2. INTRODUCTION

2.1 Certified Need for the Project

MP and GRE have been evaluating and addressing voltage support and line capacity issues on the Virginia-Ely-Babbitt 46 kV loop for the last decade. Capacitors are located at Winton and were added at Ely in 2001. These capacitors increased the load that could be served by the existing 46 kV system. Relay schemes have also been revised to remove line loading restrictions and decrease clearing times. This increased line capacity and improved relay schemes reduced the likelihood that the Winton hydroelectric generation will trip due to remote line faults. Additional capacitors were installed at the 46 kV Tower Substation in 2006 and transformer capacity at the Babbitt Substation is in the process of being increased. These projects have increased load serving capability to approximately 28 MW. These additions have delayed, but do not eliminate the need for a significant upgrade to the electric system serving the area. Due to capacitor switching control issues, adding additional capacitors to further delay the need for a new source to the area is not practical.

The 46 kV loop inadequacies and alternatives being considered were discussed during the 2003, 2004 and 2005 State Transmission Plan meetings, and in the 2003 Minnesota Biennial Transmission Projects Report (Minnesota Transmission Owners, 2003). The Applicants' held additional public meetings in the project area during 2005 and 2006 to explain the need to upgrade the areas electric system and explain the planned Project. The Project was also included in the 2005 Minnesota Biennial Transmission Projects Report (Minnesota Transmission Owners, 2005) in which the Applicants requested and received certification of the Project. Alternatives that were considered include increasing the operating voltage of existing lines serving the area, new 46 kV or 115 kV transmission, local area diesel generation, and energy storage devices.

Continuing economic growth in the part of northeastern Minnesota from Babbitt to Virginia to Hibbing/Chisholm has caused a considerable increase in electrical use in the region. The addition of new electrical services and the increase in demand from existing services are causing electricity delivery concerns in the area. The existing electrical system, consisting of transmission lines and substations, is approaching its physical limit. Loss of a facility may result in potential long-term outages. This situation has become a growing concern for winter peak periods, but with continued growth, the number of critical hours during the year will continue to increase.

The North American Electric Reliability Council, which develops standards for implementing secure and safe electrical delivery, mandates that certain levels of service be maintained to insure that the transmission grid operates efficiently and reliably. In severe cases the transmission grid serving the project area could collapse, which could result in blackouts throughout the project area. The

standards are designed to minimize the possibility that a blackout could occur by insuring that the interconnected transmission system is planned, designed, and operated to withstand probable forced maintenance outages and other service interruptions. Electric utilities must also maintain power quality at a level that prevents damage to all customers' electrical loads. Based on these mandates, transmission improvements are necessary for this region.

MP and GRE are responsible for meeting these mandates by constructing, operating and maintaining a reliable transmission system in northeastern Minnesota.

2.1.1 Existing Transmission System

MP and LCP loads in the Lake Vermilion, Tower, Ely, Winton, Babbitt and surrounding rural areas are presently served by a 46 kV loop (Figure 2-1). The electric energy and voltage support for this area is supplied from the Virginia and Babbitt 115 kV substations and the Winton Hydroelectric station. The Winton generation consists of two 2 megavolt ampere (MVA) generators, which is insufficient to supply the load served by this loop.

Historically, load served by this loop had been growing slowly; however, in the past few years the rate of electric load growth has been increasing. The load is approaching the point where voltage will no longer be acceptable if either one of the two existing 115 kV sources is lost. In addition, the thermal rating of the 46 kV lines serving the area will become a concern in the near future during peak load periods if either one of the two 115 kV sources is lost.

