

# Bemidji- Grand Rapids

230-kV line

Bemidji-Grand Rapids 230-kV transmission line  
PO Box 1735  
Bemidji, MN 56619-1735  
888-373-4113

CapX2020

Delivering electricity you can rely on

March 17, 2008

Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place East, Suite 250  
St. Paul, MN 55101

RE: APPLICATION FOR A CERTIFICATE OF NEED FOR A 230-KV TRANSMISSION LINE AND ASSOCIATED SYSTEM CONNECTIONS FROM BEMIDJI TO GRAND RAPIDS, MINNESOTA DOCKET NO. E017, E015, ET-6/CN-07-1222

Otter Tail Power Company, Minnesota Power, and Minnkota Power Cooperative, Inc. (the Applicants), on behalf of themselves and Northern States Power Company, a Minnesota corporation (Xcel Energy) and Great River Energy, are submitting today via E-filing a public and not public application for a certificate of need to construct a 230-kV transmission line between Bemidji and Grand Rapids, Minnesota (Bemidji-Grand Rapids Line).

The Bemidji-Grand Rapids Line is one of four Group 1 Projects of the Capacity Expansion 2020 ("CapX2020") initiative. This initiative is focused on prioritizing the transmission infrastructure investments needed in Minnesota to meet the growing demand for electricity in Minnesota and the surrounding region, and to ensure timely and efficient regulatory review and approval of those investments.

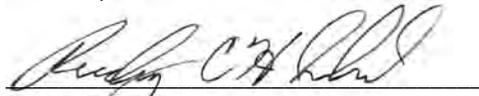
The Bemidji-Grand Rapids Line is needed to effectively meet projected future customer demand in the Bemidji area in north central Minnesota. It is also required to improve the regional transmission reliability of the larger northwestern Minnesota and eastern North Dakota region. The added transmission capacity from the Bemidji-Grand Rapids Line would assist in the potential development of wind-energy resources in portions of the Red River Valley and eastern North Dakota.

Copies of this application are being served on the parties on the attached distribution list as provided in Minnesota Rules 7849.0200, subp. 2. A short summary of our Application is being distributed as required by Minnesota Rules 78.29.2500 subp.3.

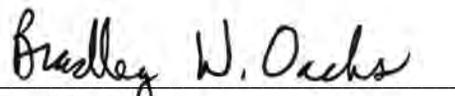
The Applicants look forward to working with all parties interested in this proceeding. Our goal is to cooperatively develop the transmission facilities needed to reliably serve Minnesotans and the upper Midwest region.

Please call Al Koeckeritz at 218-739-8416 if you have any questions regarding this filing. His email address is [akoeckeritz@otpc.com](mailto:akoeckeritz@otpc.com). You can send him mail at this address: Otter Tail Power Company, PO Box 496, Fergus Falls, MN 56538-0496.

Sincerely,



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Brad Oachs  
Vice President, Power Delivery and Transmission  
Minnesota Power



Al Tschepen  
Vice President, Planning and System Operations  
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Enclosures  
cc: See attached distribution list

2153563v1



## Bemidji-Grand Rapids 230-kv transmission line

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# Bemidji-Grand Rapids 230-kv transmission line

# CON distribution list

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**Bemidji-Grand Rapids 230-kv transmission line****CON distribution list**

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**Public Document- Trade Secret Data Excised**

**APPLICATION FOR A CERTIFICATE OF NEED  
FOR 230 KV TRANSMISSION LINE  
AND ASSOCIATED SYSTEM CONNECTIONS  
FROM BEMIDJI TO GRAND RAPIDS, MINNESOTA**

**DOCKET NO. E017, E015, ET-6/CN-07-1222**

**SUBMITTED BY**

**OTTER TAIL POWER COMPANY, MINNESOTA POWER, AND  
MINNKOTA POWER COOPERATIVE INC.**

**MARCH 17, 2008**

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- APPENDIX B:** MPUC Data Exemption Order (Dec. 24, 2007); MPUC Notice Plan Order (Nov. 29, 2007); Approved Notices; and Summary of Certificate of Need Filing
- APPENDIX C:** Potential Transmission Structure Types and Configurations; Electric Field Graphs; Magnetic Field Graphs; and Audible Noise Level Graphs
- APPENDIX D:** Map of Load Centers in North Zone; Winter Peak Demand and Consumption Forecasting Methodology; Winter Peak Demand Forecast for North Zone and Bemidji Load Center; and Consumption Forecast for Minnesota Portion of North Zone
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## GLOSSARY OF TERMS

AC	Alternate current
ACE	US Army Corps of Engineers
ACSR	Aluminum conductor steel reinforced
Applicants	Otter Tail Power Company, Minnesota Power, Minnkota Power Cooperative, Inc.
BMPs	Best management practices
CapX2020	Capacity Expansion 2020 initiative
Central Corridor	The Utilities' preferred corridor for the Project that runs through a central portion of the Leech Lake Reservation
CIP	Conservation Improvement Program
Combined Zone	Entire Red River Valley region
Commission	Minnesota Public Utilities Commission
dB(A)	Decibels A-weighted
DC	Direct current
Department	Minnesota Department of Commerce
DNR	Minnesota Department of Natural Resources
DSM	Demand side management
EMF	Electric and magnetic fields
EMS	Energy Management System
EPA	US Environmental Protection Agency
EQB	Minnesota Environmental Quality Board
HVTL	High voltage transmission line
ICD	Implantable cardioverter defibrillators
kV	Kilovolt
kV/m	Kilovolt per meter
kW	Kilowatt
LARR	Levelized annual revenue requirement
L Level Descriptors	A-weighted statistical sound levels
LODF	Line outage distribution factor
MAPP	Mid-Continent Area Power Pool

MCS	Macro Corridor Study
mG	milliGauss
MHz	MegaHertz
mA	milliAmperes
MISO	Midwest ISO (independent system operator)
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utilities Commission
MTEP	MISO Transmission Expansion Plan
MVA	Megavolt-ampere
MVAR	Megavolt-ampere reactive
MW	Megawatt
MWh	Megawatt hour
N-1	Single contingency
N-2	Double contingency
NAC	Noise Area Classification
NDEX	North Dakota Export interface
NERC	North America Electric Reliability Council
NESC	National Electric Safety Code
NIEHS	National Institute of Environmental Health Sciences
North Zone	Northern portion of the Red River Valley Region where Bemidji is located
Northern Corridor	Alternative corridor for the Project that runs north around the Leech Lake Reservation
NPDES	National Pollutant Discharge Elimination System
ppm	Parts per million
Project	Bemidji-Grand Rapids Line and associated system connections
P-V	Power-voltage
PVRR	Present value revenue requirements
RECB	Regional Expansion Criteria and Benefits
RES	Renewable Energy Standards
RF	Radio frequency
RUS	Rural Utilities Service

