STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
100 Washington Square, Suite 1700
100 Washington Avenue South
Minneapolis, Minnesota 55401-2138

TELEPHONE: (612) 341-7600
TTY: (612) 341-7346

June 27, 2007

Kevin Murphy, Deputy Commissioner
ATTN: Sue Jensen
Minnesota Department of Commerce
85 Seventh Place East, Suite 500
St. Paul, MN 55101

Re: ***In the Matter of the Application for a High Voltage Transmission Line Route Permit for the Tower 115 kV Transmission Project*;**
OAH Docket No. 7-1000-17964-2
E-015/TL-06-1624

Dear Deputy Commissioner Murphy:

Enclosed herewith and served upon you by mail is the Administrative Law Judge's Findings of Fact, Conclusions and Recommendation in the above-entitled matter. The voluminous record shall be delivered to you under separate cover.

Very truly yours,

/s/ Richard C. Luis

RICHARD C. LUIS
Administrative Law Judge

Telephone: (612) 349-2542

RCL:mo
Encl.

cc: Robert Lindholm
Carole Schmidt
Bill Storm
Ken Wolf

7-1000-17964-2
E-015/TL-06-1624

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

FOR THE DEPARTMENT OF COMMERCE

In the Matter of the Application for a High Voltage Transmission Line Route Permit for the Tower 115 kV Transmission Project	**FINDINGS OF FACT, CONCLUSIONS AND RECOMMENDATION**

This matter was assigned to Administrative Law Judge (ALJ) Richard C. Luis, acting as a Hearing Examiner for the Minnesota Department of Commerce (Department). A public hearing was held on May 22, 2007. No evidentiary hearings were held. The public hearing record closed on June 11, 2007, when a Brief and Proposed Findings were filed by David Moeller, Attorney for Minnesota Power, 30 West Superior Street, Duluth, MN 55802.

Appearances: Robert Lindholm, Manager-Environmental Strategic Initiatives for Minnesota Power, 30 West Superior Street, Duluth, MN 55802 appeared on behalf of Minnesota Power. Carole Schmidt, Supervisor, Transmission Permitting and Compliance for Great River Energy, 17845 East Highway 10, P.O. Box 800, Elk River, MN 55330 appeared on behalf of Great River Energy (GRE), together with Gary Ostrom, Land Rights Manager for GRE. Bill Storm, Minnesota Department of Commerce – Energy Facility Permitting, 85 7th Place East, Suite 500, St. Paul, MN 55101 appeared on behalf of the Department. Ken Wolf, Regulation Unit Manager for the Minnesota Public Utilities Commission (Commission) – Reliability and Facilities Permitting, 121 7th Place East, Suite 350, St. Paul, MN 55101 appeared on behalf of the Commission staff.

FINDINGS OF FACT

1. This matter was initiated on December 22, 2006, when Minnesota Power (MP) and Great River Energy (GRE) filed a joint application for a routing permit (RP) with the Minnesota Public Utilities Commission ("MPUC" or the Commission).[1] MP and GRE (jointly, "the Utilities") had notified the PUC by letter dated November 29, 2006, that the Utilities intended to proceed under the Alternative Permitting Process. This notice complied with the requirement of Minn. R. 4400.2000, subp. 2, to notify the PUC

[1] Joint Application, (https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=3679331).

at least 10 days prior to submitting an application. The Power Plant Siting Act identifies the projects that qualify for review under the Alternative Review Process.[2]

2. GRE and MP proposed to construct approximately 14 miles of 115 kilovolt (kV) transmission line, a 115/69/46 kV substation located near the City of Tower and a 115 kV switching station located at the junction of MP's existing 115 kV line (known as the 34 Line) and the 34 Line Tap (located in White Township, Section 7, Township 59N, Range 15W) to meet the growing electrical load in the Project area. The Project area includes the cities and towns of Ely, Babbitt, Embarrass, Tower, and the Lake Vermilion area. The Proposed Route is located within the townships of Kugler, Embarrass, and White (as shown in Figures 1-6 through 1-11 of the Environmental Assessment). Two single circuit 46 kV interconnections from the new Tower Substation to the existing MP 46 kV 32 Line are located in Breitung (W) Township. One of the 46 kV circuits would be installed on structures capable of adding a future 69 kV circuit. The entire permit application, maps, appendices and other documents may be viewed on the Web at: energyfacilities.puc.state.mn.us/Docket.html?ID=18926.

Background on the Certificate of Need Process

3. Prior the request for a route permit, on November 29, 2005, the Utilities made a joint application to the Commission for Certification of two High-Voltage Transmission Line (HVTL) projects pursuant to the provisions of Minnesota Statutes 216B.2425 and Minnesota Rules, Chapter 7848, through the Biennial Transmission Projects Report proceeding. The two projects are referred to as the "Tower project" and the "Badoura project." The Tower project would be approximately 14 or 15 miles of new 115 kilovolt (kV) transmission lines, a new Embarrass switching station, and a new Tower substation located in Saint Louis County in northeastern Minnesota.

4. As part of the PUC review when a Certificate of Need (CN) for an HVTL is requested, an Environmental Report (ER) must be prepared.[3] The Department's Energy Facility Permitting (EFP) staff prepared an ER on the Commission's behalf. The Department based its analyses on the information and data supplied in each utility's Biennial Projects Report and several other relevant sources. The Department's ER evaluated the general potential impacts from construction, operation, and maintenance of the proposed HVTL along the broad corridor(s) proposed by the applicant and discussed ways to mitigate these potential impacts. The public was given an opportunity to participate in the development of the environmental report.

5. On December 8, 2005, the Department's EFP staff held a public meeting in the Tower area. The public meeting provided the public with information about the project, afforded the public an opportunity to ask questions and present comments, and solicited input on the content of the ER. The comment period was held open until 5:00 p.m. January 10, 2006. On January 11, 2006, after consideration of the public comments, the Commissioner of Commerce issued an Order outlining the content of the

[2] Minn. Stat. § 216E.04, subd. 2.
[3] Minn. Rules 4410.7030.

ER in conjunction with the Commission's review procedures. On February 14, 2006, the Department issued and distributed the ER for the two projects.

6. On March 29, 2006, Administrative Law Judge (ALJ) Richard Luis from the Minnesota Office of Administrative Hearings conducted a public hearing on the issues regarding issuance of a CN arising from the proposed projects. Public comments were received on the need for the proposed projects. Judge Luis provided a summary report of comments received at the public hearing to the MPUC to assist the Commission in making a final determination on the need for the proposed transmission lines. On May 25, 2006, the PUC issued an Order certifying that the Tower Project is needed and designating the project as a priority electric transmission project.[4]

Routing Permit Process

7. On January 17, 2007, the Commission ordered that Tower project be referred to the Office of Administrative Hearings for conducting public hearings under the six month alternate review process.[5] ALJ Richard Luis conducted a public hearing in the evening of May 22, 2007. The public hearing was held in the Embarrass Township Hall, 7503 Levander Road, Embarrass, Minnesota. Over 100 persons attended the hearing. The ALJ provided the opportunity for members of the public to air their views regarding the proposed route of the 115 kV HVTL. The period for written public comments closed on June 6, 2007. The Utilities were afforded until June 8, 2007 to file comments, later extended to June 11, 2007, so that Proposed Findings could be completed. The record in this matter closed on June 11, 2007, with the Utilities' filing of proposed findings and a brief.

8. As part of the routing process, the Department prepares an Environmental Assessment (EA) which includes a public hearing to determine the scope of the EA and a later public hearing to discuss the results. Due to the level of public interest at the scope hearing, Deborah Pile, Supervisor for the Energy Permitting Division of the Department of Commerce, requested that the ALJ presiding over the later public hearing make a report on the record developed through that hearing. The request included that the ALJ make recommendations to the Department on the "selection of an HVTL route, the granting of a route permit and on any appropriate permit conditions for [the Department's] use in preparing its comments and recommendations to the [Commission]."[6]

Description of the Project

---

[4] *ITMO the Request by Great River Energy and Minnesota Power for Certification of the Badoura and Tower Transmission Lines as Priority Projects*, ET-2, E-015/TL-05-867 (Commission Order Certifying the Need and Designating as Priority Transmission Projects issued May 25, 2006) (https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=3102250).

[5] Commission Order, January 17, 2007 (https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=3710632).

[6] Ex. 12; Public Hearing Transcript, at 14-15 (Storm).

9. The Route as proposed in Section 5 of the Application includes the new Tower Substation, four transmission line segments, and the new Embarrass Switching Station, described in the Application as follows:

18.1 The New Tower Substation

The Tower Substation would be owned by Minnesota Power. The proposed site is located 0.6 miles south of Tower and east of Highway 135 (Application - Figure 5-1). The site is privately owned and located in the northeast corner of the NW/SE, Section 5, Township 61 North, Range 15 West. Access to the site would be from an existing gravel access off of Highway 135. The site is fairly level and adjacent to an active gravel pit located to the south.

The new 115 kV transmission line from the Embarrass Switching Station would enter the Tower Substation from the south, and the two new 46 kV lines would exit to the north to interconnect with the existing MP 46 kV Line #32. The native tree screen along Highway 135 would remain and effectively reduce the visibility of the substation from the highway. There are no homes located on the parcel and the nearest home is located 1,300 feet to the northwest on the west side of Highway 135. The 200' x 200' substation footprint would be located 50 feet from the north and east property lines to maintain zoning setback requirements and to allow adequate room for site preparation and erosion prevention measures. Soil boring information revealed bedrock at a depth of 35' at one location.

The substation layout would be developed to accommodate additional substation expansion plans in the future to accommodate a 69 kV exit to the northwest for GRE's planned reinforcement of the existing 69 kV system and addition of distribution facilities to serve the Tower area load. The entire substation site (200' x 200') would be graded and fenced. Major equipment within and adjacent to the substation would include a 115/46 kV transformer, circuit breakers, line termination structures, and a control house.

An improved access road off of Highway 135 and a small parking lot would also need to be constructed. A photo (Application - Figure 5-2) and a site plan (Application - Figure 5-3) provide additional detail on the Proposed Tower Substation (Highway 135) site.

The site is adequately sized, fairly level and trees have been removed from the footprint area. There is site preparation material available in the adjacent gravel pit. Access to the site for site preparation vehicles and installation of the large substation equipment (circuit breakers, transformers) is satisfactory. Costs for improvement and extension of the present access road would be minimal. The area is sparsely populated with a commercial/industrial history (gravel extraction area). A screen of trees along Highway 135 could remain to reduce visibility of the substation. The location would optimize the length of the proposed 115 kV transmission line and the two 46 kV circuit extensions to the existing MP 46 kV Line #32. The landowner is willing to sell an adequately-sized portion of the

33.6-acre parcel for the Tower Substation. The utilities are pursuing an option agreement with the landowner, which would be contingent upon Commission approval of the proposed Tower Substation site.

18.2 Proposed Route for Route Area 1 – Tower Substation to County Highway 26

The Proposed Route for Route Area 1 is shown on Figure 5-1 of the Application and includes Route Segments (RS)15a and 16.

The Proposed Route follows the former Duluth Missabe & Iron Range Railroad (DM&IR) grade, now called the Iron Ore Trail, for 4.2 miles. The intended centerline follows the east side of the grade from the proposed Tower Substation site south to County Highway 26. At that point, the intended centerline crosses to the west side to avoid removing a planted tree screen between the Iron Ore Trail and a home located east of the trail.

As stated in the Application, the Iron Ore Trail provides a practical corridor-sharing opportunity through a rural, wooded area with interspersed wetlands. The area is generally inaccessible and consequently there are no homes located within or adjacent to the Proposed Route. The existing corridor would need to be widened to allow safe, reliable operation of the transmission line, which would be located within a 100 foot wide right-of-way. Dependent upon the ground survey, transmission line engineering, and landowner easement negotiations, the final right-of-way locations may provide the opportunity to reduce the amount of tree vegetation removal within the right-of-way due to sharing the Iron Ore Trail corridor.

