adequate heights at water crossings, minimizing the clearing of existing vegetation and establishment of new native vegetation within the right-of-way where existing vegetation has been removed, and chemical control of vegetation in accordance with state and federal rules and regulations. Licenses typically require that the Licensee minimize disturbance to natural streambed and shoreline vegetation and restrict clearance of banks, shorelines and adjacent lands to the minimum necessary for equipment to complete the installation.

173. Both routes cross portions of the City of Orono's shoreland overlay district.[165]

174. The Orono Shoreland Overlay District requires that structures be set back a minimum of 100 feet from the Ordinary High Water Level of Painter Creek.[166]

175. Larger wetland complexes as well as small isolated wetlands are located in and around the project site. Neither the Xcel Energy Proposed Route nor the Baker Park Reserve Route Alternative has been delineated for wetlands, information on wetlands within those routes is from the National Wetland Inventory (NWI) developed by the United States Fish and Wildlife Service (USFWS).[167]

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[162] Ex. 2, at p. 8-19 (Application) and Ex. 12 at p. 47 (EA)
[163] Ex. 12 at p. 47 (EA)
[164] Ibid. at p. 46
[165] Ibid. at p. 47
[166] Ibid.
[167] Ibid.

176. Based on a review of NWI data, approximately 1.0 and 3.3acres of wetlands are located within the 75-foot-wide anticipated rights-of way of the Baker Park Reserve Route Alternative and the Xcel Energy Proposed Routes respectively. [168]

177. During the construction phase of the project, there is the potential for temporary impacts to wetlands as a result of ground disturbance related to grading, construction traffic, substation construction, and placement of the transmission line structures. Although minimal grading of areas around pole locations is expected, the substation site will be graded. Potential impacts to wetlands will be limited to the area where the structures and line will be constructed and operated.[169]

178. Permanent impacts to wetlands would occur where structures must be located within wetland boundaries. Xcel Energy has designed the replacement substation to avoid direct impacts to wetlands. Depending on the delineated location of wetlands and the final location of the right-of-way, up to five structures could potentially be placed in wetlands for both routes. Each structure would result in approximately 50 square feet of permanent wetland impacts per structure or up to 250 square feet total (0.006 acres).[170]

179. Once a route is finalized and permitting requirement are determined, Xcel Energy will submit the Minnesota Local/State/Federal Application Form for Water/Wetland Projects to the USACE's St. Paul District, DNR and, if needed, the Hennepin County Soil and Water Conservation District. Xcel Energy has stated that they anticipate that authorization for the project from DNR would come, if granted, under the USACE's General Permit/Letter of Permission permitting program (Xcel Energy, 2011a). As part of the permitting process, Xcel Energy will be required to submit sufficient materials for the USACE to make its jurisdictional determination for impacted wetlands. The joint application will also be subject to DNR, Hennepin County Soil and Water Conservation District, and Minnehaha Creek Watershed District review and regulation under the Minnesota Wetland Conservation Act. A license from the DNR is required to cross public water wetlands.[171]

180. The project will require a DNR License for Utility to Cross Protected Waters from the DNR Division of Waters because the project passes over and across wetlands designated as state public waters (unnamed 27-916 W and 27-917 W). The DNR license to cross Protected Waters would outline mitigation measures.

181. Xcel Energy commissioned a wetland delineation of the 16 acre parcel within which the Orono Substation would be located. The wetland area within the site was identified as a Type 3, Palustrine Emergent seasonally flooded. Using information

[168] Ex. 12 at p. 48 (EA)
[169] Ibid.
[170] Ibid.
[171] Ibid. at p. 49

from the wetland delineation of the substation site, Xcel Energy has designed the substation to avoid direct impacts to wetlands from the substation.

182. Following the issuance of a route permit Xcel Energy will perform a wetland delineation along the route to determine wetland locations and minimize impacts from the project. Standard erosion control measures identified in the MPCA Stormwater BMP Manual, such as using silt fencing to minimize impacts on adjacent water resources would be followed. Practices may include containing excavated material, protecting exposed soil, and stabilizing restored soil. In its route permit application, Xcel Energy has proposed the following mitigation measures:

- Spanning wetlands to the greatest extent possible.
- Assembling structures on upland areas before they are brought to the site for installation.
- Avoid crossing wetlands with construction equipment to the extent possible.
- Construction during frozen ground conditions in wetlands to the extent possible.
- Construction crews will attempt to access the wetland with the least amount of physical impact to the wetland (i.e., shortest route) and will access poles near or in wetlands from roadways whenever possible to minimize travel through wetland areas.
- When construction during winter is not possible, construction mats (wooden mats or a composite mat system) would be used to protect wetland vegetation.
- Use of standard erosion control measures identified in the MPCA *Stormwater BMP Manual*, such as suing silt fencing to minimize impacts on adjacent water resources.[172]

183. Portions of both routes are located within the 100 year floodplains of Lake Katrina and Painter Creek mapped by the Federal Emergency Management Agency (FEMA). The substation site is located outside of a floodplain. Although Xcel Energy would install several transmission structures in a 100 year floodplain as a result of the project, the function of the floodplain would not be affected.[173]

Archaeological and Historic Resources

184. In response to a request from the Minnesota State Historic Preservation Office (SHPO), Xcel Energy commissioned a Phase Ia background research and literature review to better understand the existing archaeological and historic resources that may be affected by the project (Xcel Energy, 2011a). The Phase Ia report did not identify any archaeological site or inventoried standing structure within either route.