South Zone	Southern portion of Red River Valley Region where St. Cloud is located
Southern Corridor	Alternative corridor for the Project that runs through a southern portion of the Leech Lake Reservation
TEMT	Transmission Energy Market Tariff
TIPS	Transmission Improvement Planning Study
Utilities	Otter Tail Power Company, Minnesota Power, Minnkota Power Cooperative, Inc., Xcel Energy, and Great River Energy

**COMPLETENESS CHECKLIST FOR  
CERTIFICATE OF NEED APPLICATION**

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7829.2500, subp. 2	Brief summary of filing sufficient to apprise potentially interested parties of its nature and general content.	Appendix B
Minn. Rule 7849.0120 A	Showing that denial would adversely affect adequacy, reliability and efficiency	Subsection 4.7.2; Sections 4.12, 5.2 and 7.1
1	Demand forecast for type of energy supplied by proposed facility is accurate	Subsection 4.7.2; Appendix D
2	Effects of Applicants' conservation program and state and federal conservation programs	Section 4.10; Subsection 5.2.1; and Appendix F
3	Effects of Applicants' promotional practices on energy demand	Section 4.11
4	Ability of current facilities and facilities not requiring CON to meet future demand	Subsections 5.2.2 and 5.3.4
5	Effect of proposed facility in making efficient use of resources	Section 4.9
B	A more reasonable and prudent alternative has not been demonstrated	Sections 5.2, 5.3, and 5.4
1	Facility is appropriate size, type and timing compared to reasonable alternatives	Sections 5.2, 5.3, and 5.4
2	Cost of facility and of its energy compared to reasonable alternatives	Subsections 5.3.3, 5.3.4, and 5.4.3 through 5.4.5
3	Effects of the proposed facility upon the natural and socio-economic environment compared to the effects of reasonable alternatives	Subsection 5.4.5; Appendix G

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0120B 4	Expected reliability of facility compared to reasonable alternatives	Subsections 5.2.2, 5.3.3, through 5.3.4, and 5.4.2
C	Project will provide benefit to society:	Sections 4.8 and 4.9
1	Relationship of facility to overall state energy needs	Sections 4.1 through 4.5, and 4.8 through 4.10
2	Effects of facility on natural and socio-economic environment compared to not building facility	Section 5.2; Appendix G
3	Effects of facility inducing future development	Sections 4.8 and 4.9
4	Socially beneficial uses of the output of the facility, including its uses to protect or enhance environmental quality	Sections 4.8 and 4.9; Appendix G
D	Project will comply with relevant policies and regulations of other state and federal agencies and local governments	Sections 2.7 and 3.7 through 3.15
Minn. Rule 7829.0200, subp. 2	Title page, table of contents, and list of applicable rules	Cover page; pages i through xx
subp. 4	Cover letter	Cover Letter
Minn. Rule 7849.0210	Filing fee	Paid under separate cover
Minn. Rule 7849.0240	Need Summary and Additional Considerations	Section 4
subp. 1	Major factors that justify need for facility	Sections 4.1 through 4.10 and 4.12
subp. 2A	Socially beneficial uses of facility output, including uses to protect or enhance environmental quality	Subsection 4.8.4; Section 4.9
subp. 2B	Promotional activities that may have given rise to demand	Section 4.11

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0240, subp. 2C	Effects of the facility in inducing future development	Sections 4.8 and 4.9
Minn. Rule 7849.0260	Proposed LHVTL and alternatives	Section 5.4
A	Type and location of proposed line, including:	Section 3.1
1	Design voltage	Section 3.1
2	Number, sizes and types of conductors	Section 3.1
3	Expected losses under maximum and average loading in line and terminals or substations	Exempt per MPUC Date Exemption Order (Appendix B)
4	Length of line and portion in Minnesota	Section 3.1
5	Location of DC terminals or AC substations on map	Figure 1.4
6	List of counties affected by construction and operation	Section 3.1
B	Availability of alternatives, including:	Section 5
1	New generation of various technologies, sizes, fuel types	Section 5.3
2	Upgrade of existing lines or generating facilities	Subsection 5.2.2; Section 5.4
3	Transmission with different voltages or conductor arrays	Subsection 4.4.1; Section 5.4
4	Transmission lines with different terminals or substations	Subsection 4.4.1; Section 5.4
5	Double circuiting of existing transmission lines	Section 5.4
6	If facility is for DC (AC) transmission, an AC (DC) transmission line	Subsection 5.4.7

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0260B 7	If facility is for overhead (underground) transmission, an underground (overhead) transmission line	Subsection 5.4.8
8	Any reasonable combination of alternatives (1) - (7)	Section 5.4
C	For facility and for each alternative, discuss:	Sections 5.4 and 6
1	Total cost in current dollars	Subsection 5.4.4 and 5.4.5; Section 6.3
2	Service life	Subsection 5.4.4
3	Estimated average annual availability	Subsection 5.3.3
4	Estimated annual operating and maintenance costs in current dollars	Subsections 5.5.4 and 5.4.5
5	Estimate of its effect on rates system-wide and in Minnesota	Section 3.4
6	Efficiency, expressed as expected losses under maximum and average loading in lines and terminals or substations	Exempt per MPUC Data Exemption Order (Appendix B)
7	Major assumptions made in sub items (1) - (6)	Subsections 5.4.2 through 5.4.5
D	Scaled map showing the system or load center to be served	Figures 1.3 and 4.2
E	Any other relevant information about the proposed facility and each alternative	Sections 6.2 and 6.4
Minn. Rule 7849.0270	Peak Demand and Annual Consumption Forecast	Sections 4.6 and 4.7; Appendix D
subp. 1	Pertinent data concerning peak demand and annual electrical consumption; per MPUC Data Exemption Order (Appendix B), the pertinent data is aggregate peak winter demand for the Bemidji load center and North Zone, and aggregate consumption for Minnesota portion of North Zone	Section 4.7; Appendix D