The route segments follow an unpopulated existing corridor. One of only two existing north to south corridors within the Project area, the Iron Ore Trail would minimize impact to homeowners in the area without creating a new crosscountry corridor. The Iron Ore Trail includes several long tangent (straight, in-line) sections, thus minimizing the need for angle structures and minimizing cost. There are only three stream crossings, which can be crossed near the existing bridges of the Iron Ore Trail.

18.3 Proposed Route for Route Area 2 – County Highway 26 to East Taylor Road

The Proposed Route for Route Area 2 is shown on Figure 5-4 of the Application and includes RS 22. The Proposed Route follows the Iron Ore Trail for approximately 1.3 miles, follows a survey line for approximately 1.3 miles, and follows gravel roads for 2.2 miles (total distance of 4.8 miles). There would be 3.5 miles of existing corridor and 1.3 miles of new corridor. The intended centerline follows the west side of the Iron Ore Trail immediately south of County Highway 26 and crosses and remains on the northeast side of the trail until departing the trail and heading south to follow a survey line in Section 32 (T61N,

R15W). The intended centerline for planning purposes follows the west side of the survey/property line. The intended centerline creates a near 90 degree angle to follow the single phase distribution line located on the north side of the east-west gravel road extending from County Road 364 (Bergstedt Road).

The intent is to remove and underground the single phase distribution line and utilize the cleared right-of-way for a portion of the proposed transmission line right-of-way. The Proposed Route angles 90 degrees to the south, with the intended right-of-way located on the west side of Bergstedt Road to the East Taylor Road. At East Taylor Road the intended centerline would move to the east to afford an increased separation between the proposed transmission line and the existing three-phase distribution line and the church.

There are three homes and a church located within the 300' wide Proposed Route. Two homes are located nearly opposite each other on the Bergstedt Road, making it impractical to avoid both homes by switching back and forth across the road with the intended centerline. The home on the west side and nearest the intended centerline is presently unoccupied. See the Application - Appendix E – Exhibit 1 for an aerial view of the Proposed Route, planned right-of-way centerline, and the two homes.

At the church, the determination of the final right-of-way location would incorporate the interests of the church and the practical design, construction and operational alternatives of the existing distribution line and the proposed transmission line. See Application - Appendix E – Exhibit 2 for an aerial view of the Proposed Route, preliminary right-of-way centerline, and the church.

The Proposed Route crosses two streams: one in a common corridor with the Iron Ore Trail and the other with the three phase distribution line south of East Taylor Road. The Proposed Route passes through a varying landscape predominated by wooded uplands, wetlands and interspersed open pasture areas.

As stated in the Application, the Proposed Route follows two sparsely populated existing corridors (Iron Ore Trail and Bergstedt Road). Two homes and a church are within the Proposed Route and two additional homes (on County Highway 26 and on East Taylor Road) are adjacent to the east side of the Proposed Route. The new cross-country section follows the survey/property line, interconnecting the two existing corridors. The primary alternative, the Highway 135 alternative, is an existing corridor; however, there are 35 homes located within or adjacent to the route alternative, which would have great impact on homeowners in the Project area. The Proposed Route includes several long tangent sections, which minimizes angle structures and reduces Project costs.

The Proposed Route is located to provide a safe distance from the end of the private grass landing strip located in Section 5 (T60N, R15W). The Highway 135 alternative would require purchase and retirement of the landing strip.

18.4 Proposed Route for Route Area 3 – East Taylor Road to County Highway 21

The Proposed Route for Route Area 3 is shown on Figure 5-5 of the Application and includes RS 31 and 32.

RS 31 is a short north/south segment that crosses Highway 135 and connects RS 22 and 32. An angle structure would be required at the interface with RS 32 near the intersection of Highway 135 and the Levander Road.

RS 32 is a new cross-country route that includes a 0.3 mile diagonal and a 1.2 mile section that parallels a survey/property line. The intended centerline is located on the west side of the survey/property line.

As stated in the Application, there are no homes within or adjacent to the Proposed Route in this route area. The route would cross only one stream. The landscape is predominated by several wetlands and interspersed with wooded uplands. Although the Proposed Route would create a new right-of-way, the alignment is superior to an alignment through the front yards of the 13 homes located along Levander Road.

18.5 Proposed Route for Route Area 4 – County Highway 21 to Embarrass Switching Station

The Proposed Route for Route Area 4 and the proposed Embarrass Switching Station site are shown on Figure 5-6 of the Application and includes RS 42, 44a, 46 and 47.

RS 42 is a 1.3 mile route segment would be a new cross-country path located on the survey/property line in Sections 29 and 30 (T60N, R15W). The intended centerline is located on the west side of the 1/16 line. The landscape is primarily wetland interspersed with wooded upland. The 40-acre parcels east of the Proposed Route in Section 32 are privately owned and the parcels crossed by the Proposed Route are tax forfeit property. Landowners at public meetings voiced their strong preference to construct the transmission line on the tax forfeit property rather than across their mixed pasture and upland forest land to the east of the Proposed Route.

RS 44a is a 1.8 mile long route segment that continues through the large wetland area in White Township. The intended centerline is located on the west side of the 1/16 line in Sections 5 and 8 following the survey/property line. The intended centerline continues on the south side of the existing MP 115 kV transmission line for 0.25 miles. Section 5 is tax forfeit and corporate (RGGS) ownership and Section 8 is in private ownership. Because there is no established access to this area, potential for future development is low.

RS 46 and 47 total 0.6 miles in length and follow the MP 115 kV transmission line on the south side through a predominantly wetland landscape. RS 47 travels

through a wooded upland area for 0.15 miles and terminates at the proposed Embarrass Switching Station site in Section 7. The existing 115 kV right-of-way would need to be widened by approximately 60 feet to provide for safe and reliable construction and operation of the proposed transmission line.

As stated in the Application, this Proposed Route was analyzed and compared to the two main route alternatives; the Giant's Ridge Road alternative (RS 45 and 49a or 45, 48, and 49) and the central route alternatives (RS 43 or 44; 43a common to both). The Giant's Ridge Road alternative follows a gravel road for most of the distance from its common point with the Proposed Route to the Embarrass Switching Station site (4.0 miles). The Proposed Route would not affect any existing homes, whereas the Giant's Ridge Road alternative includes 12 homes within the route. Single pole construction would minimize vegetation removal to expand on the roadway clearing; however, tree screens would be reduced or eliminated between the road and the 12 homes. Landowners expressed a strong preference to locate the transmission line on public land east of the Giant's Ridge Road. Additionally, the Proposed Route is 3.6 miles long; 0.4 miles shorter than the Giant's Ridge Road alternative. The two central route alternatives would alleviate the concerns of landowners along the Giant's Ridge Road; however, both (RS 43 and 44) options would cross the "Height of Land Portage," which is a listed property in the National Register of Historic Places (NRHP). RS 44a (the Proposed Route) was developed to avoid any impact to the "portage."

18.6 Proposed Embarrass Switching Station

The new switching station would be constructed at the location of the existing 115 kV Line tap off of MP115 kV Line #34 (Virginia to Laskin). The proposed 115 kV line would enter from the northeast, creating an interconnection point of four 115 kV transmission lines. The switching station would look similar to a 115 kV substation, except there would be no transformers. The entire switching station site (approximately 180' x 180') would be graded and fenced. Major equipment within and adjacent to the switching station would include four 115 kV circuit breakers, line termination structures, and a control house. An improved access road and a small parking lot would also need to be constructed. A photo (Application - Figure 5-7) and a site plan (Application - Figure 5-8) provide additional detail on the proposed Embarrass Switching Station site.

As stated in the Application, the site is adequately sized, fairly level, and optimally located at the intersection of the two 115 kV transmission lines that are required to interconnect with the Embarrass Switching Station. The site location will minimize additional 115 kV transmission line construction cost and environmental impact. The area around the site is sparsely populated and it has been previously disturbed by the construction of the adjacent transmission lines and metal lattice switch structure. An existing gravel road and bridge across the Embarrass River provide adequate access to the site from CSAH 138 (Giant's Ridge Road). The access road would require blading and graveling and the

bridge may require enhancement. The distance from CSAH 138 (2,000') and abundant trees around the site would eliminate visual impact to travelers on CSAH 138. Trees would be retained on the site, outside of the switching station footprint, to minimize visual impact to any future development in the immediate area. A Phase 1 archaeology field survey conducted fall 2006 determined that there were no archaeological/cultural artifacts present within or adjacent to the Embarrass Switching Station footprint.[7]

10. The design voltage of the proposed transmission line is 115 kV. The Tower Project would have a total length of approximately 14 miles, and would require new right-of-way for the entire distance of the transmission line and newly purchased land parcels for the substation and switching station. The entire line and associated facilities would be within St. Louis County, Minnesota. Two structure types are being considered for the Project: wood H-frame and wood single pole. Dependent upon land use type, topography, right-of-way constraints and other design-dependent features, each of these transmission line structure designs would be appropriate in certain areas.[8]

11. The two pole wood H-frame structure design is suited for areas with rugged topography and/or for areas requiring longer spans to avoid or minimize placement of structures in wetlands or waterways. The average span would be 600–700 feet, with 1,000-foot spans achievable with certain topography. The structure height would average 60–80 feet with taller structures required for the exceptionally long spans and in circumstances requiring additional vertical clearance. Figure 7-1 in the Application shows a cross section drawing of a typical GRE 115 kV H-Frame structure being considered for this Project. The single pole design (GRE-THP or THP-B) is suited for areas where available right-of-way is limited, such as where rights-of-way are shared along roads in developed areas. Two insulator types could be used depending on requirements: a standard post insulator (THP design) and a braced post insulator (THP-B design). The advantage of the THP-B braced post insulator design is that longer span lengths can be achieved, however structure cost in increased. Average structure height would be 65–90 feet to achieve average span lengths of 300–400 feet. Specific structure heights and span lengths may exceed the average due to land use requirements and topography. Figures 7-2 and 7-3 in the Application show cross section drawings of a typical GRE 115 kV single pole THP and a THP-B structure being considered for this Project.[9]

12. In addition to the two main structures under consideration for the Project, there may be limited use of a single pole structure with low voltage single phase or three phase distribution underbuild that directly supplies area electric customers. This single pole design is used in areas where existing land use development restricts the placement of two separate power line circuits; a high voltage circuit and a lower voltage (distribution line) circuit. The advantage of this design is less right-of-way requirement;

---

[7] Exhibit 2, Applicants' Application for Route Permit (December 22, 2006) (https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=3679331).
[8] Ex. 13, at 2-3.
[9] *Id.*; Ex. 2.

however, there are significant operating, maintenance, and cost factors to consider. The higher voltage circuit is "stacked" on top of the lower voltage distribution circuit, resulting in a taller pole (averaging 75–90 feet in height) and shorter spans (250–350 feet). Another alternative would be to place the distribution line underground in specific areas.[10]

13. The line would use three single conductors which would not be bundled. Depending on structure type (single pole or H-frame), there would also be one or two shield wires (3/8″ high strength 7-strand steel) to protect the conductors from lightning. It is likely that one shield wire would be an optical shield wire (64mm2/528 OPGW 24 fiber), to be used for communications.[11]

14. The right-of-way (easement area) width requirement for the 115 kV transmission project would be 100 feet for both structure design types, understanding that the width of the right-of-way cleared for the single pole designs could be reduced in certain higher density, developed areas. The width of the right-of-way cleared may also be less in areas where the new transmission line follows an existing linear corridor, such as a road or trail. GRE would seek a permanent easement, providing the right to construct, operate and maintain the transmission line, for the full width and length of the right-of-way. Additional right-of-way may be required for longer spans or special design requirements based on final survey. Right-of-way width depends on conductor blowout and the recommended clearances to obstructions along the route.[12]

Routes Analyzed in the Environmental Assessment

15. In addition to the Utilities' proposed route and an alternate route, two additional alternative proposals, Citizen Route A and Citizen Route B, were evaluated in the Department's Environmental Assessment (EA). The Citizen Route alternatives are identified as West and East, for their location relative to each other. All proposed and alternative routes are located between the proposed Tower Substation site (Kugler Township - T61N R15W section 5) and the proposed Embarrass Switching Station site (White Township - T59N R15W section 7).