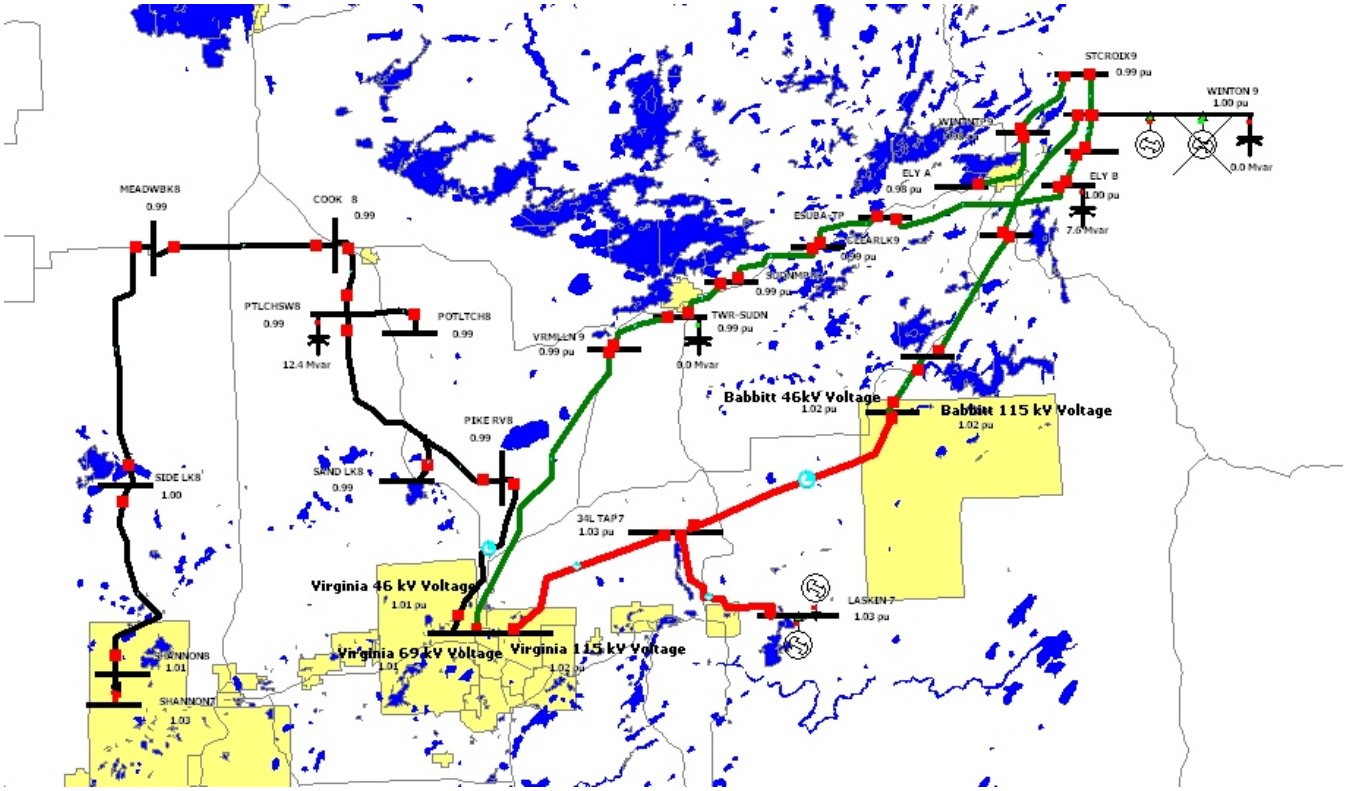
The western side of the Lake Vermilion area is served by a 69 kV loop, with 115/69 kV sources at the Shannon Substation (located near Hibbing/Chisholm) and the Virginia Substation (Figure 2-1). The 69 kV system serves large loads at Cook and the Ainsworth Board Plant (located south of Cook) and other smaller rural loads along the 69 kV loop. Load served by this 69 kV system has increased significantly in the last few years. GRE has recently added capacitor banks to the 69 kV loop to delay the eventual need for a third 69 kV source to the loop. At present, a loss of either 115/69 kV source requires manual adjustments by the operators to maintain appropriate voltage. Eventually these manual adjustments will reach their limit, which will result in voltage degradation as the load continues to grow.