[172] Ex. 12 at p. 49 (EA)
[173] Ibid. at p. 48

No known archaeological sites were identified within the route, and the Phase Ia report anticipated that the potential for the project to impact undiscovered archaeological sites as low because of the project's location within the existing Orono Substation site and along existing transportation corridors or in areas already disturbed by residential development. The Phase Ia report did recommend, and the SHPO concurred, that an archaeological survey be performed in two areas within the project area.[174]

185. As no historic structures have been identified within or near either route, no physical impacts to historic standing structures from the project are anticipated.[175]

186. In the event of an unanticipated discovery of cultural resources during project construction, HVTL permits require permittees to stop construction activities and consult with a professional archaeologist and the SHPO to determine the proper course of action. If a cultural resource or feature is determined to be potentially eligible for listing on the National Register of Historic Places, it will be avoided or mitigated before construction can resume.[176]

Flora (Plant life)

187. Land use along the routes reviewed in this document is predominated by residential uses, which incorporates a large block of undeveloped association land, wetlands, and the Baker Park Reserve, which contains a remnant of the pre-settlement Big Woods vegetation.[177]

188. The project would directly impact to vegetation would be through tree clearing. The Xcel Energy Proposed Route would remove approximately 2.2 acres of trees; depending upon the route alignment in relation to the MnDOT right-of-way, the Baker Park Reserve Route Alternative remove approximately 2.0 to 2.3 acres of trees. No impacts to identified native plant communities or sensitive plant species are anticipated.[178]

Fauna (Wildlife)

189. Wildlife within the project area consists primarily of deer, small mammals, waterfowl, raptors, and perching birds. These species are typical of the land use in the project area, which is a mixture of rural residential, open wetland, and woodland within the Baker Park Reserve.[179]

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[174] Ex. 12 at p. 51(EA)
[175] Ibid.
[176] Ibid. at p. 52
[177] Ibid. at p. 49
[178] Ibid.
[179] Ibid. at p. 50

190. During construction, Wildlife could temporarily be displaced and small amounts of habitat could be lost from the project area during construction. Because similar tree and wetland habitats are found adjacent to both routes evaluated, it is likely that these species will only be displaced a short distance and would not incur population level effects due to construction of the transmission line. In the case of the project, the location is dominated by existing transportation and utility corridors as well as residences and, therefore, these species are likely already acclimatized to human development. No permanent impacts to wildlife are anticipated.[180]

191. The primary impact presented to fauna by transmission lines is the potential for injury and death of raptors, waterfowl, and other large bird species.[181]

192. Electrocution can occur when birds with large wingspans come in contact with two conductors or with a conductor and a grounding device. The electrocution of large birds, such as raptors, is more commonly associated with small distribution lines than large transmission lines. The Applicants' transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution and will minimize potential avian impacts from the project.[182]

193. Avian collisions are also a recognized possibility with the construction and placement of a new transmission line. Collision frequency may increase when a new transmission line is located between feeding and resting areas such as, agricultural fields, wetlands, or open water.[183]

194. The USFWS and DNR both recommend installation of bird flight diverters along the transmission line to minimize the potential for avian collision. In most cases, the shield wire of an overhead transmission line is the most difficult part of the structure for birds to see.[184] After consultation with the DNR, Xcel Energy will install Swan Flight Diverters, pre-formed spiral shaped devices made of polyvinyl chloride that are wrapped around the shield wire, every 25 feet along the length of the line.

Rare and Unique Natural Resources

195. Both route alternatives avoid known native plant communities and rare plant species, no impacts to sensitive plant communities or species are anticipated.[185]

196. Trumpeter Swans were identified as being within the project area. The greatest concern with trumpeter swans is the potential for collision with transmission lines.

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[180] Ex. 12 at p. 50 (EA)
[181] Ibid.
[182] Ibid.
[183] Ibid.
[184] Ibid.
[185] Ibid. at p. 51

Xcel Energy has agreed to install Swan Flight Diverters, along the entire length of the transmission line (Finding 195).[186]

Interference

197. Corona from transmission line conductors can generate electromagnetic "noise" in the radio frequency range. This noise may cause broadband interference at the same frequencies that many communication and media signals are transmitted. This noise can cause interference with the reception of these signals depending on the frequency and strength of the signal. Loose hardware on the transmission line may also cause interference.[187]

198. AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly to either side. If radio interference from transmission line corona does occur, satisfactory reception from AM radio stations can be restored by appropriate modification of (or addition to) the receiving antenna system.[188]

199. Digital and satellite television are expected to have little interference from corona generated noise. Line of site for satellite television users could be obstructed by a transmission line structure. Line of site can usually be restored by moving the consumer satellite dish to a slightly different location.[189]

200. Wireless internet and cellular phones are not expected to be impacted by the proposed project.[190]

201. Corona-generated noise from transmission lines could be a source of interference for global positioning systems (GPS). Impacts to GPS systems are typically an issue in agricultural areas because of concerns with interference with farm machinery. The project is not located in an agricultural area and no impacts with GPS systems are anticipated.[191]

<u>Certificate of Need</u>

202. Pursuant to Minnesota Statute 216B.243, subdivision 2, "No large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the Commission." In the case of a high-voltage transmission line, a large energy facility is defined as, (1) any high-voltage transmission line with a capacity

[186] Ex. 12 at p. 51 (EA)
[187] Ibid. at p. 52
[188] Ibid.
[189] Ibid. at pp. 52-53
[190] Ibid. at p. 53
[191] Ibid.

of 200 kV or more and greater than 1,500 feet in length, and (2) any high-voltage transmission line with a capacity of 100 kV or more with more than ten miles of its length in Minnesota or that crosses a state line.

203. The project does not meet the criteria for a "large energy facility" because, although it has a capacity in excess of 100 kV, it is less than 10 miles long.

Summary of Human and Environmental Impacts and Commitment of Resources

204. Both routes analyzed in the EA have human and environmental impacts, some of which are unavoidable if the project is permitted and built. Construction of the project will generate temporary noise impacts; installation of new transformers at the replacement substation will create additional noise impacts (Findings 104, 108, 111). The replacement substation, new and taller transmission line structures and an expanded substation would change the view experienced by residents and travelers in the project area (Findings 96, 98). Aesthetic and noise impacts from the replacement substation can be mitigated through substation design (Findings 99, 100, 102, 113).

205. The Baker Park Reserve Route Alternative would have more direct impacts on Baker Park Reserve. Both route alternatives would replace one structure in the Baker Park Reserve with a taller structure, causing an incremental change to the viewshed. The Baker Park Reserve Route Alternative would add up to four additional structures to the park, establish a new right-of-way of up to 67.5 feet and remove between 0.6 and 0.9 acres of trees in the park (Finding 156). Because federal funds created by the Land and Water Conservation Fund were used for the acquisition of the Baker Park Reserve, the National Park Service would need to approve conversion to other than public outdoor recreation uses. The National Park Service would only consider approval if all alternatives to the conversion have been evaluated and rejected. If approval is granted, Xcel Energy would need to acquire and provide replacement land of at least equal value and use (Finding 157).

206. There are few commitments of resources associated with this project that are irreversible and irretrievable, but those that do exist are primarily related to construction. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. Construction resources that would be used include aggregate resources, concrete, steel, and hydrocarbon fuel.

