

**Northern States Power Company
Application to the Public
Utilities Commission
for a Route Permit**

**Lake Yankton to Marshall
Transmission Line Project**

Alternative Permitting Process

MPUC Docket No. E002/TL-07-1407

January 14, 2008



**NORTHERN STATES POWER COMPANY
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PUBLIC UTILITIES COMMISSION
FOR A
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JANUARY 14, 2008

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1.0 EXECUTIVE SUMMARY

1.1 PROPOSAL SUMMARY

Northern States Power Company, a Minnesota corporation (“NSPM”, “Xcel Energy” or the “Company”), submits this application (“Application”) for a Route Permit to the Minnesota Public Utilities Commission (“MPUC”, “Minnesota PUC” or “Commission”) pursuant to Minnesota Rules (Minn. R.), Chapter 7849 and Minnesota Statutes (Minn. Stat.), Chapter 216E. The proposed 115,000 volt (“115 kV”) transmission line (“Project”) is part of a group of three transmission line projects in the greater area that together will improve our overall system’s capability to support further wind energy generation development in southwestern Minnesota and eastern South Dakota. In addition, the Project will improve the reliability of the power supply to the City of Marshall Municipal Utility (“MMU”).

The new transmission line will be approximately 15.7 miles long and connect the Company's Lake Yankton Substation with the Southwest Marshall Substation owned by MMU. The proposed route will parallel roadways for the majority of its length. It will start on the north side of the Lake Yankton Substation and head north, northeast to the south side of the Southwest Marshall Substation. The right-of-way for the new 115 kV transmission line will be 75 feet wide.

In this Application, the Company requests that the Commission approve the proposed route and authorize a route width of 200 feet on each side of the route centerline (400 feet total width) with the exception of one area, where a narrower route is requested. Specifically, in Sections 17 and 18, Lake Marshall Township, the Company requests a route width of 100 foot width on each side of the route centerline (200 feet total width).

Minnesota Statutes Chapter 216E and the Commission rules provide for an Alternative Permitting Process for certain facilities (Minnesota Statutes § 216E.04; Minnesota Rule 7849.5500). The Lake Yankton – Southwest Marshall high voltage transmission line (“HVTL”) qualifies for the Alternative Permitting Process because the HVTL is between 100 and 200 kilovolts. Minnesota Statutes §216E.04, subd. 2(C); Minn. R. 7849.5500, subp. 1(C) (authorizing alternative process for an HVTL

between 100 and 200 kilovolts). Xcel Energy has elected to submit this Application under the Alternative Permitting Process.

1.2 COMPLETENESS CHECKLIST

The content requirements for an application with the Commission under the Alternative Permitting Process are identified in Minnesota Rules 7849.5500 and 7849.5720. The rule requirements are listed on Table 1 with references indicating where the information can be found in this Application.

**TABLE 1
COMPLETENESS CHECKLIST**

Authority	Required Information	Where
Minn. R. 7849.5530	Contents of Application (alternative permitting process)	
	The applicant shall include in the application the same information required in part 7849.5220, except the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them.	4.3 (See also 7849.5220, Subp. 2 below)
Minn. R. 7849.5220, Subp. 2 (applicable per Minn. R. 7849.5530)	Route Permit for HVTL	
A.	a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	2.1
B.	the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated	2.2
C.	at least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference	Not applicable, per Minn. R. 7849.5530
D.	a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line	3.2, 4.1, 4.2, 5.1.1
E.	the environmental information required under 7849.5220, Subp. 3	See Minn. R. 7849.5220, subp. 3 (A) – (H) below
F.	identification of land uses and environmental conditions along the proposed routes	Chapter 6.0
G.	the names of each owner whose property is within any of the proposed routes for the high voltage transmission line	7.2, Appendix E.1
H.	United States Geological Survey topographical maps or other maps acceptable to the commission showing the entire length of the high voltage transmission line on all proposed routes	Appendix B
I.	identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share right-of-way, the land used by a public utility (as for a transmission line), with the proposed line	5.1.1
J.	the engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line	Chapter 5.0
K.	cost analysis of each route, including the costs of constructing,	3.4