Utilities' Proposed Route (Iron Ore Trail parallel segment)

16. The Utilities' proposed route exits the proposed Tower Substation site east to the adjacent former Duluth, Missabe & Iron Range (DM&IR) railroad grade (Iron Ore Trail). The 300-foot wide route is centered on the railroad grade with the intended right-of-way located primarily on the east side of the grade. The route follows the railroad grade for approximately 5.4 miles in a southerly direction through Sections 5, 8, 17, 20 and 29 of Kugler Township. At the intersection of Wahlsten Road (CSAH 26) the intended right-of-way shifts to the west side of the route to avoid removal of a screen of conifers between the railroad grade and a nearby home.

---

[10] Ex. 2.
[11] *Id*.
[12] *Id*.

17. In Section 32 of Kugler Township the route proceeds due south along a property subdivision line for approximately 1.3 miles to a gravel road (County Road 590). The route turns due west along CR 590 for one quarter mile and then turns due south at the Bergstedt Road. The route is centered on the Bergstedt Road. The intended right-of-way is located on the west side approximately on line with the existing Lake Country Power single-phase distribution line. Bergstedt Road is followed for approximately 2.2 miles.

18. The route crosses CSAH 135 and angles southwest one quarter mile to follow a subdivision line located one quarter mile west of Levander Road. The route follows the subdivision line for approximately 4.3 miles and intersects with the MP 115 kV Virginia to Babbitt transmission line. The route follows the transmission line corridor W-SW for approximately 0.85 miles, terminating at the proposed Embarrass Switching Station site. The intended right-of-way is on the south side of the transmission line corridor.

Formation of Alternatives to the Utilities' Proposed Iron Ore Trail Route

19. During the initial public meeting to provide information and obtain comment on scoping of the EA, a number of participants expressed concerns about approximately six miles of the Utilities' proposed HVTL route that shared the DM&IR corridor. This corridor roughly parallels a portion of the DM&IR corridor now known as the Iron Ore Trail. The Iron Ore Trail consists of former DM&IR grade that has been deeded back to the current landowners. The tracks have been removed and the railroad grade maintained as a gravel trail. The landowners, in an agreement with a local snowmobile club (the Penguin Snowmobile Club), have granted limited access to the former railroad grade to be used as a snowmobile trail. Participants also strongly expressed a desire to maximize the use of public lands for routing the HVTL, especially those in tax forfeiture.

20. Another meeting moderated by the Department's EFP staff was held in Tower on February 21, 2007. Participants in this meeting included affected landowners, snowmobile club members, MP and GRE staff, and representatives from the MDNR and St. Louis County. The meeting was designed to facilitate the development of a viable alternative route that maximized the use of public-owned lands and moved the proposed HVTL route away from the Iron Ore Trail. As a result of this meeting, two alternative routes were put forth for consideration: the "Citizens' Public Lands Route East" (Alternative Route B) and the "Citizens Public Lands Route West" (Alternative Route C). EA Figure 5-1 shows the general location of the two alternative routes.

21. Due to their close geographic proximity, all three HVTL routes entail similar impacts on the human and natural environment. A discussion of these impacts and mitigation measures was set out in the EA. There are some notable differences between the alternative routes and those differences will be discussed in this report. In general, the two alternative routes move the HVTL away from developed areas to more undeveloped areas resulting in an increase in the required acreage that must be cleared

(100' wide clearing) over the route segments following a road or former railroad grade (65' to 75' wide clearing).

Alternative Route C

22. The Citizens Public Lands Route West (Alternative Route C) exits the proposed Tower Substation site and travels southeast for approximately 0.8 miles and then angles due south to follow a subdivision line for approximately 3.5 miles. The route then turns southwest for approximately 0.5 miles and turns west for 0.5 miles. The route angles due south for approximately 0.75 miles and then angles east 0.25 miles to join the previously described proposed route at the Kugler/Embarrass Township line (T61N R15W section 32 SE/SE.) The south section of this route is identical to the Proposed Route through Embarrass and north White Townships.

23. The Applicants explained that the alternative routes were primarily formulated from landowners' input with the goal of staying on public property and avoiding crossing private property. Alternative Route C does cross several parcels of private property.[13]

Alternative Route B

24. The Citizens Public Lands Route East (Alternative Route B) exits the proposed Tower Substation site and travels southeast for approximately one-half mile farther than Alternative Route C, then turns due south to parallel that route. The route then turns southwest to intersect with the Alternative Route C path and follows that route from that point onward.[14]

25. Bob Lindholm, Manager of Environmental Permitting for Minnesota Power, noted that Alternative Route B avoids the Iron Ore Trail, passes over public land, and passes over land that has been tax-forfeited.[15] Denny Bone, Northern Area Land Manager for St. Louis County, noted that the differences between the alternative routes lie in Route B crossing more wetlands and being more costly. Alternative Route C is over uplands and shorter.[16]

Comparison Matrix

26. A comparison was prepared of the proposed routes, setting out the differences between routing the first segment on the Iron Ore Trail, Highway 135, Alternative Route B, and Alternative Route C. Public Hearing Transcript, at 49-55 (Lindholm). Some of the matrix is as follows:

[13] Public Hearing Transcript, at 38-39 (Lindholm).
[14] Public Hearing Transcript, at 39 (Lindholm).
[15] Id. at 34-35 (Lindholm).
[16] Public Hearing Transcript, at 40 (Bone).

Routing Factor	Proposed Route (Iron Ore Trail)	Highway 135	Alternative C Citizens Route West	Alternative B Citizens Route East
Length (miles)	14.2	14.4	15.0	15.4
New ROW clearing (miles)	11.8	11.9	13.7	14.2
New ROW clearing (acres)	119	94	154	159
Estimated Construction Cost	$4,650,000	$4,700,000	$5,300,000	$5,400,000
Homes w/in 50 feet of ROW	0	0	0	0
Homes w/in 50 to 125 feet of ROW	0	36	0	0
Homes w/in 125 to 200 feet of ROW	4	21	2	2
Public Properties w/in 200 feet of ROW	1	3	1	1
Private Parcels Crossed	41	96	24	22

History of the Iron Ore Trail

27. DM&IR ceased operations on the railroad line south of Tower and, in the mid-1980's, relinquished ownership of the right-of-way. For some property owners, the reversion was automatic, and other land owners were offered the opportunity to repurchase the land.[17] The tracks were removed and the rail bed covered with gravel. Portions of the rail line were maintained as a trail. The only clearing performed was to maintain the trail itself. Where the rail bed was not maintained, the former right-of-way is overgrown. Where the trail is maintained, snowmobilers use it in the winter months. The height of the trees near the trail helps maintain its snow cover for use by snowmobiles.

Hearing Notices

28. Notice of the May 22, 2007 public hearing on the route permit was published in the Mesabi *Daily News*, the Tower *News*, and the Ely *Timberjay*.[18] The notice was mailed to landowners, public officials, media outlets, and persons who indicated an interest in HVTL matters.[19]

29. Approximately 100 members of the public appeared at the public hearing held on May 22, 2007, at 7:00 p.m. Several of the attendees offered testimony

[17] Public Hearing Transcript, at 46-49 (Skogman, Milbridge, Lindholm, and Jenson).
[18] Affidavits of publication were pending at the time this Report was completed.
[19] Exs. 17-19.

concerning the routing of the HVTL and related issues. The Administrative Law Judge established a deadline of June 6, 2007 (later extended to June 8, 2007) for receipt of written comments from any interested person.

30. The Commission will issue an Order on the Applicants' request for a Route Permit after examining the hearing transcripts, all written filings submitted by the public and all filings and arguments submitted by the Applicants, the Minnesota Department of Commerce and other persons and entities interested in this matter. Under Minn. R. 4400.2950, subp. 1, the decision on a routing permit must be issued within 6 months of the determination by the Commission that the application was complete. The Commission's deadline for issuance of that Order is July 12, 2007.

Department's Environmental Assessment

31. As part of the Environmental Assessment development process, a public meeting was held on February 13, 2007. The Department provided notice of the public hearing on the EA by publication in the Mesabi *Daily News*, on January 28, 2007.[20] The notice was mailed to landowners, public officials, media outlets, and persons who indicated an interest in HVTL matters.[21]

32. The EA detailed the work needed to be performed for the Project, potential impacts and mitigation measures. No significant impacts requiring extraordinary mitigation measures were identified in the EA. Mitigation measures were detailed for the limited impacts (and potential impacts) caused by the Project.[22]

33. The EA was exceptionally thorough and detailed. Many of the Findings in this Report are drawn directly from that document. The Department staff should be commended for their efforts in preparing the EA.

Summary of Public Hearing Testimony

34. Over 100 persons attended the public hearing in this matter. Bill Storm, Planning Director with the Department of Commerce's Energy Facilities Permitting Group made a presentation regarding the Department's environmental review for the Project.[23]

35. Harry Lamppa's family owns 125 acres on Bergstedt Road, including all the mineral rights, and held that interest since the 1920's. Lamppa recommended a route that avoids Bergstedt Road, crossing instead the public lands to the east. He also included a plat map of the Embarrass Township area to indicate where the public lands are located along the areas available for route. Lamppa questioned whether the ownership of mineral rights affected the route selection process.[24] MP noted that there

[20] Ex. 7.
[21] Ex. 6.
[22] Environmental Assessment, May 2, 2007 (https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=4046668).
[23] Public Hearing Transcript, at 9-23 (Storm).
[24] Public Hearing Transcript, at 57-60 (Lamppa); Public Exhibits 38 and 38A.

was no relationship between itself and the owners of mineral rights and that the proposed route crosses a number of parcels held by the holder of a large number of detached mineral rights.[25]

36. Roger Skraba, trail administrator for the Tomahawk Snowmobile Trail, a past president of the Ely Igloo Snowmobile Club, and snowmobile rental owner clarified that the Iron Ore Trail is not a right-of-way and that the existing trail was formed by obtaining easements to allow the access of snowmobiles.[26]

37. Norm Riihiluoma described the wetland on his property, characterizing it as a fen. He urged that the proposed line be placed along one of the easterly alternatives.[27] Carole Schmidt, Supervisor of Transmission Permitting and Compliance for Great River Energy, noted that the DNR is concerned about particular types of fens, particularly fens that are calcareous.[28] Schmidt responded to Riihiluoma as follows:

> I believe when I spoke with Mr. Riihiluoma at the citizens meeting in February, I indicated that a transmission line could not be routed through a calcareous fen. Calcareous (high pH) fens are the rarest wetland community in Minnesota and are unique because they are fed by alkaline, mineral rich groundwater. Only a select group of tolerant plants can survive in the alkaline soils associated with these wetlands; therefore there is a disproportionate number of rare, threatened and endangered species in them compared to other plant communities in the Great Lakes Region. The calcareous fens in Minnesota are all well known, mapped, and protected under the Wetland Conservation Act (no impacts allowed). There are no calcareous fens in St. Louis County or in fact in northeastern Minnesota.
>
> The fen on Mr. Riihuluoma's property is a non-calcareous fen that would not have special protection under the Wetland Conservation Act. As I mentioned at the hearing, fens/wetlands can often be spanned and GRE always tries to minimize impacts to these areas. When we do have to place poles in wetlands, we try to either construct in the winter or use mats to minimize the impacts. The actual disturbance to a wetland from placement of a pole is quite small.[29]

38. Bob Tammen expressed support for not crossing Mr. Reinhold Johnson's property.[30]

---

[25] Public Hearing Transcript, at 60.
[26] Public Hearing Transcript, at 61-62 (Skraba).
[27] Public Hearing Transcript, at 63-64 (Riihiluoma).
[28] Public Hearing Transcript, at 66-67 (Schmidt).
[29] Schmidt Response Email, May 29, 2007.
[30] Public Hearing Transcript, at 108-109 (Tammen).