Applicable Statutory Conditions

207. Minnesota Statute §216B.243, subdivision 2, states that no large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the Commission. Minnesota Statute §216B.2421, subdivision 2(3) defines a "large energy facility" as any high voltage transmission line with a capacity of 100 kV or more with more than ten miles of length or that crosses a state line.

208. Minnesota Statute §216E.03, subdivision 7, and Minnesota Rule 7850.4100 provides considerations in designating sites and routes and determining whether to issue a permit for a large electric power generating plant or a high-voltage transmission line.

Based on the Findings of Fact the Commission makes the following:

CONCLUSIONS OF LAW

1. Any of the foregoing Findings more properly designated as Conclusions are hereby adopted as such.

2. The Public Utilities Commission has jurisdiction over the subject matter of this proceeding pursuant to Minnesota Statute §216E.03, subdivision 2.

3. The project qualifies for review under the alternative permitting process of Minnesota Statute §216E.04 and Minn. Rules 7850.2800.

4. The Applicant, the Department of Commerce, and the Public Utilities Commission have complied with all procedural requirements required by law.

5. The Department of Commerce has completed an EA of this project as required by Minnesota Statute §216E.04, subdivision 5, and Minnesota Rule 7850.3700.

6. The Public Utilities Commission has considered all the pertinent factors relative to its determination of whether a route permit should be approved as required by Minnesota Statute §216E.03, subdivision 7, and Minnesota Rule 7850.4100.

7. The conditions included in the route permit are reasonable and appropriate.

Based on the Findings of Fact, Conclusions of Law contained herein and the entire record of this proceeding, the Commission hereby makes the following:

ORDER

1. A route permit for the Proposed Route, as requested in the route permit application, is hereby issued to Northern States Power Company, a Minnesota corporation, to: construct approximately 0.4 miles of new double circuit 115 kV overhead transmission line, relocate approximately 0.2 miles of Xcel Energy's existing 115 kV transmission line 0831, and replace Xcel Energy's existing Orono Substation in the City of Orono in Hennepin County, Minnesota.

2. The route width for the entire length of the transmission line is as follows:100 feet on each side of existing Line 0831 from Structure 076 to 078 (200 feet total width) for removal and replacement work; 100 feet on each side of new single circuit 115 kV transmission line from Structure 078 to new Structure 077 (200 feet total width); 100 feet on south side and 50 feet on north side of the proposed alignment of the new 115 kV transmission line from new Structure 077 to new Structures 076-1, 076-2, and 076-3 (150 feet total width); 100 feet on either side of the proposed alignment of the new 115 kV transmission line from new Structure 076-3 into the replacement substation area, except that the route width along west property line of Xcel Energy site shall be 50 feet west of Xcel Energy property on Huntington Farm Home Owners Association property and not on residential parcels.

3. The route permit shall be issued in the form attached hereto, with a map showing the approved route.

Approved and adopted this 6th day of April 2012.

BY ORDER OF THE COMMISSION

Burl W. Haar,
Executive Secretary

Exhibit List

In the Matter of the Route Permit Application
for the Orono Substation Replacement and
new 115 kV Transmission Line Project

PUC Docket E002/TL-11-223

Exhibit No.	Author	Description	Received Date	eDocket Document Number
1	Applicant	Notification of intent to file pursuant to alternative process	March 17, 2011	20113-60432-01
2	Applicant	HVTL Route Permit Application	June 6, 2011	20116-63311-01; 20116-63311-02; 20116-63311-03; 20116-63311-04; 20116-63311-05; 20116-63311-06 20116-63311-07; 20116-63311-08
3	EFP	EFP staff comments and recommendations to the Commission on application acceptance	June 22, 2011	20116-63910-01
4	Applicant	Notice of Filing of Application (Affidavits of Mailing and Publication)	June 29, 2011	20116-64195-01
5	Commission	Order of Application Acceptance (with	June 30, 2011	20116-64311-01; 20116-64311-02
6	EFP	Notice of Public Scoping Meeting (with Affidavit of Service)	July 26 and 27, 2011	20117-64656-01; 20117-64598-01
7	Applicant	Notice of Public Scoping Meeting (with Affidavits of Publication) – August 2, 2011	November 22, 2011	201111-68579-01
8	EFP	Public Comments (oral) made at the information/scoping meeting August 10, 2011	September 7, 2011	20119-66024-01
9	EFP	Public Comments (written) received during scoping comment period	September 7, 2011	20119-66024-02
10	Applicant	Northern States Power Company comments on EA Scope	September 7, 2011	20119-66015-01
11	DOC	DOC Deputy Commissioner's Scoping Decision (with Certificate of Service	September 14, 2011	20119-66367-01
12	EFP	Environmental Assessment (Corrected Version of Appendix B	November 30, 2011 and December 13,	201111-68793-01; 201111-68793-02;

Exhibit No.	Author	Description	Received Date	eDocket Document Number
		filed December 13, 2011)	2011	201111-68793-03; 201111-68793-04; 201111-68793-05; 201112-69174-01
13	EFP	Notice of Public Hearing and Availability of EA (with Certificate of Service)	November 30, 2011	201111-68813-01
14	EFP	Notice of Availability of EA in the *EQB Monitor (*December 12, 2011)	December 13, 2011	201112-69173-02
15	EFP	Notice of Public Hearing (with certified letters to Local Governments)	December 13, 2011	201112-69173-01
16	Applicant	Newspaper Notice of Public Hearing (*Wayzata Lakeshore Weekly News* on November 29, 2011, and *Plymouth, Wayzata, Orono, and Long Lake Sun Sailor* on December 1, 2011)	December 14, 2011	201112-69250-01
17	Applicant	Northern States Power Pre-filed Testimony of Joseph Sedarski	December 13, 2011	201112-69199-01 201112-69199-02 201112-69199-03
18	OAH	Melissa Fogelberg Submission	December 29, 2011	201112-69736-01
19	OAH	Hearing Transcript	January 3, 2012	20121-69850-01
20	EFP	EFP Letter to ALJ Lipman requesting delay of summary report	January 6, 2012	20121-70011-01
21	Applicant	Northern States Power Company letter requesting extension of time period	January 9, 2012	20121-70042-01
22	OAH	Hearing Comments	January 6, 2012 March 2, 2012	20121-70034-01; 20123-72152-01;
23	EFP	MPCA Hearing Comments, January 6, 2012	March 13, 2012	20123-72548-01
24	Applicant	Noise Assessment and Affidavit of Mailing	January 13, 2012	20121-70285-01 20121-70286-01
25	EFP	Notice of Comment Period	January 13, 2012	20121-70260-01
26	OAH	ALJ Summary Report	March 2, 2012	20123-72225-01

