

2. INTRODUCTION

2.1 Need for the Project

The Lake Mille Lacs region is presently served from a 69 kV loop that surrounds Lake Mille Lacs (Figure 2-1). This loop has three 69 kV lines (sources) that extend to the bulk power supply lines for this region. Two of these lines come from the south into the southern part of the loop near Onamia and Isle. The power supply to these lines comes primarily from a bulk transmission system in Milaca, Minnesota, where power is placed into the 69 kV system by a 230/69 kV transformer. The Rush City 230/69 kV source may also provide some capability depending on outage situations.

The third 69 kV source comes from the north into the northern part of the loop near Wilson Lake. The power supply to this line comes from a bulk transmission system in Riverton, Minnesota, where power is placed into the 69 kV system by a 115/69 kV transformer.

The loss of any portion of the northern source or the 69 kV loop section of Wilson Lake-Pine Center Tap leads to low voltage concerns, depending on the load served at the time of the outage. Eventually brownouts will become more prevalent as the voltage decreases further as load continues to grow in the region. The Milaca source is becoming incapable of delivering the needs to the north side of the lake because of its distance from the load.

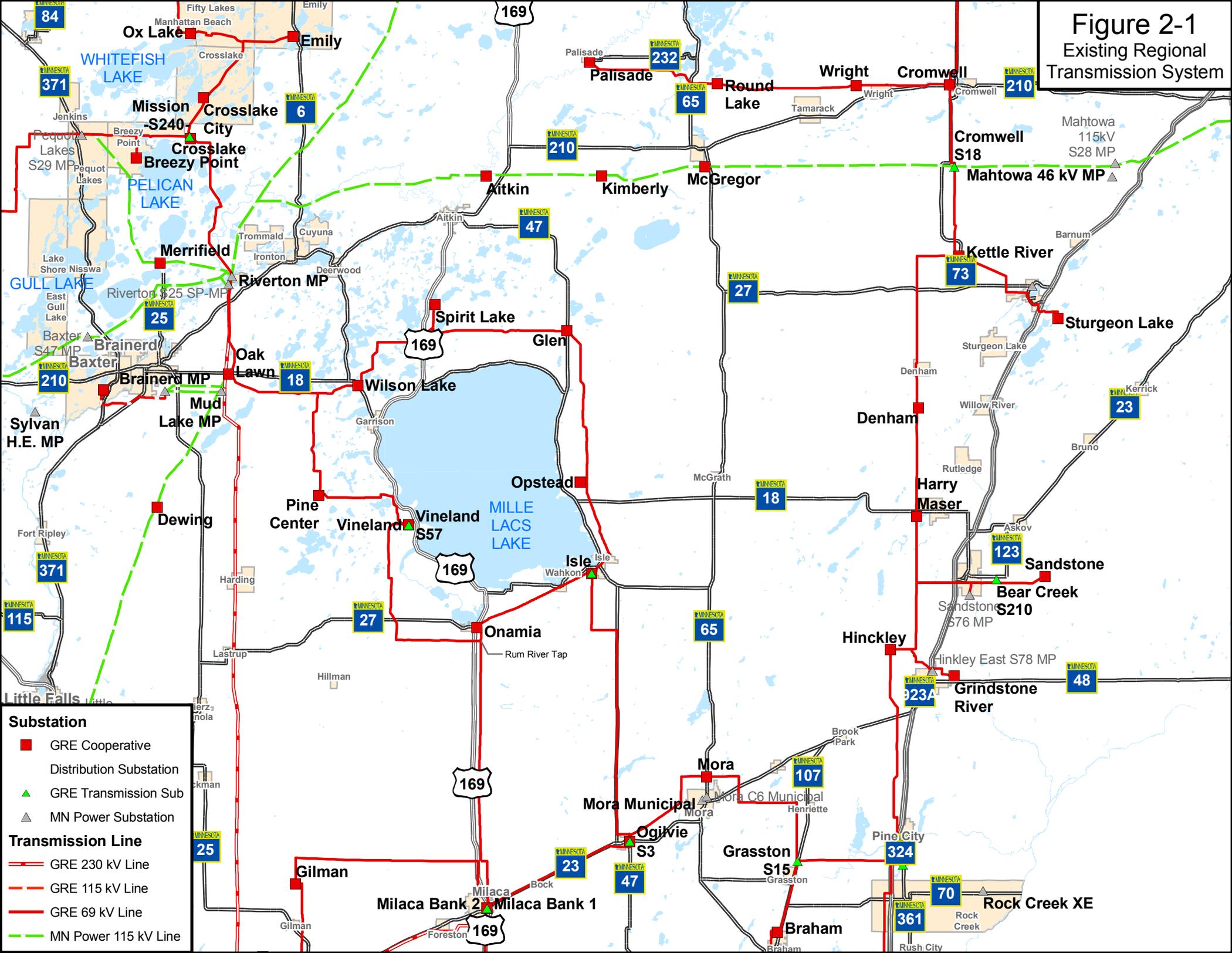
As load continues to grow, line or substation failures will result in longer outages as the existing system has reached, if not surpassed, the capability of the existing system. Presently there are four line outages, any one of which will impact the voltage service to the north side of the Lake Mille Lacs region:

- Loss of the Riverton 115/69 kV transformer
- Loss of Riverton-Oak Lawn 69 kV line
- Loss of Oak Lawn-Pine Center Tap 69 kV line
- Loss of Pine Center Tap-Wilson Lake 69 kV line

GRE has been installing short-term devices called capacitors to maintain the voltage in the system. Capacitors are only a short-term solution in areas where load is growing rapidly, such as the northern part of the Lake Mille Lacs region. Also, there is a limit to the number of capacitors that can be added due to coordination issues. With upcoming capacity issues on the 69 kV sources to the region, a new source will be needed to unload these lines, making additional capacitor additions for voltage support an unreasonable investment.