39. Anne Pyhala asked whether landowners are compensated when there is eminent domain. Gary Ostrom, on behalf of the Applicants, replied that generally GRE pays landowners 85 percent of fee value.[31]

40. At the Public Hearing, the Applicants noted that the Citizens Route West (Alternative C) was "satisfactory." The Applicants continued to support their Proposed Route at the public hearing as having a low impact on residences, it would use boundary lines where not following existing corridors, it could be built in the Applicants' time frame, and it is cost-effective.

41. During the Public Hearing, Gary Skogman of the Vermillion Penguins Snowmobile Club presented another proposed route ("Possible Option 3") for the line, which was admitted to the record as Public's Exhibit 40. This proposal, which would route much of the power line slightly east of the snowmobile trail, and west almost a half mile from Alternative C (the Citizen's Group – West line), purports to cross less private land (and utilize more public land) than any route considered in the Environmental Assessment. The proposal was submitted to the Department of Commerce on March 7, 2007, ahead of the deadline set for such submissions. Mr. Storm acknowledged that he did not perform an EA on this route. He understood that "Possible Option 3" crossed over private lands whose owners were not represented in the Citizens Group meetings that produced Alternatives B and C, the third proposal came too late for a meeting of the stakeholders, and he believed the process was, at that point, "locked in" to evaluating the Applicants' proposals and Alternatives B and C.[32]

42. Mike Indihar noted that there was no economic mitigation planned for the losses to tourism from the loss of the Iron Ore Trial to snowmobiling.[33] He also objected to the assessments between the several routes, stating:

> It does not balance objectively the points pros and cons of the routes overall. It reads more of a proposal for Minnesota Power and GRE to sell their route forward. It does not state on their assessment sheet up there that their proposed route splits 11 parcels in half. It doesn't go along the edge. It doesn't border properties. You're not eminent domaining and buying an edge of a property somewhere. No, you're going right down the middle of their properties. You talk to some people in here, like Mr. Vraa and some other ones, you're going to take out his tree plantation, much like, was it Mr. Lamppa, whoever was losing his pines. They're going right down the middle. They're not edge properties. They're going right down the middle. There's something in their document that they say Minnesota Power is going to work with the landowners and avoid doing these things. They're not working with the landowners. They're not avoiding anything.[34]

[31] Public Hearing Transcript, at 110-119 (Pyhala, Ostrom).
[32] Public Hearing Transcript, pp. 72-84.
[33] Public Hearing Transcript, at 93 (Indihar).
[34] Public Hearing Transcript, at 87-88 (Indihar).

43. William Meehan also noted that the Iron Ore Trail Segment of the Proposed Route has the effect of dividing landowners' properties in half. While that may be acceptable to a landowner for a snowmobile trail, Meehan maintained that the impact of an HVTL along the same path has a dramatically different effect on the value and uses of the affected property.[35]

44. Jennifer and Mark Scherle described the current aesthetic appeal of the Iron Ore Trail. The photographs they submitted demonstrate that substantial woodland growth is present in the immediate vicinity of the Iron Ore Trail that would need to be cleared for the Proposed Route of the HVTL.[36]

45. Pamela Jenson noted that the presence of the snowmobile trail has led to a number of problems with trespass on her property. She asked if the Applicants would provide fencing or gates if her land was chosen for the route.[37]

46. On February 20, 2007, the Town Board of the Township of Kugler voted to request MP to construct its HVTL on tax-forfeit land and that the HVTL not be built on the Iron Ore Trail.[38] On May 22, 2007, the Saint Louis County Board of Commissioners voted to support an alternative route that did not follow the former DM&IR railroad grade.[39]

47. Denny Bone, of the St. Louis County Land Department, provided clarification on the citizens' committee and the role of the County Land Department. He also emphasized that the purpose of County Resolution was to identify the aesthetics and uniqueness of the snowmobile trail and note that the County preferred for the route to cross publicly-owned land.[40]

48. Stephen Abrahamson, the Mayor of Tower, noted that the Tower City Council had passed a resolution urging the Applicants to use one of the alternate routes for siting the HVTL.[41] Abrahamson noted that tourism is a very significant portion of the economy in the Tower/Embarrass area. He indicated that preserving scenic areas for recreational uses is an important part of maintaining tourism.[42]

49. Paul Knuti agreed about the need for tourism destinations in the area, stating:

> But I want to state that we need to recognize that the system of snowmobile trails we have in northeast Minnesota is a special resource. And this is an important economic driver for our area, and the Iron Ore trail

[35] Public Hearing Transcript, at 106-107 (Meehan).
[36] Scherle Comment Photographs, Public Ex. 23.
[37] Public Hearing Transcript at 120-121 (Jensen).
[38] Public Exhibit 36.
[39] Saint Louis County Board of Commissioners Resolution No. 327.
[40] Public Hearing Transcript, at 150-156 (Bone).
[41] Public Hearing Transcript, at 129-130 (Abrahamson).
[42] Id. at 130-131.

> is an integral part of that system, and we should do everything we can to keep it in tip-top shape and avoid any visual pollution.
>
> I might add that the Iron Ore Trail is also very likely to be the siting of the Mesabi bicycle trail. And this in itself is another very significant recreational driver for our area. The Mesabi bicycle trial is a 130 mile trail which will extend from Grand Rapids to Ely. About 90 miles of that trail has already been completed. The section from Embarrass to Tower is, good or bad, one of the last sections to be completed, and very likely will use the Iron Ore Trail. They will share use of the right-of-way with the snowmobile trail.
>
> So the same thing that applies in terms of maintaining a high quality experience for people who are snowmobilers, the same thing applies to people who are on bicycles or hikers who are using the trail. Now, what we've done by permitting the snowmobile trail to combine with biking use is we now have a 12-month recreational experience, 12 months, not just the December to April 1st season for snowmobiling. So I want to underscore the fact that we have a really significant economic fact driver here that we need to preserve and nurture.[43]

50. Mr. Knuti also objected to: (1) use of a portion of the Iron Ore Trail for the transmission line; (2) siting of the transmission line relative to the Evangelical Free Church of Embarrass; and (3) siting of the transmission line in relation to the Height of the Land Portage at the south end of the transmission line.[44] Robert Pugleasa, a board member of the Evangelical Free Church of Embarrass, expressed concern about the transmission line being within 50 feet of the church.[45] The Applicants responded that a preliminary study from the 106 Group[46] indicated there would be no impact on the Height of the Land Portage from the transmission line or the Embarrass Switching Station.[47]

Summary of Written Comments

51. Michael Morley suggested that the routing factors of Minn. Rule 4400.3150 were not correctly considered in the Application. Morley also disagreed with particular portions of the EA and expanded on current conditions along the Iron Ore Trail, as follows:

> 1. "Due to the close geographic proximity, all three HVTL routes entail similar impacts on the human and natural environment." This is so far from reality I hardly know where to begin. The proposed route runs

[43] Public Hearing Transcript, at 133-134 (Knuti).
[44] Public Hearing Transcript, at 132-145 (Knuti).
[45] Public Hearing Transcript, at 146-149 (Pugleasa).
[46] The 106 Group is a St. Paul-Based Cultural Resource Management Firm engaged by the Applicants to study the area.
[47] Public Hearing Transcript at 139-142; Applicants' Exhibit 44.

through actively used, inhabited, private lands with a snowmobile trail that has been enjoyed by thousands of snowmobilers, while the alternative route avoids nearly all human conflicts. Concerning the natural environment, the proposed route closely follows Fuller's Creek for over a mile and crosses it numerous times while the alternative route avoids the creek totally and passes through large tracts of recently logged land.

2. The EA describes the proposed route as being in a "developed" area. The development in question is a 120+ year old rail grade that hasn't seen a train in nearly 30 years. It is now cleared only enough to allow the snowmobile trail to pass through and would almost certainly be grown over itself if not for the trail. Furthermore, it is my understanding that sound engineering practices dictate as few curves and kinks in the route as possible. This old grade is not straight and its turns are long and sweeping. Will these curves be incorporated into the alignment and if not, why are the areas in which the line will deviate from the course of the grade not mentioned as "Greenfield" route segments. The amount of new clearing required along the proposed route is greatly understated in the environmental assessment.

3. "The alternative routes do include a new crossing of the West Two River" According to every map I have seen and my familiarity with the area, either route would cross the West Two one time. The environmental assessment does not mention where the extra crossing on the alternative route would be and I have no idea where it might be.

On the subject of the proposed versus the citizens' route, page 7 of the environmental assessment states "For new cross country routes, the preference is to follow survey or property lines provided the project termini are oriented in a north to south or east to west alignment." This project fits the criteria and the citizens' route does follow survey and property lines, whereas the proposed alignment totally disregards them.

Concerning the socioeconomic impact in section 4.1 on pages 17-19 of the EA, the only long term beneficial impact listed is "an increase to the county's tax base resulting from the incremental increase in revenue from utility property taxes." While this is true, is it not also true that a transmission line through private property will result in lower property values, resulting in a decrease to the county's current tax base? Would a route through tax-forfeit property not result in the larger tax base without the negative effect on property values?

This section also mentions the tourism industry in the Tower area. Certainly any project that has such a negative effect on a key link in the

area's snowmobile trail system would also have a negative effect on the local tourism industry.[48]

52. Pamela Jenson urged that, if the Proposed Route is adopted, the poles for the HVTL be "plopped dead center in the middle of the grade."[49]

53. Dennis and Kathleen Hoppa noted that they are third-generation landowners; the first generation having homesteaded the property during the administration of the late President Theodore Roosevelt. They urged that the following criteria be applied in choosing between the competing routes and approving the option that:

a. impacts the fewest possible private landowners;

b. preserves esthetic values;

c. does not split landowners forties unless no alternative is available; . . .

d. work with affected landowners to come to an equitable agreement; and,

e. does not change the snowmobile route on the present railroad corridor.[50]

54. Mr. Skogman submitted a comment on behalf of Reinhold Johnson to propose an alteration to the Citizens Route West (Alternative C). The alteration (hereinafter "the Reinhold Johnson Adjustment") as submitted on a map provided with the comment, would alter the due south leg of the route to make a 45 degree turn to avoid the Johnson property. The line would then make a 90 degree turn to rejoin the route, along the southwest leg of Alternative B.[51] Steven Lotz advocated adoption of the Reinhold Johnson Adjustment, and asserted that either of the Citizen Alternative Routes would be an improvement with respect to the Proposed Route.[52]

Regulatory Considerations in Route Permitting

55. When issuing a route permit, the Commission has been directed to consider specific impacts and make particular evaluations of the potential effect of the proposed HVTL. Under Minn. Stat. § 216E.02, the Commission must be guided by the following responsibilities, procedures, and considerations:

(a) 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 baseline studies,

[48] Morley Email Comment, June 4, 2007.
[49] Jenson Email Comment, May 24, 2007.
[50] Hoppa Email Comment, May 31, 2007.
[51] Skogman Comment, May 30, 2007.
[52] Lotz Comment, May 31, 2007.

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;

(b) 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;

(c) Evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;

(d) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;

(e) Analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;

(f) Evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route by accepted;

(g) Evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2;

(h) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;

(i) Evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

(j) 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;

(k) Evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved;

(l) When appropriate, consideration of problems raised by other state and federal agencies and local entities;

(m) If the board's rules are substantially similar to existing regulations of a federal agency to which the utility in the state is subject, the federal regulations must be applied by the board;

(n) No site or route shall be designated which violates state agency rules.[53]

56. In addition to the foregoing considerations, the Commission is governed by Minn. Rule 4400.3150, which requires that the Commission be guided by the following specified siting and routing considerations:

(a) Effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

(b) Effects on public health and safety;

(c) Effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

(d) Effects on archaeological and historic resources;

(e) Effects on the natural environment, including effects on air and water quality resources and flora and fauna;

(f) Effects on rare and unique natural resources;

(g) Application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

(h) Use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

(i) Use of existing large electric power generating plant sites;

(j) Use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

(k) Electrical system reliability;

(l) Costs of constructing, operating and maintaining the facility which are dependent on design and route;

(m) Adverse human and natural environmental effects which cannot be avoided; and

(n) Irreversible and irretrievable commitments of resources.