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

ROUTE PERMIT FOR CONSTRUCTION OF A HIGH-VOLTAGE TRANSMISSION LINE AND ASSOCIATED FACILITIES

IN HENNEPIN COUNTY

ISSUED TO
NORTHERN STATES POWER COMPANY, A MINNESOTA CORPORATION
PUC DOCKET NO. E002/TL-11-223

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850, this route permit is hereby issued to:

NORTHERN STATES POWER COMPANY, A MINNESOTA CORPORATION

Northern States Power Company, a Minnesota Corporation, (Xcel Energy) is authorized by this route permit to relocate approximately 0.2 miles of Xcel Energy Line 0831, to construct approximately 0.4 miles of new double-circuit 115 kV transmission line between Xcel Energy Line 0831 and the Orono Substation, and to expand and modify the Orono Substation to accommodate the new 115 kV transmission line.

The transmission line and associated facilities shall be built within the route identified in this permit, as portrayed on the official route map, and in compliance with the all other conditions specified in this permit.

Approved and adopted this 6th day of April, 2012

BY ORDER OF THE COMMISSION

Burl W. Haar,
Executive Secretary

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ATTACHMENTS

Complaint Handling Procedures for High-Voltage Transmission Lines
Permit Compliance Filings
Compliance Filing Procedures for Permitted Energy Facilities

ROUTE MAPS

Overview Route
HVTL Route Aerial Map

1 ROUTE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to Northern States Power, a Minnesota corporation (Permittee) pursuant to Minnesota Statute 216E.03 and Minnesota Rules 7850. This permit authorizes the Permittee to construct approximately 0.6 miles of new 115 kV transmission line and associated facilities in Hennepin County, Minnesota and as identified in the attached route permit maps, hereby incorporated into this document.

2 PROJECT DESCRIPTION

The Permittee is authorized to construct a project comprising of the relocation of an existing 115 kV transmission line, construction of a new 115 kV transmission line, and associated facilities described as:

- Construction of approximately 0.4 miles of new double circuit 115 kV transmission line between Xcel Energy line 0831 and the Orono Substation.
- Relocation of approximately 0.2 miles of the existing Xcel Energy single circuit 115 kV transmission line 0831.
- Replacement of the existing 69 kV Orono Substation with a new 115 kV substation at the same location, but with a larger footprint to accommodate the new 115 kV transmission line.

2.1 Project Location

The project is located in Township 118N, Range 23 W, Sections 29, 30, and 32 in the northeastern portion of the city of Orono in Hennepin County, Minnesota.

2.2 Associated Facilities and Substations

The project would replace the existing 69 kV Orono Substation with an expanded 115 kV substation at the same location in the southwest portion of the 16 acre parcel owned by Xcel Energy, encompassing the existing 69kV site. Depending upon the extent of landscaping to mitigate substation impacts, up to 50 feet west of the Xcel Energy Parcel may be required.

The fenced area of the new 115 kV substation would be approximately 1.2 acres, encompassing the existing 0.1 acre site of the 69 kV substation. Xcel Energy will grade a total area of approximately 1.6 acres, for the substation and re-aligned access road to ensure both a stable base for the substation equipment and proper drainage and runoff control. Additional area may be graded to establish landscaping to mitigate substation impacts. Project work at the substation would entail:

- Removal of the termination structure for Great River Energy's (GRE) 69 kV transmission line; switchgear from the existing 69 kV substation will be reused in its existing location;
- Installation of a mobile substation or use of GRE's existing 69 kV transmission line during construction to ensure that service is maintained until the 115 kV source is energized;

- Installation of a new 115-13.8 kV substation with a 28 mega volt ampere (MVA), 118-14.3 kV transformer;
- Installation of two 115 kV line terminations, each with a motor–operated transmission line switch, one with a quick-break line dropping whip;
- Installation of two single-phase coupling capacitor voltage instrument transformers with carrier accessories;
- Installation of two 2000 amp line traps and tuners; and
- Installation of six 76 kV maximum continuous operating voltage station class surge arresters.
- Installation of noise walls of the size and type evaluated in the Noise Assessment.

2.3 Structures and Conductors

The Permittee shall use 115/115 kV single pole double-circuit structures constructed of galvanized steel for Structures 076-1 to 076-5. Structures would be approximately 75 to 115 feet in height with average spans of 300 to 500 feet between structures.

Permittee shall install a new self-supporting single-circuit angle structure, 077, in the portion of the line relocating Xcel Energy's existing line 0831. The new structure would be constructed of galvanized steel and be approximately 70 to 90 feet in height with spans of 300 feet to 500 feet between structures.

Permittee shall use single-pole cross arm Y-frame structures constructed of galvanized steel to replace the existing Structure 076, in Baker Park Reserve, and 078, where Xcel Energy's existing line 0831 would be relocated. These structures would be 70 to 90 feet in height, with spans of 300 to 500 feet between structures.

The transmission line shall be equipped with protective devised to safeguard the public if an accident occurs.

The transmission line shall be designed to meet or exceed local and state codes, the National Electric Safety Code (NESC), and North American Electric Reliability Corporation (NERC) requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

3 DESIGNATED ROUTE

The approved route is shown on the route map attached to this permit and further designated as follows:

The new transmission line would exit an expanded Orono Substation, head north for 866 feet as a double circuit line and then turn to the northwest along the southern edge of the BNSF railroad right-of-way for approximately 1,205 feet to the existing 115 kV transmission Line 0831. At this point, the Project would replace three existing transmission structures and approximately

1,030 feet of single circuit 115 transmission Line 0831with two new structures and approximately 1,095 feet of single circuit 115 kV transmission line, re-routing the existing line off of two residential parcels and onto adjacent Huntington Farm Home Owners Association property adjacent to the BNSF railroad. A new double-circuit corner structure would connect the single- and double-circuit portions of the project. The Project would also install fiber optic ground wire along the entire length of the Project

3.1 Route Width and Alignment

The designated route width will be as follows: 100 feet on each side of existing Line 0831 from Structure 076 to 078 (200 feet total width) for removal and replacement work; 100 feet on each side of new single circuit 115 kV transmission line from Structure 078 to new Structure 077 (200 feet total width); 100 feet on south side and 50 feet on north side of new 115 kV transmission line from new Structure 077 to new Structures 076-1, 076-2, and 076-3 (150 feet total width); 100 feet on either side of new 115 kV transmission line from new Structure 076-3 into the replacement substation area, except that the route width along west property line of Xcel Energy site shall be 50 feet west of Xcel Energy property on Huntington Farm Home Owners Association property and not on residential parcels.