Authority	Required Information	Where
	operating, and maintaining the high voltage transmission line that are dependent on design and route	
L.	a description of possible design options to accommodate expansion of the high voltage transmission line in the future	4.4
M.	the procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line	5.1.2 – 5.1.5
N.	a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	7.4
O.	a copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required	Appendix A.1
Minn. R. 7849.5220, Subp. 3	Environmental Information	
A.	a description of the environmental setting for each site or route	6.1
B.	a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services	6.2
C.	a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	6.3
D.	a description of the effects of the facility on archaeological and historic resources	6.4
E.	a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna	6.5
F.	a description of the effects of the facility on rare and unique natural resources	6.6
G.	identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route	See all of the effects described in Chapter 6.0
H.	a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures	See all of the mitigative measures identified in Chapter 6.0

2.0 INTRODUCTION

2.1 STATEMENT OF OWNERSHIP

Northern States Power Company is a Minnesota corporation with its headquarters in Minneapolis, Minnesota. The Company is a wholly-owned subsidiary of Xcel Energy Inc. (“Xcel Energy Inc.”), a utility holding company with its headquarters in Minneapolis. The Company provides electricity services to approximately 1.2 million customers and natural gas services to 425,000 residential, commercial and industrial customers in the State. The Company also provides electricity service to more than 73,000 customers in South Dakota and 55,000 customers in North Dakota. The Company will construct, own, operate, and maintain the new 115 kV transmission line from the NSPM-owned Lake Yankton Substation to the MMU-owned Southwest Marshall Substation. Xcel Energy Services Inc. is the service company for Xcel Energy Inc. holding company system, and its personnel *inter alia* prepare, submit and administer regulatory applications to the Commission on behalf of NSPM, including route permit applications.

2.2 PERMITTEE

The permittee for the Project is:

Permittee: Northern States Power Company

Contact: Timothy G. Rogers
Permitting Analyst

Address: Xcel Energy Services Inc.
414 Nicollet Mall, MP-8A
Minneapolis, MN 55401

Phone: (612) 330-1955

Email: timothy.g.rogers@xcelenergy.com

2.3 CERTIFICATE OF NEED PROCESS SUMMARY

Minnesota Statutes Section 216B.243, subd. 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. The 115 kV transmission line proposed for the Project is a “large energy facility” because it has a capacity in excess of 100 kV and is more than 10 miles long. See Minnesota Statutes § 216B.2421, subd. 2(3). On September 14, 2007, the Commission granted a Certificate of Need for the 115 kV transmission line. In the Matter of the Application for Certificates of Need for Three 115 kV Transmission Lines in Southwestern Minnesota, Docket No. E-002/CN-06-154, Order Granting Certificates of Need (Sept. 14, 2007) (“Certificate of Need Order”). A copy of the Certificate of Need Order is attached as Appendix A.1.

2.4 ROUTE PERMIT, ALTERNATIVE PERMITTING PROCESS

Minnesota Statutes Section 216E.03, subd. 2 provides that no person may construct a high voltage transmission line ("HVTL") 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 115 kV transmission line project proposed here is a high voltage transmission line and therefore a permit is required prior to construction.

Minnesota Statutes §216E.04 and Commission rules provide for an Alternative Permitting Process for certain facilities. The proposed transmission line qualifies for the Alternative Permitting process because it is 115 kV and is an HVTL between 100 and 200 kV as authorized by Minnesota Statutes §216E.04, subd. 2(C) and Minnesota Rules Chapter 7849.5500, subp. 1(C). This Application is submitted pursuant to the provisions of the Alternative Permitting Process outlined in Minnesota Rules 7849.5500 to 7849.5720.

2.5 NOTICE TO THE COMMISSION

The Company notified the Commission by letter dated October 31, 2007 that the Company intended to apply for a route permit for the Project under the Alternative Permitting Process. This letter complies with the requirement of Minnesota Rule 7849.5500, subp. 2, to notify the Commission at least 10 days prior to submitting an application for a route permit. A copy of this notice is attached as Appendix A.2.

3.0 PROJECT INFORMATION

3.1 PROJECT LOCATION

The proposed Project is located between Lake Yankton and the City of Marshall, Minnesota in Lyon County, in the following townships, ranges, and sections. The project map located in Appendix B.1 identifies the Project location. The townships affected are shown in Table 2.