57. The Application and the EA provide sufficient information for the Commission to assess the proposed route and alternatives using the criteria set out above. Specific considerations that merit more attention in determining a particular route are discussed below.

[53] Minn. Stat. § 216E.02, subd. 7.

Impact on Human Uses

58. The Applicants described their estimate of the effects of the proposed Project on human settlement are in Section 6.2 of the Application. The EA has a similar discussion in Section 4 of the EA. Neither the Proposed Route nor the proposed alternatives and associated substations result in any displacement of existing residences. The Iron Ore Trail segment is characterized by residences near the proposed HVTL and an existing recreational use. The proposed HVTL will have an impact on the continued use of those residences. The proposed HVTL on the Iron Ore Trail Segment will have a significant impact on recreational uses of that trail.

59. Visual impacts are discussed in Section 4.3 of the EA. Except for portions of the line that replace existing distribution lines, new right-of-way is required and therefore will create a new visual impact. The Applicants maintain that visual impact will be largely the same for each of the alternatives. The existing use of the Iron Ore Trail means that the degree of visual impact will be greater on the Iron Ore Trail segment than on either of the Citizens Routes. MP and GRE will determine specific location of structures, right-of-way and other disturbed areas along the authorized route to reduce the visual impact on landowners. Routing the HVTL along either Citizen Route minimizes or eliminates the impacts on human settlement and on recreational uses.

Impacts on Public Health and Safety

60. The proposed Tower Project will be constructed to comply with the National Electrical Safety Code (NESC). The issue of electromagnetic fields (EMF) was discussed in the EA in Section 4.13. EMF, which are present around any electrical device have been the subject of much discussion regarding potential human health effects. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors. Both magnetic and electric fields decrease in intensity with increasing distance from the source.

61. Currently, there is insufficient evidence to demonstrate a causal relationship between EMF exposure and any adverse human health effects. On the basis of the most current information available and expert advice of the Interagency Workgroup on EMF led by the Minnesota Department of Health, no Minnesota regulations have been established pertaining to magnetic fields from HVTLs. FIX CITE (EA, Section 4.13, p. 40.) No significant impacts on human health and safety are anticipated from the Tower Project.

62. Normal construction noise can be expected during the installation of transmission line structures. These operations will be of short duration and conducted during the daylight hours to minimize any residential impact. The noise impacts are the same regardless of the route selected. (EA. Section 4.3) During operation, audible noise occurs due to point source corona. The noise level should be essentially imperceptible at the nearest household. Under the worst-case scenario the noise level

may approach 15 dB(A) at the right-of-way edge, which is well below the most restrictive Minnesota noise control rules. (EA, Section 4.3.)

63. Interference with existing television or radio is typically not a problem with 115 kV transmission lines. The proposed transmission facilities will be designed to industry standards to avoid interference with reception. If a new interference occurs outside of the right-of-way the Applicants will be responsible to rectify the situation. (EA, Section 4.14.)

64. Approximately 14 miles of new right-of-way will be required. That right-of-way will either be obtained through individual negotiations between GRE and the landowner, or through eminent domain.[54]

Impacts on Land-based Economies

65. The impacts on land-based economies arising from the proposed HVTL are discussed in Section 4.6 of the EA. The Tower Project will result in a short-term infusion of capital and employment by workers or establishments near the proposed corridor. Workers may make minor purchases from the area during construction. By providing local customers with a reliable and efficient future energy supply, the anticipated long-term impacts are positive for future growth in the Project area. The proposed route for the HVTL does not cross any prime agricultural, forestry or mining property (Application, Section 6.7). As discussed below, Citizens Route – West would have a similar impact on land-based economics.

66. In conjunction with the impacts on recreational opportunities, the only negative impact arises from the reduction in tourism that would result from the reduced utility or loss of the Iron Ore Trail. The negative impact on the aesthetics of that segment can be expected to reduce tourism. No such impact results from placement of the route on either Citizens Route.

67. The EA notes that a significant land-based resource is timber harvesting, stating:

> Forestry is the predominant land use throughout the region and along the proposed route and substation/switching station sites. Public and private forest lands are managed for timber production and growth management practices. Clear-cutting and selective timber management practices are common. Forested wetlands are often harvested in the winter when access is most optimal. The proposed route and substation/switching station sites transect or are adjacent to timber production tracts throughout the entire project area.
>
> New right-of-way required for the proposed HVTL would result in permanent conversion of forested land uses (including forested and shrub-dominated wetlands) to a linear cleared and maintained right-of-way. The nature of this impact is anticipated to be minimal and no effects on timber production,

[54] Public Hearing Transcript, at 113-117 (Ostrom).

management, or harvesting are anticipated. Timber harvesting and production are expected to continue uninterrupted during and after construction of the right-of-way and no economic impacts on timber harvesting or measurable timber losses are anticipated as a result of the project.[55]

Impacts on Archaeological and Historic Resources

68. The proposed Tower Project (GRE's funding portion) may require permitting from the United States Army Corps of Engineers (USACE). Therefore, the applicants would comply with all applicable federal mandates, in particular Section 106 of the National Historic Preservation Act of 1966, as amended. The proposed project also requires permitting from the Commission, and therefore needs to comply with applicable state mandates governing cultural resources. Because there is federal involvement in this project, consultation with the USACE (if federal permitting is required), the Minnesota State Historic Preservation Office (SHPO), and the federally recognized Native American Tribes is required.

69. An initial review of the proposed HVTL route by the SHPO determined that "no properties eligible for or listed on the National Register of Historic Places (NRHP) will be affected". Subsequently, in September 2006, a letter from a concerned landowner sent to MP and the SHPO indicated that the proposed project might potentially impact the NRHP-listed Height of Land Portage historic district. Therefore, the SHPO is re-examining the Project. In addition, the federally recognized Bois Forte Tribe and the 1854 Treaty Authority (an inter-tribal natural resource management agency that manages the off-reservation hunting, fishing and gathering rights of the Grand Portage and the Bois Forte Tribe of the Lake Superior Chippewa), have indicated an interest in the proposed project.

70. The project area for the cultural resources review includes all areas where construction or other ground-disturbing activities might take place. It includes the 300-foot wide route for the proposed 115 kV transmission line (100 feet of which would constitute the right-of-way), a five-acre area around the proposed substation and switching station located at either end of the proposed HVTL route, and a 300-foot wide route for the two proposed 46 kV circuits that extend from the proposed Tower Substation site at the northern end of the proposed route to the existing MP 46 kV Line #32.

71. The purpose of the cultural resources assessment is to assess the project area's potential for containing previously unidentified archaeological resources, as well as conduct background research to identify whether any recorded properties present within the proposed project area are listed on or eligible for the NRHP.

Portage Research

72. Research indicated that two cultural resource studies had been conducted within the project area. Both studies were associated with the Height of Land Portage

[55] Exhibit 13, Environmental Assessment, at 24-25.

(also known as Hauteur de Terre Portage and Portage of Twelve Poses), which is an NRHP-listed historic district (Lamppa and Lamppa n.d.; Vogel and Stanley 1991). The exact date of the initial study is not known; however, it was prior to 1991, which is the date of the NRHP nomination form for the district. Marvin and Gary Lamppa of the Iron Range Historical Society and Iron Range Railroad and Railway nominated an area known as the Sabin Lake Historic Area. This area contains portions of the Height of Land Portage leading from Sabin Lake, passing the Embarrass River Falls, to a segment of the river that is more navigable (Lamppa and Lamppa n.d.). Although the NRHP nomination was prepared for the Sabin Lake Historic District, it was not listed on the NRHP.

73. A second study, completed by David G. Stanley and Robert C. Vogel in 1991, field checked the Height of Land Portage from the northern terminus at the Pike River to the southern terminus at Sabin Lake (Vogel and Stanley 1991). Using archival data, they were able to follow the portage, mapping the route on a United States Geological Survey (USGS) topographic map and identifying the integrity of the portage. They determined that segments of the portage still contained high integrity and were even visible from the ground, while other portions, specifically within Section 31 in T60N, R15W, and Sections 25 and 36 in T60N, R16W, have been highly disturbed due to development and logging. Additionally, Vogel and Stanley demonstrated the historical association of the portage to pre-contact and post-contact exploration, fur trade, and settlement to such groups as the Eastern Dakota, Ojibwe, French, British, Initial United States Occupation (1630s–1837), and to Indian Communities and Reservations (1837–1930s). Thus, the Height of Land Portage was nominated to the NRHP in 1991 and was listed in 1992 under NRHP Criteria A and D.

74. Although it has not been thoroughly investigated archaeologically and it is not officially designated as an archaeological site, the Height of Land Portage historic district (SL-WHT-002, SL-EMB-160, and SL-PIK-039), which transects the current project area near the southern terminus, has the potential for containing as yet unidentified archaeological resources associated with the portage, such as the remains of bivouacs and caches. For this reason, the historic district was listed on the NRHP under Criterion D for its potential to contain archaeological resources that may significantly contribute to the knowledge of this historic district. A brief explanation of the portage's use and significance is provided above. No other sites have been recorded (confirmed) or reported (not field checked) within the current project area.

75. One site has been recorded outside of the current project area, but within the one-mile study area. Site 21SL836 is considered a Euro-American occupation consisting of moderately disturbed structural ruins and artifact scatters, representing a homestead dating to the post-contact Railroads and Agricultural Development Period (1870s-1940). This site is located approximately 0.7 mile southwest of the proposed Embarrass Switching Station site.

76. One NRHP-listed architectural history property has been recorded within the current project area. The Height of Land Portage historic district (SL-WHT-002, SL-EMB-160, and SL-PIK-039) transects the current project area near the southern

terminus of the proposed HVTL route. A brief explanation of its use and significance is provided above. A second NRHP- listed architectural history property, the Tower Fire Hall, is located outside of the project area but within the 0.25 mile area of potential effect (APE).

77. The project area is transected by 5.5 miles of the former DM&IR, which is currently being used as a recreational trail (Iron Ore Trail). The project area along this railway was likely previously disturbed during its construction and is therefore considered to have low potential for intact pre-contact archaeological resources.

78. The project area transects 7.6 miles of nationally inventoried wetlands, portions of which are located adjacent to the former DM&IR. The areas within and immediately surrounding these wetlands are therefore considered to have low potential for pre-contact archaeological resources.

79. The remaining portions of the project area consist of forested areas that appear to be largely undisturbed, are in proximity to Sabin Lake, Lake Vermilion, Embarrass, Pike, Two, and East Rivers and associated wetlands, and are topographically prominent. These remaining portions of the project area are considered to have moderate to high potential for intact pre-contact archaeological sites.

80. Based on the locations of the Height of Land Portage historic district and the DM&IR, there are a number of areas that have moderate and high potential for post-contact archaeological sites. Although the exact nature of the archaeological deposits along the Height of Land Portage is unknown, the portions of the project area that come in close proximity to the portage (Embarrass Switching Station) were treated as having high potential for intact archaeological resources. This is largely due to its NRHP listing and the potential to glean new information from archaeological sites along the portage, which may significantly contribute to knowledge of this historic district.

81. A Phase I archaeological survey, consisting of pedestrian survey in areas with good surface visibility and shovel testing in areas with poor surface visibility, was conducted (in November 2006) within and immediately adjacent to the proposed footprint of the Embarrass Switching Station. The intent was to locate any unknown archaeological resources, especially those associated with the Height of Land Portage. In addition, a visual reconnaissance was completed within the vicinity of the proposed switching station in the area of the historically documented portage route, to attempt to identify and/or relocate the portage route and any other above ground archaeological features.