This width will provide the Permittee with flexibility for minor adjustments of the specific alignment or right-of-way to accommodate landowner requests and unforeseen conditions. The final alignment (i.e., permanent and maintained rights-of-way) will be located within this designated route unless otherwise authorized below.

The designated route identifies an alignment that minimizes the overall potential impacts to the factors identified in Minnesota Rule 7850.4100 and which was evaluated in the environmental review and permitting process. Consequently, this permit anticipates that the actual right-of-way will generally conform to the alignment shown in the attached maps, unless changes are requested by individual landowners, unforeseen conditions are encountered, or are otherwise provided for by this permit.

Any alignment modifications within this designated route shall be located so as to have comparable overall impacts relative to the factors in Minnesota Rule 7850.4100 as does the alignment identified in this permit, and shall be specifically identified and documented in and approved as part of the Plan and Profile submitted pursuant to Section 4.1 of this permit.

Route width variations outside the designated route may be allowed for the Permittee to overcome potential site specific constraints. These constraints may arise from any of the following:

1) Unforeseen circumstances encountered during the detailed engineering and design process.

2) Federal or state agency requirements.

3) Existing infrastructure within the transmission line route, including but not limited to roadways, railroads, natural gas and liquid pipelines, high voltage electric transmission lines, or sewer and water lines.

4) Planned infrastructure improvements identified by state agencies and local government units (LGUs) and made part of the record for this permit.

Any alignment modifications arising from these site specific constraints that would result in right-of-way placement outside the designated route shall be located so as to have comparable overall impacts relative to the factors in Minnesota Rule 7850.4100 as does the alignment identified in this permit and shall also be specifically identified and documented in and approved as part of the plan and profile submitted pursuant to Section 4.1 of this permit.

3.2 Right-of-Way Placement

Where the transmission line route parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible, consistent with the criteria in Minnesota Rule 7850.4100, the other requirements of this permit, and for highways under the jurisdiction of the Minnesota Department of Transportation (Mn/DOT), Mn/DOT rules, policies, and procedures for accommodating utilities in trunk highway rights-of-way.

3.3 Right-of-Way Width

The 115 kV transmission line will be built with single pole structures, which will require a 75-foot right-of-way, 37.5 feet on each side of the transmission line centerline.

4 GENERAL CONDITIONS

The Permittee shall comply with the following general conditions during construction of the transmission line and associated facilities and the life of this permit.

4.1 Plan and Profile

At least thirty (30) days before right-of-way preparation for construction begins on any segment or portion of the project, the Permittee shall provide the Commission with a plan and profile of the right-of-way and the specifications and drawings for right-of-way preparation, construction, transmission structure specifications and locations, and restoration for the transmission line. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved per the permit.

The permittee will continue to consult with adjacent landowners regarding final design of the noise walls and berms, and provide a noise abatement design for the substation during the Plan and Profile.

The Permittee may not commence construction until the thirty (30) days has expired or until the Commission has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the

Permittee intend to make any significant changes in the plan and profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission at least five (5) days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

4.2 Construction Practices

The Permittee shall follow those specific construction practices and material specifications described in the Northern States Power Company application to the Commission for a route permit, dated June 7, 2011, and as described in the environmental assessment and Findings of Fact, unless this permit establishes a different requirement, in which case this permit shall prevail.

4.2.1 Field Representative

At least fourteen (14) days prior to commencing construction, the Permittee shall advise the Commission in writing of the person or persons designated to be the field representative for the Permittee with the responsibility to oversee compliance with the conditions of this permit during construction.

The field representative's address, phone number, email, and emergency phone number shall be provided to the Commission and shall be made available to affected landowners, residents, public officials and other interested persons. The Permittee may change the field representative at any time upon written notice to the Commission.

4.2.2 Local Governments

During construction, the permitee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services occur, these would be temporary and the permitee will work to restore service promptly.

Where any impacts to utilities have the potential to occur, permitee will work with both landowners and local agencies to determine the most appropriate transmission structure placement.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction.

4.2.3 Cleanup

All waste and scrap that is the product of construction shall be removed from the area and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper from construction activities shall be removed on a daily basis.

4.2.4 Noise

Construction and routine maintenance activities shall be limited to daytime working hours, as defined in Minnesota Rule 7030.0200, to ensure nighttime noise level standards will not be exceeded.

4.2.5 Vegetation Removal in the Right-of-Way

The Permittee shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences and vegetation in areas such as trail and stream crossings, where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

Tall tree species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission facility will be removed.

In many cases certain low and slow growing species that do not exceed a mature height of 15 feet can be planted in the right-of-way to blend the difference between the right-of-way and adjacent wooded areas, to the extent that the low growing vegetation that will not pose a threat to the transmission facility or impede construction.

4.2.6 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. Care shall be used to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the project during construction and maintenance. Structures shall be placed at the reasonable distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highway, or trail crossings and could cross roads to minimize or avoid impacts.

4.2.7 Erosion Control

The Permittee shall follow standard erosion control measures outlined in Minnesota Pollution Control Agency (MPCA) guidance and best management practices regarding sediment control practice during construction include protecting storm drain inlets, use of silt fences, protecting exposed soil, immediately stabilizing restored soil, controlling temporary soil stockpiles, and controlling vehicle tracking.

The Permittee shall implement reasonable measures to minimize runoff during construction and shall promptly plant or seed, erect sediment control fences (e.g. biorolls, sandbags, and silt fences), apply mulch (e.g. hay or straw) on exposed soils, and/or use erosion control blankets and turf reinforcement mats to provide structural stability to bare surfaces and slopes.

When utilizing seed to establish temporary and permanent vegetative cover on exposed soil, the Permittee shall select specific site characteristic seed, certified to be free of noxious weeds.

Contours shall be graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation, provide for

proper drainage, and prevent erosion. All areas disturbed during construction of the facilities shall be returned to their pre-construction condition.

Where larger areas of one acre or more are disturbed or other areas designated by the MPCA, the Permittee shall prepare the required Stormwater Pollution Prevention Plan (SWPPP) and obtain a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) construction stormwater permit from the MPCA.