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0270 subp. 2	Forecast consumption data by customer class; forecast demand data by peak period, customer class, and month; estimated system annual revenue per kilowatt hour; estimated average system load factor by month	Exempt per MPUC Data Exemption Order (Appendix B)
subp. 3	Detail of the forecast methodology employed in subp. 2	Subsection 4.7.1; Appendix D
subp. 4	Discussion of the database used in current forecasting	Subsection 4.7.1; Appendix D
subp. 5	Discussion of each assumption made in forecast preparation	Subsection 4.7.1; Appendix D
subp. 6	Coordination of forecasts	Subsection 4.7.1; Appendix D
MPUC Data Exemption Order (Appendix B)	Explanation of how MISO spreads wholesale electricity costs among users of the transmission grid and the general financial effect of the Project on ratepayers	Section 3.4
Minn. Rule 7849.0280	Description of ability of existing system to meet forecast demand	Sections 4.2 through 4.5
A	Discussion of power planning programs applied to applicant's system and power area upon which planning studies are based	Sections 4.2 through 4.5
B	Applicant's seasonal firm purchases and firm sales for each utility involved in each transaction for each forecast year	Exempt per MPUC Data Exemption Order (Appendix B)
C	Applicant's seasonal participation purchases and sales for each utility involved in each transaction for each forecast year	Exempt per MPUC Data Exemption Order (Appendix B)
D	Load and generation capacity data requested in subitems 1-13 for summer and winter seasons for each forecast year, including anticipated purchases, sales, and capacity retirements and additions except those that depend on a not yet issued certificate of need	Exempt per MPUC Data Exemption Order (Appendix B)

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0280 E	Load and generation capacity data requested in item D, subitems 1-13 for summer and winter seasons for each forecast year, including purchases, sales, and generating capability contingent on the proposed facility	Exempt per MPUC Data Exemption Order (Appendix B)
F	Load and generation capacity data requested in item D, subitems 1-13 for summer and winter seasons for each forecast year, including all projected purchases, sales, and generating capability	Exempt per MPUC Data Exemption Order (Appendix B)
G	List of proposed additions and retirements in net generating capability for each forecast year, including the probable date of application for any addition that is expected to require a certificate of need	Exempt per MPUC Data Exemption Order (Appendix B)
H	Graph of monthly adjusted net demand and adjusted net capability as well as the difference between the adjusted net capability and actual, planned, or estimated maintenance outages of generation and transmission facilities for the previous calendar year, the current year, the first full calendar year before the proposed facility is expected to be operational and the first full calendar year of operation of the proposed facility	Exempt per MPUC Data Exemption Order (Appendix B)
I	Discussion of the appropriateness of and method of determining system reserve margins, considering the probability of forced outages of generating units, deviation from load forecasts scheduled maintenance outages of generation and transmission facilities, power exchange arrangements as they affect reserve requirements, and transfer capabilities	Exempt per MPUC Data Exemption Order (Appendix B)
MPUC Data Exemption Order (Appendix B)	Information on load center and system DSM and conservation programs that could reduce energy in the area of need	Section 4.10; Subsection 5.2.1; Appendix F
Minn. Rule 7849.0290 A	Name of committee, department, or individual responsible for the applicant's energy conservation and efficiency programs, including load management	Exempt per MPUC Data Exemption Order (Appendix B)

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0290 B	List of the applicant's energy conservation and efficiency goals and objectives	Exempt per MPUC Data Exemption Order (Appendix B)
C	Description of the specific energy conservation and efficiency programs the applicant has considered, a list of those that have been implemented, and the reasons why the other programs have not been implemented	Exempt per MPUC Data Exemption Order (Appendix B)
D	Description of the major accomplishments that have been made by the applicant with respect to energy conservation and efficiency	Exempt per MPUC Data Exemption Order (Appendix B)
E	Description of the applicant's future plans through the forecast years with respect to energy conservation and efficiency	Exempt per MPUC Data Exemption Order (Appendix B)
F	Quantification of the manner by which these programs affect or help determine the forecast provided in response to part 7849.0270, subp. 2, a list of their total costs by program, and a discussion of their expected effects in reducing the need for new generation and transmission facilities	Exempt per MPUC Data Exemption Order (Appendix B)
Minn. Rule 7849.0300	Consequences of indefinite delay and 1, 2, or 3 year postponement	Section 4.10, 4.12, and 5.2
Minn. Rule 7849.0310	Environmental information	Sections 1.6 and 6.4; Appendix G
Minn. Rule 7849.0330	Provide data for each alternative that would require LHVTL construction	Section 5.4
A	For overhead transmission facilities:	Section 5.4
1	Schematic diagrams that show the dimensions of the support structures and conductor configurations for each type of support structure that may be used	Appendix C

<b>Authority</b>	<b>Required Information</b>	<b>Section</b>
Minn. Rule 7849.0330A 2	Discussion of the strength and distribution of the electric field attributable to the transmission facility, including the contribution of air ions is appropriate	Sections 3.11 and 3.12; Appendix C
3	Discussion of ozone and nitrogen oxide emissions attributable to the transmission facility	Section 3.13
4	Discussion of radio and television interference attributable to the transmission facility	Section 3.14
5	Discussion of the characteristics and estimated maximum and typical levels of audible noise attributable to the transmission facilities	Section 3.15; Appendix C
C	Estimated width of the right-of-way required for the transmission facility	Section 3.1
D	Description of the construction practices for the transmission facility	Sections 3.7 and 3.8
E	Description of operation and maintenance practices for the transmission facility	Section 3.9
F	Estimated work force required for construction, operation, and maintenance of the transmission facility	Section 3.10
G	Narrative description of the major features of the region between the endpoints of the transmission facility, encompassing the likely area for routes between the endpoints and emphasizing the area within three miles of the endpoints. The following information shall be described where applicable	Appendix G
1	Hydrologic features including lakes, rivers, streams, and wetlands	Appendix G
2	Natural vegetation and associated wildlife	Appendix G
3	Physiographic regions	Appendix G
4	Land-use types, including human settlement, recreation, agricultural production forestry production, and mineral extraction	Appendix G

Authority	Required Information	Section
7849.0340	Alternative of no facility	Section 5.2
A	Description of the expected operation of existing and committed generating and transmission facilities	Subsections 5.2.2 and 5.4.2
B	Description of changes in resource requirements and wastes produced by facilities discussed in response to item A	Subsections 5.2.2 and 5.4.2
C	Description of equipment and measure that may be used to reduce the environmental impact of the alternative of no facility	Subsection 5.2.2

## **SECTION 1 - EXECUTIVE SUMMARY**

### **1.1 Introduction**

Otter Tail Power Company (“Otter Tail Power”), Minnesota Power, and Minnkota Power Cooperative, Inc. (“Minnkota Power”), collectively referred to as “the Applicants”, on behalf of themselves and Northern States Power Company, a Minnesota corporation (“Xcel Energy”) and Great River Energy, a Minnesota cooperative association (collectively, “the Utilities”), are applying for a Certificate of Need to construct a 230 kV transmission line between Bemidji, Minnesota and Grand Rapids, Minnesota (“Bemidji-Grand Rapids Line” or “the Project”). The Utilities propose locating the Project along existing rights-of-way within a corridor that runs from Bemidji east to Grand Rapids. The line would be approximately 68 miles long. Construction is proposed to begin by 2009, and be completed by the end of 2011 to meet the anticipated 2011/2012 winter peak demand in the Bemidji area.