82. At the time of the archaeological survey, mixed deciduous and coniferous forest with dense underbrush and leaf litter produced surface visibility near 0 percent. As a result, archaeological investigations in the vicinity of the proposed switching station utilized subsurface testing at 15-meter (m) (49 ft.) intervals within an area of approximately 4.6 acres (149 m by 132 m). A total of 55 shovel tests were placed within this area and were excavated into sterile subsoil. All sediments were screened through 1/4-inch screen and examined for pre-contact and post-contact period artifacts. No

artifacts were identified within the shovel tests in the vicinity of the proposed switching station. Based on a visual reconnaissance and field check of historical documentation for the portage route with a global positioning system, the vicinity of the proposed Embarrass Switching Station no longer exhibits any visual indicators of the existence of the portage.

83. Shovel tests within the proposed switching station footprint in the vicinity of the portage revealed no soil disturbances in this area. It is possible that this segment of the portage fell out of use due to environmental factors related to the Embarrass River, or possibly it was not accurately illustrated on historic documentation. Previous investigations along the portage south of the proposed switching station site identified segments of the portage that coincided with portage surveys by Stanley and Vogel (1991) and Birk (1976). Both Stanley and Vogel (1991), and Birk (1976), acknowledge that the segment of the portage that transects the proposed switching station site is likely part of the portage as documented by land surveys in the 1820s. However, Birk (1976) also provides an alternate route that parallels the Embarrass River and connects with the river in the vicinity of the present 115 kV power line corridor. This segment, which exists in present day, may have been utilized more extensively due to its shorter length, and may have replaced the longer overland route that is documented in the 1820s surveys.

84. The negative results of the current survey, the lack of soil disturbance, and the presence of an alternative trail, indicate no archaeological evidence for the portage in the vicinity of the proposed Embarrass Switching Station.

Railroad Research

85. There is potential for undisturbed archaeological deposits associated with the DM&IR, as well as its predecessor, the Duluth and Iron Range Railroad (D&IR). The D&IR between Tower and Embarrass was constructed between 1886 and 1888 (Prosser 1966); however, it is illustrated on an 1882 composite map for Townships 59N and 60N, Range 15W (Trygg 1964), as well as the 1916 St. Louis County plat map (Hixson 1916) and USDA-ASCS 1936–1939 aerial photographs. The location of the railroad remained the same on the 1981 USGS Biwabik NE Quadrangle; however, the name had changed to the Duluth Missabe and Iron Range Railway in 1937 (Prosser 1966).

86. As discussed above, the DM&IR is currently being used as a recreational trail (Iron Ore Trail). However, gauging from current aerial photographs (2003–2004), the former railroad grade appears to be intact and is overgrown with vegetation in areas. Thus, the DM&IR has the potential to contain post-contact archaeological deposits greater than 45 years of age associated with the transportation of logging and mining products. Specifically, these locations would include railroad service buildings and switching areas, where there would be higher potential to recover artifacts associated with railroad and logging activities. One such switching area was observed within the project area on the USDA-ASCS 1936–1939 aerial photographs, south of the

Town of Kugler in Section 8, T61N, R15W. Such a location may contain archaeological deposits associated with 75 years of railway activities.

87. Post-contact archaeological deposits associated with the logging industry are also possible. Because much of St. Louis County is covered by dense forest, archaeologically sensitive areas for logging activity can be established through the use of historical maps and aerial photographs. These may provide visual signs of roads or trails within the project area. Because the logging industry was based on the removal and movement of timber, historic roads would be a good source for locating various types of timber-related archaeological sites. Such archaeological properties would include habitation (various types of logging camps), transportation (roads, railroads, dams, bridges), and complex sites (large combinations of the two). Random find spots associated with timber cutting or removal are less likely and more difficult to locate; however, the likelihood for locating such sites is higher within proximity to logging roads and trails (Birk 1998).

88. Other inventoried and unidentified properties within the 0.25 mile APE, including the DM&IR, have unknown historical values and may be considered eligible for listing on the NRHP. Properties over 50 years of age within the APE, specifically the former DM&IR, were evaluated to determine their eligibility for listing on the NRHP. Three properties over the age of 50 years are located within the recommended APE.

89. The DM&IR is located within an approximately five-mile stretch of the project's APE. This rail line has been considered eligible for listing on the NRHP in previous studies conducted by the MNDOT (E. Abel to D. Gimmestad, letter, December 5, 2004. On file at the Minnesota Department of Transportation [S.P. No. 38-090-01].)

90. A house at 7976 County Road 364 includes a circa-1950 dwelling and a modern garage. This property is recommended as having low potential to be eligible for listing on the NRHP.

91. A small complex at 7965 County Road 364 includes a circa-1920 dwelling, a small barn, a shed, and a garage. The removal of the front entry, replacement of windows, and application of vinyl siding have significantly altered the house. This property is also recommended as having low potential to be eligible for listing on the NRHP.

92. The DM&IR Railroad line from Two Harbors to Tower is considered to be eligible for listing on the NRHP. This line was built as the main line of the D&IR Railroad in 1883–1884. The D&IR line was crucial as the shipping port for iron ore and to the development of the Vermilion Range, and to the continued economic viability of both these areas (E. Abel to D. Gimmestad, letter, December 5, 2004, on file at the Minnesota Department of Transportation [S.P. No. 38-090-01].) It is eligible for the NRHP under Criterion A for its significance in the areas of Commerce and Transportation and within Minnesota's Iron Range historic context. Within the project area, the DM&IR line is surrounded by new-growth pine and other trees and has been converted into a recreational snowmobile trail. Its continued use as a linear

transportation corridor enhances its historical integrity and the segment is recommended as a contributing segment to the overall line.

93. Within the project area, the DM&IR line tracks have been removed and the bed is now used as a gravel snowmobile trail. New growth trees are planted close to the railroad bed, creating a change from its historic appearance, where the line would likely have had a wider right-of-way and have included a landscape more recently cleared of timber. Despite the changes to the setting and materials, the rail line retains its sense of direction and route. Subject to Route Permit approval and final engineering design, the proposed transmission line alignment would be placed on the east side of the railroad bed, approximately 50 feet from the centerline. Utility lines running parallel with railroads are not out of character for these resources and the removal of vegetation near the railroad would not be uncharacteristic of the historic setting. Because the proposed transmission line would have no impact on the primary characteristic of the line—its route—The 106 Group recommends a finding of no adverse effect to this historic resource.

94. The project area lies within the "1854 Treaty Area," otherwise known as the Ceded Territory. As part of the 1854 Treaty Agreement, the Chippewa Indians of Lake Superior and the Mississippi ceded this area to the United States Government. The treaty protected the Bands' right to hunt and fish in the Ceded Territory. In 1988, the Fond du Lac, the Bois Forte, and the Grand Portage Bands of the Lake Superior Chippewa negotiated an agreement, which was ratified by the Minnesota State Legislature, stating the Bands would exercise limited treaty rights within the Ceded Territory in exchange for a yearly monetary payment. Today, those treaty rights are implemented by the 1854 Treaty Authority, an inter-tribal natural resource management agency that manages the off-reservation hunting, fishing, and gathering rights of the Grand Portage and the Bois Forte Tribe of the Lake Superior Chippewa (Chippewa Treaty 1854). Both the Bois Forte Tribe and the 1854 Treaty Authority have indicated an interest in the proposed Project and informal consultation with them is ongoing.

95. On October 11, 2006, MP/GRE and The 106 Group met with Rose Berens, the Bois Forte Tribal Historic Preservation Officer (THPO) and Director of the Bois Forte Heritage Center and Cultural Museum; Bill Latady, Curator at the Bois Forte Heritage Center and Cultural Museum; and Dave Woodward, the 1854 Treaty Authority Cultural Resources Specialist, to discuss the preliminary results of the cultural resources assessment and attempt to identify areas of cultural significance within the Project that may need to be investigated during future stages of survey work. Rose Berens and David Woodward agreed with The 106 Group's methodology for determining areas of high and moderate archaeological potential, but recommended that the Phase I survey to be conducted within the project area include a systematic pedestrian survey of the entire project area (excluding areas inundated with water), to attempt to locate any above ground features that may not be depicted on historical maps or aerial photographs. Rose Berens also invited The 106 Group ethnographer and archaeologists to meet with elders and spiritual leaders for the Bois Forte Tribe in an attempt to identify other areas of traditional cultural significance that may be located within the project area. The 106 Group also extended an open invitation to any member

of the Bois Forte Tribe and 1854 Treaty Authority to visit the project area during any archaeological fieldwork scheduled in 2006 and spring 2007.

96. On October 17, 2006, MP and The 106 Group met with Dennis Gimmestad, the SHPO Review and Compliance Officer; David Mather, the SHPO National Register Archaeologist; and Brad Johnson, the USACE St. Paul District Archaeologist, to discuss the preliminary results of the cultural resources assessment, the recommendations made by the Bois Forte Tribe and the 1854 Treaty Authority in the October 11 meeting, and determine the appropriate level of survey effort for this project. Concerning archaeology, David Mather also agreed with The 106 Group's recommendations of areas that have high or moderate archaeological potential, and agreed with the recommendation of the Bois Forte Tribe and 1854 Treaty Authority that a systematic pedestrian survey of the project area be conducted. In addition, Mather suggested that the Phase I survey of the proposed Embarrass Switching Station site, which is in proximity to the NRHP-listed Height of Land Portage, and a visual reconnaissance survey of the area surrounding the proposed switching station be conducted (completed November 2006).

97. Regarding architectural resources, Dennis Gimmestad recommended that the proposed 0.25-mile APE be re-examined and narrowed, if possible. Once completed, the structures located within the revised APE should be examined to determine if a Phase I architectural history survey is needed. Gimmestad also recommended that the former DM&IR roadbed be evaluated to determine its eligibility for listing on the NRHP. If eligible, the potential effects to the property should be analyzed. In addition, Gimmestad recommended an analysis of potential effects the proposed project may have on the cultural landscape of the Height of Land Portage.

98. A Phase I archaeological survey of the project area was conducted in spring 2007. This survey included a pedestrian survey of the entire corridor (excluding areas inundated with water). Subsurface testing was conducted in areas identified during the pedestrian survey as having high potential to contain archaeological sites, and that will or may be impacted by construction activities.

99. The preliminary Summary Report of the 106 Group, dated May 22, 2007 and submitted into the record as Exhibit 44, stated: "The negative results of the current archaeological survey, the lack of soil disturbances and the presence of an alternative trail indicate there is no archaeological evidence for the portage in the vicinity of the proposed Embarrass Switching Station."[56]

100. The Applicants have undertaken to make every effort to avoid impacts to identified archaeological and historic resources when installing the HVTL on the approved route. In the event that an impact would occur, the Applicants will consult with SHPO and invited consulting parties (particularly the Bois Forte and other state and federal permitting or land management agencies). While avoidance of the resource would be the preferred action, mitigation for project-related impacts on NRHP-eligible

[56] Ex. 44, Summary of Results.

archaeological and historic resources may include an effort to minimize project impacts on the resource and/or additional documentation through data recovery.

Impacts on the Natural Environment

101. This project is located in three rural townships (EA, Section 1.2). Hydrologic features in this area include creeks, streams, wetlands, and riparian areas. The route proposed by the Applicants would cross Fuller Creek, a tributary to a designated trout stream, and the West Two Rivers. (EA, Section 4.8.) If approved, the Applicants would apply to the MDNR for a license to cross these waters and wetlands. Impacts to wetlands and waters will be short-term and limited to placement of poles, which should be flexible enough to avoid sensitive areas.