Line capacity issues will start to arise sometime after 2010 with projected overloads of the Riverton-Oak Lawn Tap, Milaca-Rum River Tap, and Milaca-Ogilvie lines.

Figure 2-1
Existing Regional
Transmission System



The overloaded lines are basically the sources to the Lake Mille Lacs 69 kV loop, which is a concern and indicates that an additional source needs to be established to the area. These line overloads would be caused by the loss of the Riverton-Oak Lawn 69 kV line, the Oak Lawn-Pine Center Tap 69 kV line, the Milaca-Rum River Tap 69 kV line, or the Milaca 230/69 kV transformer.

MLEC, CWP and ECE serve the electric needs of the Lake Mille Lacs region. The existing 69 kV transmission system serving the area, built in phases mainly from 1957 to 1997, has reached its capacity limit based on 2005 summer loading. The area's electric load has shown a growth of more than four percent per year over the last several years with similar growth expected to continue. This growth would further reduce the existing system's reliability and could lead to potential brownouts, rotating blackouts, and safety concerns due to overloaded equipment.

GRE serves the region through three 69 kV sources that deliver power to the local load-serving distribution substations as shown in Table 2-1.

**Table 2-1
Local Load Serving Substation and Provider**

Substation Name	Distribution Cooperative
Pine Center	Crow Wing Power
Oak Lawn	Crow Wing Power
Mora	East Central Energy
Isle	East Central Energy
Ogilvie	East Central Energy
Opstead	Mille Lacs
Glen	Mille Lacs
Wilson Lake	Mille Lacs
Vineland	Mille Lacs
Onamia	Mille Lacs
Spirit Lake	Mille Lacs

These substations are the ones for which GRE seeks additional transmission capability to provide reliable electricity delivery.

The expected electrical demand by substation is shown in Table 2-2.

Table 2-2 Historic and Expected Summer Electrical Demand (MW) by Substation

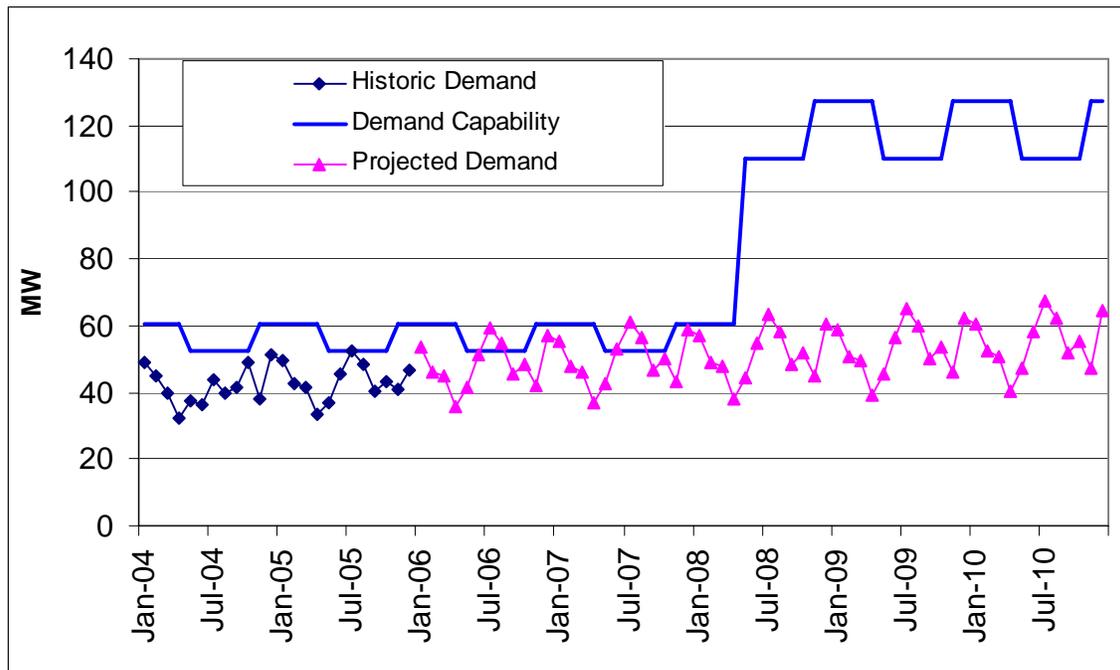
Substation	2001	2002	2003	2004	2005	2007	2012	2023
Glen	1,708	2,340	1,820	1,528	2,084	2,220	2,583	3,587
Isle	4,416	5,092	4,808	4,812	5,168	5,485	6,288	8,490
Mora	4,692	5,496	5,856	5,280	6,076	6,449	7,393	9,981
Oak Lawn	2,804	3,404	3,196	3,512	3,952	4,339	5,508	8,509
Ogilvie	4,312	4,844	5,032	4,680	6,228	6,610	7,578	10,231
Onamia	4,136	4,952	4,632	4,212	5,208	5,547	6,456	8,964
Opstead	1,936	2,316	1,784	1,556	2,020	2,151	2,504	3,477
Pine Center	1,928	2,620	2,100	1,772	2,404	2,639	3,350	5,176
Spirit Lake	3,712	4,980	4,176	3,724	4,728	5,036	5,861	8,137
Vineland	5,540	6,440	6,228	6,808	7,568	8,060	9,381	13,025
Wilson Lake	5,848	7,664	6,368	5,704	6,992	7,447	8,667	12,034
Totals	41,032	50,148	46,000	43,588	52,428	55,983	65,569	91,611
% Yearly Growth	0	22.2%	-8.3%	-5.2%	20.3%	3.33%	3.21%	3.09%