4.2.8 Wetlands and Water Resources

Structures shall be located to span watercourses, wetlands, and floodplains to the extent practicable and consistent with sound engineering principles. Minimal grading of areas around pole locations may be required to accommodate construction vehicles and equipment.

Construction of Public Water crossings shall be consistent with construction methods identified in Minn. Rule 6135.1300, as required by the Minnesota Department of Natural Resources in the License to Cross Public Lands and Waters. Permittee shall minimize disturbance to natural streambed and shoreline vegetation and restrict clearance of banks, shorelines and adjacent lands to the minimum necessary for equipment to complete the installation to the extent that such actions do not violate sound engineering principles or system reliability criteria.

The Permittee shall endeavor to access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts wherever possible.

Construction in wetlands and riparian areas shall be scheduled during frozen ground conditions, when practicable. When construction during winter is not possible, construction mats (wooden mats or a composite mat system) shall be used to protect wetland vegetation. All-terrain construction vehicles designed to minimize soil impact in damp areas may also be used.

No staging or stringing set up areas shall be placed within or adjacent to wetlands or water resources, as practicable. The structures shall be assembled on upland areas before they are brought to the site for installation.

Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area. The Permittee shall also utilize erosion control methods identified in Section 4.2.7 (Erosion Control), as warranted. Areas disturbed by construction activities shall be restored to pre-construction conditions (soil horizons, contours, vegetation, etc.).

4.2.9 Temporary Work Space

The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized right-of-way. Space shall be selected to limit the removal and impacts to vegetation.

Temporary lay down areas outside of the authorized transmission line right-of-way will be obtained from affected landowners through rental agreements and are not provided for in this permit.

Temporary driveways may be constructed between the roadway and the structures to minimize impact by using the shortest route possible. Construction mats may also be used to minimize impacts on access paths and construction areas.

4.2.10 Restoration

The Permittee shall restore the right-of-way, temporary work spaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the transmission line. Practices to restore areas impacted by construction and maintenance activities are also described in Section 4.2.7 of this permit.

Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line.

Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities. The Permittee shall compensate landowners for any yard/landscape, crop, soil compaction, drain tile, or other damages that may occur during construction.

4.2.11 Notice of Permit

The Permittee shall inform all employees, contractors, and other persons involved in the transmission line construction of the terms and conditions of this permit.

4.3 Periodic Status Reports

The Permittee shall report to the Commission on progress regarding finalization of the route, design of structures, and construction of the transmission line. The Permittee need not report more frequently than monthly.

4.4 Complaint Procedures

Prior to the start of construction, the Permittee shall submit to the Commission the procedures that will be used to receive and respond to complaints. The procedures shall be in accordance with the requirements set forth in the complaint procedures attached to this permit.

4.5 Notification to Landowners

The Permittee shall provide all affected landowners with a copy of this permit and the complaints procedures at the time of the first contact with the landowners after issuance of this permit. At the time of first contact, the Permittee shall also provide all affected landowners with a copy of the *Landowner Guide to Easements* publication provided by the Department of Commerce.

The Permittee shall contact landowners prior to entering the property or conducting maintenance along the route. The Permittee shall avoid construction and maintenance practices, particularly the use of fertilizer, herbicides or other pesticides, that are inconsistent with the landowner's or tenant's use of the land (See also, Section 4.2.5).

The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads.

4.6 Completion of Construction

4.6.1 Notification to Commission

At least three days before the line is to be placed into service, the Permittee shall notify the Commission of the date on which the line will be placed into service and the date on which construction was complete.

4.6.2 As-Builts

Within 60 days after completion of construction, the Permittee shall submit copies of all the final as-built plans and specifications developed during the project.

4.6.3 GPS Data

Within 60 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (ArcGIS compatible map files, GPS coordinates, associated database of characteristics, etc.) for all structures associated with the transmission line, each switch, and each substation connected.

4.7 Electrical Performance Standards.

4.7.1 Grounding

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

4.7.2 Electric Field

The transmission line shall be designed, constructed, and operated in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

4.7.3 Interference with Communication Devices

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the transmission line, the Permittee shall take whatever action is prudently feasible to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the line.

4.8 Other Requirements.

4.8.1 Applicable Codes

The Permittee shall comply with applicable requirements of the NESC including clearances to ground, clearance to crossing utilities, clearance to buildings, right-of-way widths, erecting power poles, and stringing of transmission line conductors. The transmission line facility shall also meet the NERC reliability standards.

4.8.2 Other Permits

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required local, state and federal permits for the project and comply with the conditions of these permits. A list of the required permits is included in the route permit application and the environmental assessment. The Permittee shall submit a copy of such permits to the Commission upon request.

4.8.3 Pre-emption

Pursuant to Minnesota Statutes 216E.10, subdivisions 1 and 2, this route permit shall be the sole route approval required to be obtained by the Permittee and this permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government.

4.8.4 Delay in Construction

If the Permittee have not commenced construction or improvement of the route within four years after the date of issuance of this permit, the Commission shall consider suspension of the permit in accordance with Minnesota Rule 7850.4700.

4.9 Archeological and Historic Resources

If any previously unrecorded archaeological sites are discovered during construction of the project, the Permittee shall immediately stop work at the site and shall mark and preserve the site(s) and notify the Commission and the State Historic Preservation Office (SHPO) of the discovery. The Commission and the SHPO shall have three (3) working days from the time the

agency is notified to conduct an inspection of the site if either agency chooses to do so. On the fourth day after notification, the Permittee may begin work on the site unless the SHPO has directed that work shall cease. In such event, work shall not continue until the SHPO determines that construction can proceed.

If human remains are encountered during construction, the Permittee shall immediately halt construction at that location and promptly notify local law enforcement authorities and the State Archaeologist. Construction at the human remains location shall not proceed until authorized by local law enforcement authorities or the State Archaeologist.

If any federal funding, permit, or license is involved or required, the Permittee shall notify the SHPO as soon as possible in the planning process to coordinate section 106 (36 C.F.R. part 800) review.

Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction.

4.10 Avian Mitigation

The Permittee' standard transmission design shall incorporate adequate spacing of conductor(s) and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices.

5 SPECIAL CONDITIONS

Special conditions shall take precedence over any of the other conditions of this Permit fif there should be a conflict between the two.