**TABLE 2
PROJECT LOCATION**

Township Name	Township (N)	Range (W)	Sections
Lake Marshall	111	41	13, 17, 18, 19
Lynd	111	42	23, 24, 25, 26, 35, 36
Lyons	110	42	1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 34, 35
Rock Lake	109	42	2, 3, 10, 11, 15

3.2 PROJECT PROPOSAL

The Company proposes construction of a new single circuit 115 kV transmission line from the existing NSPM Lake Yankton Substation to the recently constructed Southwest Marshall Substation owned by MMU. The new transmission line will have a single circuit 115 kV component terminating at the Southwest Marshall Substation. The Project includes modifications to the Lake Yankton Substation to accommodate the new 115 kV line. No additional modifications are required at the Southwest Marshall Substation.

The proposed facility improvements are required to support the addition of wind energy generation onto the Company's transmission system by providing additional transmission capacity between Buffalo Ridge and Company load centers. In addition, the transmission line will improve the reliability of the power supply to MMU, as described in the Certificate of Need Order.

3.3 PROJECT SCHEDULE

Construction for the Project is expected to begin in summer of 2008. The Company anticipates a spring 2009 in-service date for the Lake Yankton-Southwest Marshall 115 kV transmission line. This schedule is based on information known as of the date of this filing and upon planning assumptions that balance the timing of implementation with the availability of crews, materials and other practical considerations. This schedule may be subject to adjustment and revision as further information is developed.

3.4 PROJECT COSTS

The Project will cost approximately \$13.1 million, as follows:

Lake Yankton to Southwest Marshall 115 kV Transmission Line	\$12,389,000
Lake Yankton Substation Modifications	\$ 700,000
Total Project Costs:	<u>\$13,089,000</u>

Operating and maintenance costs for the transmission line will be nominal for several years, since the line will be new and there is minimal vegetation maintenance required. Annual operating and maintenance costs for 115 kV transmission voltages across the Company's Upper Midwest system have averaged on the order of \$300 to \$500 per mile of transmission right-of-way over the last five years. The principal operating and maintenance cost will be inspections, usually done by fixed-wing aircraft on a monthly basis and by helicopter once a year.

The Company performs periodic inspections of substations and equipment. The type and frequency of inspection varies depending on the type of equipment. Typical inspection intervals are semi-annually or annually. Maintenance and repair are performed on an as-needed basis, and therefore the cost varies from substation to substation.

4.0 DETAILED FACILITY DESCRIPTION AND ROUTE SELECTION RATIONALE

4.1 TRANSMISSION LINE DESCRIPTION

This Project involves constructing a single circuit, 115 kV transmission line approximately 15.7 miles long between the existing Lake Yankton Substation and the Southwest Marshall Substation. Approximately 15.2 miles of the line will be constructed on single steel pole structures with a galvanized or weathering steel finish. The remaining approximately half mile will be constructed on double circuit steel pole structures with a galvanized or weathering steel finish.

The proposed route begins on the south end at the Lake Yankton Substation. The transmission line will proceed north along 210th Avenue paralleling the existing 115 kV transmission line for approximately 1,700 feet and continuing north to 160th Street. At 160th Street, the transmission line will run east for a mile to 220th Avenue. The 115 kV transmission line will go north following 220th Avenue for eight miles. The line will continue east along the section line (between Sections 24 and 25, Lynd Township) following a fence line for a mile, and then proceed north along 230th Avenue for another mile. The transmission line will continue north along a fence line in Section 18 of Lake Marshall Township until reaching a drainage ditch. The line will parallel the south side of the drainage ditch for approximately 5,000 feet, and then turn east and follow an unnamed gravel road to County State Aid Highway (“CSAH”) 7 (approximately 1,200 feet). The transmission line will turn south and parallel CSAH 7 for 600 feet. Single circuit poles will be used for this portion of the route.