Population growth data in Crow Wing and Mille Lacs counties confirm this development trend and ongoing increase in demand, as shown below in Table 2-3. Population increased 7.9 percent in Crow Wing County and 12.3 percent in Mille Lacs County from 2000 to 2004, compared to a state population increase of 3.7 percent in that time period. These data also make it clear that increased electric demand is virtually guaranteed even if individual customers consume no more than average historical levels of energy. The reality, however, is that some of the future development will require significantly increased levels of capacity.

Table 2-3 Population Growth in Crow Wing and Mille Lacs Counties

Year	Crow Wing County	Mille Lacs County
2000	55,099	22,330
2004	59,431	25,079

The proposed Wilson Lake 115 kV source would greatly increase the project area's capacity, as there would be four area sources instead of three (the strongest of which would be the new proposed line and substation). This facility represents 84 MVA and 105 MVA of power delivery capability based on system intact and contingent scenarios, respectively. This capacity addition would meet projected long-term local capacity needs beyond the 2020 timeframe, if present load growth patterns are maintained. The projected capability of the system is based on the loss of the new source and based on 2020 load modeling that will be interpolated for the overload flow on the Riverton-Oak Lawn 69 kV line. With these assumptions, the capacity of the system is approximately 110 MW, which is over double the existing capacity of 52 MW (see Figure 2-2).

Figure 2-2 Monthly Adjusted Net Demand/Capability

2.2 Certificate of Need 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 Public Utilities 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. The proposed 115 kV transmission line that is the subject of this Application is approximately 12 miles long, therefore it meets the definition of a large energy facility. A Certificate of Need Application (Docket No. ET-2/CN-06-367) has been filed simultaneously with this Route Permit Application.

2.3 Eligibility for the Alternative Permitting Process

Minn. Rules pt. 4400.2000, subp. 1 provides for an Alternative Permitting Process for certain facilities. The Wilson Lake Project qualifies for the Alternative Permitting Process because it meets the requirements of Minn. Rules pt. 4400.2000, subp. 1.C. (high voltage transmission lines between 100 and 200 kV). The route permit application submittal requirements are listed in Table 2-4 with cross references indicating where information can be found in this Application.

Table 2-4 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	2.3
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 A
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 (See also 4400.1150, Subp.2 below)
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, 3.4, 5.1, 5.2
	(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	10.2, Appendix B
	(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	Figure 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	8.1.1, 8.1.2
	(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	7.1-7.5
	(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	3.6
	(l) a description of possible design options to accommodate expansion of the high voltage transmission line in the future	5.3

Authority	Required Information	Where
	(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	8.2-8.5
	(n) a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	10.3
	(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	2.2
Minn. R.4400.1150, 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 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 PUC's general list, to local officials, and to property owners	Will be mailed within 15 days of application submission
Minn. R. 4400.1350, subp 4	Publication of notice in a legal newspaper of general circulation 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

Authority	Required Information	Where
	(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, subps. 1 and 2	<p>Prohibited Routes</p> <p>Wilderness areas. No high voltage transmission line may be routed through state or national wilderness areas</p> <p>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</p>	Not Applicable
Minn. Stat. §116C.57, subd. 4 (applicable per Minn. Stat. §116C.575, subd. 8)	<p>Considerations in designating sites and routes</p> <p>(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</p>	6.5.2, , 7.3, 6.5.1, 6.2.1, 6.5.3, 6.5.4, 6.2.5
	(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	5.3, 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	6.2, 6, 6.3.1
	(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

Authority	Required Information	Where
	(8) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of way	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	5.3, 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	10.1

2.4 Notice to the Commission

GRE notified the Commission by letter on June 15, 2006 of its' intent to utilize the Alternative Permitting Process for the proposed Wilson Lake Project. This complies with the requirement of Minn. Rules pt. 4400.2000, subp.2 to notify the Commission at least 10 days prior to submission of an application. A copy of this letter is included in Appendix A.