The Bemidji-Grand Rapids Line is one of four Group 1 Projects of the Capacity Expansion 2020 (“CapX2020”) initiative. This initiative is focused on prioritizing the transmission infrastructure investments needed in Minnesota to meet the growing demand for electricity in Minnesota and the surrounding region, and to ensure timely and efficient regulatory review and approval of those investments.

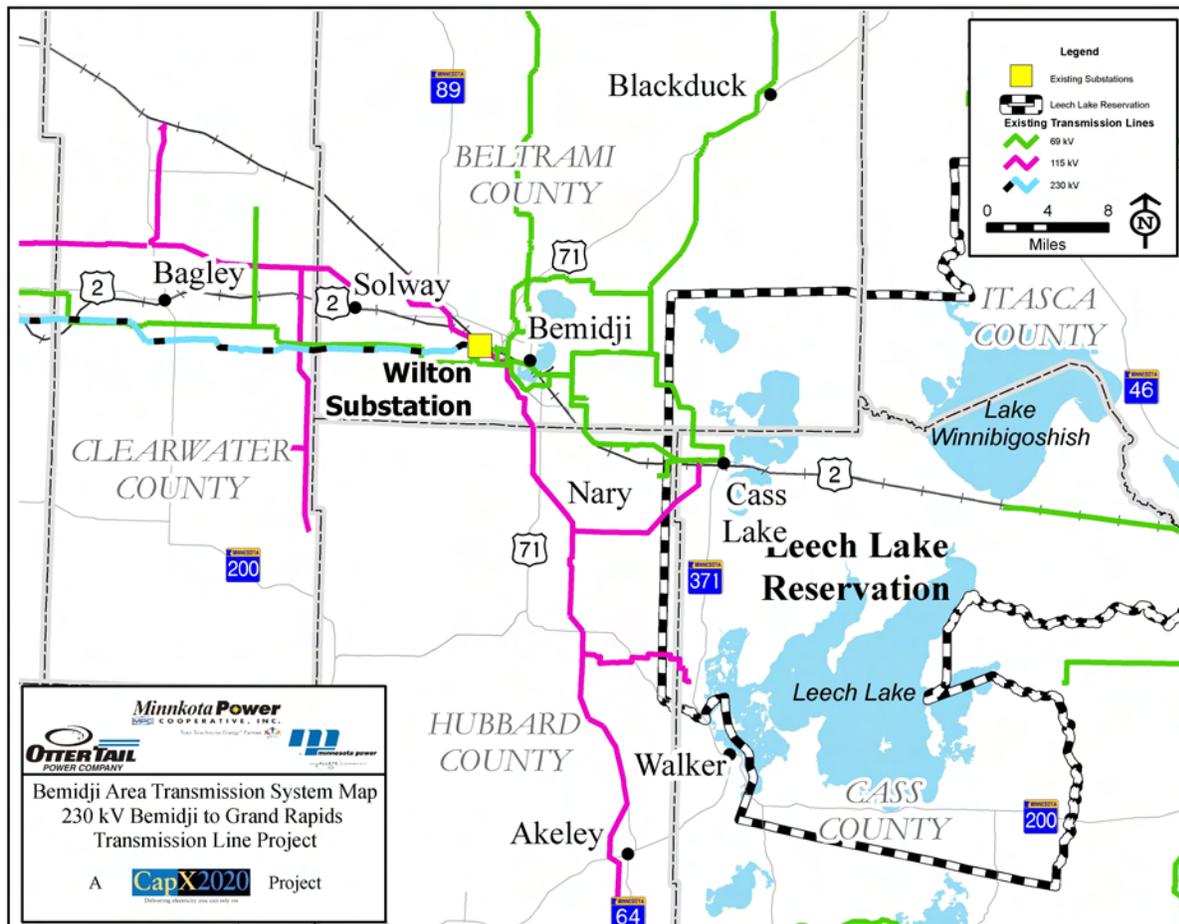
### **1.2 Project Description**

The Utilities propose constructing a 230 kV line from the 230 kV Wilton Substation jointly owned by Otter Tail Power and Minnkota Power, which is located just west of Bemidji, Minnesota, to Minnesota Power’s 230 kV Boswell Substation in Cohasset, Minnesota, northwest of Grand Rapids, Minnesota. The length of the proposed Bemidji-Grand Rapids Line is approximately 68 miles, and the total estimated cost for its construction including substation modifications is \$60.6 million. The Project is currently projected to be in service by the winter of 2011/2012.

### **1.3 The Need for the Project**

The Project is needed to effectively meet projected future customer demand in the Bemidji area in north central Minnesota. The Bemidji area includes the communities from Bagley, Minnesota to the west, Walker, Minnesota to the south, and Blackduck, Minnesota to the northeast, as well as a large portion of the Leech Lake Reservation to the east. Although the Project is necessary to assure reliable service to the Bemidji area, it is also required to improve the regional transmission reliability of the larger northwestern Minnesota and eastern North Dakota region. This line will also provide an ancillary benefit: facilitating the addition of new generation sources in the region. Specifically, portions of the Red River Valley and eastern North Dakota have been identified as areas for the potential development of wind-energy generation sources and the added transmission capacity from the Bemidji–Grand Rapids Line would assist in the development of such resources.