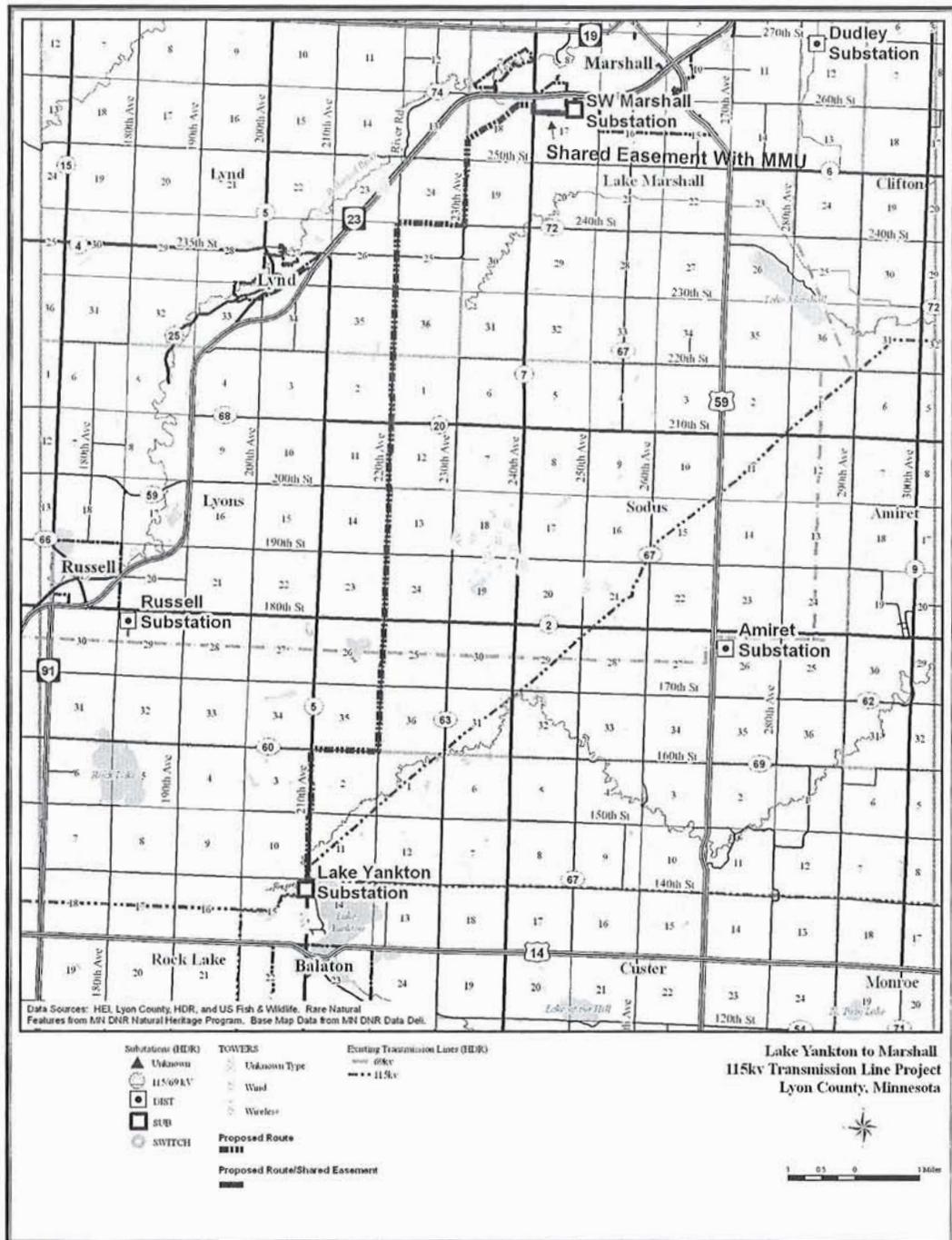
The line will then turn east and be placed in a utility easement obtained by MMU (“MMU Easement”) for approximately a half-mile (“MMU Shared Easement Area”) and enter the Southwest Marshall Substation from the south side. A copy of the *Grant of Easement* to MMU for the permanent 75-foot utility easement and a diagram of the

MMU Easement are included in Appendix C.1.¹ For this last segment, double circuit structures will be used.

Figure 1 provides an overview of the proposed route, including the MMU Shared Easement Area.

¹ The utility easement is described as the North 75 feet of the West 811.60 feet of the SW ¼ - NE ¼ in Section 17, T11N, R41W; and the North 75 feet of the S ½ - NW ¼, in Section 17, T11N, R41W.

FIGURE 1
PROPOSED ROUTE-- 115 KV TRANSMISSION LINE



The Company requests a route width of 200 feet on each side of the route centerline (400 feet total width) for the entire length of the route with the exception of a 100 foot width on each side of the route centerline (200 feet total width) in Sections 17 and 18 of Lake Marshall Township, to accommodate site-specific construction issues and landowner concerns.