102. Vegetative communities within and surrounding the proposed HVTL routes and substation sites are primarily comprised of forested uplands, forested wetlands, and herbaceous wetland communities common to northeastern Minnesota. Nearly all of the forest cover is second growth and much of it is subject to timber management including clear-cutting, plantings, and growth management practices. MP and GRE have indicated that they will work with affected residents to minimize the need to remove or trim nearby vegetation, although the company will have to do what is necessary to safely construct and maintain the line regardless of the route selected. In other places, vegetation may be planted to alleviate some of the loss of mature tree growth.

103. Anticipated impacts of the Tower Project on water resources include wetland impacts, minor floodplain encroachments, and erosion/sediment control. (Application, Sections 6.5.2 and 6.5.6). Wetland impact avoidance measures that will be implemented during design and construction of the transmission line will include spacing and placing the power poles at variable distances to span and avoid wetlands. Unavoidable wetland impacts as a result of the placement of poles will be limited to the immediate area around the poles. Much of the construction in wetland areas will occur in the winter to minimize impacts. If necessary, wooden mats or the Dura-Base Composite Mat System will be used to protect wetland vegetation. All requirements of the USACE, MDNR (Public Waters/Wetlands), and St. Louis County (wetlands under the jurisdiction of the Minnesota Wetland Conservation Act) will be met.

104. Impacts to floodplains, in particular the placement of power poles of structures, will be avoided to the maximum extent by placing these structures above the floodplain contours outside of the designated floodplain, and by spanning the floodplain with the transmission line. Because proposed construction activities at the substation and switching station will result in the disturbance of one acre or more of soils, a National Pollutant Discharge Elimination System (NPDES) stormwater permit will be required. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared that will include erosion control plans and BMPs that will be implemented. To minimize contamination of water due to accidental spilling of fuels or other hazardous substances, all construction equipment would be equipped with spill cleanup kits. The wood poles used for this Project will be pretreated with pentachlorophenol or creosote to increase the wood durability and life expectancy of the poles. Degradation of these

wood preservatives occurs through aerobic soil degradation, aerobic and anaerobic aquatic degradation, and photolysis. However, the respective half-life for these processes range from less than 20 minutes to 63 days, the preservatives are not very mobile in soil or water, and are subject to biodegradation to its elemental state near the pole. Therefore, there will be no long-term impacts from the use of these preservatives.

105. The Tower Project will have no significant adverse air quality impacts (Application, Sections 6.5.1 and 6.5.6; EA, Section 4.11). During construction of the Project, there will be emissions from vehicles and other construction equipment and fugitive dust from the right-of-way clearing. Temporary air quality impacts caused by the proposed construction-related emissions are expected to occur during this phase of activity. (EA, Section 4.11.) There will be no impact on air quality during operation of the lines. No mitigation measures for air quality are necessary for the construction of the transmission line. (EA, Section 4.11.)

Impacts on Rare and Unique Natural Resources

106. The MDNR Natural Heritage Information System (NHIS) was reviewed for potential occurrences of state-listed rare, threatened, or endangered species and sensitive natural resources within the proposed HVTL route and substation sites (EA, Figure 4-4). The NHIS was initially reviewed in 2005 for the Certificate of Need process. The NHIS was updated after the 2005 review, resulting in a renumbering of the occurrences to a new code system and some new additional occurrences in the region. The MDNR requested that the nature and location of the NHIS occurrences be kept confidential to protect the species or features from harm or destruction.

107. The 2006 NHIS database included several occurrences in close proximity to or within the proposed HVTL route. There are a total of nine NHIS occurrences within a half mile radius of the proposed route and substation sites. The first two occurrences are located in downtown Tower (Occurrences EO ID #4226 and #3904). Occurrence #4226 is a state-listed Species of Special Concern (SSC) plant species located in a woodlot in town outside of the proposed HVTL route and substation sites. Occurrence #3904 is a state-listed endangered plant occurring in a wetland basin north of the proposed route and substation sites.

108. One NHIS occurrence is located in Kugler Township on the east side of Highway 135 and west of the proposed route (Occurrence EO ID #14832). This occurrence was previously identified in the 2005 Certificate of Need Application and is a marsh bird species that is not listed under the Minnesota Endangered Species statutes. The species, the American bittern (Botaurus lentiginosus) was heard vocalizing from a wetland during the 2005 field reconnaissance in a nearby wetland.

109. A cluster of four NHIS occurrences are present further to the south in Kugler Township north of the County Highway 26 crossing (Occurrences EO ID #5451, #5750, #4594, and #19011). All of these occurrences are SSC or unlisted plant species occurring in a publicly-owned wetland (local government-owned) known as the

Wahlsten Bog Peatland. The occurrences date back to the 1950s and there is no recent information or updates on the status and specific locations of these occurrences.

110. The last two NHIS occurrences are located near the southern terminus of the proposed route in White Township. Occurrences #22895 and #22997 are both SSC Botrychium fern species that prefer disturbed soils. These were growing in an abandoned logging road when they were documented in 1997.

111. Regarding Federal-Listed Species (FLS), St. Louis County is within the breeding range of the bald eagle (Haliaeetus leucocephalus – federal status, delisted Threatened), and the distributional ranges of the gray wolf (Canis lupus – federal status, Threatened) and the Canada lynx (Lynx canadensis – federal status, Threatened). The MDNR NHIS also shows FLS occurrences; however, review of the 2006 records shows no designated bald eagle nesting areas within a one-mile radius of the proposed HVTL route or substation/switching station sites.

112. There are numerous occurrences of the Canada lynx, including breeding records, throughout St. Louis County and northeastern Minnesota. The majority of these occurrences are in or around the SNF. The nearest cluster of records occurs northeast of Tower in Breitung Township, several miles from the proposed route. Occasional records are known and scattered in the vicinity of the project outside of the SNF. No breeding records, known breeding habitats or dens, or observations of lynx are known to be present within the proposed route or substation/switching station sites.

113. The gray wolf is widely distributed and common throughout the project area and northeastern Minnesota. The gray wolf is a candidate for proposed delisting due to the successful recovery of this animal in the time since it was listed under the federal Endangered Species Act in the mid 1970s. Because of the nature of the Tower Project, no impacts on the Canada lynx or the gray wolf are anticipated.

Application of Design Options to Maximize Energy Efficiencies, Mitigate Adverse Environmental Effects, and Accommodate Expansion of Transmission Capacity

114. The Applicants indicated that there are no plans to add additional transmission capacity along the proposed route. GRE does have plans to expand the Tower Substation by adding a 115/69 kV transformer and construct a 69 kV line exiting the substation to the northwest to fulfill an expected need for additional support in the west Vermilion Lake and Cook area. Lake Country Power Cooperative has experienced extensive growth in electrical demand in the area between the existing distribution substations at Cook and Vermilion. This continuing growth in electrical demand will require that a new 69 kV delivery point be located between these two substations. Eventually a new 69 kV line extending approximately 25 miles will be necessary between the Tower Substation and a new distribution substation near Frazer Bay on Lake Vermilion and then extending to the Ainsworth Board Plant near Cook, Minnesota.

115. The addition of a line running northwest from the Tower Substation will provide an additional 69 kV source into the load center of the system that currently serves the Lake Vermilion region. The Applicants note that such a project would fall under the threshold for obtaining either a Certificate of Need or a Route Permit from the Commission.

116. MP anticipates a need to upgrade the distribution system serving the town of Tower due to the age and condition of the existing system and expected load growth in the area. For this reason, the Applicants propose to design the Tower 115/46 kV Substation to accommodate the future addition of distribution transformers, feeder exits and associated equipment. The proposed design is appropriate to this project, maximizes energy efficiency, and accommodates future expansion. MP and GRE have undertaken to work with the affected landowners to use a design that mitigates the impact on the affected landowners and the right-of-way.

Using or Paralleling Existing Rights-of-Way and Other Boundaries

117. The southern segments of the Applicants' Proposed Route use or parallel existing rights-of-way and other boundaries where possible. The Iron Ore Trail Segment of the Proposed Route does not use existing rights-of-way and crosses a significant number of private parcels. The Alternative Citizens Routes both utilize public lands (much of these lands having been tax-forfeited) to a greater degree, thereby avoiding bisecting private holdings and resulting in less impact to private landowners.

118. One private landowner who is affected by Citizens Route West (Alternative C) is Reinhold Johnson. The Skoglund proposal (identified as the Reinhold Johnson Alternative) to route the HVTL around the Johnson property is an appropriate means of minimizing the impact of Alternative C on private landowners. The routing criteria for using existing rights of way and other boundaries favors the Citizens Route West (Alternative C) with the Reinhold Johnson Alternative as the more reasonable and prudent route for the proposed HVTL.

Electrical System Reliability

119. The purpose of the Embarrass Switching Station is to sectionalize the three terminal 115 kV Line #34 currently supplying the Babbitt 115/46 kV Substation into three independent lines (each protected by its own circuit breaker), and to connect the new 115 kV line from Tower into the region's 115 kV electric supply system (also protected by its own circuit breaker). This results in two independent 115 kV connections to the region's 115 kV transmission grid; one from Virginia and one from Laskin. The 115 kV transmission line to Babbitt and the new 115 kV line to Tower would be supplied with electric energy by these two independent 115 kV sources.

120. Without the Embarrass switching station, MP Line #34 could not be used as a source for the new 115 kV line to the Tower Substation, because an outage of Line #34 would result in loss of the 115 kV supply to both Babbitt and to Tower. With the switching station, a loss of the connection to Babbitt will not result in the outage of the

115 kV supply to Tower, and likewise loss of the line to Tower will not result in an outage of the 115 kV supply to Babbitt, because each line has its own circuit breaker and the switching station is supplied by two 115 kV connections to the region's transmission grid (one to the Virginia 115 kV Substation and one to the Laskin 115 kV Substation).

121. The Tower Project will improve the electrical system reliability for the transmission system.

Design and Route Dependent Costs

122. The Applicants estimated the cost of constructing, operating, and maintaining the facility along any of the citizens alternative routes is slightly higher than for the proposed route. For construction, the costs were estimated to be $4,650,000 for the Proposed Route, compared to $5,300,000 for Citizens Route West (Alternative C). (EA, Table 5-1.)

123. While the Applicants maintained that their proposed route relies on existing corridors to the extent technically and economically feasible, those corridors are not public right-of-way. Further, impairment of the significant recreational uses along the Iron Ore Trail Segment imposes costs not recognized in the overall expenditures for the Proposed Route.

124. The cost of constructing, operating, and maintaining the facility along the citizens alternative routes is slightly higher than for the proposed route. While Alternative C is somewhat longer, the use of public land results in lower right-of-way acquisition costs. (EA, Table 5-1.). The higher cost for constructing Alternative C is not unreasonable, particularly given the anticipated useful life of the project.

Unavoidable Adverse Human and Natural Environmental Effects

125. The Applicants indicated that the only identified environmental effects that cannot be avoided occur during the construction of the line and substation. Where any archeological sites are identified during placement of the poles along the proposed route or construction of the substation, the particular site will be avoided. Native vegetation will be maintained within the proposed route that is compatible with the operation and maintenance of the transmission line. Where necessary, native species will be planted or seeded in areas that are devoid of native species. Soils will be revegetated as soon as possible to minimize erosion or some other method will be used during construction to prevent soil erosion. During construction temporary guard or clearance poles are installed at crossings to provide adequate clearance over other utilities, roads, highways, or other obstructions after any necessary notifications are made or permit requirements met to mitigate any concerns with traffic flow or operations of other utilities.

Irreversible and Irretrievable Commitments of Resources

126. The proposed route and the alternatives do not require any irreversible or irretrievable commitment of resources. The Applicants noted that in the event the HVTL or the substation were to be removed at some time in the future, there is nothing related to their proposed placement that would prevent or require a different use of resources in the future.