2.2 Eligibility for the Alternative Permitting Process

The Commission statutes and rules provide for an Alternative Permitting process for certain facilities (Minn. Stat § 116C.575 and Minn. Rules 4400.2000, subp. 1). The proposed 115 kV transmission line (and associated substations) qualifies for the Alternative Permitting process because it meets Minn. Stat § 116C.575, subd. 2(3) and Minn. Rules 4400.2000, subp. 1C (HVTLs between 100 and 200

kV). The Route Permit application submittal requirements are listed in Table 2-1 with cross references indicating where information can be found in this Application.

Figure 2-1 Area Transmission Map



46 kV shown in green

69 kV shown in black

115 kV shown in red

Table 2-1 Completeness Checklist

Authority	Required Information	Where
Minn. R. 4400.2000, subp. 1(C)	Subpart 1. **Eligible Projects**. An applicant for a site permit or a Route Permit for one of the following projects may elect to follow the procedures of parts 4400.2000 to 4400.2950 instead of the full permitting procedures in parts 4400.1025 to 4400.1900: high voltage transmission lines of between 100 and 200 kilovolts	2.2
Minn. R. 4400.2000, subp. 2.	Subpart 2. **Notice to PUC**. An applicant for a permit for one of the qualifying projects in subpart 1, who intends to follow the procedures of parts 4400.2000 to 4400.2750, shall notify the PUC of such intent, in writing, at least 10 days before submitting an application for the Project	2.4, Appendix B
Minn. R. 4400.2100	**Contents of Application** (alternative permitting process) The applicant shall include in the application the same information required in part 4400.1150, 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	4.1, 4.2, 4.3 through 4.4 (See also Minn. R. 4400.1150, subp. 2 below) Figures 4-1 to 4-4
Minn. R. 4400.1150, subp. 2 (applicable per Minn. R. 4400.2100)	**Route Permit for HVTL** (a) a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	3.1
	(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	3.2
	(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. 4400.2100
	(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	1.2, 5.3 Figure 1-3; Figures 5-1 to 5-8 7.1, 7.2
	(e) the environmental information required under 4400.1150, subp. 3	See Minn. R. 4400.1150, subp. 3 (A)-(H) below
	(f) identification of land uses and environmental conditions along the proposed routes	6.1 – 6.7
	(g) the names of each owner whose property is within any of the proposed routes for the high voltage transmission line	10.3, Appendix D
	(h) United States Geological Survey topographical maps or other maps acceptable to the chair showing the entire length of the high voltage transmission line on all proposed routes	Figures 1-3 and 6-1
	(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 with the proposed line	8.1

Authority	Required Information	Where
	(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	7.1 to 7.7 Figures 7-1 to 7-6
	(k) cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route	3.5, Table 3-3
	(l) a description of possible design options to accommodate expansion of the high voltage transmission line in the future	5.4
	(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	8.2 to 8.5 Figure 8-1
	(n) a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	10.4, Table 10-1
	(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	2.3, Appendix A
Minn.R. 4400.1150, subp. 3	**Environmental Information** (a) a description of the environmental setting for each 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, Figure 6-3
	(f) a description of the effects of the facility on rare and unique natural resources	6.5
	(g) identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific route	See all of the effects described in Section 6
	(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 Section 6
Minn. R. 4400.1350, subp. 2 (applicable per Minn. R. 4400.2300)	**Notice of Project** Notification to persons on Commission's general list, to local officials, and to property owners	Will be mailed within 15 days of application submission