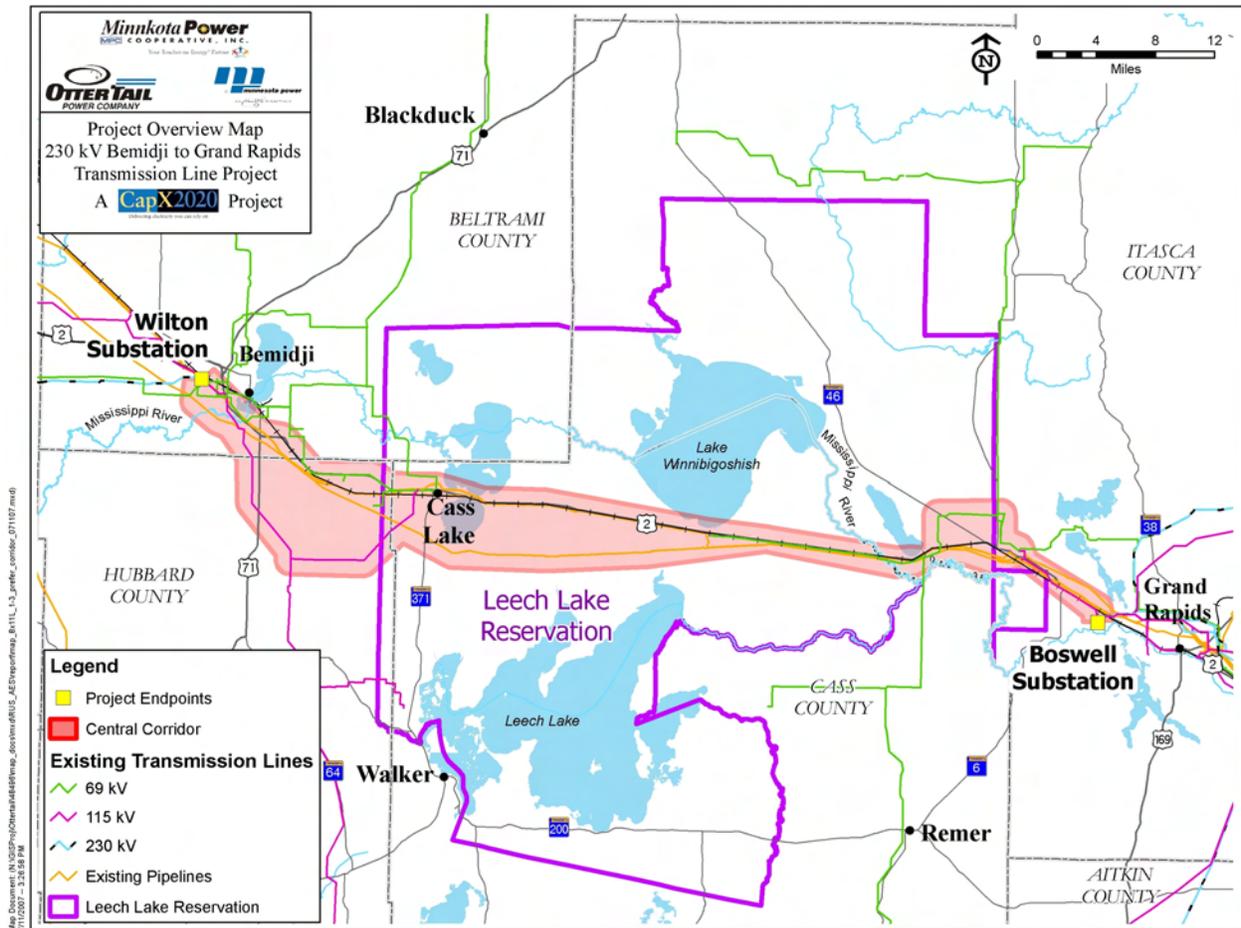
**Figure 1.3 - Bemidji Area**



**1.4 The Preferred Corridor for the Project**

There are a number of existing rights-of-way between Bemidji and Grand Rapids along which the Project could be routed in whole or in part. These include rights-of-way for existing pipelines, transmission lines, railways, and roadways. Taken together, these potential routes all fall within a 68-mile long corridor (“Utilities’ preferred corridor”). About 65% of this corridor is located within the boundaries of the Leech Lake Reservation. Figure 1.4 below depicts the Utilities’ preferred corridor within which the eventual route for the Bemidji-Grand Rapids Line would be located.

**Figure 1.4 Preferred Corridor for Project**



Since the Utilities’ preferred corridor passes through the Leech Lake Reservation, the Applicants met with the Leech Lake Band of Ojibwe for their input on the corridor. As a result, the Applicants considered two alternative corridors for the 230 kV line between Bemidji and Grand Rapids: a 116-mile corridor that runs to the north around the Reservation, and a 99-mile corridor that runs through the southern portion of the Reservation. Upon examining these alternatives, the Utilities concluded that building the Bemidji-Grand Rapids Line along either of them would result in less effective electrical performance, at a substantially greater cost, and would appear to have a greater adverse environmental impact than utilizing the preferred corridor. A full discussion of these alternative corridors is presented in Section 6 of this Application.

### **1.5 Alternatives to the Project**

Various alternatives to the proposed Bemidji-Grand Rapids Line were analyzed to determine their ability to meet requirements of anticipated future customer demand. The alternatives considered were: 1) a “no-build” alternative, which focused on reactive power supply improvements in the Bemidji area and the impact of the Utilities’ planned load management/energy conservation programs; 2) a new local generation alternative in the Bemidji area; and 3) alternative transmission lines to the proposed Bemidji-Grand Rapids Line. With

respect to transmission alternatives, over 30 concepts were considered, and the ability of 11 of those were comprehensively analyzed to determine their ability to address the existing inadequacies in the transmission system serving the Bemidji area and greater Red River Valley. This extensive evaluation process indicated that the Bemidji-Grand Rapids Line is the best way to meet the local electric need in the Bemidji area, along with providing other regional benefits.

## **1.6 Potential Environmental Effects**

In general, the approach used to select the Utilities' preferred corridor focused on which corridor allows the optimum performance of the proposed transmission line while minimizing impacts to social, economic, and environmental resources. At this preliminary level of review, not all resources have been identified to the extent required for final route selection. Additional agency and stakeholder input, field surveys, and analysis will be conducted as part of the joint federal/state environmental review processes, which will be incorporated into the decision regarding the final transmission line route.

As the identification and development of transmission line routes proceed, areas where avoidance is not possible will be identified, and impact minimization and/or mitigation strategies will be developed. Specific avoidance areas include areas where transmission line development is prohibited because of federal, state, or local regulations or undesirable because of conflicts with existing land use/development or land features. See Section 6.4 for identification of resources that will be avoided where possible, and where they cannot be avoided, impact minimization and or mitigation measures will be taken.

## **1.7 Public Involvement**

The public can review this Application and submit comments about the Project to the Minnesota Public Utilities Commission ("Commission" or "MPUC"). A copy of the Application is available on the MPUC's e-filings webpage, and on the CapX2020 website at [www.capx2020.com](http://www.capx2020.com). The Utilities will also be filing with the Commission an Application for a Route Permit for the Project. Once filed, this Application will also be available at the CapX2020 website identified above.