Appendix B contains more detailed maps of the 115 kV transmission line route from the Lake Yankton Substation to the Southwest Marshall Substation. The segments for this proposed route are shown on the segment maps in Appendix B.4 (B.4-1 to B.4-4) and are identified as 1a, 1b, 1c, 5, 6, 3, D-1c, 4, 10, 11, 13, 16, 18, 20 and 21.

4.2 ASSOCIATED FACILITIES

4.2.1 LAKE YANKTON SUBSTATION

The Company's existing Lake Yankton Substation is owned by Xcel Energy and was designed to accommodate expansion. The additional equipment for the proposed 115 kV line will include two new 115 kV circuit breakers and two associated 115 kV disconnects, 3000A group-operated "B" disconnect switches. The "A" disconnect switches are already in place. The addition of this row of breakers will convert the substation from the present six-position ring to a breaker-and-a-half configuration. The substation will also require the installation of three 76 kV maximum continuous operating voltage rating ("MCOV"), station class arresters; a single phase coupling capacitor voltage transformers; and a 115 kV, 2000A line trap. No ground work or building modifications will be required to incorporate these additions. The existing control house and electrical control systems within the control house are adequately sized to handle the capacity from the proposed 115 kV transmission line. The Company will own and operate the additional facilities in the Lake Yankton Substation.

All modifications will be made within the fenced area. Plans for the Lake Yankton Substation additions are attached as Appendix B.2.

4.2.2 SOUTHWEST MARSHALL SUBSTATION

The Southwest Marshall Substation is an existing substation that is owned and operated by MMU. The Southwest Marshall Substation includes all of the equipment necessary for connecting the new Lake Yankton to Marshall 115 kV transmission line. This equipment includes two 115 kV breakers, associated disconnect switches, 115 kV bus extensions, steel structures, foundations, protective relaying and associated equipment. The existing control building and associated control systems were designed with sufficient capacity to accommodate the new line. Plans for the Southwest Marshall Substation are included in Appendix B.3.

4.3 ROUTE SELECTION PROCESS

The route was developed by the Company's routing and engineering personnel based on its investigation of the overall project area ("Project Area") and input from the public and government entities about how to minimize impacts. Throughout the process, the Company evaluated 37 route alternatives, considering feedback provided at two public open house meetings and through written comments. The segments analyzed are shown in Appendix B.4.

As part of the development of the route options, the Company consulted with local, state, and federal agencies associated with the Project Area. Agencies generally responded with requests to be updated on further Project developments and informed the Company of required permits for the Project along with specific applicable guidelines, rules, and regulations. The Company will continue to communicate with the agencies throughout the routing process.

The Company also performed an analysis of environmental resources in the Project Area using computer mapping of data including aerial photographs, and topographic maps. Aerial photography was obtained from Lyon County as well as zoning and parcel data and data regarding the locations of existing wind towers. The United States Department of Agriculture ("USDA") was consulted for soil data and Federal Emergency Management Agency ("FEMA") for floodplain information. The Minnesota Department of Natural Resources ("Mn DNR" or "Minnesota DNR") provided information on native plant communities, sites with biodiversity

significance, streams and lakes, wildlife management areas, and rare natural features. The United States Fish and Wildlife Service (“USFWS”) identified the wetlands on the National Wetlands Inventory (“NWI”) in the Project Area. In addition, the Minnesota State Historic Preservation Office (“SHPO”) was consulted for the existence of sites within the Project Area that have historic or archaeological significance.

The Company also consulted with MMU about its longer term plans to meet the growing demand for power in the Marshall area. The Marshall area is currently served by two 115 kV transmission lines, one from Lake Yankton and one from Granite Falls, both which terminate at Lyon County Substation located east of Marshall. Lyon County Substation is connected by a single 115 kV line to the City’s distribution network. The second source is another 115 kV line originating at the Granite Falls Substation. The line proposed in this Application will provide a third transmission source to serve the Marshall area.

MMU anticipates that a fourth 115 kV source will be needed at some time in the future to meet the growing demand for power in the area and has purchased land rights to potentially accommodate the new line in the event it were built. Specifically, MMU acquired the MMU Easement, a 75-foot permanent utility easement along the legal drainage ditch (west of the Marshall Substation) proceeding to CSAH 7 and continuing south along the east right-of-way line for CSAH 7 to 250th Street.