Authority	Required Information	Where
Minn. R. 4400.1350, subp. 4	Publication of notice in a legal newspaper of general cirulation in each county in which the route is proposed to be located	Will be published within 15 days of application submission
Minn. R. 4400.1350, subp. 5	Confirmation of notice by affidavits of mailing and publication with copies of the notices	Will be submitted within 30 days of notice being mailed and published
Minn. R. 4400.3150	**Factors to be Considered in Permitting a HVTL** (a) effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services	Section 11
	(b) effects on public health and safety	Section 11
	(c) effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	Section 11
	(d) effects on archaeological and historic resources	Section 11
	(e) effects on the natural environment, including effects on air and water quality resources and flora and fauna	Section 11
	(f) effects on rare and unique natural resources	Section 11
	(g) application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity	Section 11
	(h) use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries	Section 11
	(i) use of existing large electric power generating plant sites	Section 11
	(j) use of existing transportation, pipeline, and electrical transmission systems or rights-of-way	Section 11
	(k) electrical system reliability	Section 11
	(l) costs of constructing, operating, and maintaining the facility which are dependent on design and route	Section 11
	(m) adverse human and natural environmental effects which cannot be avoided	Section 11
	(n) irreversible and irretrievable commitments of resources	Section 11
Minn. R. 4400.3350	**Prohibited Routes** *Wilderness areas*. No high voltage transmission line may be routed through state or national wilderness areas *Parks and natural areas*. No high voltage transmission line may be routed through state or national parks or state scientific and natural areas unless the transmission line would not materially damage or impair the purpose for which the area was designated and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line	Not Applicable

Authority	Required Information	Where
Minn. Stat. §116C.57, subd. 4 (applicable per Minn. Stat. §116C.575, subd. 8)	**Considerations in designating sites and routes** (1) Evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including base line studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment	6.5.1, 6.5.2, 7.5, 6.2.1, 6.5.3, 6.5.4, 6.2.5, 6.2.4
	(2) Environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state	5.4, Section 11 (G)
	(3) Evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects	Not applicable
	(4) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants	Not applicable
	(5) Analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired	6.3.1, 6.6.4, 6.6.5
	(6) Evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted	See all of the effects identified in Section 6; Section 11
	(7) Evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2	Not applicable to alternative process
	(8) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of way	6.3.5, 8.1, Section 11 (H)
	(9) Evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations	6.3.1, Section 11 (H)
	(10) Evaluation of the future needs for additional high voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications	5.4, Section 11 (G)
	(11) Evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved	Section 11 (N)
	(12) When appropriate, consideration of problems raised by other state and federal agencies and local entities	Section 6; 10.1

2.3 Certification Process Summary

Minn. Stat. § 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. Minn. Stat. § 216B.2421, subd. 2(3) defines a "large energy facility" as any high voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota or that crosses a state line. Because the proposed 115 kV transmission line that is the subject of this application is greater than 10 miles in length, a certificate of need is required.

A chronology of the Certification Process is provided below.

- Need for the Project identified in the 2003 Minnesota Biennial Transmission Projects Report.

- Notice plan submitted to the Commission on May 27, 2005. The plan was revised, approved by the Commission on August 25, 2005 and implemented by MP/GRE during September 2005.

- Application for "Certification of a High Voltage Transmission Line" submitted to the Commission on October 31, 2005 under Minn. Stat. § 216B.2425, as part of the 2005 Minnesota Biennial Transmission Projects Report.

- Environmental Report Scoping meeting held by the Department of Commerce at the Embarrass Town Hall on December 8, 2005.

- Environmental Report developed by the Department of Commerce and released on March 1, 2006.

- Public hearing held in the Tower High School on March 29, 2006.

- "Request by Great River Energy and Minnesota Power for Certification of the Tower Transmission Line as a Priority Project" approved by the Commission at the May 11, 2006 Commission meeting.

- Order issued by the Commission (Appendix A) on May 25, 2006 certifying that, "the Tower Project is needed and is a priority electric transmission project."

2.4 Notice to the Commission

MP/GRE notified the Commission by letter on November 29, 2006 that the Applicants intended to utilize the Alternative Permitting process for the proposed Project. This notice complies with the requirement of Minn. Rule 4400.2000,

subp. 2 to notify the Commission at least 10 days prior to submitting an application. A copy of the notice letter is included in Appendix B.