The Applicants have held a number of open houses in the summer and fall of 2007 to provide information to members of the public who live and work in the preferred corridor for the Project. Commission will also be holding a series of meetings and hearings in several locations throughout the area to answer questions about the Project. Comments from all interested persons, both oral and written, will be solicited on the necessity for the Project, the route for the Project, and the environmental impact of the Project. An Environmental Impact Statement will be prepared for the Project by the Minnesota Department of Commerce ("Department") in conjunction with the federal environmental review of the Project by the Rural Utilities Service ("RUS") of the US Department of Agriculture. RUS is the lead federal agency for all federal environmental review of the Project.

Persons interested in receiving notices and other announcements about these meetings and hearings can register their names and addresses with the Commission. Persons can register electronically at: <http://energyfacilities.puc.state.mn.us/maillinglist.html>.

## 1.8 Conclusion

The Commission has established criteria to apply in determining whether a proposed high voltage transmission line (“HVTL”) is needed. Those criteria are found in rules promulgated by the Commission. Minn. R. 7849.0120. An applicant for a Certificate of Need must show that the probable result of denying the request would have an adverse effect on the future adequacy and reliability of the system; a more reasonable and prudent alternative has not been demonstrated; the proposed facility will provide benefits to society compatible with protecting the environment; and the Project will comply with all applicable standards and regulations. This Application demonstrates that the Bemidji-Grand Rapids Line has all the positive attributes required to obtain a Certificate of Need.

Additionally, the Utilities’ preferred corridor provides opportunities to develop viable routes that follow existing rights-of-way for transmission lines, pipelines, railways, and roadways between the Project’s two end points. No major system performance, reliability, economic or environmental issues have been identified which would foreclose constructing the Project as proposed.

The rest of this Application is organized as follows:

- Section 2- general description of the ownership of the Project and the regulatory review process;
- Section 3- a description of the Project and discussion of construction, maintenance, electric/magnetic fields, ozone and nitrogen oxide emissions, airwave interference, and audible noise issues;
- Section 4- a discussion of the need for the Project, the forecasts for winter peak demand in the North Zone of the Red River Valley and the Bemidji area, consumption for the Minnesota portion of the North Zone, and how the Project increases the capacity and efficiency of the local transmission system;
- Section 5- a discussion of the various generation and transmission alternatives to the Project and why they were rejected by the Applicants in favor of the Project;
- Section 6- a discussion of alternative corridors to the one proposed by the Applicants for the Project; and
- Section 7- a discussion of how the Project meets the Commission’s criteria for a certificate of need.

## SECTION 2- GENERAL INFORMATION

### 2.1 Project Ownership

In 2004, Minnesota's largest transmission-owning utilities launched CapX2020. As noted above, this initiative focused on prioritizing the transmission infrastructure investments needed in Minnesota to meet the growing demand for electricity in Minnesota and the surrounding region. The result was the CapX2020 Vision Study.

The CapX2020 Vision Study concluded that a number of new high-voltage transmission lines will be required to accommodate the increasing demand for electricity within Minnesota and the upper Midwest, and significant additional generation capacity will be required to meet that demand. The CapX2020 study work found that the Bemidji-Grand Rapids Line and a 345 kV line between the Twin Cities and Fargo, North Dakota were preferred transmission alternatives for the Red River Valley region. The lines were effective in improving the load-serving capability of the transmission system in the entire Red River Valley and surrounding region to meet the load growth anticipated by 2020, with the Bemidji-Grand Rapids Line specifically addressing the voltage stability and load serving needs of the Bemidji area. The CapX2020 Vision Study also recommended two more 345 kV transmission lines be built in southern Minnesota to alleviate emerging community service reliability concerns, strengthen the transmission network to meet system wide demand growth, and provide additional outlet support for the development of new generation, including renewable energy.

To execute the Vision Study's recommendations, the participating utilities entered into Project Development Agreements for all of the recommended lines. Xcel Energy and Great River Energy were designated as the Project Development Managers in charge of coordinating and managing the permitting, engineering, procurement, and construction of the three proposed 345 kV transmission lines. Otter Tail Power was designated the Project Development Manager for the Bemidji-Grand Rapids Line, with Minnesota Power as the routing lead for the project. Due to its significant load in this area, Minnkota Power joined as the technical lead for the Project. A copy of the Project Development Agreement for the Bemidji-Grand Rapids Line is included in Appendix A to this Application.

A final agreement among the Utilities specifying the ownership interests and investment commitments for the Bemidji-Grand Rapids Line has not been finalized. It is anticipated that a final agreement will be reached over the next year. At this time all five of the Utilities anticipate having an ownership interest in the Project. Pursuant to the Commission's December 24, 2007 Order in this matter, the Applicants provide the following non-binding estimate of each Utility's ownership interest based on the percentages the Utilities identified in the Project Development Agreement for the Bemidji-Grand Rapids Line. Those ownership percentages are:

**Table 2.1 Estimated Ownership Shares of Project**

<b>Utility</b>	<b>Estimated Ownership</b>
Minnkota Power	31.5%
Xcel Energy	26.2%
Otter Tail Power	20.0%
Great River Energy	13.0%
Minnesota Power	9.3%
Total	100.0%

These ownership interests are subject to change. Specifically, the Project Development Agreement provides that any of the Utilities can upon timely notice decide not to have any ownership of the Bemidji-Grand Rapids Line, or to reduce its ownership interest. In that case, the remaining utilities are free to absorb the departing utility’s ownership share, or a new owner can apply for that share. Because of this flexibility, the minimum potential ownership interest for each of the Utilities is 0% and the maximum potential ownership interest is 100%.

## **2.2 Project Participants**

### **2.2.1 Project Applicants**

Otter Tail Power is an investor-owned electric utility that began operations in 1909, and is headquartered in Fergus Falls, Minnesota. The company provides electric service to approximately 128,000 customers in North Dakota, South Dakota, and Minnesota, of which about 58,000 reside in Minnesota. A portion of the Project will be located in Otter Tail Power’s service area.

Minnesota Power, a division of ALLETE Inc., is an investor-owned utility headquartered in Duluth, Minnesota. The Company provides electricity in a 26,000-square-mile electric service territory located in northeastern Minnesota. Minnesota Power supplies retail electric service to 137,000 retail customers, and wholesale electric service to 16 municipalities. A portion of the Project will be located in Minnesota Power’s service area.

Minnkota Power is a wholesale electric generation and transmission cooperative headquartered in Grand Forks, North Dakota. Incorporated in 1940, Minnkota Power provides, on a nonprofit basis, wholesale electric service to 11 retail distribution cooperatives, which are the members and owners of Minnkota Power. The member systems' service areas encompass 34,500 square miles in northwestern Minnesota and the eastern third of North Dakota. The member systems serve approximately 125,000 of the 300,000 residents in the area. A portion of the Project will be located in the service territory of Beltrami Electric Cooperative, a distribution cooperative member of Minnkota Power.