Xcel Energy considered the potential that the proposed Project and a fourth source could be double circuited on single poles in the MMU Easement area. Double circuiting is the construction of two separate circuits on the same structures. Double circuiting is employed, for example, in situations where two circuits serve different functions or where high capacity (but not redundancy) is required.

Double circuiting is not acceptable in situations where failure of both circuits would jeopardize reliability because of the substantially greater risk that both lines will be out of service simultaneously. For example, if storm damage caused a double circuit structure to fail, it can be expected that an outage would occur on both circuits. Thus, if under the relevant reliability rules it were determined that simultaneous outage would jeopardize service, double circuiting would not be allowed. In this case, it was

determined that a simultaneous outage of the proposed Project and a fourth source could jeopardize service if the lines were double circuited for one mile or more.

Based on this information and analysis, preliminary route alternatives were developed with the following primary objectives:

- Minimize land use impacts by routing along roads and existing transmission lines to reduce the amount of new right-of-way required and by placing new facilities along natural corridors, field lines and property lines, where an existing corridor (*e.g.* fence line, drainage ditch or access road) is present;
- Minimize impacts to residences;
- Minimize impacts to environmental and sensitive resources;
- Minimize the length of the transmission line to reduce the impact area and costs for the Project; and
- Minimize interference with MMU's use of the MMU Easement for an anticipated future 115 kV transmission line connecting at the Southwest Marshall Substation.

The preliminary routing maps for the proposed route and Project Area are contained in Appendix B.5.

After development of preliminary route segments, the Company sought input from the public, and state and local agencies through an open house meeting. The purpose of the open house was to inform area landowners about the Project and to gather input early in the route selection process. Two main alternatives were presented at the open house in August. See Appendix B.5-1.

Route A went west out of the Southwest Marshall Substation and followed along the south side of State Highway 23, turning south on 220th Avenue to 230th Street, following 230th Street west to CSAH 5, and then continued south on CSAH 5 toward the Lake Yankton Substation. Route B went west out of the Southwest Marshall Substation along 257th Street until reaching a drainage ditch where the route turned southwest and paralleled the ditch to the section line, turned south following 230th Avenue to 240th Street, and then followed 240th Street west to 220th Avenue. The

route continued south on 220th Avenue to 160th Street; turned west along 160th Street to 210th Avenue; and followed 210th Avenue south to the Lake Yankton Substation.

Approximately 40 people attended the August 16, 2007 open house. Their comments focused primarily on maximizing distances from the proposed transmission line to occupied homes and minimizing impacts to their agricultural practices. Several landowners in the Klein Addition development and nearby residents voiced concern about the segments proposed on the north end of the Project Area into the Southwest Marshall Substation, Sections 17 and 18 of Lake Marshall Township.

After the meeting, counsel for the Klein Addition homeowners wrote a letter to Xcel Energy proposing two new alternatives for the north end of the route, Alternative C-1 and Alternative C-2. A copy of this letter is included in Section 7.3. General comments and subsequent email responses received after the first open house are presented in Appendix D (agency comments) and Appendix E.2 (public comments).

The Company then refined its proposal and held a second public meeting on October 4, 2007 at the MMU meeting room to discuss the Project. Landowners generally commented about the placement of the transmission line in relation to their homes, future development and whether or not their farming practices would be impacted. Several Klein Addition homeowners along with legal counsel representing their association attended this open house. The Klein Addition residents opposed placement of the transmission line on the north and south sides of the Klein Addition as proposed. The homeowners were concerned about aesthetic impacts, and the potential impacts the transmission line may have on their property values. The Klein Addition homeowners asked the Company to evaluate another route option for the northern end of the line, D-1. The homeowners followed up with a letter proposing this alternative. This October 9, 2007 letter is presented in Appendix E.2.

Another alternative for the north end of the route, D-2, was proposed by a landowner in Section 18, Marshall Township at the public meeting.

All of the north end route alternatives are shown below in Figure 2 and in Appendix B.5. A summary of the evaluation of these alternatives is shown in Table 3.

**FIGURE 2
LAKE MARSHALL TOWNSHIP ALTERNATIVES**