The Permittee shall provide a report to the Commission as part of the plan and profile submission that describes the actions taken and mitigative measures developed regarding the project and the following Special Conditions.

5.1 Noise Mitigation

The Permittee shall limit construction activities to occur between 7 a.m. and 8 p.m. on weekdays and 8 a.m. to 8 p.m. on weekends, consistent with the city of Orono's noise regulations.

5.2 Swan Flight Diverters

The Permittee shall install Swan Flight Diverters (SFDs) at intervals of 25 feet along the approved route, as shown in the maps attached to this permit.

5.3 Replacement Substation Design Plan

The replacement substation shall be designed and constructed in a manner that, to the extent possible: 1) minimizes the impact of the project on persons living, working and traveling in close

proximity to the replacement substation, 2) minimizes the aesthetic impact, and 3) is compatible with the surrounding structures.

Within 60 days of the issuance of this permit, the Permittee shall submit a preliminary design plan for the replacement substation to the Commission, the city of Orono, the Huntington Farm Home Owners Association, and property owners of record with properties located south of U.S. Highway 12, west of the U.S Highway 12/Hennepin County Road 6interchange, and within 2,500 feet of the proposed fenced area of the replacement substation,.

The preliminary design shall include, at a minimum, details concerning the location of the replacement substation on the site, grading of the site, the size and type of noise walls to be installed around the transformer location, fencing, lighting, and landscaping including location and dimension of proposed berms and vegetation around the replacement substation.

The Permittee shall allow the Commission, the city of Orono, the Huntington Farm Home Owners Association, and local landowners a minimum of 30 days to review and provide comments on the preliminary design.

Along with the required compliance filing of the Plan and Profile (see 3.1), the Permittee shall submit to the Commission the final replacement substation design, including a discussion of the comments received and rationale for the Permittee's final design decisions.

5.4 Archaeological Surveys

The Permittee shall perform an archeological survey as identified by the SHPO to identify any previously unknown archaeological resources.

6 PERMIT AMENDMENT

The permit may be amended at any time by the Commission. Any person may request an amendment of the conditions of this permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required.

7 TRANSFER OF PERMIT

The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer.

The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new permittee, and interested persons such process as is required.

8 REVOCATION OR SUSPENSION OF THE PERMIT

The Commission may initiate action to revoke or suspend this permit at any time. The Commission shall act in accordance with the requirements of Minnesota Rule 7850.5100 to revoke or suspend the permit.

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLIANCE FILING PROCEDURE
FOR PERMITTED ENERGY FACILITIES

1. Purpose

To establish a uniform and timely method of submitting information required by the Commission energy facility permits.

2. Scope and Applicability

This procedure encompasses all compliance filings required by permit.

3. Definitions

Compliance Filing – A sending (filing) of information to the Commission, where the information is required by a Commission site or route permit.

4. Responsibilities

A) The Permittee shall eFile all compliance filings with Dr. Burl Haar, Executive Secretary, Public Utilities Commission, through the Department of Commerce (DOC) eDocket system. The system is located on the DOC website: https://www.edockets.state.mn.us/EFiling/home.jsp

General instructions are provided on the website. Permittee must register on the website to eFile documents.

B) All filings must have a cover sheet that includes:
1) Date
2) Name of submitter / Permittee
3) Type of Permit (Site or Route)
4) Project Location
5) Project Docket Number
6) Permit Section Under Which the Filing is Made
7) Short Description of the Filing

Filings that are graphic intensive (e.g., maps, plan and profile) must, in addition to being eFiled, be submitted as paper copies and on CD. Copies and CDs should be sent to: 1) Dr. Burl W. Haar, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN, 55101-2147, and 2) Department of Commerce, Energy Facility Permitting, 85 7th Place East, Suite 500, St. Paul, MN, 55101-2198.

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PERMIT COMPLIANCE FILINGS[1]

PERMITTEES: Northern States Power Company, a Minnesota Corporation
PERMIT TYPE: HVTL Route Permit
PROJECT LOCATION: Hennepin County
PUC DOCKET NUMBER: E002/TL-11-223

Filing Number	Permit Section	Description	Due Date
1	4. 1	Plan and profile of right-of-way	30 days before ROW preparation or construction
2	4.2.1	Contact information for field representative	14 days prior to construction
3	4.2.10	Restoration Complete	60 days after completion of all restoration activities
4	4.3	Periodic Status Reports	monthly
5	4.4	Complaint Procedures	Prior to start of construction
6	Paragraph F of Complaint Handling Procedures	Complaint Reports	By the 15th of each month
7	4.5	Notification to landowners	
8	4.6.1	Notice of completion and date of placement in service	Three days prior to energizing
9	4.6.2	Provide As-built plans and specifications	Within 60 days after completion of construction
10	4.6.3	GPS information	Within 60 days after completion of construction
11	4.9	Notification of previously unrecorded archaeological sites	As needed

[1] This compilation of permit compliance filings is provided for the convenience of the permittees and the PUC. However, it is not a substitute for the permit; the language of the permit controls.

13	5.2	Swan Flight Diverter Locations	30 days before ROW preparation or construction
14	5.3	Replacement Substation Design Plan	30 days before ROW preparation or construction
15	5.4	Report of Archaeological Survey	30 days before ROW preparation or construction

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLAINT HANDLING PROCEDURES FOR
HIGH VOLTAGE TRANSMISSION LINES

A. Purpose:

To establish a uniform and timely method of reporting complaints received by the Permittee concerning Permit conditions for site preparation, construction, cleanup and restoration, operation and resolution of such complaints.

B. Scope:

This document describes Complaint reporting procedures and frequency.

C. Applicability:

The procedures shall be used for all complaints received by the Permittee and all complaints received by the Commission under Minn. Rule 7829.1500 or 7829.1700 relevant to this Permit.

D. Definitions:

Complaint: A verbal or written statement presented to the Permittee by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other HVTL and associated facilities route permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written Complaint alleging a violation of a specific Route Permit condition that, if substantiated, could result in Permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A Complaint which, despite the good faith efforts of the Permittee and a person(s), remains to both or one of the parties unresolved or unsatisfactorily resolved.

Person: An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

E. Complaint Documentation and Processing:

1. The Permittee shall document all Complaints by maintaining a record of all applicable information concerning the Complaint, including the following:

a. Name of complainant, address, phone number, and e-mail address.
b. Precise property description or parcel number.
c. Name of Permittee representative receiving Complaint and date of receipt.
d. Nature of Complaint and the applicable Route Permit conditions(s).
e. Activities undertaken to resolve the Complaint.
f. Final disposition of the Complaint.