### **2.2.2 Other Project Owners**

Xcel Energy is a wholly owned subsidiary of Xcel Energy Inc., the fourth-largest combination electricity and natural gas energy company in the United States. Xcel Energy Inc. provides a comprehensive portfolio of energy-related products and services to 3.2 million electricity customers and 1.7 million natural gas customers through its regulated operating companies in Colorado, Kansas, Michigan, Minnesota, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Wisconsin and Wyoming. Xcel Energy provides service to approximately 1.2 million electricity customers and 400,000 natural gas customers in Minnesota. The Project will help serve Xcel Energy's customers in the Red River Valley region.

Great River Energy is a not-for-profit electric cooperative providing electrical energy and related services to 28 distribution cooperatives serving nearly 1.5 million people in Minnesota and Wisconsin. Headquartered in Elk River, Minnesota, Great River Energy is the second largest utility in Minnesota and the fifth largest utility of its type in the country. More information can be found at [www.greatriverenergy.com](http://www.greatriverenergy.com). A portion of the Project is located in the service area of Lake Country Power, Inc., a distribution cooperative member of Great River Energy.

### **2.3 Certificate of Need Requirement and Criteria**

Minnesota Statutes provides that “[n]o large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the commission pursuant to sections 216C.05 to 216C.30 and this section and consistent with the criteria for assessment of need.” Minn. Stat. § 216B.243, subd. 2. A large energy facility is defined to include “any high-voltage transmission line with a capacity of 200 kilovolts or more and greater than 1,500 feet in length.” Minn. Stat. § 216B.2421, subd. 2(2).

The Project is a 230 kV transmission line approximately 68 miles long. A Certificate of Need to construct the Project is therefore required.

There are four criteria that must be met for the Commission to grant a Certificate of Need:

- denial would likely have an adverse effect on the future adequacy, reliability, or efficiency of the supply of energy for the applicant, the applicant's customers, or the people of Minnesota and neighboring states;
- a more reasonable and prudent alternative to the proposed facility has not been demonstrated;

- the proposed facility will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health; and
- the design, construction, operation of the proposed facility will comply with relevant polices, rules, and regulations of other state and federal agencies and local governments.

Minn. R. 7849.0120.

## **2.4 Certificate Of Need Data Exemptions**

To obtain the information necessary to determine whether a proposed facility meets the criteria set forth above, the Commission has adopted rules detailing what data must be included in an application for a Certificate of Need. *See* Minn. Rules ch. 7849. On October 24, 2007, the Applicants filed a request to be exempted from certain of the Certificate of Need data requirements in chapter 7849 because the data would not assist the Commission in making its determination of whether the Project meets the four criteria set forth above. In an order issued on December 24, 2007 (“Data Exemption Order”), the Commission granted the data exemption request with modifications proposed by the Department and agreed to by the Applicants. This Application therefore contains the information required under chapter 7849, as modified by the Commission’s Data Exemption Order, which is included in Appendix B of this Application.

## **2.5 Route Permit Requirement**

Minnesota Statutes provide that “any person seeking to construct a . . . high-voltage transmission line must apply to the commission for a . . . route permit.” Minn. Stat. § 216E.03, subd. 3. For the purposes of this statutory requirement, a high-voltage transmission line is defined as one “designed for and capable of operation at a nominal voltage of 100 kilovolts or more and is greater than 1,500 feet in length.” Minn. Stat. § 216E.01, subd. 4.

The Project is a 230 kV transmission line approximately 68 miles long. A Route Permit to construct the Project is therefore required.

The Applicants intend to file a Route Permit application with the Commission within 30 days of the date of this Application. Once filed, the Commission will consider the Certificate of Need and Route Permit applications together. A description of how the Commission will consider the two applications together is provided in Section 2.6 below.

## **2.6 Combined Certificate of Need and Route Permit Proceedings**

While the Certificate of Need proceedings for a proposed facility may be handled separately from the facility’s Route Permit proceedings, the Legislature has directed that they be handled together where appropriate. “Unless the commission determines that a joint hearing on [routing] and need under [the Certificate of Need statute] and the [Route Permit statute] is not feasible or more efficient, or otherwise not in the public interest, a joint hearing under those [statutes] shall

be held.” Minn. Stat. 216B.243, subd. 4. The Certificate of Need and Route Permit proceedings will be combined for the Project because it is feasible, more efficient, and in the public interest.

As required under Minn. R. 7829.2550, the Applicants filed a proposed plan for providing notice to local government and tribal officials and potentially affected landowners of the Applicants’ intention to file applications for a Certificate of Need and Route Permit for the Project. The Commission issued an order on November 29, 2007 that approved the plan as modified by the Applicants, based on comments from the Department, Commission staff, and others. A copy of the Commission’s Notice Plan order is included in Appendix B of this Application. Copies of the approved notice letters and newspaper advertisements are also included in Appendix B. These notices incorporate all the notice requirements for both a Certificate of Need and a Route Permit.

An electronic version of this Application is available on the Commission’s e-dockets website and also at the CapX2020 website [www.capx2020.com](http://www.capx2020.com). Within 30 days of the date this Application is filed with the Commission, the Applicants expect to file the Route Permit application for the Project, which will also be available on the Commission’s e-dockets website and the CapX2020 website.

Once both applications are filed, they will be reviewed by the Commission for completeness. Minn. R. 7849.0200, subp. 5 and 7849.5230, subp. 1. Within 60 days of the Commission finding the applications to be complete, it will hold public meetings on the Project. The purpose of the meetings is to obtain public opinion on 1) the necessity of granting a Certificate of Need and Route Permit for the Project; 2) alternative routes; and 3) the appropriate scope of the EIS that the Department will prepare for the Project. Minn. Stat. §§ 216B.243, subd. 4 and 216E.03, subd. 6; Minn. R. 7849.5260, subp. 1 and 7849.5300, subp. 2. The Department is preparing the EIS jointly with RUS, which is the lead federal agency in charge of coordinating all federal environmental review of the Project.

Based on the applications and public input, the Department and RUS will determine the scope of the EIS and complete a draft EIS for public review. This review includes public informational meetings on the draft EIS where the public has the opportunity to provide oral and written comments. The final EIS must include the Department’s response to all substantive comments received on the draft EIS. Minn. R. 7849.5300, subps. 6-9.