127. The Applicants submitted a response to the public comment received regarding the Proposed Route and the several alternative routes, stating in pertinent part:

> As stated at the public hearing, this leaves two remaining options to address the Area 1 route and part of Area 2: the Proposed Route and the Alternative C – Citizens Public Land Route – West. While both options remain acceptable to the Applicants, based on the input of the affected landowners at the May 22, 2007, hearing and in subsequent written comments to the ALJ; the June 5, 2007, St. Louis County Board of Commissioners Resolution No. 327 supporting Alternative C; the June 6, 2007, suggestion by the St. Louis & Lake Counties Regional Railroad Authority; the general willingness of the St. Louis County land management office to work with the Applicants in developing the required right-of-way along this alternative route; and the effects on human settlement as a significant factor under Minn. Rules 4400.3150(A), therefore, the Applicants declare that the Alternative C – Citizens Public Land Route – West is an appropriate option. In addition, Alternative C is an acceptable, viable route option because it was noticed and considered as part of the Department's EA and fully vetted as part of the May 22, 2007 public hearing. The attached (N) St. Louis County, MN plat map (77.Kugler, T61N, R15W) depicts the Alternative C – Citizens Public Land Route – West. An alignment adjustment in Section 23 locates the 300' wide route to the east of the private parcel (Reinhold Johnson), placing the route and the intended right-of-way on State of Minnesota tax-forfeited property.[57]

128. The map attached to the Applicants' brief is included in this report as Appendix A.

Comparison of Proposed Routes

129. Through the course of the public participation in this proceeding, the routes seriously advanced for consideration were reduced to two; the Applicant's Proposed Route (including the Iron Ore Trail Segment), and Citizens Route West (Alternative C). The Alternative C route was proposed for further modification with the Reinhold Johnson Adjustment. While that adjustment will increase the length of the Alternative C route slightly, it will also have the potential to reduce the cost of easement acquisition. The discussion of Alternative C, below, includes the adjustment.[58]

---

[57] Applicants' Brief to the ALJ, at 2, June 11, 2007.
[58] See also Appendix A to this Report, showing Alternative C with the Reinhold Johnson Adjustment.

130. The Applicants sought existing man-made corridors between Tower and Embarrass and found two – Highway 135 and the former DM&IR railroad grade. The Applicants considered both of these two linear north-south corridors as having already sustained environmental impact of tree removal, culverting of trout streams, wetland filling and forest fragmentation.

131. The Highway 135 corridor would affect a large number of property owners and residences. That option was not seriously considered and the Applicants themselves suggest rejecting that option. There is also no indication that the Applicants considered the current conditions along the former DM&IR railroad grade. Since the use of that corridor as a recreational resource and a designated snowmobile trail has been going on for decades, the suitability of the corridor for routing a transmission line must be assessed against current conditions.

132. The Citizens Route West (Alternative C) is routed over public lands that have been obtained primarily through tax forfeiture. As described in the public hearing, these lands are not undisturbed forest or wetlands. These properties are second-growth forest, having been "logged out" in the past. The properties currently are subject to forestry management, including clear cutting. The EA found that routing a transmission line through such areas would have minimal impact. Overall, the environmental impact of Citizens Route West is less than that of a true "greenfields" route. Since the Iron Ore Trail Segment has been maintained for recreational uses only along the former track bed, the areas that would require clearing for the HVTL on the Applicants' Proposed Route will have a greater impact on the environment than that resulting from the clearing on Citizens Route West (Alternative C).

133. In addition to preserving the recreational uses of the Iron Ore Trail Segment, the Citizens Route West (Alternative C) affects fewer property owners and residences. Since the Iron Ore Trail does not follow property boundary lines, the impact of routing an HVTL along the Proposed Route is much more serious than Alternative C.

Based on the Findings of Fact, the Administrative Law Judge makes the following:

CONCLUSIONS

1. The Public Utilities Commission, the Department, and the Administrative Law Judge have jurisdiction to consider the application by MP and GRE for a Routing Permit.

2. The Public Utilities Commission determined that Application by MP and GRE for a Routing Permit was substantially complete and accepted the Application for a Routing Permit in January 17, 2007.

3. The Applicants have conducted an appropriate environmental assessment consistent with Minn. Rules 4415.0115 to 4415.0170 and met the requirements for alternative environmental review in Minn. Rule 4410.3600.

4. A public hearing was conducted in a community located along the proposed HVTL route. The Applicants gave proper notice of the public hearings, and the public was given the opportunity to appear at the hearings or to submit public comments. All procedural requirements for the Routing Permit were met.

5. The public participants to this proceeding have demonstrated by a preponderance of the evidence that Citizens Route West (Alternative C) is a more reasonable and prudent alternative to the Applicants' Proposed Route.

6. The record in this matter shows that Citizens Route West (Alternative C) including the Reinhold Johnson Adjustment is a more reasonable and prudent alternative route. The alternative route meets the statutory and rule criteria while imposing far fewer impacts on residents, recreational areas, and tourism. The alternative route imposes no greater impact on natural resources than the Applicant's Proposed Route along the Iron Ore Trail. The higher cost of construction along the alternative route is not excessive, and mitigated by the positive economic impact on the region obtained by avoiding the Iron Ore Trail.

7. It is appropriate to issue a Routing Permit authorizing construction of the proposed HVTL along Citizens Route West (Alternative C) including the Reinhold Johnson Adjustment. The approved route should follow the original proposed route, modified as shown in Appendix A.

8. The Routing Permit should require MP and GRE to comply with its proposed wetland impact avoidance measures during design and construction of the transmission line, including spacing and placing the power poles at variable distances to span and to avoid wetlands. Unavoidable wetland impacts as a result of the placement of poles will be limited to the immediate area around the poles. As much as possible of the construction in wetland areas will occur in the winter to minimize impacts. Where needed, MP and GRE will use wooden mats or the Dura-Base Composite Mat System to protect wetland vegetation. MP and GRE will meet all requirements of the USACE, MDNR (Public Waters/Wetlands), and St. Louis County (for wetlands under the jurisdiction of the Minnesota Wetland Conservation Act).

9. The Routing Permit should require MP and GRE to minimize impacts to floodplains by placing the power poles above the floodplain contours outside of the designated floodplain, and by spanning the floodplain with the transmission line.

10. The Routing Permit should require MP and GRE to obtain a National Pollutant Discharge Elimination System (NPDES) stormwater permit, prepare a Stormwater Pollution Prevention Plan (SWPPP), and follow project construction specifications for site sediment control.

11. The Routing Permit should require MP and GRE to comply with those practices set forth in its Route Permit Application and the Environmental Assessment for right-of-way preparation, construction, cleanup, restoration and maintenance.

12. The Routing Permit should require MP and GRE to obtain all required local, state and federal permits and licenses, to comply with the terms of those permits or license, and to comply with all applicable rules and regulations.

13. The Routing Permit should require MP and GRE to obtain all necessary permits authorizing access to public rights-of-way and should obtain approval of landowners for access to private property.

14. The Routing Permit should require that MP and GRE contact landowners prior to entering the property or conducting maintenance along the route and avoid maintenance practices, particularly the use of fertilizer or pesticides, inconsistent with the landowner's or tenant's use of the land.

15. The Routing Permit should require MP and GRE to work with landowners to locate the HVTL on their property to minimize the loss of agricultural land, forest, and wetlands, with due regard for proximity to homes and water supplies, following property lines and minimizing diagonal crossings, even if the deviations will increase the cost of the HVTL, so long as the landowner's requested relocation does not adversely affect environmentally sensitive areas.

16. The Routing Permit should require MP and GRE to work with landowners, the DNR, and local wildlife management programs to restore and maintain the right-of-way to provide useful and functional habitat for plants, nesting birds, small animals and migrating animals and to minimize habitat fragmentation in a manner consistent with inspection and safe maintenance of the right-of-way.

17. The Routing Permit should require MP and GRE to negotiate agreements with landowners that will minimize the impact on future development of the property, and to assume any additional costs of development that may be the result of installing roads, driveways and utilities that must cross the right-of-way.

18. The Routing Permit should require MP and GRE to cooperate with all entities that have existing easements or infrastructure within the route to ensure minimal disturbance to existing or planned developments.

19. The Routing Permit should require MP and GRE to make every effort to avoid impacts to identified archaeological and historic resources when installing the HVTL on the approved route. In the event that an impact would occur, the Applicants will consult with SHPO and invited consulting parties (particularly the Bois Forte and other state and federal permitting or land management agencies). Where feasible, avoidance of the resource should be required. Where not feasible, mitigation for project-related impacts on NRHP-eligible archaeological and historic resources must include an effort to minimize project impacts on the resource.

20. The Routing Permit should require MP and GRE to establish complaint handling procedures and to notify the PUC of those procedures within thirty days from the issuance of the Routing Permit. MP and GRE should notify the Commission of any complaints that are not resolved within 30 days of the complaint.

21. Any Finding of Fact that constitutes a Conclusion is adopted as a Conclusion.

Based on the Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

IT IS RECOMMENDED that the Department recommend to the Commission that:

Subject to the conditions set forth in the Conclusions, the Application of MP and GRE for an HVTL Route Permit for the Tower 115 kV Transmission Project, following Alternative C (the Citizen's West Route) including the Reinhold Johnson Adjustment, and other conditions, should be GRANTED.

Dated this _27th_ day of June, 2007.

/s/ Richard C. Luis
RICHARD C. LUIS
Administrative Law Judge

Reported: Braden, Undeland - Kate Undeland, RPR
Transcript Prepared (One Volume)

NOTICE

This project qualifies for alternative review by the Minnesota Public Utilities Commission. The PUC was not required to hold a contested case hearing on this project pursuant to chapter 14, and it did not do so. Under PUC rules, the PUC has the option to conduct a public hearing itself or to request that an Administrative Law Judge conduct the hearing and compile a record for the PUC to consider in making its final decision. The Department of Commerce has the option to request that the Administrative Law Judge prepare a report and recommendation, which it did in this case. This report contains a summary of the evidence in the record and a recommendation based on that record. It is not a final decision. Persons wishing to file comments concerning this report with the Department of Commerce should contact Bill Storm, Minnesota Department of Commerce, 85 Seventh Place East, Suite 500, St. Paul, MN 55101-2198, for information about the procedures to be followed. Further notice is hereby given that the Department of Commerce may, at its own discretion, accept or reject the Administrative Law Judge's recommendation.

©2002 cloud cartographics, inc. st. cloud, mn 56301

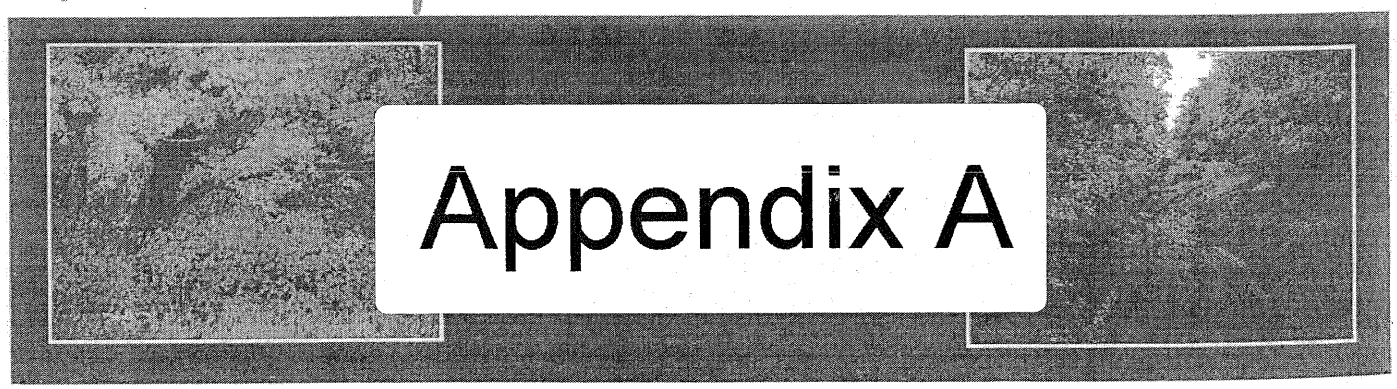
See Page 94

See Page 83

See Page 85

See Page 73

See Page 74



Appendix A