2. The Permittee shall designate an individual to summarize Complaints for substantial to the Commission. This person's name, phone number and e-mail address shall accompany all complaint submittals.

3. A Person presenting the Complaint should to the extent possible, include the following information in their communications:

a. Name, address, phone number, and e-mail address.
b. Date
c. Tract or parcel
d. Whether the complaint relates to (1) a Route Permit matter, (2) a HVTL and associated facility issue, or (3) a compliance issue.

F. Reporting Requirements:

The Permittee shall report all complaints to the Commission according to the following schedule:

Immediate Reports: All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to HVTL Permit Compliance, 1-800-657-3794, or by e-mail to: DOC.energypermitcompliance@state.mn.us, or. Voice messages are acceptable.

Monthly Reports: By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be Filed to Dr. Burl W. Haar, Executive Secretary, Public Utilities Commission, using the Minnesota Department of Commerce eDocket system (see eFiling instructions attached to this permit).

If no Complaints were received during the preceding month, the Permittee shall submit (eFile) a summary indicating that no complaints were received.

G. Complaints Received by the Commission or DOC:

Complaints received directly by the Commission from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the Permittee.

H. Commission Process for Unresolved Complaints:

Initial Screening: Commission staff shall perform an initial evaluation of unresolved Complaints submitted to the Commission. Complaints raising substantial HVTL Route Permit issues shall be processed and resolved by the Commission. Staff shall notify Permittee and appropriate person(s) if it determines that the Complaint is a Substantial Complaint. With respect to such Complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the Staff notification. Staff shall present Briefing Papers to the Commission, which shall resolve the Complaint within twenty days of submission of the Briefing Papers.

I. Permittee Contacts for Complaints:

Mailing Address: Complaints filed by mail shall be sent to:

ATTN: Mr. Joseph Sedarski
Senior Permitting Analyst
Xcel Energy Services
414 Nicollet Mall, MP-8
Minneapolis, MN 55401

Tel: (612) 330-6435

Email: joseph.g.sedarskil@xcelenergy.com

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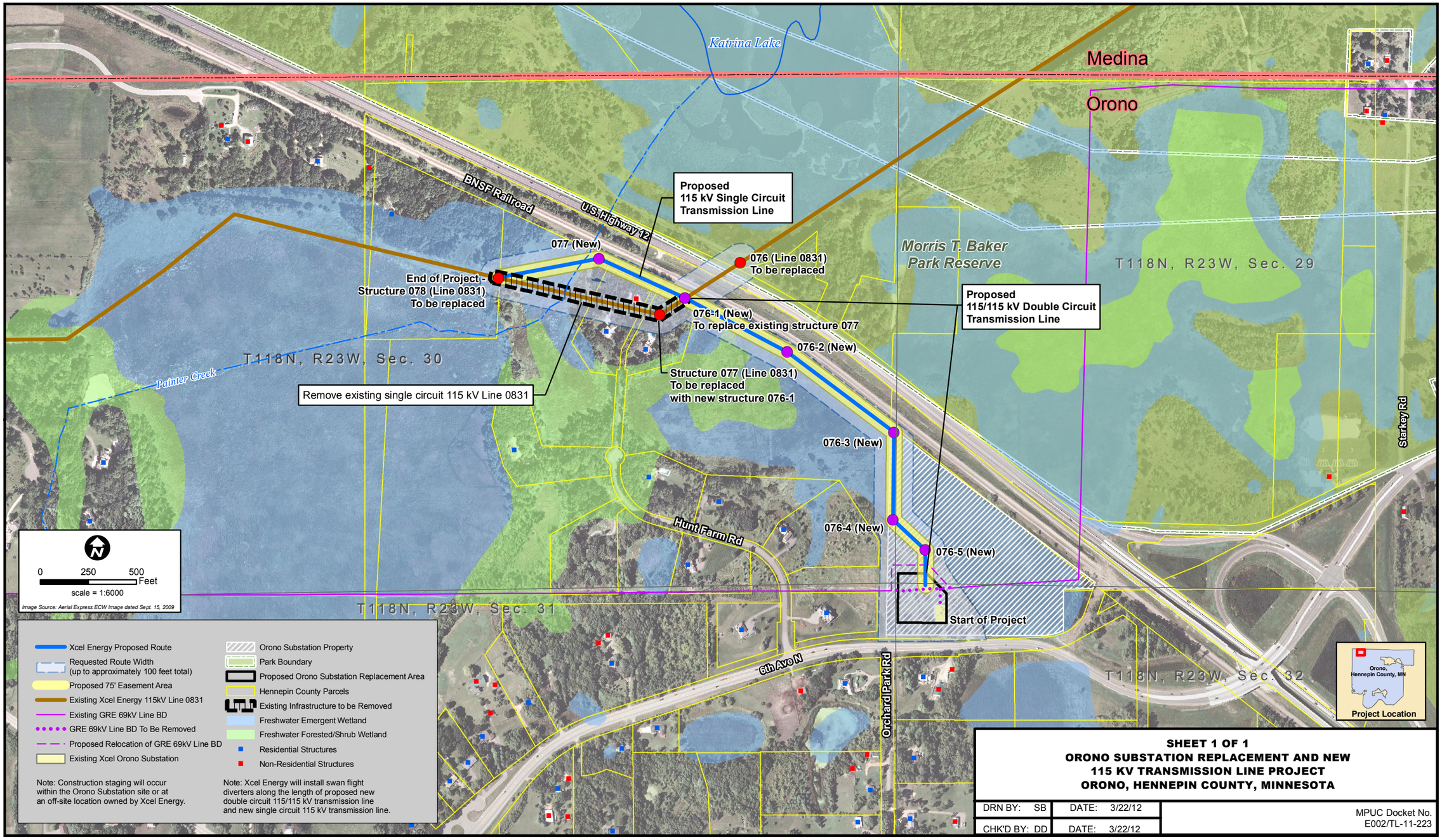
HVTL ROUTE MAP



SHEET 1 OF 1
ORONO SUBSTATION REPLACEMENT AND NEW
115 KV TRANSMISSION LINE PROJECT
ORONO, HENNEPIN COUNTY, MINNESOTA

DRN BY: SB	DATE: 3/22/12	MPUC Docket No. E002/TL-11-223
CHK'D BY: DD	DATE: 3/22/12	