An administrative law judge will also hold a contested case hearing on the Certificate of Need and Route Permit applications, during which interested persons can submit evidence supporting or challenging the Project as proposed. Upon closing the record for the contested case, the administrative law judge will submit a report and recommendation to the Commission on the applications. Minn. Stat. §§ 216B.243, subd. 4 and 216E.03, subd. 6; Minn. R. 7849.0230, subp. 2 and 7849.5330. The Commission will consider the administrative law judge’s report and recommendation in reaching its determination whether to grant the applications with or without modifications, or deny them. Minn. R. 7849.5340.

The Legislature has directed that a final decision on a Certificate of Need or Route Permit application must be made within one year of the Commission’s determination that the

application is complete, unless the applicant agrees more time may be taken or the Commission finds that there is good cause to do so. Minn. Stat. §§ 216B.243, subd. 5 and 216E.03, subd. 9.

The regulatory proceedings outlined above satisfy all the requirements of Minn. Stat. §§ 216B.243 and 216E.03, and Minn. Rules ch. 7849, the Commission’s rules for Certificate of Need and Route Permit proceedings.

**2.7 Other Permits and Approvals**

In addition to a Certificate of Need and Route Permit, other permits may be required for the Project depending on the actual route selected and the conditions encountered during construction.

Table 2.7 below contains a list of the local, state and federal permits that might be required for this Project.

**Table 2.7 List of Possible Permits**

<b>Permit</b>	<b>Jurisdiction</b>
<b>Local Approvals</b>	
Road Crossing/Right-of-Way Permits	County, Township, City
Lands Permits	County, Township, City
Building Permits	County, Township, City
Overwidth Load Permits	County, Township, City
Driveway Access Permits	County, Township, City
<b>Minnesota State Approvals</b>	
Endangered Species Consultation	Minnesota Department of Natural Resources- Ecological Services
License to Cross Public Waters	Minnesota Department of Natural Resources- Lands and Minerals
License to Cross Public Lands	Minnesota Department of Natural Resources- Lands and Minerals
Utility Permit	Minnesota Department of Transportation
Wetland Conservation Act Permit	Minnesota Board of Water & Soil Resources
Nat’l Pollution Discharge Elimination System Permit	Minnesota Pollution Control Agency

<b>Federal Approvals</b>	
Special Use Permit	US Forest Service
Section 106 Consultation	US Army Corps of Engineers
Section 10 Permit	US Army Corps of Engineers
Section 404 Permit	US Army Corps of Engineers
Permit to Cross Federal Aid Highway	US Federal Highway Administration

Below is a discussion of the various local, state, and federal permits that may be required.

### **2.7.1 Local Approvals**

Once the route and design of the Project is complete, the Applicants will work with local units of government to obtain any of the following approvals that may be required:

- Road Crossing/Right-of-Way Permits- These permits may be required to cross or occupy county, township, and city road right-of-way.
- Public Lands Permits- These permits may be required to occupy county, township, and city lands such as parklands, watershed districts, and other properties owned by these entities.
- Building Permits- These permits may be required by the local jurisdictions for substation modifications and construction.
- Overwidth Load Permits- These permits may be required to move over width or heavy loads on county, township, or city roads.
- Driveway Access Permits- These permits may be required to construct access roads or driveways from county, township, or city roadways.

### **2.7.2 State Approvals**

Based on the proposed corridor for locating the Project's route, the Applicants are actively working with state agencies to ensure that the following approvals can be obtained as required:

- Endangered Species Consultation- The Minnesota Department of Natural Resources ("DNR") Natural Heritage and Nongame Research Program collects, manages, and interprets information about nongame species. Minn. Stat. § 84.0895; Minn. R. 6134.0100-0400 and 6212.1800-2200. Consultation with Program staff has been initiated on the Project regarding rare and unique species.

- License to Cross Public Lands and Water- The DNR’s Division of Lands and Minerals regulates utility crossings over, under, or across any State land or public water identified on the Public Waters and Wetlands Maps. A license to cross Public Waters is required under Minnesota Statutes § 84.415 and Minnesota Rules ch. 6135. Possible routes within the Utilities’ preferred corridor for the Project cross the Mississippi River, which would require a Public Water crossing license. The Project corridor also crosses state lands, which would require a license to cross Public Lands. The Applicants are coordinating DNR review of the Project’s corridor for possible licensing.
- Utility Permit- A permit from the Minnesota Department of Transportation (“MnDOT”) is required under Minn. R. 8810.3300 for construction, placement, or maintenance of utility lines adjacent or across highway right-of-way. The Applicants are coordinating MnDOT review of the Project’s corridor for possible permitting.
- Wetland Conservation Act Permit- The Minnesota Board of Water and Soil Resources administers the state Wetland Conservation Act pursuant to Minnesota Rules ch. 8420. The Project may require a permit under these rules if permanent impacts to wetlands are anticipated as a result of construction. The Applicants will apply for this permit (which is applied for jointly with a Section 404 permit from the US Army Corps of Engineers) as necessary.
- National Pollutant Discharge Elimination System (“NPDES”) Permit- A NPDES permit from the Minnesota Pollution Control Agency (“MPCA”) is required for storm water discharges associated with construction activities disturbing an area of an acre or more. Minn. R. 7090.0030. A requirement of the permit is to develop and implement a Storm Water Pollution Prevention Plan, which includes best management practices to minimize discharge of pollutants from the site. This permit will be acquired if the modification of substations will cause a disturbance of greater than one acre.

### **2.7.3 Federal Approvals**

The Applicants are actively working with federal agencies to ensure that the following approvals can be obtained as required. The Utilities are also currently in discussions with the Leech Lake Band regarding any accommodations for locating a portion of the Project within the Leech Lake Reservation.

- Special Use Permit- The Project corridor crosses on land in the Chippewa National Forest, requiring a Special Use permit from the US Forest Service pursuant to 36 C.F.R. § 251.58.

- Section 106 Consultation- Section 106 of the National Historic Preservation Act, 16 U.S.C. §§ 470f, and its implementing regulations, 36 C.F.R. §§ 800.1-80016, require federal agency consultation with Indian Tribes that may be affected by the Project. The US Army Corps of Engineers (“ACE”) is coordinating this consultation with the Leech Lake Band of Ojibwe and other tribes.
- Section 10 Permit- ACE regulates impacts to navigable waters of the United States pursuant to Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 403. The Mississippi River is classified by ACE as a navigable water, and the Applicants will apply for a permit for the Project to cross it.
- Section 404 Permit- ACE regulates discharges of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act, 33 U.S.C. § 1344. The Applicants will apply for these permits as necessary once a route for the Project is determined.
- Endangered Species Act- The Applicants have initiated informal consultation with the US Fish and Wildlife Service under Section 7 of the Endangered Species Act, 16 U.S.C. §§ 1531-1534 to assess the potential impact of the Project on animal habitat.